PERSONALITY, SELF EFFICACY AND HEALTH ANXIETY AS PREDICTORS OF HEALTH RISK BEHAVIOUR AMONG SCAVENGERS IN IBADAN, SOUTHWESTERN, NIGERIA

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Abstract- **Scavengers working on dumpsite are often engagedin various health risk behaviour as a result of working conditions with solid waste. The study examines personality traits, self-efficacy and health anxiety as predictors ofhealth risk behaviouramong scavengers. For personality traits, widely accepted Big Five was utilized as indicators; the Big Five dimensions were openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism.Personal safety, violence related behaviour, suicide and sexual behaviour were utilized for health risk behaviour. A total of two hundred and two(n=202) scavengers were purposively selected from five dumpsites in Ibadan.Themean age of the participants was 37 years (SD=12.2).It was found that conscientiousness predicted personal safety of health risk behaviour (β=.252, t = -2.037, P<.05) and violence related behaviour (β = .289, t = 3.227, P<.05). Extraversion had significant influence on violence related behaviour (β = .321, t = 2.357, P<.05). Neuroticism also significantly predicted violence related behaviour (β = .401, t = 4.233, P<.05).Openness to experience and agreeableness personality traits did not predict violence related behaviour. Agreeableness and neuroticism significantly predicted suicide behaviour.Openness to experience, extraversion, agreeableness and neuroticism significantly predicted sexual behaviour. Openness accounted for 24.2% (β = 0.242) variance, extraversion accounted for 39% (β = 0.390), agreeableness accounted for 14% (β = 0.140)   while neuroticism accounted for 30.2% (β = 0.302) variance in sexual behaviour. Self –efficacy had significant influence on violence related behaviour (F(1 200)=10.76;P<.05) and suicide behaviour (F(1 200)=5.67;P<.05). Health anxiety had significant influence on suicide behaviour only (F(1 200)=4.93;P<.05).   Self-efficacy and health anxiety had interaction significant influence on sexual behaviour (F(2 198) =5.89; P<.05). There is need to focus attention on these psychological factors in environmental and health care management.**

Index Terms— **Scavengers, health risk behaviour, personality, extraversion, conscientiousness, openness to experience, dumpsites, personal safety, suicide, violence related behaviour, sexual behaviour, health anxiety**

I. BACKGROUND

Municipal Solid Waste has become an important problem especially in large cities around the world. Uncontrolled land filling practices and associated problems of municipal solid waste (MSW) disposal is a growing environmental and public health concern in the developing world. Solid waste arising from human activity has become a major environmental problem causing extensive pollution, which threatens human health. There has been a significant increase in municipal solid waste generation in Nigeria over the last few decades. Humans increasingly exploit resources as the population increases, using natural resources both for daily life and to improve overall living standards. The result is the depletion of natural resources and further negative effects on human life.In Ibadan, this is largely because of the rapid population growth and economic development.

Per capital rate of MSW production in Lagos, Nigeria is reported to range from about 0.21kg per day per person (Bamgbose, 2000; World Bank, 2004) to about 0.35kg per day per person (Cygnet, 2002; Aboyade, 2004). This is equivalent to about 49 million kg waste per day (17.9 million metric tons per year) in Nigeria with a population of about 140 million (2006 population). The main components of these wastes are organic materials, paper, plastics/rubbers, textiles, and metals (Ojolo, 2004). These wastes are stored and transported in and through the society's living space and have a great potential of adversely affecting the health and hygiene of the people living in the areas concerned. It also has a potential for affecting the aesthetic of the environment. General composition of refuse in most places in Nigeria constitutes about 70% organic materials and 30% non-organic materials.

Although it is generally reported that enormous quantities of solid waste are generated in Ibadan daily, the exact figures were difficult to determine due to the fact that proper records of disposal are not kept at by the landfill managers. Maclaren International Ltd (1970) reported that the average per capita quantity of solid waste generated was 0.37 –0.5 kg/day for the traditional areas of the city and 0.53 kg/day for the newer areas. Oluwande (1983) estimated the average solid waste generated and its mean production rates per head for three distinguished areas of Ibadan:0.420 kg/day in the GRA; 0.377 kg/day in outlying areas; and 0.35 kg/day in the old city. Statistical analyses have shown that the daily amount of domestic solid waste generated and collected in the urban area in 1998 varied from 0.1 to 0.5 kg person, depending on location and economic standing of the individual (Ayeni, 1987).

As reported by Egunjobi (1986), 38 million kg of solid waste was collected in the suburbs of Ibadan in 1986; the suburbs constitute about 21% of the city. On this basis, it can be estimated that 181 million kg of solid waste was generated in the city as a whole in 1986. This gives a per capita waste-generation rate of 0.31 kg/day, using the 1986 estimated population of 1.6 million for the city. This figure changes constantly with the growth in population.

Scavengers working in municipality dump sites are exposed to health risk from various dangers (infections, injury, disability) while they are on duty. There are many problems about waste management that lead to lack of support, interest and responsibility from the concerned organization. Scavengers work in municipality open-dump sites are constantly exposed to factors that affect health and safety. However, the number of scavengers in the dump site shows increase in occupation with an increase in the amount of solid waste. This is a huge environmental health problem and also occupational health risks to those who work with waste that we call scavengers.

Language provides us with a tool that allows us to describe differences in people and further, these adjectives have allowed researchers to take a lexical approach in identifying personality dimensions (McCrae & John, 1992). It is hypothesized that traits that describe individual differences of personality would have become encoded in our language as adjectives (McCrae & John, 1992). These adjectives were clustered and analyzed to form what researchers have adopted as the Big Five or also known as Five-Factor Model (FFM) as the main representation of personality. These personality dimensions are extraversion (E), agreeableness (A), conscientiousness (C), neuroticism or lack of emotional-stability (N), and openness to experience (O). Research in identifying personality dimensions started in the 1960s, but seemed to disappear until the 1980s, when many researchers agreed that these were fundamental dimensions of personality (McCrae & Costa, 1986; McCrae & John, 1992). The following descriptions of the Big Five are in terms of higher scores: extraversion is characterized as being energetic, talkative, sociable; agreeableness is characterized as being friendly, trusting, generous, and tolerant; conscientiousness is considered as being cautious, orderly, dependable, graceful, and responsible; neuroticism is characterized as being terse, anxious, and emotionally-unstable; openness is considered to be imaginative, and focused on wisdom, art, knowledge, and objectivity (Friedman & Schustack, 2003; Goldberg, 1990; McCrae & John, 1992).

Torres & Pritchard (2010) found many significant correlations between various personality dimensions and various health risk behaviours. Most notably, agreeableness correlated with more health risk behaviours than any other personality dimensions. Risky Sexual behavior (RSB), among other behaviours, has been attributed to sensation seeking (Gullette & Lyons, 2005; Shafer, 2001), which is related to high levels of extraversion.

High extraversion scores are also related to smoking (Wilkinson & Abraham, 2004) along with high self-esteem which is usually a characteristic of high extraversion scores (Robins, Tracy, Trzesniewski, Potter, & Gosling, 2001). Researchers also found significant gender differences in many of the health risk behaviours and three personality dimensions. Males participated in more violent acts, tobacco use, alcohol use, marijuana use, and other drug use when compared to females.

The generalizing of self-efficacy as a core mechanism in human cognition and behaviour rests on claims to the, 'predictive generality of efficacy beliefs as significant contributions to the quality of human functioning (Benight and Bandura 2004). In other words, levels of self-efficacy are said to be measurable and capable of predicting particular behavioural outcomes, for example, whether an individual uses a condom or complies with a medical treatment regime. In a study conducted among college student on self-efficacy and health risk behaviour, self-efficacy did not have a significant effect on health risk behavior (Smith, 2004).

The onset of health anxiety can be at any age. However it commonly it starts in adolescence or in young adults. Some people with health anxiety have an excessive worry about an illness, which is usually briefer in duration. However the usual course of health anxiety is to come and go depending on various life stresses. Other people with health anxiety have a long-term or chronic health anxiety. It can lead the patient to avoid doctor's visits or other easily available information about her health. Anxiety disorders are the most common mental health condition and frequently co-occur with a variety of health risk factors, such as physical inactivity, cigarette smoking, and alcohol consumption. There are dearth of literature on health anxiety and health risk behaviour on one hand and personality, self-efficacy and health risk behaviour on the other hand.

The exploration of health status and health risk impact assessment is a concern and is crucial to continuously develop, strengthen and implement patterns of quality of life of the scavengers. The purpose of the study is to:

i. Investigate influence of personality traits on health risk behavior among scavengers in open-dump sites.

ii. To establish predictive influence of self –efficacy and health anxiety on health risk behaviour.

II. METHOD

This correlational study adopted a cross-sectional design. The independent variables were personality, self-efficacy and health anxiety. The dependent variable was health risk behaviour. The study was conducted at Orita Aperin, Lapite, Aba Eku, Awotan and Ajakana dumpsite in Ibadan, Oyo State, Southwest, Nigeria.

The study area falls within the humid and sub-humid tropical climate of Southwestern Nigeria with a mean annual rainfall of about 1230 mm and mean maximum temperature of 32°C. Relief in Ibadan is gently undulating and ranges between 200-234 m (above mean sea level). The adjoining stream which is at lower elevation flows from southeast to northwest. Scavengers working in the dumpsites participated. Prospective participants were required to fill an inclusion-exclusion criteria including:

1. Working on the sites as Scavengers on or before the study,

2. English literate and

3. Personally willing to participate after an informed consent process.

About 362 scavengers were working at the Dumpsites; only about 275 of them fulfilled the inclusion criteria, and were purposively included as participants. Of these, 202 questionnaires were correctly filled and returned, representing 73.5 % response rate. These were made up of 126 (62.4%)

males and 76 (37.6%) females. The participants' age ranged between 18 and 45 years with a mean age of 37 years (SD=12.2).97(48%) had no formal education, 103(51%) had primary school while 2(1%) did not complete secondary school.

III. INSTRUMENTS

Data was collected with the use of a 70-item self-report questionnaire made up of five sections. The 7-item Section A was designed to tap information about respondents' socio-demographic characteristics. Such information included: gender, age, marital status, religion, job status, and educational background. Section B had 10 items. It contained the general self-efficacy scale developed by Schwarzer & Jerusalem.The scale is designed in a Likert format with responses ranging between not at all true - exactly true. Schwarzer & Jerusalem (1995) reported a Cronbach α of .80, but a re-validation during this study yielded a Cronbach α of .75. The norms established during this study was (N= 202, x =21.4, SD= 11.4).The higher the score on the scale, the higher the quality of life optimism, and vice versa.

Section C of the questionnaire developed by Beatrice and Oliver (2006), a 10- item Big five personality inventory. The inventory measured five personality traits; extraversion, neuroticism, agreeableness, conscientiousness and openness to experience. The self-report Likert-type instrument has five graduatedresponses ranging from strongly agree to strongly disagree. Internal consistency of each of the subscale were openness (.79),conscientiousness (.82),extraversion(.89), agreeableness(.74) and neuroticism(.86).For the purpose of this study, alpha coefficient obtained for the subscale were openness(.75),conscientiousness (.80),extraversion(.89), agreeableness(.72) and neuroticism(.81).

Section D was an 89-item health-risk behaviours questionnaire modified from the questionnaire of the U.S. Youth Risk Behaviour Surveillance System by Chaveepojnkamjorn and Pichainarong (2011). It focused on personal safety, violence-related, suicide and sexual behaviours. The developer reported a reliability coefficient of .73-.86. A re-validation during this study yielded an internal coefficient of .80.

Section E measured health anxiety. It was an 18- item health anxiety inventory developed by Salkovskis, Rimes, Warwick, & Clark(2002).The author reported a very high internal consistency, revalidation yielded a Cronbach α of .85.

IV. DATA COLLECTION

The researcher obtained permission from the Department of Psychology, University of Ibadan, to conduct the study. While the participants were not busy at the dumpsites, the researcher discussed the purpose of the study and gave the questionnaires to prospective participants, including a detailed informed consent document. Only willing and consenting scavengers at the dumpsites were recruited as research participants. They were allowed to read the questionnaire and respond accordingly. This took an average of 25 minutes.

A total of 275 of them fulfilled the inclusion criteria in the five dumpsites, and were purposively included as participants. It took a period of eight weeks to administer two-hundred and seventy-five questionnaires. Of these, only 202 questionnaires were correctly and completely filled. Completed questionnaires were sorted, coded, and entered into the Statistical Package for Social Sciences (Version 16 for windows, SPSS Inc., Chicago, USA) for data analysis.

V. RESULTS

Table 1 - Summary of multiple regression showing independent and joint prediction of personality factors on personal safety behaviour.

Independent effects						Joint effects			
Variables	**B**	**S.E.**	**β**	**T**	**P**	**R**	**R²**	**Adj.R²**	**P**
Openness	.093	.453	.027	.205	>.05				
Conscientiousness	-.795	.390	-.252	-2.037	<.05	.166	.028	.002	>.05
Extraversion	.149	.423	.044	.357	>.05				
Agreeableness	.070	.402	.020	.173	>.05				
Neuroticism	.455	.369	.144	1.233	>.05				

Table 1 shows that hypothesis which state that personality factors will significantly independently and jointly predict personal safety among scavengers was not confirmed (R^2=.028; F (5,196) =1.05; P>.05). In term of independent effect of each factors, only conscientiousness predicted personal safety of health risk behaviour (β = .252, t = -2.037, P<.05).The variable accounted for 25.2 percent (β = 0.252) variance in personal safety subscale of health risk behaviour.

Table 2 - Summary of multiple regression showing independent and joint prediction of personality factors on violence related behaviour.

Independent effects						Joint effects			
Variables	**B**	**S.E.**	**β**	**T**	**P**	**R**	**R²**	**Adj.R²**	**P**
Openness	.072	.513	.035	.415	>.05				
Conscientiousness	-.857	.482	-.289	3.227	<.05	.732	.518	.321	<.05
Extraversion	.549	.614	.321	2.357	<.05				
Agreeableness	.054	.531	.043	.283	>.05				
Neuroticism	.955	.869	.401	4.233	<.05				

Table 2 shows that hypothesis which state that personality factors will significantly independently and jointly predictedviolence related behaviour subscale of health risk behaviour among scavengers was confirmed (R^2=.518; F (5,196) =4.233; P<.05). In term of independent effect of each factors, conscientiousness predicted violence related behaviour (β = .289, t = 3.227, P<.05).The variable accounted for 28.9 percent (β = 0.289) variance in violence related behaviour subscale of health risk behaviour. Extraversion had significant influence on violence related behaviour (β = .321, t = 2.357, P<.05).It accounted for 32.1% variance in violence related behaviour. Neuroticism also significantly predicted violence related behaviour (β = .401, t = 4.233, P<.05).It accounted for 40.1% variance in violence related behaviour. Openness to experience and agreeableness personality traits did not predict violence related behaviour.

Table 3 - Summary of multiple regressions showing independent and joint prediction of personality factors on suicide behaviour.

Independent effects						Joint effects			
Variables	**B**	**S.E.**	**β**	**T**	**P**	**R**	**R^2**	**Adj.R^2**	**P**
Openness	.067	.312	.054	.228	>.05				
Conscientiousness	-.074	.291	.031	1.231	>.05	.662	.394	.231	<.05
Extraversion	.0832	.435	.052	.756	>.05				
Agreeableness	.698	.942	.298	2.283	<.05				
Neuroticism	.821	.532	.311	3.782	<.05				

Table 3 shows that hypothesis which state that personality factors will significantly independently and jointly predicted suicide behaviour subscale of health risk behaviour among scavengers was confirmed (R^2=.231; F (5,196) =3.782; P<.05). In term of independent effect of each factors, only agreeableness and neuroticism significantly predicted suicide behaviour. Agreeableness accounted for 29.8 percent (β = 0.298) variance in suicide behaviour while neuroticism accounted for 31.1%.

Table 4 - Summary of multiple regression showing independent and joint prediction of personality factors on sexual behaviour.

Independent effects						Joint effects			
Variables	**B**	**S.E.**	**β**	**T**	**P**	**R**	**R^2**	**Adj.R^2**	**P**
Openness	.577	.431	.242	2.04	<.05				
Conscientiousness	-.039	.173	.021	.623	>.05	.709	.541	.400	<.05
Extraversion	.638	.524	.390	3.756	<.05				
Agreeableness	.598	.432	.140	2.065	<.05				
Neuroticism	.694	.510	.302	4.651	<.05				

Table 4 shows that hypothesis which state that personality factors will significantly independently and jointly predicted sexual behaviour subscale of health risk behaviour among scavengers was confirmed (R^2=.541; F (5,196) =4.651; P<.05). In term of independent effect of each factors, openness to experience, extraversion, agreeableness and neuroticism significantly predicted sexual behaviour. Openness accounted for 24.2 percent (β = 0.242) variance, extraversion accounted for 39% (β = 0.390), agreeableness accounted for 14% (β = 0.140) while neuroticism accounted for 30.2%(β = 0.302) variance in sexual behaviour.

Table 5 - Summary of 2x2 MANOVA of self-efficacy and health anxiety on personal safety, violence related behaviour, suicide and sexual behaviour.

	Dependent variables	**SS**	**Df**	**MS**	**F**	**P**
A	Personal safety	52.66	1	52.66	3.003	>.05
	Violence related	58.66	1	58.66	10.7	<.05

	Behaviour				6	
	Suicide behaviour	78.74	1	78.74	5.64	<.05
	Sexual behaviour	.835	1	.835	.52	>.05
B	Personal safety	32.82	1	32.82	1.87	>.05
	Violence related Behaviour	.837	1	.837	.159	>05
	Suicide behaviour	68.81	1	68.81	4.93	<.05
	Sexual behaviour	9.12	1	9.12	.87	>.05
A*B	Personal safety	22.47	1	22.47	1.28	>.05
	Violence related Behaviour	2.29	1	2.29	.436	>.05
	Suicide behaviour	44.69	1	44.69	3.02	>.05
	Sexual behaviour	93.91	1	93.91	5.89	<.05
Error	Personal safety	3999.58	157	25.45		
	Violence related Behaviour	3229	157	20.57		
	Suicide behaviour	3794	157	24.19		
	Sexual behaviour	3904	157	24.86		
Total	Personal safety	10900	202			
	Violence related behaviour	20834	202			
	Suicide behaviour	10076	202			
	Sexual behaviour	14471	202			

A= self-efficacy, B= health anxiety

Table 5 shows that hypothesis which state that self-efficacy and health anxiety will have significant main and interaction influence on personal safety, violence related behaviour, suicide and sexual behaviour subscale of health risk behaviour among scavengers was partially confirmed. Self –efficacy had significant influence on violence related behaviour ($F(1\ 200)=10.76;P<.05$). It also had significant influence on suicide behaviour ($F(1\ 200)=5.67;P<.05$). Health anxiety had significant influence on suicide behaviour only ($F(1\ 200)=4.93;P<.05$). Self-efficacy and health anxiety had significant influence on sexual behaviour ($F(2\ 198)=5.89;P<.05$).

VI. DISCUSSION

Research concerning the predictive power of personality, self- efficacy and health anxiety has been of great interest, and the researcher has set out to contribute to the body of literature. Examining personality characteristics, self-efficacy and health anxiety as predictors of health risk behaviour was the goal of this study. The results from the present study showed that conscientiousness personality trait was significant on personal safety and violence related behaviour of health risk. Extra version significantly predicted violence related and sexual behaviour. Neuroticism significantly related to violence related, suicide and sexual behaviour. Agreeableness had significant influence on suicide and sexual behaviour while openness to experience personality trait had significant influence on sexual behaviour. In addition, self –efficacy significantly predicted violence related behaviour while health anxiety predicted suicide behaviour. There was an interaction significant influence of health anxiety and self- efficacy on sexual health risk behaviour.

In line with earlier findings (Torress and Pritchard, 2004) among college students with agreeableness, extraversion, conscientiousness, emotional stability, or openness personality traits was significantly positively correlated with violence related behaviour. Suicide was found to have a strong negative correlation with emotional stability, but not with extraversion, agreeableness, conscientiousness, or openness. Sexual risk displayed a negative correlation with agreeableness and conscientiousness, but no correlation with extraversion, emotional stability, or openness. Alcohol was significantly positively correlated with extraversion, but no significance was found between alcohol use and agreeableness, conscientiousness, and openness. Also in agreement with (Lauriola & Levin, 2001), who found support for neuroticism as being the best predictor of risky behaviour. However, (Heaven, 1996) found that extraversion and neuroticism displayed little correlation with health risk behaviour, whereas agreeableness showed the most support for this type of behaviour.

The relatedness of self-efficacy in health risk behaviour in this study may be attributed from connection between the core mechanisms of human cognition; personal experience and behaviour. People form their self-efficacy perceptions by interpreting information from four sources. The most influential source is the interpreted result of one's performance, or mastery experience. Outcomes interpreted as successful raise self-efficacy; those interpreted as failures lower it. The second source of self-efficacy information is the vicarious experience individuals undergo when they observe others performing tasks. Graham and Weiner (1996) had earlier found that self-efficacy has proven to be a more consistent predictor of behavioral outcomes than have other self-beliefs.

Health anxiety was significant on suicide behaviour of health risk. This is evidenced by psychological implication of anxiety on healthy behaviour. In line with study conducted by Lerman, C., Narod, S., Schulman, K., Hughes, C., Gomez-caminero, A., Bonney, G., Gold, K., Trock, B., Main, D.,Lynch, J., Fulmore, C., Snyder, C., Lemon, S.J., Conway, T., Tonin, P., Lenoir, G., Lynch, H., (1996)examined patients' preferences for

information regarding their susceptibility to various forms of cancer. Specifically, Lerman et al(1996) found that 40% of high-risk patients who are offered a test for genetic susceptibility to breast and ovarian cancer declined the test. In a similar study on a type of colon cancer, 57% of high-risk individuals declined to know the test results (Lerman,1999).Lerman et al. (1996) cite anticipated emotional reactions to bad news as one of the main barriers to testing. Also, in a meta-analysis of 12 studies, Facione (1993) concluded that 34% of women with breast cancer symptoms delay help seeking for three or more months. Although some women seem to delay because they do not consider their symptoms to be serious, others know they should see a physician but are afraid, or hope for the symptoms to go away by themselves (Nosarti, C., Crayford, T., Roberts, J.V., Elias, E., McKenzie, K., David, A.S., (2000).

VII. CONCLUSION

By and large, scavengers with openness to experience, extraversion, agreeableness and neuroticism personality traits are more likely to engage in sexual health risk behaviour. Those with agreeableness and neuroticism traits are more on suicide risk behaviour while conscientiousness, extraversion and neuroticism have tendency to involve in violence related behaviour. Only conscientiousness trait is likely to involve in personal safety behaviour. The interaction of self-efficacy and health anxiety on sexual health risk behaviour was one of the major contributions to literature. This implies that self- efficacy and health anxiety influence health risk behaviour. There is need to focus attention on these psychological factors in environmental and health care management. Relevant policy maker in government and non-governmental agencies should set priority on critical approach on these factors.

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