Comparison of the Quality of Life of Vulnerable Children Resident in Household and Those Resident in Institution in Jos Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. The author AII designed the study, wrote the protocol and wrote the first draft of the manuscript. The authors SO and ZA author where the supervisors of this project from conception to conclusion of project to writing of manuscript.

Original Research Article

ABSTRACT

Background: There are over 143 million orphans globally, however, sub-Saharan Africa/Asian regions account for over 80% of the global burden (143 million orphans), Nigeria inclusive with over 10 million orphans. This has caused a crisis of shelter, as more children drift towards institutional care rather than staying in communities that are laden with a high prevalence of poverty (70% in Nigeria). This development is not the best practice in the care of Orphans and vulnerable children (OVC) based on national policy of OVC care which recommends Household rather than institutional care. Since studies have shown that Institutional care has a negative impact on a child, the place of placement is thus crucial to the outcome of vulnerable children (VC) which can easily be assessed by measuring the Quality of life (QOL).
The aim of this study is to compare the QOL of VC living in Household against those living in Institutions.
Methods: A cross-sectional comparative study involving 202 VC (aged 6-18 years) was

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conducted. VC were sampled using the multistage sampling technique across two orphanages and three communities located in suburban areas in Jos East, Jos North and Jos South Local Government Area.

Outcome Measure: Quality of Life was determined using the WHOQOL BY (brief for youth) tool after validity and reliability test was done. The total score was transformed into a score of 1-100, with higher score implying higher QOL. Data generated were processed and analyzed using the EPI info version 3.5.1 statistical software. A score < -1 standard deviation (SD) from mean was considered poor, ±1 SD to -1 SD was considered fair and > ±1 SD was considered good. The student t-test was used for comparison of means while chi-square test or fisher exact test was used for comparison of categorical variables. In all statistical tests a p values ≤ 0.05 was considered significant.

Results: The QOL score for the study population ranged between 47.2 to 95.2, the mean QOL was 75.2±8.1. The median and mode were both equal (QOL score of 75.2). Comparatively, IVC had higher mean QOL score of 76.9±7.0 compared to HVC 73.3±8.9 (p=0.002). IVC had higher scores compared to HVC in the following domain: psychological (p=0.05), social (p=0.004) and environmental (p=0.002).

Conclusion: The QOL of VC in Institution is better than children in suburban Households in Jos Nigeria. IVC are better psychosocially and environmentally. However, a Qualitative study is needed for more depth.

1. INTRODUCTION

About 10% of Nigerian children are orphans (children who have lost father, mother or both) and much more made vulnerable due to unmet needs [1-3]. The rise in the number of Orphan and vulnerable children even though a global phenomenon has it highest impact in developing nations of sub-Saharan Africa and Asia where 80% of the global 143 million orphans resides [4].

This upsurge has lead to a shelter crisis, thereby pushing Vulnerable Children (VC) away from homes to seek shelter in orphanages or on the street. Aside shelter, VC lacks Parental supervision and protection and are more likely to encounter challenges accessing basic needs of education, health, food and clothing. All of these disadvantages may influence their Quality of life negatively [1,5,6]. The place of residence may influence the outcome of VC visa viz their various challenges in the context of their immediate and extended environment [5,7]. These interactions may worsen or improve the vulnerability of these children, ultimately determine their Quality of life (QOL) [8-10].

The placement of a VC in Institution or household determines both short and long - term outcomes, due to this relevance the Nigeria National policy on the care of orphans and vulnerable children (OVC) recommends households placement and not institutional placement for long - term care [5,7]. This recommendation is partly based on findings of worse outcomes of intelligence, cognition, development, attachment and even growth among Institutionalized children compared to non-institutionalized children, both residing in Europe [11-15]. Even though these studies are novel, they were however undertaken in developed countries which have different demographic and socio - cultural characteristic compared to Nigeria.

Studies from developing poor countries seem to show no difference or favor institutionalized care. A study in Low resources countries of Kenya, Tanzania, Ethiopia, Cambodia Hyderabad and Nagaland by Kathryn W et al. [16] found out that Health, emotional and cognitive functioning, and physical growth were no worse for institution-living than community-living. In Eritrea, the observations were similar [17].

Few studies used a QOL tool as an outcome measure; QOL assessment is a personal, standardized measure of life satisfaction and well being across multiple domains that reflect the concept of health [18,19]: A state of complete physical, mental, and social well-being and not just the mere absence of disease or infirmity [20,21]. In Pediatrics/Child Health, QOL assessment assesses vulnerability, satisfaction to interventions and health need [18,19]. Stefan Erich used the WHO BY tool to assess the QOL of child-headed household in Bulawayo in South Africa [22].

There are however, no studies that compared the outcome of a VC in Institutional care against Household care in Nigeria, there are also no study on QOL of VC, neither are there studies that uses QOL as an outcome measure among household VC or institutional VC.

The aim of this study is to assess and compare the QOL of institutional and household vulnerable children in Jos, North - central Nigeria.

2. METHODS

2.1 Study Sites

The study was carried out in 2 orphanages and 3 suburban communities in Jos, Plateau State Nigeria [23].

2.2 Study Subjects

The study subjects were vulnerable children living in the study area during the survey, who were resident in either a household or an orphanage.

2.3 Inclusion Criteria

A child who is less than 18 years but greater than 5 years and vulnerable. A vulnerable child was defined as a child who has lost either one or both parents, Lives in a household where at least one adult was seriously ill for at least 3 months in the earlier 12 months or children whose parent are alive but resides in orphanages.

2.4 Study Design

Cross–sectional comparative study.

2.5 Sample Size

Sample size was determined using the formula for comparison of proportion [24].

$$N = \frac{Z^2 [P_A (1-P_A) \pm P_B(1-P_B)]}{d^2}$$

Abbreviations:

- N= Minimum sample size [minimum per group]
- Z= Constant at 95% confidence interval from two tables which is 1.96 for two tailed study.

P_A and P_B= Best estimate of prevalence in the target population expressed as a fraction of 100.

The prevalence of VC with a poor Quality of life in both study population will be assumed to be 0.5.

d= difference to be detected i.e. P_A-P_B=15% = 0.15

$$N = \frac{1.96^2 [0.5(1- 0.5) \pm 0.5(1-0.5)]}{(0.15)^2}$$

$$= 85.4$$

To take care of attrition, 20% attrition was added thereby making the minimum sample size of 102 VC from each subgroup.

2.6 Sampling Technique

A multistage sampling technique was used. From the list of 3 orphanages gotten from Child welfare department only two orphanages were included into the study because all inmates in third orphanage were below the age of 5 years. From the two orphanages sampled 99 VC and 3 VC were randomly sampled from the two orphanages based on proportion of children resident in the institution. Three Non-Governmental Organization caring for VC contacted households with VC in three sub-urban communities namely Tanchol, Sabon Fobur and Mado Village in Jos Eeast and Jos north LGA. In each of these selected community 34 VC were randomly sampled.

2.7 Preparation for Data Collection

Research assistants were trained to use the research tools. The research tools were then pretested. The tool pretest showed that most children felt that the question on 'satisfaction with sex life' was inappropriate for their age. Therefore, the WHO QOL - BY instrument (without the question on satisfaction on sexual life) as adapted by Stefan E [22] was adapted and validated against the WHOQOL. The WHOQOL BY was found to have a validity of 0.95. A reliability test was further conducted (to access if VC understood the questions asked in the questionnaire). The WHOQOL BY was found to be reliable at this age (Cronbach alpha test of 0.838 an intraclass correlation coefficient of 0.835).

2.8 Translation of the Instrument

The WHOQOL BY was translated into Hausa and back into English by a linguist.

2.9 Ethical Issues

Ethical clearance was obtained from the Jos University Teaching Hospital (JUTH) ethical review board. Verbal Permission was obtained from the community leaders and heads of orphanages. Written informed consent was obtained from the parents/caregivers of each child (in form of a signature or a thumbprint) participating in this study.

2.10 Data Collection

Data collection was done using an interviewer-administered questionnaire. The information generated included demographic and social variables. The QOL tool was interviewer administered to all children by the researcher and one assistance in order to obtain a consistent result.

The WHOQOL BY tool has 4 domains namely: Physical, psychological, social and environmental. The questions for the physical domain were: F1.4, F11.3, F 22.1, F 16.1, F 7.1, F 18.1, F10.3, F 12.4, F 19.3. The questions for the Psychological Domain were: F4.1, F24.2, F 5.3, F2.1, F21.1, F3.3, F 6.3, F 15.3, F 8.1. The questions for the Social Domain were: F13.3, F14.3, and F14.4. The questions for the Environmental Domain were: F 20.1, F9.1, F 17.3, and F23.3. The total QOLwas a sum of: Physical Domain ±Psychosocial Domain ±Social Domain ±Environmental Domain ±General Question (G1±G2) [20,22].

Each of the items had 5 responses namely very dissatisfied, dissatisfied, medium, and satisfied and very satisfied which was scored as 1-5 respectively. For the presentation of data on each item the 5 point scale was collapsed into 3 scales namely positive (very satisfied and satisfied), medium or negative (dissatisfied and very dissatisfied) [19,20].

The total score was transformed into a score of 1-100 with higher score implying higher QOL.

A normal distribution curve was then plotted for each study population. A score of < -1 SD from the mean was considered poor, ±1 SD to -1 SD was considered fair and > ±1 SD from the mean was considered good [25].

2.11 Data Analysis

Data generated were processed and analyzed using the EPI info version 3.5.1 statistical software. The mean and standard deviation of continuous variables such as age, QOL score and domain score were computed. Frequency distribution tables and contingency tables were drawn. The student t-test was used for comparison of means while chi-square test was used for comparison of categorical variables in the contingency tables. Where expected cell values were less than five, the Fischer exact test was used. In all statistical tests a *p*-values ≤ 0.05 was regarded as significant.

3. RESULTS

Two hundred and four OVC were recruited for the study. Two of the households OVC were withdrawn from the study because of incomplete data. Therefore only 202 OVC were analyzed.

3.1 Characteristic

The mean age of the studied population was 12.7±2.6 years with an age range of 6-17 years. The mean age in years of IVC was 12.8±2.5 while that of HVC was 12.6±2.5. This difference was also not statistically significant (p=0.4611). Out of the 202 VC analyzed, 124 (61.4%) were males while 78(38.6%) were females, giving a male/ female ratio of 1: 0.6. Of the 124 males VC studied, 65 (52.4%) male VC resided in the institution while 59 (47.6%) reside in households. Out of the 78 females analyzed 41 (52.6%) resided in the household while 37 (47.4%) reside in the orphanage.

Forty nine (24.3%) VC were double orphans, 86 (42.6%) were paternal orphans, 33 (16.3%) children were maternal orphans and 34 (16.8%) children were vulnerable. Household paternal orphans represent 74.4% of all paternal orphans. Institutional double orphans and vulnerable children represent 73.4% and 64.7% of all double orphans and vulnerable children respectively. The difference in the distribution children by orphanhood status stratified by place of residence was statistically significant (p= 0.00).

3.2 QOL of Subjects

The QOL score ranged from 47.2 to 95.2, with a mean score of 75.2±8.1. The median and mode were both equal (QOL score of 75.2) thus assuming a normal distribution. Comparatively, IVC had higher mean QOL score of 76.9±7.0, compared to HVC (73.3±8.9). This difference was statistically significant. (p=0.002). See Table 1for further details.

The Mean domain scores are shown in Table 1; IVC had higher statistically significant mean scores in psychological, social and environmental domains compared to HVC.

Table 2 shows that 22 VC had scores within the poor category (< -1SD), 126 VC were classified to have a fair QOL (-1SD to ±1SD) and 54 VC had a good QOL (> ±1SD). Comparatively, 15% of IVC had a poor QOL compared to 6.9% of HVC, while 33% of IVC had a good QOL compared to 20% of HVC. This difference was statistically Significant (*p*=0.04).

4. DISCUSSION

In the present study the proportion of VC with good QOL was twice the number of VC with poor QOL. This is somehow surprising considering the challenges faced by these children [5,6]. There are however no study to compare with but the possible reason for this relative good QOL among VC in this study might be related to the ownership of these Institution which are largely private own in this case by FBO (Faith Base Organization). It is also possible that the cultural support given to the needy is still viable in these communities; it may also be due to the development of resilience and coping mechanism by these VC as observed by Stefan E in South Africa [22].

The QOL of IVC was better than that of HVC, this finding is comparable with finding of a better subjective score among children age 6-12 years, residing in low resource countries, as reported by Katryn W et al. but contrast to a study in Poland where the QOL was higher for household vulnerable children [14,16]. In low resource countries where a lot of families live below the poverty line, some of these institutions, especially the private owned, may have more resources than some households. This has implications on child food security, school enrollment, availability of clothing's, physical and emotional health status and eventually the QOL.

The difference in the past life events will influence a child's long term outcomes which may reflect in cross-sectional studies. For example, children in institutions may have experienced the orphaning at a later age, when they are less vulnerable, relative to the children in the community. However, this variable was not analyzed because the majority of IVC and their current caregiver were not sure of the age at which these children were orphaned.

Table 1. Mean Domain and QOL score of OVC stratified by place of residence

Categories	Mean±SD		Total	t test	p value
	IVC	**HVC**			
Domains					
Physical	70.8±9.1	69.9±8.8	70.1±8.9	0.6634	0.5078
Psychological	77.4±9.2	73.7±9.5	75.5±5.5	2.8436	0.005
Social	85.9±11.8	80.3±15.5	83.2±14.0	2.8963	0.004
Environmental	79.2±10.1	74.9±12.9	77.1±11.8	2.5449	0.002
General question	84.0±13	75.7±1	79.8±15	3.8319	0.000
Overall QOL	76.9±7.0	73.3±8.9	75.2± 8.1	3.1517	0.002
Total subjects	**102**	**100**	**202**		

Table 2. Categorization of domain and QOL score of VC stratified by place of residence

Domain	Good		Fair		Poor		χ^2	p value
	IVC	**HVC**	**IVC**	**HVC**	**IVC**	**HVC**		
Physical	19	18	66	64	17	18	0.07	*0.96*
Psychological	14	9	75	64	13	27	5.70	*0.05*
Social	7	15	66	66	29	19	4.97	0.08
Environment	7	15	65	65	30	20	4.90	0.08
Total QOL	34	20	61	65	7	15	6.59	*0.04*

The structural modification of these institutions was helpful as IVC interacted with the non-institutionalized children in their neighborhood, school and other social settings. This structural and system shift differs from the older methods whereby institutionalized children were secluded from their neighborhood. This changes may have allowed IVC to move around, make friends within and outside their neighborhood and may explained the good personal relationship observed.

The social domain assesses the support these children received in addition to their personal relationship. In this current study there was some level of community participation in the care of IVC. Aside the employed caregivers several volunteers were involved at various stages of care, for examples, some offer music lessons. This community involvement was, however, not observed among the HVC. HVC lacks the support observed in IVC. This is thought to be one of the reasons why VC may leave their households to set up child headed household as reported by Stefan E et al in Bulawayo [22].

In the environmental domain Fifty percent of VC in this current study were positive about their transport situation and access to needed information. This finding is significantly higher amongst IVC than HVC. Stefan E [22] found that only eight percent of OVC in her study had access to needed information. Since ninety-nine percent of VC in this current study, attend school, had good personal relationship and support from friends and others, this might explain why the availability of needed information is greater in the present study compared to the orphans in the child-headed household who are left on their own [22]. This assertion is drawn from the study by Mchombu C [26] in Namibia who reported that OVC commonly accesses information through the radio, their friends, relatives and school teachers.

The Vulnerable Child that receives psychosocial support is known to have the best outcome in terms of QOL [27]. With a good environmental and social domain score in the presences of good caregivers and availability of basic needs, the psychological domain should improve. This may explain why IVC had fewer features to suggest depressive feeling. IVC reported having slept well and were better able to concentrate on a task. Another perspective is the possible availability of psychosocial support for the IVC through counseling because the majority of their primary caregiver had been trained in counseling.

5. CONCLUSION

The QOL of Vulnerable Children residing in Institutions is better than that of children residing in suburban Households in Jos Nigeria. Institutional vulnerable children were better psychosocially and environmentally compared to Household Vulnerable Children. Further studies are needed to understand the scope of problems in Nigeria and find the reasons why Institutional vulnerable children have a better QOL.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX

Table 1. Physical domain of subjects

	IVC	HVC	Total VC	χ^2	*p* value
	Freq (%)	**Freq (%)**	**Freq (%)**		
Physical pain					
Positive R	80(78.4)	75(75)	155 (76.7)		
Medium R	10(9.9)	15(15)	25 (12.4)		
Negative R	12(11.7)	10(10)	22(10.9)	27.759	0.000
Healthy physical environment					
Positive R	74(72.5)	74(74.0)	148 (73.3)		
Medium R	20(19.6)	19(19.0)	39 (19.3)		
Negative R	8(7.9)	7(7.0)	15(7.4)	3.33	0.502
Safe in daily life,					
Positive R	92 (90.1)	71(71.0)	163(80.7)		
Medium R	7(6.9)	18(18.0)	25 (12.4)		
Negative R	3 (3.0)	11(11.0)	14 (7.0)	17.77	0.001
Accepts bodily appearance,					
Positive R	85(83.3)	81(81.0)	168(83.2)		
Medium R	9(8.9)	13(13.0)	22(10.9)		
Negative R	8(7.8)	4(4.0)	12(5.9)	6.7284	0.151
Enough money,					
Positive R	23(22.5)	37(37.0)	60 (29.7)		
Medium R	10(9.6)	21(21.0)	31 (15.3)		
Negative R	69(67.6)	42(42.0)	111 (55.0)	15.7531	0.003
Ability to perform DAL					
Positive R	93(91.2)	86(86.0)	179(88.6)		
Medium R	7(6.9)	13(13.0)	20(9.9)		
Negative R	2(1.9)	1(1.0)	3(1.5)	3.2699	0.510
Access to health workers					
Positive R	85(83.3)	67(67.0)	152(75.2)		
Medium R	13(12.7)	22(22.0)	35(17.3)		
Negative R	4(4.0)	11(11.0)	15(7.5)	10.0523	0.039
Medical attention not needed					
Positive R	85(84.3)	80(80.0)	166(82.2)		
Medium R	9(8.8)	13(13.0)	22(10.9)		
Negative R	7(6.9)	7(7.0)	14(6.9)	4.2247	0.376
Capacity for work					
Positive R	94 (92.2)	83(83.0)	77(87.6)		
Medium R	8(7.8)	14(43.0)	22(10.9)		
Negative R	0(0.0)	3(3.0)	3(1.5)	9.0338	0.028
Total	**102**	**100**	**202**		

 # The 5 point scale was collapse into 3 scales positive, medium or negative. R= response; DAL = daily living activity

Table 2. Social domain of study subjects

	IVC	HVC	Total VC	χ^2	*p* value
	Freq (%)	Freq (%)	Freq (%)		
Support from others:					
Positive R	87 (85.3)	77(77.0)	154(76.2)		
Medium R	10 (9.8)	17(17.0)	27(13.4)		
Negative R	5(4.9)	16(16.0)	21(10.4)	15.568	0.0037
Personal relationship:					
Positive R	74(72.5)	74(74.0)	148 (73.3)		
Medium R	3 (2.9)	29(29.0)	32 (15.8)		
Negative R	3(2.9)	19(19.0)	22(10.9)	11.4444	0.0220
Support from friends:					
Positive R	90 (88.2)	75(75.0)	165(81.6)		
Medium R	9(8.9)	16(16.0)	25 (12.4)		
Negative R	3(2.9)	8(8.0)	12 (6.0)	6.5360	0.1625
Total	**102**	**100**	**202**		

 # The 5 point scale was collapse into 3 scales positive, medium or negative. R= response

Table 3. Environmental domain of subjects

	IVC	HVC	Total VC	χ^2	*p* value
	Freq (%)	Freq (%)	Freq (%)		
Availability of needed information					
Positive R	45(44.6)	58(58.0)	16(57.5)		
Medium R	23(22.2)	25(25.0)	46(22.7)		
Negative R	34 (33.3)	17(17)	60(29.8)	7.3291	0.1195
Ability to get around					
Positive R	72 (70.6)	76(76.0)	148 (73.3)		
Medium R	15 (14.7)	17(17.0)	32 (15.8)		
Negative R	15(14.7)	7(7.0)	22(10.9)	8.8401	0.0652
Condition of living place					
Positive R	85 (83)	75(75.0)	160(79.2)		
Medium R	13(12.7)	19(19.0)	32 (15.8)		
Negative R	4(4.0)	6(6.0)	1 0 (5.0)	2.9797	0.5612
Transport situation					
Positive R	58(56.9)	51(51.0)	109(54.0)		
Medium R	14(13.7)	31(31.0)	45(22.3)		
Negative R	30 (29.4)	18(18.0)	48(23.7)	15.6185	0.0036
Total	**102**	**100**	**202**		

#the 5 point scale was collapsed into 3 scales positive, medium or negative

Table 4. Psychologic domain of study subjects

	IVC	HVC	Total VC	χ^2	*p* value
	Freq (%)	Freq (%)	Freq (%)		
Enjoy life					
Positive R	83(81.4)	58(58.0)	141(69.8)		
Medium R	8(7.8)	25(25.0)	33(16.3)		
Negative R	11(10.8)	17(17)	28(13.9)	16.4313	0.0025
Life is meaningful					
Positive R	91(89.2)	72(72.0)	163 (80.7)		
Medium R	8(7.8)	24(24.0)	32(15.8)		
Negative R	3(3.0)	4(4.0)	7(3.5)	10.6205	0.0312

	IVC Freq (%)	HVC Freq (%)	Total VC Freq (%)	χ^2	*p* value
Ability to concentrate					
Positive R	95 (93.1)	74(74.0)	169(83.6)		
Medium R	7(6.9)	23(23.0)	30 (14.9)		
Negative R	1(1.0)	2(2.0)	3 (1.5)	11.0843	0.0113
Energy for everyday					
Positive R	83(81.2)	67(67.0)	150(74.3)		
Medium R	14(13.8)	28(28.0)	42(20.8)		
Negative R	5 (4.9)	5(5.0)	10(4.9)	8.9407	0.0626
Opportunity for leisure					
Positive R	83(81.4)	80(80.0)	163(80.7)		
Medium R	14(13.7)	12(12.0)	26(12.9)		
Negative R	5 (4.9)	8(8.0)	13(6.4)	8.9407	0.0626
Satisfied with sleep					
Positive R	99(97.1)	82(82.0)	181(89.6)		
Medium R	2(1.9)	10(10.0)	2 (5.9)		
Negative R	1(1.0)	8(8.0)	9(4.5)	15.3686	0.0040
Satisfy with self					
Positive R	96(94.1)	85(85.0)	181(89.6)		
Medium R	6(5.9)	12 (12.0)	18(8.9)		
Negative R	0 (0.0)	3(11.0)	3(1.5)	6.433	0.00923
No negative feeling					
Positive R	73(71.6)	69(69.0)	142(70.3)		
Medium R	8(7.8)	17(17.0)	35(17.3)		
Negative R	11(20.6)	14(14.0)	25 (12.4)	1.1656	0.8837
Total	**102**	**100**	**202**		