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Personality, Socio-Demographic Factors and Illness Intrusiveness in Diabetes Mellitus

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Abstract: Chronic illnesses often force people to reduce their participation in valued activities and interests such as work, leisure activities, hobbies, education, household duties and so forth. Despite empirical evidence suggesting that illness intrusiveness (lifestyle disruptions attributable to an illness and (or) its treatment that interfere with continued engagement in valued activities and interests) can significantly compromise quality of life and that individuals differ significantly in illness intrusiveness even under objectively similar conditions, research in this direction is rather scanty, especially in Nigeria. This study investigated the extent to which personality (neuroticism), duration of illness and socio-demographic factors would influence the perception of illness intrusiveness among patients with diabetes mellitus. Participants were 122 attendees of two General Hospitals in Ibadan, South-Western Nigeria, in treatment for diabetes mellitus. A structured questionnaire, consisting of standardized measure of illness intrusiveness, neuroticism and a section which measured socio-demographic variables was used to collect data. Resultsindicated that neuroticism was positively related to illness intrusiveness while age and duration of illness were negatively related to illness intrusiveness. Results also indicated that male patients reported significantly higher on illness intrusiveness than females, $t(2,119) = 4.83$; $p<0.05$. These findings were discussed and the need for further studies was highlighted. 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 and enhance their quality of life.

Key words: Illness intrusiveness, chronic illness, personality, socio-demographic factors, diabetes mellitus, Nigeria

INTRODUCTION

One 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. Objectively and despite technological advances in medical practice and routine availability in clinically effective therapies, chronic illness introduces a number of challenges into the lives of affected individuals. These individuals 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, dietary and fluid-intake limitations and so forth. 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 compromise quality of life 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 *et al*., 1996). Devins *et al*. (1997) also found that illness intrusiveness exerted a powerful impact on quality of life in end-stage renal disease. Similarly, Devins *et al*. (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 and Folkman, 1984; Pearlin *et al*., 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 *et al*., 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 poor social functioning, poor physical functioning, poor role functioning, poor health perception, poor mental health and more bodily pain.

Other factors that might be related to illness intrusiveness and capable of compromising the quality of life of affected individuals include duration of illness and socio-demographic factors but empirical evidence is somewhat equivocal. For example Anderson *et al.* (1994) reported that long-term conditions tend to be more deleterious than relatively shorter term conditions. Other researchers have found, however, people appear to feel better with time during chronic illness (Evers *et al*., 2001; Abikoye, 2005), a finding attributed to the possibility that over time people may shake off their initial catastrophic perceptions about their illnesses and devise more effective ways of coping.

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, kidneys, nerves and blood vessels that can lead to blindness, neuropathy and kidney failure (Coelho *et al*., 2003). Diabetes is a chronic and debilitating disease that necessitates several adjustments in the patient's lifestyle (Brannon and Feist, 1997). This may elicit a greater feeling of lifestyle disruptions and consequently, compromise diabetic patients quality of life.

In this cross-sectional study, we investigated how certain factors (neuroticism, age, education, duration of illness and gender) would influence the perception of illness intrusiveness. We hypothesized that high level of neuroticism would be related to higher perception of illness intrusiveness. We also hypothesized that duration of illness and the demographic variables would be related to illness intrusiveness in diabetes.

MATERIALS AND METHODS

Participants: Participants were 122 attendees of two General Hospitals in Ibadan, South-Western Nigeria, in treatment for diabetes mellitus. All participants were outpatients and had been attending the hospitals for at least 2 years. While 45% of the participants were males, while 55% were females. Participants mean age was 39.6, while mean duration of illness was 6.4 years. All participants were adults of not <26 years. A three-sectioned questionnaire was used to assess illness intrusiveness, neuroticism and socio-demographic variables. Socio-demographic variables studied included gender, age, education, marital status, employment status and duration of illness. Each of these variables was assessed through individual items on the questionnaire by asking respondents to choose one of the options provided or write out their response where appropriate.

Illness intrusiveness was assessed with the Illness Intrusiveness Rating Scale (IIRS: 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 13-91. 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 and 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, 22 item scale has been widely used and is reputed for its psychometric adequacy. Coefficient alpha in the present study was 0.82.

Procedure: Individual interviews were conducted by the researchers and two trained assistants over a 3 months period. After obtaining informed consent, questionnaires were administered to participants and were completed, on average within 30 min. Return rate was very high since members of the research team personally administered to and waited for each consenting participant to complete and return the questionnaire.

RESULTS

Results of the inter-correlation analysis for variables of study (Illness intrusiveness, neuroticism, age, education, duration of illness and severity of illness) showed that illness intrusiveness was significantly related to neuroticism ($r = 0.18$; $p<0.05$) and age ($r = -0.15$; $p<0.05$); while the illness intrusiveness/education ($r = -0.11$; p. ns) and illness intrusiveness/duration of illness ($r = 0.08$; p. ns) relationships were not significant. These results showed that higher the neuroticism, the higher the perception of illness intrusiveness; also, the

older a diabetic patient is the lower the perception of illness intrusiveness. To test for the influence of gender on illness intrusiveness, a t-test for independent samples was conducted. Results, as shown in Table 1, indicated that the there was a significant gender-related difference in illness intrusiveness, t (2,119) = 4.83; $p<0.05$, with male diabetic patients reporting more illness intrusiveness (mean = 62.31) than their female counterparts (mean = 53.51).

To test the hypothesis that duration of illness and neuroticism would significantly influence illness intrusiveness among diabetic patients, a two-way analysis of variance was conducted (Table 2). Duration of illness was dichotomized into short or long depending on whether the illness was diagnosed up to 5 years prior to this study or >5 years prior to this study. Neuroticism was also dichotomized into high and low based on participants' composite scores on the EPQ.

Results of the 2×2 ANOVA showed that duration of Illness significantly influenced illness intrusiveness, F (1,255) = 3.52; $p<0.05$. Also, neuroticism significantly influenced illness intrusiveness, F (1,255) = 5.24; $p<0.05$. Furthermore, the interaction effect of duration of illness and neuroticism on illness intrusiveness was significant, F (1,255) = 4.98; $p<0.05$. Results of the post hoc test indicated that individuals with short duration of illness scored higher on illness intrusiveness (Mean = 59.33) than those with long duration of illness (Mean = 56.33).

Individuals with low scores on neuroticism obtained relatively lower scores on illness intrusiveness (Mean = 52.63) than those with high scores on neuroticism (Mean = 66.41). Analysis of the interaction effects showed that the long duration/high neuroticism group (Mean = 61.37) and the short duration/high neuroticism group (Mean = 62.87) reported higher on illness intrusiveness than the long duration/low neuroticism group (Mean = 53.48) and the short duration/low neuroticism was 58.87 groups. Of the four groups, the low neuroticism/long duration group reported the lowest illness intrusiveness. Thus, illness intrusiveness was significantly lower when neuroticism was low (even under high duration of illness) than when neuroticism was high with illness duration making little impact to mitigate the effect. In other words, illness intrusiveness increased markedly with increasing neuroticism, especially among individuals with relatively shorted illness duration.

Table 1: Independent t-test comparing male and female diabetic patients on illness intrusiveness

Source	N	Mean±SD	df	t	p-value
Females	67	53.51±11.03	127	4.83	<0.05
Males	55	62.31±14.90			

Table 2: Summary 2×2 analysis of variance for influence of duration of illness (Dur.) and neuroticism (Neur.) on illness intrusiveness among diabetic patients

Source	SS	df	MS	F	p-value
Dur.	2401.81	1	1604.40	3.52	<0.05
Neur	5611.93	1	1934.92	5.24	<0.05
Inter.	6290.19	1	2015.50	4.98	<0.05
Error	27774.08	117	711.18		

DISCUSSION

The study investigated the influence of neuroticism, duration of illness and some socio-demographic variables (age, gender and education) on illness intrusiveness among diabetic patients. Results indicated that participants generally reported high on illness intrusiveness. This means that participants believed that diabetes mellitus has caused serious disruptions in their everyday activities.

The study revealed that neuroticism significantly influenced illness intrusiveness. Specifically, increasing neuroticism was associated with increased perceptions of illness intrusiveness. 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. The implication of this is that highly neurotic individuals are more likely to perceive more intrusions than individuals low on neuroticism. Of course, some illness related intrusion may not have objective bases and may be the product of the individual's imagination.

Duration of illness was also positively related to illness intrusiveness. Evers *et al.* (2001), Abikoye (2005) and Anderson *et al.* (1994) had earlier reported similar findings and attributed it to the possibility that over time, people may initially "shake off" their initial catastrophic perceptions about the illness and devise better ways of coping with the illness. Duration of illness also interacted with neuroticism to significantly influence illness intrusiveness, although neuroticism appeared to play the more decisive role. A significant gender-related difference was found in illness intrusiveness among diabetic patients. Male patients reported higher on illness intrusiveness than female patients. Although, empirical support for this finding is equivocal, the finding is

consistent with Abikoye (2005) in which significant gender-related differences were found in participants' psychological health, a finding attributed to the effect of gender stereotypes which views the man as the active, boisterous, adventurous and protecting gender. So, when a man is unable to perform in tandem with these age-long stereotypes due to as illness, disability or other factors, it usually takes its psychological toils on the man (especially in many African cultures). A woman may not be as emotionally devastated due to the fact that the woman should be protected and fended for.

Results of the present study also indicated that age was positively related to illness intrusiveness in diabetes mellitus. This finding could be due to the fact that some of the non-specific symptoms of chronic conditions (such as fatigue, reduced stamina) 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 their perceptions of illness intrusiveness.

CONCLUSION

From the findings of the study, it could be said that neuroticism and illness duration can significantly influence the perception of illness intrusiveness a in chronic illness. More specifically, the higher the neuroticism, the higher the illness related lifestyles disruptions a person perceives. In other words, individuals with high level of neuroticism are more likely to perceive more intrusions of lifestyles and activities relative to those that are low on neuroticism. Furthermore, the older a diabetic is the lower his or her illness intrusiveness. Male diabetic patients perceived higher levels of illness intrusiveness than their female counterparts. Finally, the longer the duration of illness, the lower the illness intrusiveness perceived.

Although, the present study did not investigate the influence of illness intrusiveness on quality of life and other psycho-physiological outcomes, there is ample empirical evidence suggesting a strong link between illness intrusiveness and a host of psycho-physiological outcomes in chronic conditions. Devins (1994) had earlier asserted that perceived illness related disruptions to lifestyles and activities, apart from the objective attributes of a chronic illness can seriously undermine the outcome of chronic conditions such as arthritis, end stage renal disease and multiple Sclerosis (Devins *et al.* 1996). In these and other cases, increasing illness intrusiveness was found to be associated with a more markedly deleterious psycho-physiological outcome.

RECOMMENDATIONS

In this study, it is recommend that individuals 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 and improve their subjective quality of life. We also recommend 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. 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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