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AN ASSESSMENT ON COMMUNITY-TARGETED HIV INTERVENTION EFFORTS IN TYPICAL COMMUNITY SETTINGS IN EKPOMA, EDO STATE, NIGERIA.

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ABSTRACT

This study assessed community targeted intervention efforts (CTIEs) to combat HIV infection in Ekpoma, Edo State, Nigeria. The stratified random sampling technique was adopted. Research questions highlighted concerns about awareness, policy designs/implementations, and stakeholder's commitment/sincerity, among other factors influencing the progress or otherwise, in the fight against HIV infection in Ekpoma. Hypothetical postulations considered the possible negative (H_o) or positive (H_1) relationship between the ages, education, gender and level of engagements of the respondents with the appraised CTIEs. Data were collected from five settings – *Academic, Christian, farming, Market and Muslim* communities, using a well-structured and self-administered questionnaire. Two hundred residents [40 per community (20 males and 20 females) respectively], were recruited; though only 197 completed the questionnaires. The results revealed high level of awareness on HIV, dissatisfaction with intervention efforts, systemic corruption and a positive correlation of age, gender, marital status, and respondent's level of engagement, with the appraised CTIEs, but not with education. While also advocating for community driven HIV preventive strategies as an effective alternative, it is safe to conclude that there exist various community based platforms in typical Nigerian settings that can serve as anchors for CTIEs on one hand, and as feed-back 'buttons' on the other.

Key words: Community, Ekpoma, HIV prevention, Interventions

INTRODUCTION

Historically, the world has witnessed several disease outbreaks and pandemics (Rubin, 2011; WHO, 2018), most of which, at the onset, challenged the know-how of medical professionals and scientists, towards galvanizing efforts to discern and develop curative drugs and vaccines, including preventive strategies, that could curb the recurrence of such disease episodes. In other words, some of the diseases, at the onset, overwhelmed the existing body of knowledge (Barry, 2017; Yeager, 2018), prompting the declaration of a state of research and innovative emergency in order to determine the aetiology and the associated epidemiological factors particularly vector biology, characteristics, mode of transmission, incubation period, fatality rate, incidence/prevalent rates, clinical management and preventive strategies (Trouiller *et al*., 2002; European Union, 2014; Sykes and Reismann, 2015; Mackenzie, 2016).

In most cases, the local populations are worst-hit by the disease episodes, which oftentimes, are compounded by several factors especially poverty and hunger, since some of the known disease vectors like rats and bats, serve as food for such poverty stricken populations. Other factors of concern included the lack of basic amenities, illiteracy, poor hygiene, leadership crisis, conflicts and extreme religious practices. In fact, certain religious misconceptions and connotations, as well as neo-colonial claims and allegations, and the obvious insanity in biological weapon development among developed countries and/or by terrorists, surely aggravate the myriad of challenges confronting governments and non-governmental organizations in efforts to combat disease outbreaks in populations.

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Specifically, the containment of disease outbreaks in some typical African settings is often hampered by:

1. Superstitious cultural and religious beliefs that such disease outbreaks are punitive indicators that the gods of the land are angry over purported sins and abominations committed by individuals or families; hence the call for sacrifices to appease the gods and stop the disease from spreading despite obvious scientific clarifications (Baden and Moss, 2014)
2. The unfounded insinuations/allegations that new disease outbreaks are the handiwork of scientists or medical professionals in developed countries due to their quest to maintain imperialistic-type dominance, as against obvious biological realities (Lockhart, 2014); or as observed in Liberia, 'a government's scam' to attract foreign aids (Javing, 2014).
3. The hasty assumption/misconception that disease outbreaks are always accidental or willful laboratory creations by unknown individuals or entities; possibly for weapon arsenal supremacy, commercial/financial benefits, or for terroristic gains, as against standard determinants and investigative/ confirmatory procedures (Dembek *et al*., 2007; Shooter *et al*.,1980).
4. The glaring tendency in disease threatened populations to engage in fatal preventive measures, like the fatal assumption that excessive exposure to salt can prevent Ebola virus infection despite the obvious fatal consequences (Bali *et al*., 2016); and
5. The bonding with cultural and religious practices that facilitate rapid transmission of diseases (Augusto *et al*., 2015) and the silence, secrecy and inaction by infected individuals or affected families due to fear of community stigmatization (Famoroti *et al.*, 2013).

In this study however, attention is drawn to concerns about the strategies adopted by relevant government and non-governmental agencies towards the prevention and control of the transmission of Human Immunodeficiency Virus (HIV) among populations in Nigeria. According to a report by UNAIDS (2019), Nigeria in 2016, had 220000 (150000 - 310000) new HIV infections and 160 000 (110000 - 230000) AIDS-related deaths. There were 3200 000 (2300000 - 4300000) people living with HIV in 2016, among whom 30% (19% - 42%) were accessing antiretroviral therapy. Among pregnant women living with HIV, 32% (22% - 44%) were accessing treatment or prophylaxis to prevent transmission of HIV to their children. In addition, UNAIDS (2019) stated that an estimated 37000 (22000 - 56000) children were newly infected with HIV due to mother-to-child transmission, while about 24% (18% - 32%) of the people living with HIV had suppressed viral loads.

Of interest also, is the emphasis on the need to address Nigeria's HIV burden through a viable, effective and sustainable national response mechanism to prevent new infections and ensure the health and well-being of those already infected or affected by HIV. This of course, is in tandem with the provisions of the National HIV/AIDS Strategic Framework designed to serve as the crucial platform for uniting stakeholders towards achieving the national HIV control goals, and as tools for mobilizing the required resources to that end (NACA, 2017).

Although, some schools of thought believe that issues on HIV infection have been over-emphasized, one cannot but agree that the threat it poses, remains a potent concern. The current emphasis now, is on how to develop needed strategies to sustain the gains achieved in the fight against HIV/AIDS; especially the idea of shifting from individual targeted campaigns to community targeted efforts. In fact, the assertion by Oleribe *et al*. (2018) that there is absence of a truly community-based HIV prevalence for Nigeria, justifies the need for a population based intervention. Moreover, the proven sense of solidarity among community members and the potential force of peer interaction within communities remain powerful tools that can enhance information gathering and sharing, as well as peer-monitoring, peer-motivation, peer-conviction, peer-support, peer-reprimand, and peer-repudiation of unfounded HIV claims and rumors.

Similarly, the importance of community input in the development, planning, implementation and evaluation of workable intervention strategies have been highlighted by the Amsterdam Health and Technology

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Institute (2018) and the Litchfield Council (2018). Even Dowsett (2001) had acknowledged the fact that 'communities' are not simply aggregations, nor are they mere collectivities, tribes, groups, regions or area, or 'everything outside of government', but 'sophisticated, cultural processes of active and collective human endeavor in distinct and changing circumstances', that must be properly situated in policy formulation and implementations, in order to effectively achieve population targeted interventions. Hence, the utmost need to determine the extent to which community driven campaigns, beyond individual targeted campaigns, have been adopted for HIV prevention within sampled populations in Nigeria.

Some pertinent questions raising concerns about HIV-intervention strategies in Nigerian communities include:

1. What is the awareness dynamics on HIV infection in typical rural Nigerian communities?
2. Can the level of awareness sustain budding community based intervention strategies being proposed to combat the epidemic, while also facilitating the sustenance of the gains achieved?
3. Has there been a paradigm shift in policy formulation and implementation by governmental and concerned non-governmental organizations to suitably accommodate community based intervention strategies in typical Nigerian community settings?
4. What are the perception dynamics of the communities regarding stakeholder's commitment and sincerity of purpose?
5. What other factors may be influencing the progress or otherwise, in the fight against HIV infection in typical Nigerian communities?

In line with the foregoing therefore, we set out to assess the community targeted intervention efforts of government and non-governmental organizations in the prevention and control of HIV infection among populations within typical community settings in Ekpoma, Edo State, Nigeria; with null (H_0) and alternate (H_1) hypothetical postulations on the relationship between the ages, education, gender and level of engagements of the respondents, and the assessment outcome on CTIEs in the communities in focus.

MATERIALS AND METHOD

Study Area: This study was carried out in Ekpoma, the administrative headquarters of Esan West Local Government area of Edo State. It lies between latitude 60 40^{o}N 60 45^{o}N and longitude 60 05^{o}E 60 10^{o}E (Obabori *et al.*, 2006). The indigenous inhabitants speak 'Esan' and are predominantly farmers whose main produce are rice and cassava. Before 1976, Ekpoma was characteristically a rural area with isolated settlements, few houses health, educational, commercial and transportation facilities (Olomo, 1991). However, since her designation as a local government headquarters and as host of the State owned Ambrose Alli University, the town has grown into an urban centre with significant growth in population and good road network credited to late Professor Ambrose Alli, the former governor of Old Bendel State (Aziegbe, 2006). While the population was 13,036 by 1975, it rose to 45,489 in 1991 (NPC, 1992) and approximately 125,842 (63785 males and 62,057 females) in 2006 (NPC 2006). With only 8.62Km^2 of the total 62Km^2 of land used in 1979 (Ufuah, 1993), physical growth and expansion have increased to 29.28 Km^2 by 2003 (Aziegbe, 2006).

Sampling method/ study population: The stratified simple random technique was adopted for this study to capture data from individuals residing within Ekpoma, and belonging to a given community settings (*Academic*, *Christian*, *Farmers*, *Market* and *Muslim* communities). With the sampling method adopted, a total of 200 residents were recruited for the study [40 residents each (20 males and 20 females) respectively].

Inclusion and Exclusion criteria: Only individuals that have resided within the designated study area (Ekpoma) for five uninterrupted years and belonging to at least a community setting (*Academic*, *Christian*, *Farmers*, *Market and Muslim*) were recruited. Those that did not fulfill these requirements were excluded.

Ethical consideration: Informed consent was sort from the leadership of the targeted community settings and

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from each of the recruited participants, after intimating them about the study focus and its expected benefits.

Data collection: A well-structured, pre-tested and self-administered questionnaire was used for data collection. The questionnaire was divided into five sections (A – E). Section A sort information on Bio-data (age, gender, marital status, level of education, religion and occupation). Section B sort evidence on community affiliations -be it religious, business, academic, social or cooperatives. Section C, sort information on the level of awareness about HIV/AIDS, the sources of information on HIV/AIDS, the consequences of HIV/AIDS, and the respondents' HIV status. Section D dealt with information about community targeted HIV/AIDS campaign efforts by relevant agencies of government or their affiliates; including their perception on such efforts within their community settings. The final section, E, sort information on level of community interactions on HIV/AIDs pandemic including their overall assessment on the sincerity of purpose by governmental and non-governmental organizations claiming action against the spread of HIV virus.

Data analysis: Using the Statistical Package of Social Sciences (SPSS; version 20), statistical analysis was performed. The Pearson's correlation statistics was conducted to establish the correlation of age, gender, marital status, level of education, and level of engagement of the respondents -as regards the subject on focus, with the CTIEs of government and non-governmental agencies towards the fight against HIV prevention. *P*-values less than 0.01 were considered as significant.

RESULTS

Bio-data of respondents

A total of 200 questionnaires were distributed to the various sampled communities [40 questionnaires per community (20 for males and 20 for females)]. However, only 197 questionnaires were retrieved and analyzed. Out of 197 respondents, 100 of them were males, while 97 of them were females as shown in Figure 1.

Table 1 below, presents the distribution of the studied population based on age, gender and community settings. It shows that 12.18% of the respondents (n=24) were within the age range of 16-20 years, while 29.44% (n=58), 15.74% (n=31), 16.24% (n=32), 9.64% (n-19) and 16.75% (n=33), were within the age range of 21-25, 26-30, 31–35, 36-40 and 41 and above respectively. Incidentally, majority of the respondents were within the age range of 21–25 (29.44%; n =58), while the least were those within the age range of 36–40 years (9.64%; n=19).

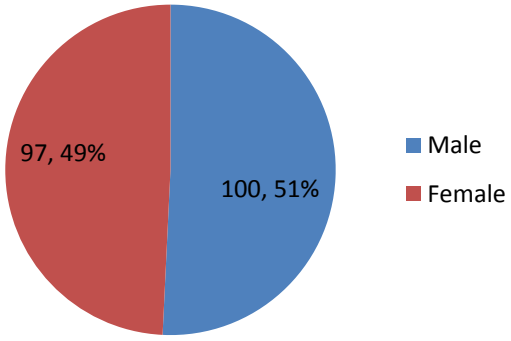

Figure 1: Gender distribution of the respondents

Tables 2A and 2B below, shows the categorization of the study population based on age, specific community setting, gender and marital status. Majority of the single males were encountered in the academic community (n=18; 9.1%), while a minority of the single males (n=6; 3%) were encountered in the farmers community. On the contrary, a majority of the married males were encountered in the farmers community (n=12; 6.1%), while a minority of the married males (n=2; 1%) were encountered amongst the respondents in the academic community.

For the females, majority of the single females were encountered in the academic community (n=14; 7.1%), while a minority of the single females (n=6; 3%) were encountered in the Muslim community. Incidentally, a majority of the married females were encountered in the Farmers and Market communities (n=18; 9.1% each),

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while a minority of the married females (n=3; 1.5%) were encountered amongst the respondents in the Academic community. Interestingly, none of the females in the Farmers' community was single.

Similarly, none of the males in the Christian, Muslim and Academic communities were divorced except for the Market and Farmers communities with one (0.5%) and two (1%) divorced males respectively. Comparatively however, more of the females recorded being divorced than their male counterparts; with majority of them in the Christian and Farmers communities (n=2 each; 1.0%), as compared to those in the Market communities (n=1 each; 0.5%). None of the females in the Academic and Muslim communities reported being divorced.

Table 3 below shows the level of education among the respondents in the Christian and Muslim communities in relation to their age and gender. Out of the 20 Christian male and female respondents respectively, majority were educated up to the tertiary level (n=12; 30%), while a minority of the males (n=2; 5%) and females (n=1; 2.5%) had no formal education. Amongst the Muslim community however, majority of the males had no formal education (n=8; 20%), while majority of the females had the lowest level of formal education (n=8; 20%). Only a minority of the females had no formal education (n=3; 7.5%). Interestingly, a comparatively higher number of the females had tertiary education (n=4; 10.0%) as compared to the males (n=1; 2.5%).

Table 4 below shows the level of education among the respondents in the Farmers, Market and Academic communities in relation to their age and gender. A majority of the males and females in the Farmers community had no formal education (n=7 each; 17.5%), while 4 of the males (10%) and one of the females (2.5%) had tertiary education. Interestingly, 10 (25%) and 19 (51.4%) of the males in the Market and Academic communities respectively, as well as 12 (30%) and 16 (43.2%) of the females in Market and Academic Communities respectively, had tertiary education. Unlike the famers community, none of the respondents in the Market and Academic communities registered 'no formal education' status (n=0; 0%). Incidentally, a majority of those with tertiary education were within the age bracket of 21 – 25 for both the males and females respectively (n=13 each).

Overall perceptions and level of awareness:

Table 5 above shows the responses by the respondents on their perceptions about HIV/AIDS and concerns bordering on community engagements and their roles in the fight against the pandemic, while also x-raying the potentials of being members of several organizations/associations/unions as a veritable platform for disseminating information on HIV/AIDs; in terms of transmission, consequences, clinical management and prevention. The findings showed that a majority of the males and females confirmed that they meet regularly in their organizations/associations/unions [Males =63; Females =54]. This is an indication that the organized groups can serve as a platform for information dissemination, while also serving as a support base for community members, the government and aid organizations, as well as a peer review platform for efforts being made in this regard.

Interestingly, the level of awareness on HIV/AIDS is high, but unfortunately, a significant number of the respondents [Males =60; Females =61) are convinced that one of the draw backs in the fight against HIV/AIDs remains the corruption in the system, which to them, gives some stakeholders the opportunity to enrich themselves from funds made available to check the spread of the infection. Similarly, they berated the efforts of government and her agencies, as majority of the respondents were not satisfied by their performance on issues of HIV/AIDs and as such, rated their efforts low and insincere.

On the other hand, the respondents strongly advocated for community driven HIV preventive strategies, as majority of them [Males =93; Females =88] opined that community targeted campaigns by relevant agencies would be more fruitful in tackling HIV infections in their communities.

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Table 1: Distribution of respondents based on age, community setting and gender

	Christian		Muslim		Academic		Farmer		Market		
Age Range	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	**Total (%)**
16-20	3	5	2	4	0	0	2	0	2	6	24 (12.18)
21-25	5	4	5	4	14	14	5	1	4	2	58 (29.44)
26-30	5	1	2	3	5	3	1	3	2	6	31(15.74)
31-35	1	4	8	4	1	0	3	2	5	4	32 (16.24)
36-40	2	1	1	1	0	0	4	4	4	2	19 (9.64)
41 and above	4	5	2	4	0	0	5	10	3	0	33 (16.75)
Total	20	20	20	20	20	17	20	20	20	20	197(100.00)

Key: % = Percentage

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Table 2A: Distribution of the respondents based on age, community setting, gender and marital status (1)

Age Range	Christian (n=40)						Muslim (n=40)					
	MALE			FEMALE			MALE			FEMALE		
	S	M	D	S	M	D	S	M	D	S	M	D
16-20	3	0	0	5	0	0	2	0	0	2	2	0
21-25	5	0	0	3	1	0	5	0	0	3	1	0
26-30	4	1	0	0	1	0	2	0	0	1	2	0
31-35	0	1	0	1	3	0	3	5	0	0	4	0
36-40	0	2	0	0	1	0	0	1	0	0	1	0
41 and above	0	4	0	0	3	2	2	0	0	0	4	0
Total	12	8	0	9	9	2	14	6	0	6	14	0
%	6.1	4.1	0.0	4.6	4.6	1.0	7.1	3.0	0.0	3.0	7.1	0.0

Keys: % = Percentage; n = number; S =Single; M = Married; D = Divorced

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Table 2B: distribution of the respondents based on age, community setting, gender and marital status (2)

Age Range	Academic (n=37)						Farmer (n=40)						Market (n=40)					
	FFMALE			MALE			FEMALE			MALE			FEMALE			MALE		
	S	**M**	**D**	**S**	**M**	**D**	**S**	**M**	**D**	**S**	**M**	**D**	**S**	**M**	**D**	**S**	**M**	**D**
16-20	0	0	0	0	0	0	0	0	0	2	0	0	5	1	0	2	0	0
21-25	14	0	0	14	0	0	0	1	0	4	1	0	1	1	0	4	0	0
26-30	0	3	0	3	2	0	0	3	0	0	1	0	4	1	1	1	1	0
31-35	0	0	0	1	0	0	0	2	0	0	2	1	1	3	0	1	4	0
36-40	0	0	0	0	0	0	0	4	0	1	3	0	0	2	0	0	4	0
41 and above	0	0	0	0	0	0	0	8	2	0	4	1	0	0	0	0	3	1
Total	14	3	0	18	2	0	0	18	2	6	12	2	11	8	1	8	11	1
%	7.1	1.5	0.0	9.1	1.0	0.0	0.0	9.1	1.0	3.0	6.1	1.0	5.6	4.1	0.5	4.1	5.6	0.5

Keys: % = Percentage; n = number; S =Single; M = Married; D = Divorce

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Table 3: Distribution of the respondents in the Christian and Muslim community settings based on age, gender and level of education

Age Range	Christian (n=40)								Muslim (n=40)							
	Male				Female				Male				Female			
	Pr	**S**	**TT**	**Nn**	**Pr**	**S**	**TT**	**Nn**	**Pr**	**S**	**TT**	**Nn**	**Pr**	**S**	**TT**	**Nn**
16-20	0	3	0	0	0	1	4	0	0	0	1	1	1	3	0	0
21-25	0	2	3	0	0	1	3	0	1	2	0	2	2	0	2	0
26-30	0	0	4	1	0	0	1	0	1	0	0	1	1	1	1	0
31-35	0	0	1	0	0	1	2	1	4	0	0	4	3	1	0	0
36-40	0	1	1	0	0	1	0	0	1	0	0	0	0	0	0	1
41 & above	0	0	3	1	1	2	2	0	0	2	0	0	1	0	1	2
Total	0	6	12	2	1	6	12	1	7	4	1	8	8	5	4	3
%	0.0	15.0	30.0	5.0	2.5	15.0	30.0	2.5	17.5	10.0	2.5	20.0	20.0	12.5	10.0	7.5

Keys: Pr=Primary; S = Secondary; TT=Tertiary; Nn = none; n = number

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Table 4: Distribution of the respondents in the farmers, market and academic community settings based on age, gender and level of education

Age	Farmer (n=40)								Market (n=40)								Academic (n=37)							
	Male				Female				Male				Female				Male				Female			
	Pr	**SS**	**TT**	**Nn**	**Pr**	**SS**	**TT**	**Nn**	**Pr**	**SS**	**TT**	**Nn**	**Pr**	**SS**	**TT**	**Nn**	**Pr**	**S**	**TT**	**Nn**	**Pr**	**S**	**TT**	**Nn**
16-20	0	2	0	0	0	0	0	0	0	0	2	0	0	5	1	0	0	0	0	0	0	0	0	0
21-25	1	0	3	1	0	0	0	1	0	1	3	0	0	0	2	0	0	0	13	0	0	0	13	0
26-30	0	0	0	1	1	2	0	0	0	0	2	0	0	1	5	0	0	0	5	0	0	0	3	0
31-35	1	0	1	1	0	2	0	0	0	3	2	0	0	1	3	0	0	0	1	0	0	0	0	0
36-40	1	2	0	1	1	1	0	2	3	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0
41 & above	0	2	0	3	4	1	1	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	6	4	7	6	6	1	7	5	5	10	0	1	7	12	0	0	1	19	0	0	1	16	0
%	7.5	15.0	10.0	17.5	15.0	15.0	2.5	17.5	12.5	12.5	25.0	0.0	2.5	17.5	30.0	0.0	0.0	2.7	51.4	0.0	0.0	2.7	43.2	0.0

Keys: Pr=Primary; S = Secondary; TT=Tertiary; Nn = none; n = number

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Table 5: Responses of the respondents on perception about HIV/AIDS and concerns about community engagement

	Response (Male)			Response (Female)		
	Yes	**NO**	**No Resp.**	**Yes**	**No**	**No Resp.**
ITEM QUESTIONS	**No (%)**	**No (%)**	**No (%)**	**No (%)**	**No (%)**	**No (%)**
1. Do your organization/society, etc, meet regularly?	63 (31.97)	12 (6.09%)	25(12.69)	54(27.41)	25(12.69)	18 (9.14)
2. Are you aware of the problems of HIV/AIDS?	97(49.28)	3(1.52)	0(0.00)	90(45.72)	1(0.51)	6(3.05)
3. Do you think the problems of HIV/AIDs are over?	1(0.51)	96(48.77)	3(1.52)	3(1.52)	17(8.64)	77(39.12)
4. Do you Know the modes of transmission?	96(48.77)	4(2.03)	0(0.00)	95(48.26)	2(1.02)	0(0.00)
5. Do you know the negative consequences of the disease?	86 (43.65)	4(2.03)	10 (5.08)	94 (47.72)	2(1.02)	1(0.51)
6. Have you checked your HIV status?	55 (27.92)	43 (21.83)	2(1.02)	66 (30.50)	31 (15.74)	0(0.00)
7. Have you seen any one with HIV/AIDS?	53 (26.90)	46 (23.35)	1(0.51)	49 (24.87)	41 (20.81)	7(3.56)
8. Has your group/association/club/society/organization been spoken to about HIV/AIDS by any organization?	64(32.51)	29(14.73)	7(3.56)	45(22.86)	46(23.37)	6(3.05)
9. Are you satisfied with government-community engagement on HIV/AIDs?	28(14.22)	70(35.56)	2(1.02)	41(20.83)	52(26.42)	4(2.03)
10. Do you think community targeted campaigns by relevant agencies would be more fruitful in tackling HIV infections in communities?	93(47.24)	3(1.52)	4(2.03)	88(44.70)	4(2.03)	5(2.54)
11. Do you think government and non-governmental organizations involved in tackling HIV/AIDs are not honest enough in the fight against HIV/AIDS?	81(41.15)	16(1.13)	0(0.00)	62(31.50)	34(17.27)	1(0.51)
12. Do you think some are using the problem of HIV/AIDs to enrich themselves corruptly?	60(30.48)	36(18.29)	4(2.03)	61(30.99)	36(18.29)	0(0.00)

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Community Engagements

As regards the religious affiliations of the respondents, it was observed that majority of the respondents were affiliated to one religion or the other. These included Christianity [65 Males (32.994%) and 71 Females (36.040%)]; Islam [30 Males (15.228%) and 22 Females (11.167%)]; and Traditional religion [2 Males (1.015% and no Female (0.000%)] (*See* Table 6). The category of those with no religious disclosure, as classified as "Others", recorded no Male (0.000%) but 2 Females (1.015%)], while the category of the respondents that claimed not to have any religious affiliation ("No religion at all"), recorded 3 Males (1.522%) and 2 Females (1.015%) (*See* Table 6). It was indeed obvious, that majority of the respondents were Christians, while a minority, among the females, were affiliated to undisclosed religion [n=2 (1.015%) (*See* Table 6).

Tables 7, 8 and 9 below, show the age and gender based responses on initiation of enlightenment programs on HIV/AIDS by the leaders of respondent's organizations/unions/associations in conjunction with relevant agencies; the distribution of respondents based on participation in organizations/association, unions; and the participation pattern of the respondents in HIV enlightenment programs respectively.

Table 6: Distribution of the respondents based on gender and religious affiliations (n =197)

	GENDER	
Religion	**Number of Males (%)**	**Number of Females (%)**
Christianity	65(32.994)	71(36.040)
Islam	30(15.228)	22(11.167)
Traditional. Religion	2(1.015)	0(0.000)
Others	0(0.000)	2(1.015)
Not at all	3(1.522)	2(1.015)
Total (approx. %)	100(50.759)	97(49.237)

% = Percentage

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Table 7: Age and gender based responses on initiation of enlightenment programs on HIV/AIDS by the leaders of respondent's organizations/unions/associations in conjunction with relevant agencies

	16-20		21-25		26-30		31-35		36-40		41 and above	
Item	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
Always	4	-	2	2	2	-	1	2	2	1	3	2
Sometimes	3	10	6	14	6	11	8	4	6	5	6	8
Not at all	-	1	3	5	3	2	4	5	2	-	4	6
Nil	12	-	11	5	4	3	8	2	4	2	-	2
Total	19	11	23	26	15	16	21	13	14	8	13	18

Table 8: Distribution of respondents based on participation in organizations/association, unions

	GENDER	
Number of Organizations/ Unions/Associations joined	**Number of Males (%)**	**Number of Females (%)**
One only	70 (35.53)	80 (40.61)
Two	8 (4.06)	16 (8.12)
Three	4 (2.03)	0 (0)
Four	0 (0)	0 (0)
Five	0 (0)	0 (0)
Six	0 (0)	0 (0)
Seven	0 (0)	0 (0)
None/nil	18 (9.14)	1 (0.51)
Total	100 (50.76)	97 (49.24)

Table 9: Participation in HIV enlightenment programs.

	RESPONSE			
Gender	**Yes (%)**	**No (%)**	**No Response (%)**	**Total**
Males	41	32	27	100
Females	35	29	33	97

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Source of information:

Multiple sources of information were registered by majority of the respondents (n=100; 51%), but some of them stated that television (n=46; 23%), radio (n=33; 17%) and outdoor bill boards (n=18; 9%) were there only source of information on issues concerning HIV/AIDS respectively (*See* Figure 2 below).

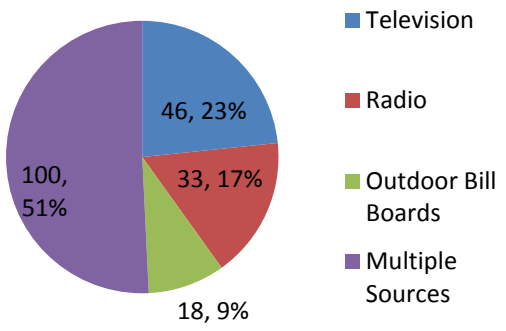

Figure 2: Pie chart showing respondents sources of information

On the Pearson's correlation statistics conducted to establish the correlation of age, gender, marital status, level of engagement of the respondents (as regards the subject on focus) and their level of education, with the CTIEs, it was observed that there was a significant positive correlation between age (r = .997, p <0.01), gender (r = 1.000, p <0.01), marital status indifferent (r = 0.975, P<0.01) and respondent's level of engagement (r = 1.000, p <0.01) with the appraised CTEs, but not with their level of education (r = .950, p >0.01); suggesting a predominantly strong linear relationship between CTEs and community's bio-indicators.

DISCUSSION

The observations that a majority of the respondents were within the age range of 21–25(29.44%; n =58) (Fig. 2) was interesting, as it is indicative of the youthful status of the population under study, and a suitable numerical insight on the student-dominated population status of Ekpoma and its near-by town – *Irrua*; being the hosts of two tertiary institutions – the state owned Ambrose Alli University, Ekpoma, Edo State, and the Federal Government owned Irrua Specialist Teaching Hospital, Irrua, Edo State, respectively.

Another pointer to the dominant age range of this study population is the verifiable correlation of age with the prevalence of HIV infection in populations, as highlighted by United Nations International Children's Emergency Fund (UNICEF, 2017). According to UNICEF, adolescents and young people between the ages of 10 - 24, are characterized by rapid physical growth and development, as well as sexual maturation. It is a period that can be marked by the need to try out new things such as sex, experiment with injectable drugs as well as other drug types. As a result of engaging in these high risk behaviours, there has been an upsurge in the prevalence of HIV/AIDS and other sexually transmitted diseases in adolescents. Taking into consideration that most adolescent become sexually adventurous at this age and the attendant health risk, it is therefore paramount to provide sexual and reproductive health information and services to them. However, many adolescents and young persons are limited by their social and economic status therefore access to these information and services is constrained. To compound this, estimates from WHO show that majority of adolescents who are engaging in risky sexual behaviours live in sub-Saharan Africa, a region with high burden of HIV (UNICEF, 2017).

Indeed, HIV/AIDS has remained a growing public health concern worldwide and over the past three decades, it has established itself in every age group. The increasing concern however, is the fact that about 1.8 billion adolescents and young people, which is a quarter of the world's population, are affected by HIV/AIDs (United Nations, 2017). Estimates from the United Nations Children's Fund show that about 2.1 million adolescents between the ages of 10 and 19 are living with HIV worldwide (UNICEF, 2017). In 2015 alone, of the 2.1 million persons that were newly infected with HIV, 670,000 were young people between the ages 15 to 24, and 37% of these were adolescents between the ages 15

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to 19 (UNICEF, 2017). It has also been shown that 40 percent of all reported new cases of HIV occur in young persons aged 15 to 24 which is the highest when compared to other age groups (Idele *et al*., 2014).

Thus, the observation that most of the single males and females were encountered in the academic community, unlike in the other settings, depict simply, the vulnerability status of Ekpoma residents; particularly being a University town with lots of teen and young adult residents, and their potential extreme tendencies and life style.

While acknowledging the high prevalence of HIV infection among Maritime Workers in a Nigerian Seaport, Ogboghodo *et al*. (2014) stated that the determinants of HIV infection included marital status, educational status, multiple sexual partners and lack of condom use. They recommended that special 'behavioural change' programmes needs to be put in place to curb the risk factors for HIV, thereby reducing the high prevalence of the disease among special groups. These assertions by Ogboghodo *et al*. (2014) are indicative of the significance of the findings of this study on marital status and level of education of the study population and the subject matter in focus.

Some associated factors highlighted by Awofala and Ogundele (2016), included religion, socioeconomic status and cultural diversity, as clearly represented by the choice of community settings in this study. They also acknowledged the influence of gender, as young women are more infected with HIV than their male counterparts. This is especially true in the South-South region of Nigeria, where young females aged between 20-24 years have prevalence as high as 7.5% compared to their male counterpart with a prevalence of 3.5% (Health-think Analytics, 2016).

Interestingly, none of the males in the Christian, Muslim and Academic communities were divorced except for the Market and Farmers communities with one (0.5%) and two (1%) divorced males respectively. Only a few of the females were divorced in the Muslim and Farmers communities (n=3 each; 1.5%), as compared to those in the Christian and Market communities (n=2 each; 1%), but none in the academic community. The import of this is the fact that a likely marriage-free minority of the population can likely engage in sex with multiple partners considering their sexual experiences, loneliness and attempt to deal with psychological traumas of various shades that was occasioned by the divorce. It is also a potential criterion to hatch upon by policy makers, while not losing focus on the issues of infidelity; even among married couples in the communities.

On the association between marriage and HIV infection in communities, Nandoya (2014), had made the following useful remarks that can be helpful in designing community targeted interventions in the fight against HIV infection:

1. *"gender inequality in marital relations, especially in sexual decision-making, increases vulnerability to HIV transmission"*

2. *"trends in current data on new HIV infections suggest that the incidence of HIV is rising among married women and girls worldwide, with unsafe and unprotected heterosexual intercourse being the single most important factor in the transmission of HIV among women".*

3. *"marriage, which greatly increases women's sexual exposure, has in itself become a risk factor for women and girls in many countries; for example it is more dangerous for a woman to get married to a polygamous husband in the name of inheritance (Luo and Luhya culture)".*

4. *"The dramatic rise in the frequency of unprotected sex after marriage is driven by the implications of infidelity or distrust associated with certain forms of contraception such as condoms, a strong desire to become pregnant, and an imbalance in gender power relations. This results in women's increased inability to negotiate safer sex".*

5. *"In spite of having knowledge of their spouse's extra-marital sexual interactions, women are often unable to protect*

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themselves due to an imbalance of power within relationships created by economic and emotional" factors.

6. *"Polygamy as legally sanctioned traditional practice in African culture allows husbands to have more than one wife and as such, increases the risk of HIV infection. It creates concurrent sexual networks within marriage between multiple wives and their husband, and in addition to any extra-marital sexual contacts the spouse may have".*

7. *"Early marriage severely increases young girls' vulnerability to HIV as they are most likely to be forced into having sexual intercourse with their (usually much older) husbands".*

8. *"Gender inequality and patriarchy (social structures where men take primary responsibility and dominate in their households) encourage multiple sexual partners for men inside and outside of marriage, while women are required to be faithful and monogamous. Such socio-cultural practices and norms make men and their partners especially vulnerable to HIV".*

9. *"Harmful cultural practices such as widowhood-related rituals, sexual cleansing and female genital cutting heighten the risk of HIV transmission".*

10. *"Gender-based violence is a key factor in increasing risk of contracting HIV …infection in several ways. Sexual violence can result in 'direct transmission' of HIV which can be the result of forced or coercive sexual intercourse with an HIV infected partner".*

Furthermore, the observed literacy levels of the communities in focus reflected the backgrounds of the various communities under study, with the academic community being the most literate as expected, while those in the farming community were the least literate. This provides another basis for strategic decisions on the type of community based HIV preventive strategies to adopt in a given community setting. Of course, the correlation of literacy with the incidence and prevalence of HIV infection is well known, and it is an important determinant of the trend of progress being made in the fight against HIV.

Interesting also, is the observation that a comparatively higher number of females had tertiary education as compared to their male counterparts. This of course, is suggestive of the fact that rather than sticking to the belief in most African communities that men should be 'in charge, there is the need for a literate anchor for community-based intervention programs irrespective of the gender. Moreover, it resolves the challenge of who could sustain the progress being made in that regard. One must also not ignore the observation that there were individuals with no formal education, and as such, strategic options of choice must account for such sections of the population.

HIV infection prevention requires that no one should be left behind especially on matters of literacy and health. However, scholars are consistent that poor health literate patients are more likely to exhibit unintentional non-adherence compared to their health literate counterparts that usually display intentional non-adherence (Palumbo, 2015). In fact, the latter may be overconfident about their knowledge of HIV status, thus deliberately departing from clinical prescriptions (Palumbo, 2015).

As regards the religious affiliations of the respondents, it was observed that majority of the respondents were affiliated to one religion or the other. This expectedly, provided community platform to anchor community based intervention strategies. Although, there are proofs that Nigerians are deeply religious, some questions however, are begging for answers. These include:

1.) Are there links between religion and HIV dynamics in Nigeria?

2.) Are there positive or negative influences of religion on HIV trends and its prevention strategies?

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3.) Are there roles for religion in the design and implementation of community based HIV prevention strategies?

On the concerns above, Manzou *et al*. (2014) had considered religion as an important underlying determinant of HIV spread in sub-Saharan Africa, noting that the variation in behavioural responses to HIV between the major church groupings, contributed to a change in the religious pattern of infection in eastern Zimbabwe. They did observe that HIV infection among Christians reduced relative to those in other religious groups for both sexes, with a greater reduction in sexual-risk behaviours. Their observations deductively suggested that the choice of religious affiliation does influence HIV infection pattern in populations and thus, a veritable target for policy design and implementation in the fight against HIV infection. Already, Udeh *et al*. (2016) had advocated that opinion leaders and religious leaders must be engaged in behavior change interventions such as promoting condom use and total abstinence.

Unfortunately, certain religious teachings and practices have been implicated in the vulnerability pattern of HIV infection. Nandoya (2014) had earlier noted that sexuality and gender stereotypes constructed by religion can inhibit prevention efforts and increase vulnerability to HIV infection. He added that HIV vulnerability caused by religious beliefs and practices is the result of religious institutions' denunciation of HIV infection as sinful. Such religious judgments, according to Nandoya (2014), plays a significant role in generating HIV/AIDS-related stigma which increases vulnerability, while also opining that religions advocating against condom use and homosexuality, poses a serious challenge to preventing the spread of HIV in communities where they operate.

Udeh *et al.* (2106) had also acknowledged the fact that cultural practices exist in different forms within communities, and have positive and/or negative contribution to peoples' life. They recommended that HIV programs must address the root causes of gender-based vulnerability to HIV, with greater sensitization and education of men and women on the traditions and cultural practices that increase the risk of HIV infection.

Another observation of interest, was the recorded multiple sources of information on HIV infection and its related matters. Indeed, the observation that television, outdoor bill boards and radio, unlike the print media, were the predominant sources of information, reflects the low reading culture in typical Nigerian populations, and as such, appropriate community based strategies must be in tandem with the acceptable information seeking trends within targeted communities In this regard, Gobind and Ukpere (2014), while acknowledging the benefits of repetitive information dissemination, opined that programme co-coordinators should consider the needs and habits of targeted audience.

Interactions within the communities studied was evident as a majority of the respondents (males and females) affirmed that they meet in their organizations/associations or unions regularly. This is an indication that such organized groups can serve as platforms for information dissemination, while also serving as support base for community members, the government and aid organizations, as well as a peer review platform for the efforts being made. Indeed, the phenomenon of community engagement has become an increasingly common component of scientific research, policy-making, ethical review, and technology design (Reynolds and Sariolla (2018), and thus, cannot be overemphasized.

Considering the fact that HIV is not just a health problem but also a problem with social, political, legal and economic implications, the world Health Organization (WHO, 2018) had made it clear that it is important to involve, coordinate and mobilize a range of stakeholders in order to confront the epidemic, both because they are affected and because they can play various roles. This implies that serious efforts to build and maintain both formal and informal relationships within and between governments, communities, business and civil society are inevitably required. Even Marrazzo *et al*. (2018), agrees with the fact that it is critical to engage communities in an active dialogue to advance mutual understanding of how disease trends like HIV are perceived, studied, and managed.

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Similarly, Carm (2018) had asserted that strategically monitored multi-voiced participation of local stakeholders created a learning space where both scientific and indigenous knowledge were blended, and thereby creating solutions to preventive action meeting the local needs. The study by Calm (2018) exemplified the processes by identifying contradictions between the various levels and activity systems involved, via listing some of their characteristics, manifestations and finally their negotiated solutions.

On the draw-backs in strategies to combat HIV infection in Ekpoma, Edo, Nigeria, a large number of the respondents were convinced that corruption in the system is a great challenge against efforts in the fight against HIV/AIDs. They highlighted the fact that corruption in the system gives some stakeholders the opportunity to fraudulently enrich themselves with available funds to tackle the menace of HIV infection. Similarly, their stance on the related unsatisfactory performance of governments and her agencies is in line with the assertions of. (R).This poor verdict on government and her agencies may explain their confidence that community driven HIV prevention strategies would afford them direct access to information and the various shades of intervention from government and non-governmental organizations.

Surely, the growing consensus on the importance of community representation and participation agrees with the assertion by Ibrahim and Sidani (2014) that community based HIV prevention interventions are an important resource for providing education to improve HIV-related knowledge and for acquiring skills to decrease engagement in sexual risk behavior among young persons living in developing countries.

Finally, the correlation statistical results in relation to the hypothetical postulations on the relationship between the ages, education, marital status, gender and respondent's level of engagement, and the assessment outcome on community targeted intervention efforts (CTIEs) of government and non-governmental agencies in the fight against HIV prevention, suggests that it is appropriate to reject the null hypothesis and accept the alternative hypothesis for age, gender, marital status and respondents engagement, but do otherwise for the level of education.

CONCLUSION

The levels of literacy among the respondents and the level of their awareness on HIV/AIDs pandemic are comparatively satisfactory. Indeed, the status of the study areas as the host communities for tertiary academic and health care institutions may have influenced the appreciable levels of literacy and the level of awareness on HIV/AIDs. Though efforts are being made by government and non-governmental organizations, there is the unanimous opinion that corruption in the system remains a cog in the wheel of progress towards curtailing the spread of HIV infection in Nigeria, while government's unsustainable policies and policy summersaults remains a great challenge of concern. It is worthy to note that in typical Nigerian societies, there exist various community based platforms, be it religious, social, academic, business or professional, that can serve as anchors for efforts towards checking the spread of HIV virus. Indeed, such platforms can serve as platforms for peer discussion, peer support and peer mobilization, as well as a feedback 'button' for government and non-governmental organizations saddled with the fight against HIV infection in Nigeria. Obviously, the respondents were literarily 'loud' in expressing their displeasure about the corruption in the fight against HIV infection within communities and about governments' unsatisfactory overall performance; suggesting therefore, that the Nigerian government and other stake-holders needs to do more in this regard.

RECOMMENDATION

Based on the findings of the study, the following are recommended that:

1. Governments and non-governmental organizations engaged in the fight against HIV infection in Nigeria should synergize with organized community settings to drive home their intervention strategies.

2. There is need to conduct research towards cataloguing the peculiarities of specific

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Nigerian communities, since it may facilitate efforts towards policy formulation, intervention design and implementations as regards the fight against HIV infections. This recommendation is based on the understanding that communities present unique peculiarities.

3. Funding agencies, while planning budgeting and granting funding interventions, must appreciate the influence of corruption on the draw backs experienced in the fight against HIV infection in Nigeria and ensure that the target communities are actively engaged for a more effective outcome.

4. Government and her agencies must be sincere in their efforts towards funding and executing policies geared towards fighting the spread of HIV virus in Nigeria, while also sanctioning erring agencies or personnel found wanting.

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AUTHOR'S CONTRIBUTIONS

Nwaopara, S.O. conceptualized this study and conducted the field data collection. Ameghieme, F supervised the study and provided needed guidance, while Nwaopara, A.O. and Ikhuoriah, T.A.E. provided technical support. All the authors played significant roles in the drafting and revision of the manuscripts.

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