

INFLUENCE OF ILLNESS INTRUSIVENESS, NEUROTICISM AND DEMOGRAPHIC VARIABLES ON EMOTIONAL DISTRESS AMONG HYPERTENSIVE AND DIABETIC PATIENTS

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ABSTRACT

This cross-sectional survey investigated the influence of illness intrusiveness and personality on emotional distress in chronic medical conditions. Participants were 259 outpatient attendees of two General Hospitals in Ibadan, South-Western Nigeria: 137 in treatment for hypertension and 122 in treatment for diabetes mellitus. A psychological battery, consisting of standardized measures of illness intrusiveness, personality (neuroticism), emotional distress and a socio-demographic prototype was used to collect data. Initial analyses indicated that the two samples (diabetic and hypertensive patients) were significantly high (and differentially so) on emotional distress illness ($t = 3.04$; $p < .05$), illness intrusiveness ($t = 12.28$; $p < .001$) and neuroticism ($t = 2.61$; $p < .05$). Furthermore, results indicated that a high level of illness intrusiveness and high neuroticism were indicative of more emotional distress in both diabetes $\{F(1,118)=5.44; P<.05\}$ and hypertension $\{F(1,133)=78.40; P<.001\}$, with both differentially influencing emotional distress. It was strongly recommended that individuals experiencing chronic illness should be helped and encouraged to engage in hobbies and valued activities as much as possible in order to reduce their perceived illness intrusiveness. Psychological intervention should also be conducted for these individuals in order to reduce emotional distress.

Keywords: Illness intrusiveness, neuroticism, emotional distress, diabetes, hypertension.

INTRODUCTION

Despite technological advances in medical practice and routine availability of clinically effective therapies, individuals with chronic conditions must contend with a wide variety of challenges such as threat of death, pain, reduced physical strength and stamina, dependency on medical machinery and personnel, economic burden, complex medical and pharmacological regimens, and dietary and fluid-intake limitations. Research has

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demonstrated that, in addition to physical burden, individuals with chronic medical also face serious emotional and psychological problems. Indeed, people with chronic medical conditions are thrice as likely as people in the general population to experience serious emotional and psychological distress, including mental health problems (Anderson, Freedland, Clouse, & Lustman, 2001).

According to the biopsychosocial model of health, psychological and social factors are reliably associated with immunity and may influence other biological processes and health outcomes (Ogden, 2003). A growing body of empirical evidence indicates that although chronic medical morbidity has a strong negative impact on quality of life and may exacerbate emotional distress, it is not uniform across individuals (Abikoye, 2005; Devins, 1991; Kempen, Jelicic & Ormel, 1997; Ogden, 2003; Parker, 1986; Wickramasekera, 1995). Results of these and other related studies suggest that there are important individual differences that can significantly moderate emotional distress and quality of life among chronically ill persons, even when objective clinical factors such as severity of condition, type of illness and chronicity of illness were statistically controlled for, demonstrating that emotional distress in chronic medical morbidity cannot be fully explained by these lower order effects.

One psychological factor that has been shown to play a crucial role in chronic medical morbidity is illness intrusiveness (Devins, 1994). Illness intrusiveness refers to lifestyle disruptions attributable to an illness and (or) its treatment that interfere with continued engagement in valued activities and interests (Devins, 1994). In many instances, chronic illnesses force people to reduce their participation in valued activities and interests such as work, leisure activities, hobbies, education, household duties and so forth. A growing body of evidence is consistent with the view that although illness intrusiveness is a perceptual construct, this perception (not just the illness, per se) can seriously exacerbate emotional distress in chronic illnesses. For example, increasing illness intrusiveness was found to be associated with more markedly deleterious psychological outcomes (reduced psychological well-being and increased emotional distress) in multiple sclerosis (Devins, Styra, O' Connor, Gray, Seland, Klein, & Shapiro, 1996). Devins, Beanlands, Mandin, and Paul (1997) also found that illness intrusiveness exerted a powerful impact on quality of life in end-stage renal disease. Similarly, Devins, Edworthy, Guthrie and Martin (1992) reported a significant impact of illness intrusiveness on quality of life among persons with rheumatoid arthritis.

Previous studies mainly based on the stress and coping paradigm (Lazarus & Folkman, 1984; Pearlin, Lieberman, Menaghan, & Mullan, (1981) showed the importance of individual differences for health outcomes during and after a stressful situation, such as impaired health. Personality factors such as neuroticism can be considered as a major feature within the process of coping with chronic illness. Neuroticism, a personality characteristic of constantly being preoccupied with things that might go wrong and a strong emotional reaction of anxiety to such thoughts (Eysenck, Eysenck & Barrett, 1985), for instance, has been shown to play a substantial role in the trajectories of functioning during major medical events (Furstenburg, 1988). Larsen (1992) reported that neuroticism is associated with a tendency to recall physical symptoms as being worse than they really are. Kempen et al. (1997) found that higher levels of neuroticism are associated with poorer functioning in these domains: social functioning, physical functioning, role functioning, health perception, mental health and more bodily pain.

The present study represents an attempt at investigating emotional distress and the role of illness intrusiveness and personality in two chronic medical conditions: diabetes mellitus and hypertension. Diabetes mellitus is a common endocrine disease characterized by metabolic abnormalities such as elevated plasma glucose levels resulting from insufficient insulin or resistance to insulin effects. Long-term complications of diabetes include effects on the eyes (e. g. diabetic retinopathy, glaucoma, cataracts), kidneys (diabetic nephropathy), nerves (e. g. diabetic neuropathy, ischemia), and blood vessels (Coelho, Amorin & Prata, 2003). Diabetes is a chronic and debilitating disease that necessitates several adjustments in the patient's lifestyle (Brannon & Feist, 1997). Hypertension or high blood pressure is the commonest cause of sudden unexpected natural death in Nigeria (Amakiri, Akang, Aghadiuno & Odesanmi, 1997; Aligbe, Akhiwu & Nwosu, 2002). Hypertension is a medical condition in which constricted arterial blood vessels increase the resistance to blood flow, causing an increase in blood pressure against vessel walls. The heart must work harder to pump blood through the narrowed arteries. Patients with this chronic, life-threatening condition must contend with a myriad of challenges such as dyspnea, functional limitations, dietary restrictions and adverse effects of therapy.

Emotional distress has been reported to be a serious and very common complication of diabetes and hypertension (Makine, Karsidag, Kadioglu, Ilkove, Karsidag, Skovlund, Snoek, & Pouwer, 2009; Shafazard, Goldstein, Doyle, Hlatky, & Gould, 2004). It is now well established that emotional distress, particularly depression is about three times more prevalent in people with diabetes than healthy controls (Anderson et al., 2001; van Bastelaar, Pouwer, Geelhoed-Duijvestijn, Tack, Bazelmans, Beekman, Heine, & Snoek, 2010). In a review of studies examining the epidemiology of depression among diabetic patients, Goodnick (1997) reported prevalent rates of between 8.5% to 27.3% among patients in controlled studies and 11% to 19.9% in uncontrolled studies. Depression co-morbidity rates of between 10 to 15% have also been reported by other researchers (Anderson et al., 2001; Makine et al., 2009).

In this cross-sectional survey, the researcher investigated emotional distress in diabetic and hypertensive patients, and the extent to which emotional distress is moderated by illness intrusiveness and personality in these two chronic conditions. Specifically, it was hypothesized that there would be high levels of emotional distress among the patients; that there would be no statistically significant difference in emotional distress between the two patient groups; and that illness intrusiveness and personality would significantly moderate emotional distress in the two chronic conditions. Finally, it was hypothesized that duration of illness and age would be significantly related to emotional distress in diabetes and hypertension.

METHOD

Participants

Participants were two hundred and fifty – nine attendees of two General Hospitals in Ibadan, South-Western Nigeria. One hundred and thirty-seven of the participants were in treatment for hypertension, while one hundred and twenty-two were in treatment for diabetes mellitus. Patients included in the study were outpatients with non-comorbid conditions, aged at least 18 years, and who had been attending the hospitals for at least twelve months prior to the study. Among the hypertensive patients, 42 % were male, while 58 % were female. Mean

age was 48.9 years, while mean duration of illness was 8.6 years. Among the diabetic patients, 45 % were male, while 55 % were female. Mean age was 39.6, while mean duration of illness was 6.4 years (Table 1).

Table 1: Diabetic and hypertensive Patients by Socio-Demographic Characteristics and Variables of study

	Diabetic (n = 122)	Hypertensive (n = 137)	Sig.
Sex: n (%)			$\chi^2=7.09^{**}$
Male	55 (45.08)	58(42.3)	
Female	67 (54.92)	79(57.7)	
Marital Status: n (%)			$\chi^2=15.08^{**}$
Single	27 (22.13)	35 (25.54)	
Widowed	48 (39.34)	58 (42.34)	
Divorced/Separated	47 (38.53)	44 (32.12)	
Age (Mean \pm SD)	39.63 \pm 5.10	48.91 \pm 7.12	t=14.56^{***}
Duration of Illness (Mean \pm SD)	6.41 \pm 2.55	8.6 \pm 4.50	t=4.58*
Emotional Distress (Mean \pm SD)	78.18 \pm 9.75	81.25 \pm 8.52	t=3.04*
Illness Intrusiveness (Mean \pm SD)	67.42 \pm 6.33	58.30 \pm 4.35	t=12.28^{***}
Neuroticism (Mean \pm SD)	7.72 \pm 3.02	8.55 \pm 3.10	t=2.61*

Measures

A battery of psychological tests was used to assess illness intrusiveness, neuroticism, and emotional distress. Background variables in the study included gender, age, education, marital status, employment status and duration of illness. These were measured in the first section of the research questionnaire.

Illness intrusiveness was assessed with the Illness Intrusiveness Rating Scale (Devins et al., 1983), a 13-item self-report index of the extent to which an illness, its treatment or both interfere with each of 13 life domains important to quality of life. Domains are rated along a 7-point scale, ranging from 1 (not very much) to 7 (very much). Total score may range from 13 to 91. Considerable evidence supports the psychometric adequacy of the instrument (Devins, 1994). In the present study, internal consistency (coefficient alpha) was 0.83.

Neuroticism was measured using the neuroticism subscale of the revised version of the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1991). Neuroticism is related to a constant preoccupation with things that might go wrong and a strong emotional reaction of anxiety to these thoughts. The forced-choice, 12 item scale has been widely used and is reputed for its psychometric adequacy. Coefficient alpha in the present study was 0.82.

Emotional distress was assessed with Depression Anxiety and Stress Scales (Lovibond & Lovibond, 1995), a self-report scale designed to measure the negative emotional states of depression, anxiety and stress. The 42-item scale is scored along a four-point format through which participants indicate how much each of the 42 statements on the scale applied to them over the past week by ticking either 0 "Did not apply to me at all", 1 "Applied to me to some degree, or some of the time", 2 "Applied to me a considerable degree, or a good part of the time" or 3 "Applied to me very much, or most of the time". Each of the three dimensions (depression, anxiety and stress) was measured with 14 items.

The scales have been widely used and have been shown to be psychometrically robust (Abikoye, Olley & Adekoya, 2008), with reliability coefficients ranging from .71 to .81 (Lovibond & Lovibond, 1995; Abikoye, et al., 2008). Exploratory and confirmatory factor analyses have also consistently sustained the proposition of the three factors (Lovibond & Lovibond, 1995; Abikoye, et al., 2008). In the present study, coefficient alpha for the whole scale was .72 while coefficients of .73, .76 and .64 were obtained for Depression, Anxiety and Stress respectively.

Procedure

Ethical clearance and permission to conduct the study was sought and obtained from the Hospitals' Ethical Committees. Questionnaires were administered to consenting attendees (outpatient diabetic and hypertensive patients) of two secondary health institutions in Ibadan, Oyo State, by the researchers and two trained assistants over a six-month period. After explaining the objectives of the research, each participant signed an informed consent form displayed as the first page of the research questionnaire. Data cleaning was done before coding and entering, and were subsequently analysed using the version 15 of the Statistical Package for the Social Sciences (SPSS).

RESULTS

Diabetic and hypertensive patients were compared on psychological distress, using the t-test for independent samples. Results, as presented in table 1, indicated that the two samples reported very high and differentially significant levels of emotional distress ($t = -3.04$; $p < .05$), illness intrusiveness ($t = 12.28$; $p < .001$) and neuroticism ($t = 2.61$; $p < .05$). These results showed that hypertensive patients, relative to diabetic patients, were significantly higher on emotional distress and neuroticism.

With regards to illness intrusiveness, diabetic patients were significantly higher compared to hypertensive patients. The two samples also differed significantly in terms of duration of illness ($t = 4.58$; $p < .05$) and age ($t = 14.56$; $p < .001$), with hypertensive patients being relatively older and having relatively longer illness duration than diabetic patients.

Two-way analysis of variance (ANOVA) was performed to examine the independent and joint influence of age and duration of illness on emotional distress in both diabetes and hypertension. Results, as presented in Table 2, indicated that duration of illness significantly influenced emotional distress in diabetes $\{F(1,118) = 9.87; P < .01\}$. Individuals with relatively shorter duration of illness reported significantly higher levels of emotional distress (Mean score of 85.19) than those with longer duration of illness (Mean score of 79.43). Among hypertensive patients, age significantly influenced emotional distress $\{F(1,133) = 3.77; P < .05\}$, with relatively younger individuals reporting higher levels of emotional distress (Mean score of 86.04) than older individuals (Mean score of 81.52).

Table 2: Analysis of Variance showing Influence of Age and Duration of Illness on Emotional Distress in Diabetes and Hypertension

Variable	SS	df	MS	F	P
DIABETIC PATIENTS					
Age (A)	7.53	1	7.53	0.35	NS
Duration of Illness (B)	213.54	1	213.54	9.87	<.01
A x B	53.87	1	53.87	2.49	NS
HYPERTENSIVE PATIENTS					
Age (A)	62.14	1	62.14	3.77	<.05
Duration of Illness (B)	57.01	1	57.01	2.21	NS
A x B	29.72	1	29.72	1.36	NS

To investigate the extent to which illness intrusiveness and neuroticism would influence emotional distress among the two patient samples, two separate ANOVA was conducted (Table 3). Among diabetic patients, results showed that illness intrusiveness { $F(1,118)=61.54;P<.001$ } significantly influenced emotional distress, with high illness intrusiveness patients reporting higher (mean = 86.73) on emotional distress than their low illness intrusiveness counterparts (mean = 73.06). Neuroticism also influenced emotional distress { $F(1,118)=34.23;P<.001$ }, with high neuroticism patients reporting higher (mean = 84.81) than low neuroticism patients (mean = 79.32). The joint effect of illness intrusiveness and neuroticism on emotional distress was also significant { $F(1,118)=5.44;P<.05$ }. Summary of the post hoc analysis of the interaction effects (Table 4) indicated that the High Illness Intrusiveness/High Neuroticism group (mean = 85.77) scored significantly higher on emotional distress than the Low illness Intrusiveness/Low Neuroticism (mean = 76.19), Low Illness Intrusiveness/High Neuroticism (mean = 78.94) and High Illness Intrusiveness/Low Neuroticism (mean = 83.03) groups.

Table 3: Analyses of Variance showing Influence of Illness Intrusiveness and Neuroticism on Emotional Distress in Diabetes and Hypertension

Variable	SS	df	MS	F	P
DIABETIC PATIENTS					
Illness Intrusiveness (A)	581.87	1	581.87	61.54	<.001
Neuroticism (B)	313.58	1	313.58	34.23	<.001
A x B	99.72	1	99.72	5.44	<.05
HYPERTENSIVE PATIENTS					
Illness Intrusiveness (A)	1601.46	1	1601.46	87.25	<.001
Neuroticism (B)	5216.25	1	5216.25	284.11	<.001
A x B	1439.11	1	1439.11	78.40	<.001

Among hypertensive patients, results showed that illness intrusiveness { $F(1,118)=87.25;P<.001$ } significantly influenced emotional distress, with high illness

intrusiveness patients reporting higher (mean = 88.10) on emotional distress than their low illness intrusiveness counterparts (mean = 72.81). Neuroticism also influenced emotional distress { $F(1,118)=284.11;P<.001$ }, with high neuroticism patients reporting lower (mean = 74.33) than low neuroticism patients (mean = 86.58).

The joint effect of illness intrusiveness and neuroticism on emotional distress was also significant { $F(1,118)=78.40;P<.001$ }. Summary of the post hoc analysis of the interaction effects indicated that the High Illness Intrusiveness/Low Neuroticism group (mean = 87.34) scored significantly higher on emotional distress than the Low illness Intrusiveness/High Neuroticism (mean = 73.57), Low Illness Intrusiveness/Low Neuroticism (mean = 79.70) and High Illness Intrusiveness/High Neuroticism (mean = 81.22) groups.

DISCUSSION AND CONCLUSIONS

The study investigated the extent to which illness intrusiveness and neuroticism would influence emotional distress in two chronic conditions. Results indicated that the two samples (diabetic patients and hypertensive patients) reported high levels of emotional distress. This means that, consistent with empirical evidence (Anderson et al., 2001; Goodnick, 1997; Makine et al., 2009; Shafarzard et al., 2004; van Bastellar et al., 2010), chronic medical conditions generally and debilitating conditions such as hypertension and diabetes in particular, can seriously exacerbate emotional distress and compromise an individual's quality of life. Findings also indicated that emotional distress was relatively higher among hypertensive patients compared to their diabetic counterparts, meaning that hypertension is more psychologically debilitating than diabetes mellitus.

The study found that high illness intrusiveness individuals (in both illness conditions) were worse in emotional distress than those with low intrusiveness, a finding that is consistent with previous studies on illness intrusiveness and its links to psychological states in chronic conditions (e.g. Devins, 1994; Devins, et al., 1992; 1996; 1997). In these and other previous studies, it was consistently found that perceived illness – related disruptions to lifestyles and activities, apart from the objective attributes of a chronic illness, can seriously undermine the prognostic outcome of chronic illnesses and has been found to be associated with more markedly deleterious psychological outcomes.

The study also revealed that neuroticism significantly influenced emotional distress. Specifically, increasing neuroticism exacerbated emotional distress in both diabetes and hypertension. This finding may not be unassociated with what Kempen et al.(1997) described as a tendency to recall physical symptoms as being worse than they really are (common to persons high on neuroticism). People high on neuroticism generally focus more on what might go wrong than what might work out fine. Obviously, this inclination could put an individual at a relative disadvantage (psychologically) under an adverse circumstance. Eysenck et al. (1985) even went a step further to assert that neuroticism and the accompanying emotional reaction of anxiety play a substantial role in the trajectories of functioning during major medical events.

Findings further indicated that a combination of illness intrusiveness and neuroticism significantly moderated emotional distress. In the diabetic sample, emotional distress rose steadily with increasing illness intrusiveness and neuroticism, while in the hypertensive sample, illness intrusiveness moderated emotional distress more than neuroticism. The high illness intrusiveness cells were significantly worse in emotional distress, especially so under low neuroticism. The best category was the low illness

intrusiveness/high neuroticism group. The implication of these is that the perception of illness-related disruptions is more psychologically devastating irrespective of a person's personality (in hypertension) and the situation is particularly more deleterious among people with low neuroticism (i. e. "saner" people).

Age was found to influence emotional distress among hypertension patients. Specifically, younger hypertensive patients reported significantly worse on emotional distress relative to their older counterparts. This finding could be due to the fact that some of the non-specific symptoms of chronic conditions overlap with some natural signs of ageing. Moreover, the functional impairment that inevitably accompany chronic diseases may be viewed as age – inappropriate and perceived as unfair by relatively younger patients than their somewhat older counterparts, thus affecting worsening their emotional distress.

Duration of illness significantly influenced emotional distress among diabetic patients, with longer duration leading to better psychological outcome (less emotional distress) than short duration. Abikoye (2005) and Anderson et al., (1994) had earlier reported similar findings and attributed it to the possibility that, over time, people tend to "shake off" their initial catastrophic perceptions about the illness and devise better ways of coping with the illness.

From the findings of the study, it could be concluded that neuroticism and illness intrusiveness can worsen emotional distress and undermine subjective quality of life in chronic medical morbidity. More specifically, the higher the illness – related lifestyles disruptions a person perceives, the more the emotional distress the person is likely to experience. In a similar vein, the higher the neuroticism levels of an individual, more emotionally distressed he/she is likely to be. However, illness intrusiveness can significantly and differentially moderate emotional distress in chronic conditions. Furthermore, the older a hypertensive patient is, the lower his/her level of emotional distress; and the longer the duration of diabetes, the lower the emotional distress.

The study recommends psychological intervention for people with chronic illness. It is now a universally accepted fact that the mind of a patient is the greatest and most important ally of the physician, and the classical biomedical model of illness and health has given way for the more robust and reality-based biopsychosocial model which holds that the mind and the body are inseparable entities. To bring about positive outcomes in people with chronic conditions, therefore, there is need to work on them psychologically – especially the relatively younger, newly-diagnosed patients who may still be trying to fathom why they are "plagued with" a chronic condition. Importantly, experiencing a chronic illness should be encouraged or helped to engage in activities and hobbies as much as possible in order to reduce their sense of illness intrusiveness, minimise their emotional distress and improve their subjective quality of life.

The study also recommends that more research works be carried out on these salient issues. This is particularly germane considering certain limitations of the present study such as the non-experimental nature of the study which makes it impossible to draw causal inferences, the non-inclusion of other psychosocial and clinical factors that may have far reaching implications for patient's emotional distress. These limitations notwithstanding, however, this study has thrown more light on an important issue that will be of immense value to health practitioners, psychologists, chronically ill patients and their families, policy makers, researchers and readers in general.

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