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MENTAL HEALTH AND QUALITY OF LIFE OF RESIDENTS IN CEMENT PRODUCING COMMUNITIES IN OGUN STATE

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Abstract

The study assessed the impact of stress on the quality of life of residents in cement producing communities and it investigated the influence of anxiety on quality of life. The study also determined the impact of depression on quality of life and examined the joint influence of stress, anxiety, depressive symptoms on quality of life of residents in the study area. These were with the view of ascertaining the mental health status and quality of life of residents in cement producing communities. Quantitative and qualitative data were used for the study. The data were collected from residents in Ogun State. Four hundred participants were selected from the population of the study. The questionnaire used are World health Organization quality of life (WHOQOL BREF) used to measure quality of life, Perceived stress scale (PSS) used to measure stress, Hamilton anxiety rating scale (HAR-S) for measuring anxiety and Centre for epidemiological studies depression scale revised (CESDS-R) measures depression. Data collected were analyzed using independent sample t-test for hypothesis one and three, one-way Anova for hypothesis two and multiple linear regressions for hypothesis four. Also, health practitioners were interviewed. The result indicated that stress had a statistically significant impact on the quality of life of residents in cement producing area [t (345) = 6.067; p < .05]. Anxiety had a significant influence on quality of life of cement producing communities [F = 3,333; p <.05]. Depression significantly influenced the quality of life, [t (339) = 5.86; p < .05]. Finally there was a significant joint influence of stress, anxiety and depression on quality of life of residents of cement producing communities, [F(3, 333) =31. 115; p< 0.05]. Interview reports with health practitioners reveal that there are more physical ailment attended to than mental illness among residents of cement producing communities than those in non-cement producing communities. The study concluded that a mental health effect such as stress, anxiety, depression has impact on quality of life of residents in cement producing area.

Keyword: Quality of life, Depression, Anxiety, Stress, Pollution

INTRODUCTION

Quality of life is an individual's perception of their position in life in the context of value system in which they live and in relation to their expectation, standard and concerns (WHO,1998). Quality of life which has a range of contexts from healthcare, politics and employment with the standard indicators which include wealth, environment, physical and mental health safety and security e.t.c (Gregory,D.etal 2009). We can conclude that quality of life is the degree to which an individual is healthy, comfortable, and able to participate in or enjoy life events. Though the term quality of life is inherently ambiguous, as it can refer both to the experience an individual has of his or her own life and to the living conditions in which the individual find themselves.

Within the field of health, quality of life is an evaluation of quality of life and its relationship with health. How a certain ailment affects a patient on an individual level, physical and mental health, perception and their correlate. (WHO, 2011). Since quality of life varies, our pressing needs become our quality of life (Gbadebo, 2017), how a person enjoy normal life activities is ascribed to how people interpret life events as stressful or pleasant. According to Bentham,J; 1832, the presence of happiness and absence of pain are the defining characteristics of good life.

Health related quality of life (HRQOL) is related to both self-reported chronic disease and other risk factors including the environment we find ourselves. Attention to different domains of quality of life started by the Nigeria institute for social and economic research (NISER) in the 1990's led by Adejumobi and Odumosu, where QOL was assessed as experienced by Nigeria in the general public, rural-urban population including domains such as health, family life, income, spiritual life, the satisfaction derived from various domains contribute to individual quality of life. Worthy of mention is kick against indiscipline, commonly known as (KAI) on environmental law established in 2003 to monitor communities' quality of life.

Mental health is an absence of mental illness which is by far a necessary factor for one's well- being which is the level of psychological well-being (Princeton University). Mental health sometimes, is not necessarily an absence of illness since no one has a perfect mental health all the time. It can be likened to an overall pattern of thoughts, emotions, behavior and body reactions both positive/negative or pleasant/unpleasant state. It is likened to how we think, feel or act. Looking after mental health can preserve a person's ability to enjoy life. Doing this involves balancing life activities, responsibilities, and effort to achieve psychological resilience, and stress, depression, anxiety can all affect mental health and disrupt a person's routine. (Akinboye, et al, 2002). In recent years, there has been increasing acknowledgement of the importance of mental health which plays a role in achieving global development goals, as illustrated by the inclusion of mental health in the Sustainable Development Goals. Depression is one of the leading causes of disability and people with severe mental health conditions die prematurely as much as two decades early due to preventable physical conditions such as the polluted industrialized area.

In the same light, a poor mental health does not mean mental illness. A person who experiences poor mental health may not be diagnosed with a mental illness likewise a person diagnosed with a mental illness can experience periods of physical, mental and social well-being. Around the globe, there are 450 million people with a mental disorder, and 25% of the population will suffer from a mental illness during their lifetime (Carbonell et al., 2020; WHO, 2017). Meanwhile, more than 26 million people worldwide are diagnosed with severe mental illness as a result of pollution. When the demand placed on a person exceeds their resource and coping abilities, their mental health can be impacted likewise the effort to maintain a balanced mental health of residents in polluted environment is thwarted by stressors resulting from traumatic and rapid changes of live events. Air pollution is also a great environmental threat to human health and in 2019, it was reported that 99% of the world population were living in places where the WHO's strictest 2021 air quality guidelines were not met. With every breath we take, we suck in tiny particles that can damage our lungs, heart, and brain and cause a host of other health problems. The most dangerous of these particles, which can include anything from soot, soil dust, to sulfates, are fine particles 2.5 microns or less in diameter — shortened as PM2.5. Even though air pollution is a global problem, it disproportionately affects those living in developing nations and particularly the most vulnerable, such as women, children and the elderly.

Because of the presence of pollution, contamination of air particles there are presently several challenges for diagnosing mental health disorders, from the common to the more severe. These involve problems that range from the way mental health disorders are categorized to the way they are perceived, and this is assuming they are even diagnosed at all:

Evidence from the WHO suggest that nearly half of the world's population is affected by mental illness. The prevalence of poor mental health in Nigeria according to statistics is in the range of 20-30 percent of its population of over 200 million. It was studied that 64 million Nigerians are deemed to suffer from one form of mental illness or the other. It is noted that three in every ten Nigerians suffer from one poor mental health or the other (FNH,2018) and it was estimated that by 2025, common mental disorder such as depression, anxiety will disable more people than complications arising from HIV/AIDS and accidents. This fact validates mental health as a complete yet current and important issue for industrialized residential places in its entirety because communities do not exist in vacuum. Hence, to be mentally unhealthy signifies a psychological state that results in behavioral abnormalities that affect daily functioning, the problem which is associated to environmental stressors, psychological factors, brain defects among others (Schmidt, 2007), including stress, anxiety and depression.

Most studies have pointed to the fact that the incidence of stress is due to overwork and behavior that is a function of the person, environment or combination of the two. It however shows that an unfavourable environment leads to an undesirable manner which is reflected in form of stress. It is affirmed that prolonged stress over-activates many of the body's organs and eventually leads to physical and mental exhaustion which in turn leads to anxiety a normal reaction to stress but once it becomes excessive, consumes and interferes with daily living which results to depression and becomes an illness/disease. Throughout the studies of anxiety and depressive symptoms, scientists have come to multiple conclusions that symptoms have an underlying of biological, psychological and environmental factors which include the imbalance of neurotransmitter in the brain, trauma, stress, and unstable home environment. (FNH, 2015).

A deteriorating health as a result of polluted environment is likely to make an individual susceptible to poor quality of life as health problem is a correlate to the manifestation of poor mental health which has its effect on physical and environment with possible effect on QOL. It is in this light, the study seeks to investigate how poor mental health affects our quality of life using sample from Nigeria's industrialized area. The purpose of this study will be to investigate the impact of pollution on mental health and quality of life of

cement producing communities. Hence the hypothesis will be a significant difference between stress, anxiety, depression and their joint correlation with quality of life.

STATEMENT OF THE PROLEM

In recent years, there has been a great interest in quality of life research in south-west Nigeria and especially in health related quality of life of community's residents. Irrespective of the numerous laws and guide to protect the environment, community degradation has continued without check – cement dust emission persisted despite Nigerians and government's directive to put a reduction in emission (Kalu, 2010) as it affects people's health. Physical-health factors and environmental factors have been explained in determining quality of life of cement factory residents.

More recently, research studies show that long term exposure to pollution may cause neurological changes in the brain, lungs defect, skin cancer, learning and other memory problems (Amukan,1997). Few studies with no quantitative data affirm that high level of pollution can impair affective responses (annoyance reactions), decrease muscular coordination, create hearing problems as a result of sound from blasting of machines and visual problems from emission of particles from industrial produce, cause direct traumatic effect and other psycho-social effects. Others reported that the effect of cement dust, causes reduction in life expectancy and mood change; but Nigerian government and industrial owners have not realized that continuously inhaling industrial particles from this cement area could cause a decline in mental health. In this light, the study assesses the possible mental ill-health such as stress, anxiety, and depression which have not received sufficient research attention.

PARTICIPANTS

The target population for this study are the residents of Larfarge Wapco cement factory in Itori Ewekoro and Shagamu, within 5km radius from factory site, and non-producing communities in Ijebu-ode, Ogun state to ascertain their disparity. The choice of these categories of residents was informed by several important facts: to represent the typical communities in which industrialization has expanded and how activities of the industries affect them significantly, easy accessibility because, residential homes are situated few kilometers away from industrial factories where they form a large concentration of population in the area. Their dispersion also helps to ensure generalization of the findings of the study to other residents within the state, and across the industrial producing state in the nation. While some factors may be responsible for influencing quality of life, numerous factors also affect an individuals mental health. The study concentrated on stress, anxiety and depression on quality of life which are the variables to assess its impact on quality of life in a cement environment and a non-cement polluted environment.

A convenient sampling technique was used to select a total of 400 respondents from 15 communities. A total of 209 were examined in 6 communities around Sagamu, 141 respondents from 5 communities in Ewekoro and 50 respondents from 4 communities in Ijebu Ode, a non-cement producing community to complete the required sample population.

INSTRUMENTS

The data for the study was collected using four standardized questionnaires to elicit information from the participants. It is divided into five sections such as Socio-Demographic data form, WHO-quality of life scale with a Cronbach's alpha of 0.78, the perceived stress scale with a Cronbach alpha of 0.81, anxiety scale Cronbach's alpha of 0.77 and depression scale with a value reliability of 0.87.

PROCEDURE FOR DATA COLLECTION

The questionnaire was distributed with the aid of some research assistants at their respective household and workplace within the radius of cement factories and non-cement factory area while interview was conducted with key informant health practitioners in the study area, two structured questions asked was jotted and no recording was made, effort was made to ensure that respondents understand the contents and requirement of the questionnaire in order to yield valid result.

RESULTS

The Inter-correlation of the main variables in the study using Pearson correlation coefficient was analyzed at 0.05 level of significance. The results showed all the domains of quality of life correlated negatively with anxiety, stress and depression which implies that the higher the level of anxiety, stress or depression among the respondents the poorer the quality of life for the respondents.

Prevalence of Stress, Anxiety, Depression and Quality of Life among Respondents

The prevalence of the variables of interest to the study are examined based on the town types of the respondents (cement and non-cement producing). The results are presented in the tables following.

Table 1: Distribution of Stress among Respondents

	Cement producing town		**Non-Cement producing town**		**Total**		**Chi-square**
	Freq.	%	Freq.	%	Freq.	%	$\chi^2 = 2.639$
Low stress	141	40.6	15	28.8	156	39.1	df = 1
High stress	206	59.4	37	71.2	243	60.9	p = .104
Total	347	100.0	52	100.0	399	100.0	

Table 1. The results showed that 156 (39.1%) of the respondents had low stress, and 243 (60.9%) had high stress. This showed that a larger percentage of the respondents had high levels of stress. Most of the respondents in both cement and non-cement producing states showed high level of stress although more showed stress in the cement producing states in comparison to those in non-cement producing states while there were more respondents showing moderate stress in the cement producing states compared to the non-cement producing states. However, there was no significant association between the levels of stress and the town type ($\chi^2 = 2.639$; df = 1; p > .05). It can be concluded that the towns did not differ significantly in their levels of stress.

Table 2: Distribution of respondents' anxiety scores

	Town type						
	Cement producing town		Non-cement producing town		Total		Chi-square
	Freq.	%	Freq.	%	Freq.	%	
Mild anxiety	134	39.1	17	35.4	151	38.6	$\chi^2 = .370$
Moderate anxiety	88	25.7	12	25.0	100	25.6	df = 2
Severe anxiety	121	35.3	19	39.6	140	35.8	p = .831

Overall, 151 (38.6%) of the respondents displayed mild anxiety, 100 (25.6%) displayed moderate anxiety while 140 (35.8%) showed severe anxiety.The result revealed that more respondents in the cement producing towns displayed mild anxiety (39.1%) in comparison to the non-cement producing towns respondents (35.4%), whereas more respondents in the non-cement producing town showed severe anxiety (39.6%) in comparison to the cement producing town respondents (35.3%). There was about an equal number of respondents manifesting moderate anxiety in both the cement and non-cement producing town(25.7% and 20.7% respectively). The result in the table further showed that there was no significant association between the town type and the level of anxiety of the respondents ($\chi^2 = .370$; df = 2; p > .05).

Table 3Distribution of respondents' scores on depression

	Cement producing town		**Non-cement producing town**		**Total**		**Chi-square**
	Freq.	%	Freq.	%	Freq.	%	
No risk of clinical depression	95	27.9	19	37.3	114	29.1	$\chi^2 = 1.899$ df = 1
Risk of clinical depression	246	72.1	32	62.7	278	70.9	p = .168

Overall, 114 (29.1%) of the respondents showed no risk of clinical depression while 278 (70.9%) showed risk of clinical depression. Further examination of the table revealed that more respondents in non-cement producing towns (37.3%) showed no risk of clinical depression in comparison to the cement producing towns (27.9%) while more respondents in the cement producing towns (72.1%) showed risk of clinical depression in comparison to the non-cement producing towns (62.7%). The result further showed that there was no significant association between the respondents' level of depression and the town type ($\chi^2 = 1.899$; df = 1; $p > .05$). Thus, it can be concluded that the respondents did not differ in their levels of depression symptoms based on their town type.

Table 4Distribution of scores on quality of life among Respondents

	Town type				t	p
	Cement producing town		Non-cement producing town			
	Mean	Std. Dev.	Mean	Std. Dev.		
Physical Health	69.98	16.44	66.21	20.66	1.489	.137
Psychological Health	70.90	15.04	66.51	18.02	1.915	.056
Social Relations	71.79	18.62	66.35	22.56	1.909	.057
Environment Health	57.99	16.43	54.27	17.66	1.510	.132
Quality of Life	96.06	13.65	92.23	16.26	1.837	.067

Table 4. Examination of the table showed that in the cement producing communities, the respondents had poorest quality of life scores on environmental quality of life followed by physical health, psychological health and social relations respectively. On the other hand, in the non-cement producing communities, the least quality of life score was on equally on environmental quality of life. However, the other domains had similar scores.

Meanwhile the respondents in the cement producing communities had higher environmental quality of life scores in comparison to the non-cement producing communities but they had lower scores in all the other domains. However, the cement producing communities did not show significantly different scores in all domains of quality of life when compared with the non-cement producing communities.

Table 5: Inter-Correlations of Anxiety, Stress, Depression on Residents of Cement Producing Communities in Ogun State

		1	2	3	4	5	6	7	8
1	Anxiety	1							
2	Stress	.372*	1						
3	Depression	.575*	.384*	1					
4	Physical Health	-.104*	-.179*	-.137*	1				
5	Psychological Health	-.053	-.207*	-.156*	.630*	1			
6	Social Relations	-.261*	-.409*	-.267*	.434*	.423*	1		
7	Environment Health	-.109*	-.212*	-.168*	.586*	.532*	.501*	1	
8	Overall Quality of Life	-.276*	-.417*	-.298*	.517*	.494*	.982*	.584*	1
	* Correlation is significant at the 0.05 level (2-tailed).								

The results show that there was significant correlation among the variables. Physical health correlated negatively with anxiety ($r = -0.104$; $p < 0.05$), stress ($r = -0.179$) and depression ($r = -0.137$; $p < 0.05$); psychological health correlated negatively with stress ($r = -0.207$; $p < 0.05$) and depression ($r = -0.156$ $p < 0.05$); social relations correlated negatively with anxiety ($r = -0.261$; $p < 0.05$), stress ($r = -0.409$, $p < 0.05$), and depression ($r = -0.267$; $p < 0.05$); environmental quality of life negatively correlated with anxiety ($r = -0.109$; $p < 0.05$), stress ($r = -0.212$; $p < 0.05$) and depression ($r = -0.168$; $p < 0.05$). Overall quality of life correlated negatively with anxiety ($r = -.276$; $p < .05$), stress ($r = -0.417$; $p < 0.05$), and depression ($r = -0.298$; $p < 0.05$). The above implies that higher anxiety, stress or depression among the respondents means poorer quality of life for the respondents.

Anxiety had positive correlation with stress ($r = -0.372$) and depression ($r = 0.575$) implying that higher anxiety correlated with higher perceived stress and depression among the respondents. Also, depression

had a positive relationship with stress (r = -0.385) implying that higher levels of depression related with higher levels of stress.

Table 6: Stress and Quality of Life of Residents in the Cement Producing Communities

Stress	*N*	*Mean*	*Std. Dev.*	*t*	*df*	*p*
Low stress	141	101.1	12.4	6.067	345	0.001
High stress	206	92.5	13.4			

The result shows that there was a significant difference in quality of life of respondents with low and high stress [t (345) = 6.067; p < .05].

Table 7: Anxiety and Quality of Life of Residents in the Cement Producing Communities

	N	Mean	Std. Deviation	f	p
Mild severity	134	100.2463	12.74412	21.871	.001
Moderate severity	88	97.8864	11.13597		
Severe anxiety	121	89.8182	14.36489		
Total	343	95.9621	13.73352		

The result showed that anxiety of the respondents significantly influenced their quality of life [F = 21.871; p <.05]. Thus, the hypothesis that anxiety will have significant influence on overall quality of life of residents in cement producing areas in Ogun state is accepted.

Table 8: Depression and Quality of Life of Residents in the Cement Producing Communities

Depression	*N*	*Mean*	*Std. Dev.*	*t*	*df*	*p*
No risk of clinical depression (mild)	95	102.4	13.4	5.86	339	0.001
Risk of clinical depression (chronic)	246	93.2	12.9			

The result showed that there was a significant difference in quality of life of respondents based on their level of depression [t (339) = 5.86; p < .05] and it was concluded that depression will significantly predict quality of life of residents in cement producing areas.

The study that stress, anxiety and depression will have significant joint impact on quality of life of respondents in cement producing areas was measured

Table 9: Regression Analysis of Stress, Anxiety and Depression of Quality of Life of Residents in Cement Producing Communities in Ogun State

R = 0.468
R^2 = 0.219
Adj. R^2 = 0.212
S.E.E. = 12.188

ANOVA

	Sum of Squares	Df	Mean Square	F	p
Regression	13866.335	3	4622.112	31.115	.001
Residual	49467.196	333	148.550		
Total	63333.531	336			

Coefficients

	B	Std. Error	Beta	T	P
(Constant)	80.359	6.241		12.875	.001
Stress	.834	.133	.333	6.267	.001
Anxiety	-.207	.097	-.126	-2.130	.034
Depression	-.193	.092	-.123	-2.090	.037

The model significantly predicted quality of life [F (3, 333) = 31.115; p <.05]. All the three predictors significantly contributed to the model variation. The hypothesis that stress, anxiety and depression will have significant joint impact on quality of life of respondents in cement producing areas is accepted and it can be concluded that stress, anxiety and depression will significantly impact quality of life of residents in cement producing areas.

Report of Qualitative Data Analysis

Qualitative data was obtained using Key Informant Interview who has essential knowledge of the cement existence to corroborate the quantitative information on the quality of life of the respondents to the study. According to a respondent, 'the pollution from the factory is something else…'.It has bred significant discomfort on the residents in the area. Another respondent mentioned that '…the cement has its effect on people as many cases of illness has been reported with possible causes from the industry…' (A doctor in a Private Maternity Centre).

Illnesses that were reported mainly were environment related such as respiratory infections, skin irritations etc. A medical student at Olabisi Onabanjo University Teaching Hospital (OOUTH) mentioned that '…the cases we experience are more of respiratory…', while another mentioned 'skin irritations, and breathing problems…' (A matron at the Primary health Centre, Sabo, Sagamu), '…cases of reported respiratory problems, high blood pressure, asthma…' '…all you find are people complaining of eye problems, breathing problems, skin irritations, but what is common is this difficulty in breathing' (A nurse at Itori Primary Health Care Centre).

The above show possible quality of life challenges for the respondents in the study area especially the cement producing communities.

DISCUSSION

Stress was a contributor to the level of quality of life of both cement producing and non-producing as shown in the distribution of stress among respondents, where stress of non- producing respondents are attributed to many other factors aside the environment, but the level of stress with producing cement area shows that their level of stressors can be attributed to environmental factors such as pollution, noise which has implication on their mental state. Krohe (1997) affirmed that stress has its implication on physical and mental well being and when one is unable to cope with it, only leads to psychological issues such as depression and anxiety. Dehas (1998) findings contradicts this study. His findings affirmed that only prolonged and continuous stress has negative implication, it over activates many of the body's organs and eventually leads to physical and mental exhaustion because it decreases the function of the system, strains the body and consequently leads to illness, or even prolong the illness we already have. Further findings from Akinboye (2002) study states that both major and minor stress contributed to the dimensions of quality of life. The National Women's Health Information Centre (2003) studied that both small and prolonged stress have its effect on our bodies which make us likely to get sick and worsen the problem we already had, resulting into cardiovascular diseases, gastrointestinal problems, mental disorders and migraine. However, results from anxiety and depression negatively influence qualify of life of resident in cement producing area, it shows that the higher the level of anxiety/depression the poorer the quality of life. The findings support Yusuf, Nuhu & Olisah (2013) study which says that emotional distress is experienced from people who suffer a certain ailment in the case of epilepsy, which manifest itself in the form of phobia, panic disorder thereby compromising quality of life at the level of psycho-social functioning. Another study by Aloba, Fatoye, Mapayi & Akinsulore (2013) on quality of life studies among Nigerian patients with psychiatric disorder support the study findings that poor quality of life was associated with illness related factors.

In examining the influence of the three variables on quality of life, result shows that stress, anxiety and depression correlated negatively to all levels of domain on quality of life scale where higher levels of stress, anxiety, depression leads to poorer quality of life and anxiety and depression has a deeper root of contributing negatively to the quality of life of residents. The study supports Aktan, Ozman, San Li (2001) study that people over react and cause a panic on physical illness which causes impairment in quality of life domain. They affirm that anxiety when not properly managed only leads to depressive symptoms.

Implication of the Study

It is evident from the study that the effects of stressful life events, anxiety and depression arising from life events and environmental consequences have collective and interactive adverse effect on physical and mental health consequence on residents in polluted area. For instance loss of life on the basis of health due to an

unprotected environment from pollution hazards leads to poor mental health problems among residents such as anxiety, depression, post -traumatic stress disorder and a variety of other illness

Stress among community residents leads to reduced energy, difficulty in dealing with others and managing occurrence from the environment which is usually accompanied by a feeling of helplessness and powerlessness. The findings revealed that improvement in the quality of environment will produce corresponding improvement in the quality of life.

The findings demonstrated that maintaining a balance between oneself and the requirement of the environment, avoiding phobic and unnecessary distress are important for mental health and general, the study therefore serves as an awareness to sensitize Nigeria industries emitting gas and particles during manufacturing to help reduce health hazards and prevent other ailment that might be as a result of inhaling poisonous gas, dust, metal lethal and other chemical particles coming from their industries to the environment.

CONCLUSION

The study indicated that stress, has a significant influence of quality of life of residents, This has been attributed to an individual biological make up. A certain level of stress (good stress) is required to function in daily life which will help in the domains on quality of life, only continuous stress which are termed chronic could negatively influence quality of life but this is not experienced by the respondents because they see life and their community as something they could bare and cope with without overreactions. Meanwhile anxiety and depression influences quality of life negatively. As expected, individual residents who are anxious develop phobic attack which result into distress and consequently depression, perceive their quality of life been threatened. As anxiety and depression causes an impairment on psychological health, physical health, social relationship e.t.c., which consequently affect their quality of life with additional contribution of this study that quality of life of respondents from producing communities, is worst at all levels of domain than non-producing cement area. Yet their health implications according to health practitioners are the same; they all experience the same problem ranging from cardiovascular and respiratory problem which was concluded to be because of the environment.

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