The Roles of State and Trait Anxieties on Severity and Frequency of Asthma Attacks Among University Students in Nigeria

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Abstract

The study examined the roles of individual's state and trait anxieties on the severity and frequency of asthma attacks among students of Madonna University Okija Nigeria. Fifty participants (30 males and 20 females) were used for the study. They were already diagnosed asthma patients that consented to be studied. Their mean age was 23.60 and SD age was 3.45. State –Trait Anxiety Inventory (STAI) developed by Spielberger (1983) was used in assessing the anxiety states, an Objective Rating Scale was used to determine the frequency and severity of asthma attacks. Multiple analysis of variance, regression analysis, chi-square and person correlation statistics was all used in data analysis. The result showed significant differences on the number of asthmatics with trait anxiety and those without. Conversely, significant interaction effect of state and trait anxiety on number of asthma attacks $F(1,50)= 3.89$ at $p< 0.05$ level of testing.
Key words: State / trait anxiety; Personality; Asthma.

INTRODUCTION

Asthma is a chronic lung disease that inflames and narrows the airways. Asthma courses recurring perilous of wheezing (a whistling sound when you breathe), chest tightness, shortness of breath and coughing.

The coughing often occurs at night or early in the money. The exact cause of asthma is not yet known. Researchers think some genetic and environmental factors interact to cause asthma most often early in life. These factors include: An inherited tendency to develop allergies, called atopy, parents who have asthma, certain respiratory infections during childhood and contact with some airborne allergies or exposures to some viral infections in infancy or in early childhood when the immune system is developing. Some researchers believe in the "hygiene, hypothesis" which hinges on the Western lifestyle with its emphasis on hygiene and sanitation. According to this hypothesis, many young children no longer have the same types of environmental exposure and infections as children did in the past. This affects the way that young children's immune systems develop during early childhood and it may increase their risk for atopy and asthma. This is especially true for children who have close family members with one or both of these conditions.

Different other scholars had attributed so many risk factors to asthma including indoor allergens such as dust mites, cat expander, cockroach grass open and ragweed pollen (Gelber, Seltzer, Bouzoukis, Pollart, Chapman & Platts-Mills, 1993), Leson & Gershwin (1995) further added some factors as second hand smoke exposure, psycho infection, little, formal education, prior asthma emergency room visit in past year, prior asthma hospitalization in past year, his socioeconomic status, sterol dependent and parental history of allergy or asthma.

Esiner, Katz, Yetin, Shetieski and Blanc (2001) financed a profound impact of socio demographic factors for hospitalization among adults with asthma. Other researchers had also obtained similar results of Eisner et al including how median family income, poor housing, lack of access to preventive health care (Claudio, million

Doucettle and Landrigan 1999), racial ethnic group, socio economic status (low educational level, unemployed, family income under & 20,000) were all related to Health Related quality of Life (HRQL) (Apter, Reisine, Affleck, Barrows & Zuwallack, 1999). However Quirk, Baveystock, Welson & Jones (1991) while investigating the influence of demographic and physiological variables on the degree of distress associated with asthma from six countries found on that demographic and disease related factors account for very little of the differences in degree of distress the patient attack to the symptoms and effects of asthma.

Conversely numerous studies in psychology and psychiatry have identified significant relationship between asthma and psychological disorders including depression and anxiety (Katson, Richardson, Lozano, MC Cauley, 2004; Katsin, Richerdson, Russo, 2006, Kelleher, Horwit; 2006; Loeronoks, Herr, Subramanien & Boseh 2012; Lavoive, Boudreau, Plourda, Campbell and Cacon, 2011).

Vieira, Santoro, Dracoulakis, Cact & Ferdandes (2011) examined anxiety and depression in asthma control of patients. Their sample has predominately female. The result of their studies showed a higher prevalence of anxiety symptoms in patients with uncontrolled asthma. Furthermore, in the evaluation of asthma patients, the authors posit that the negative influence of mood state ought to be taken into consideration when asthma control strategies are being outlined.

Lieshent and MacQueen (2008) in his analysis of psychological factors in asthma emphasized the import of high measurable degrees of stress, depression or psychological dysfunction on at risk asthma patients. The present study was on the assessment of the contributions of anxiety as a trout personality and anxiety as a situational factor in asthma among Nigerians. The present study was carried as a result of the present gap in literature on trait anxiety as predisposing / precipitating factors in asthmatic disorders. Many studies have looked at anxiety as a co morbid disorder in the asthma. Presumably, that asthmatic situation might lead an individual to further psychopathologies including anxiety.

The present authors actually had a radical departure from such hypothesis and are trying to investigate the role of anxieties (trait/state) in contributing to asthmatic severity and frequency of attacks in adult patients. This type of hypothesis is in line with age-old knowledge in psychophysiological studies of the physiological concomitants of anxiety including fast breath and fainting spells. The physiological symptoms of anxiety/one lap considering with those of asthma and tend to bother on those organ involved in asthma.

The second problem that led to the study has the paucity of literature about psychological relevance in asthmatic clinics/treatments in Nigeria. Our clinical experiences in Nigeria have shown that many physicians that attend to asthmatic patients do not include their psychological well being. It sometimes appears that the physicians are ignorant of psychological variables in asthmatic disorder. In that case there are needs to use evidence based studies to educate clinicians in Nigeria on such lapses.

The main purpose of the study was to investigate the …of tract and state anxieties of asthmatic disorder among university students in Madonna University of Nigeria. The major asthmatic arces reviewe…the number of attacks, severally of asthmatic attack as well as the presence of state and trait anxieties among the patients.

1. RESEARCH QUESTIONS

The following questions were answered in the study:

(a) Do number of asthmatics with trait anxiety diffesr from those without trait anxiety?

(b) Do number of asthmatics with state anxiety differs from those without state anxiety?

(c) Do asthmatics with tract anxiety differ significantly from those without tract anxiety on the subjective level of asthma severity?

(d) Do asthmatics with state anxiety differ significantly from those without state anxiety on the subjective levels of asthmatic severity?

(e) Do asthmatics with trait anxiety differ significantly from those without on the number of asthmatic attacks?

(f) Do asthmatics with state anxiety differ significantly from those without state anxiety on the number of asthmatic attacks?

(g) Are there interactive effects of state and trait anxieties on subjective severity and number of attacks on asthmatic patients respectively?

2. METHOD

2.1 Participants

Fifty participants were used in the study. They included 30 males and 20 females selected from the population of Madonna University students Okija. The participants were students diagnosed of asthma by a physician prior getting admission into the University. Sequel to this, their diagnoses were reconfirmed by the university physicians and were being attended to in the university clinic. Their ages ranged between 18-27 years with twenty five (53:19%) had their diagnoses before five years of birth, 13 (27.65%) between the ages of 6-10 years, 07 (14.89%) between the age of 11-15 years, while 2 (4.25%) had their diagnosis participants were not so sure of their years of diagnoses. 25 (53.19%) reported not being 50 regular with the medication. None of the participants had attended/consulted a mental health expert as regard to psychiatric problems, as provided by the participants and the university counselor.

2.2 Instrument

The following instruments were used for the study:

State Trait Anxiety inventory (STAI Forms-1, Y-2). The STAI forms Y-1 and Y-2 have 20 items each designed to measure different aspects of anxiety as a characteristic of personality and situational variables. STAI Y-2 measures trait anxiety which is the relatively stable predisposition of an individual to be anxious.

The Y-1 measures state anxiety, which is subjective feelings of worry, tension and apprehension as well as the concomitant physiological reactions that result from the arousal of the autonomic nervous system. Trait anxiety however is assumed to exist in an individual who experiences frequent and intense elevations of state anxiety over a period of time (Spielberger, 1972). The STAI (form y1,y2) was developed by Spielberger (1983).

The second instrument was an objective rating scale to determine the number of attacks within a 3 weeks periods. The participants were given a recording paper containing days, dates as well as column to tick any asthmatic attack(s) for the day. Conversely a subjective rating numbers of between 1-20 were also included in the scale for the participants to subjectively determine the severity of each attack as they occur. The subjective instrument was used because of the unavailability of objective measurements like the pulmonary function and airway inflammation tests in the university mini clinic. Other demographic questions were also included in the rating scale including places of the attack in the school, year of asthmatic diagnoses.

2.3 Procedure

The study started 3 weeks to the second semester examination, which included the daily recording of the asthmatic episodes, the weekly completion of the form y-1 STAI and the initial completion of the form y-2 STAI (the trait anxiety). The study was conducted during the exam period so as to stimulate the state anxiety of participants as examinations is known to evoke some anxieties. The participants were briefed on the research, their consents were got through the university counselor and ethnical issues of the study approved by the university ethics on one search and other related issues of the university. Counselor who prior to the study have been seeing the participants at one time or the other for counseling purpose. The counselor also monitors the daily recordings which the submit at the end of the week at the counselors office.

Seventy eight participants were reconciled for the study but only 50 participants completed the recording scale as required.

2.4 Design and Statistics

A focused group survey research deign was used in the study. Multiple analysis of variance, chi-square and Pearson Product Moment correlation statistics were used in data analyses.

2.5 Result Analysis

The result of the study showed a significant difference of the number of asthmatics with trait anxiety, and those without, while no significant difference was seen on state anxiety.

Table 1
Summary X2 of Asthmatic Difference on Trait and State Anxieties Respectively

Source of variables	O	X2	Df	P
Trait Anxiety: Those with trait	31	12	1	$P < 0.001$
Those without trait anxiety	19	0	1	$P < 0.001$
State Anxiety: Those with state	25			
Those without state	25	0	1	$P < 0.001$

The Table 1 showed that the number of asthmatic with trait anxiety is significantly higher than those without.

Table 2
Pearson Correlation of Anxiety, Number of Attacks and Severity of Attacks Respectively

Source	Number of attack	Severity of attack
Trait anxiety	0.08 (P<0.59)	0.07 (P<0.63)
State anxiety	0.38 (P<0.01)	0.12 (P< 0.43)

The Table 2 shows significant correlation of state anxiety and number of attacks among participants.

Conversely regression analysis of trait and state anxieties on frequency of attacks shows significant contributions of state anxiety on frequency of asthma attack, $(=2,45) = 4.17$, $P<0.02$, ($R^2=015$, B (state anxiety) $= 0.42$, B (Trait) $= 0.10$
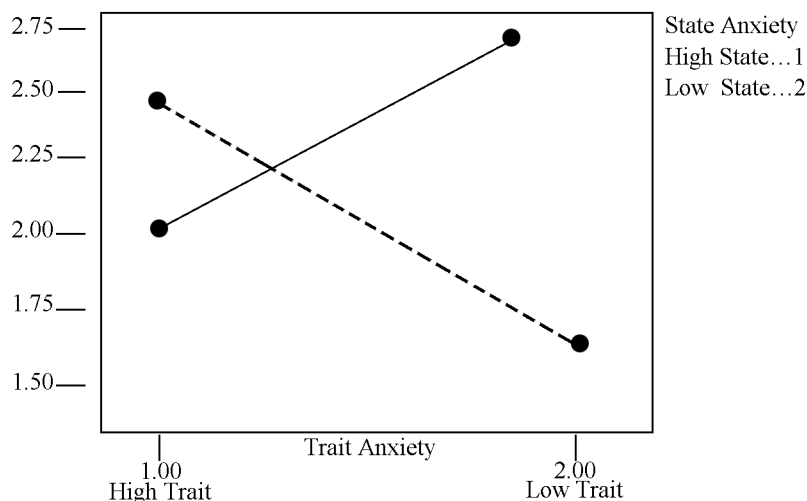
Table 3
MANOVA Statistics State and Trait Anxieties on the Number and Severity of Asthma

Source of variables	Dependent Variable	35	Df	Ms	F	Seg
Corrected model	Number of attacks	7.61	3	2.54	2.07	0.12
	Severity of attacks	14.43	3	4.81	0.45	0.72
Intercept	Number of attacks	159.24	1	159.74	130.30	0.000
	Severity of attacks	2.050.81	1	2050.81	190.17	0.000
Trait anxiety	Number of attacks	0.07	1	0.07	0.06	0.81
	Severity of attacks	7.43	1	7.43	0.69	0.41
State anxiety	Number of attacks	2.51	1	2.51	2.04	0.16
	Severity of attacks	0.04	1	0.04	0.004	0.95
Trait state	Number of attacks	4.77	1	4.77	3.89	0.05
	Severity of attack	2.81	1	2.81	0.26	0.61
Error	Number of attacks	56.39	46	1.23		
	Severity of attacks	496.07	46	10.78		

To be continued

Continued

Source of variables	Dependent Variable	35	Df	Ms	F	Seg
Total	Number of attacks	264.00	50			
	Severity of attack	3475.00	50			

Figure 1
Estimated Marginal Mean of Interaction of Trait and State Anxieties of Number of Asthma

Table 3 shows significant interaction of state and trait anxieties on number of asthmatic attacks.

Table 4
Significant Interaction of State and Trait Anxieties on Number of Asthmatic Attacks

Interactions	Number of attacks
HTA+HAS	2.00
LTA+HAS	2.70
LTA+LSA	1.45
HTA+LSA	2.45

Note. HTA=High Trait Anxiety, HSA=High State Anxiety,
LTA=Low Trait Anxiet, LSA=Low state Anxiety.

3. DISCUSSIONS

The present findings showed the importance of trait anxiety as a predisposing factors in asthma then the state anxiety. The result of the study supported the contributions of anxiety personality trait in asthma. The mechanism of such contribution was not investigated in the present study. However, anxiety personality trait being a long-standing predisposition could play some roles in respiratory dilation/construction as the case maybe. An individual with trait anxiety will show pervasive manifestations of anxiety including the somatic symptoms involving respiratory organs. This could account for vasoconstriction and stimulations of the Alpha and Beta Blockers of the androgenic receptors. Ideally norepinephrince has been shown to have relaxation effect on smooth muscle of the trachea and bronchi through its activities on the B receptor subtype (Meyer & Quenzer, 2005). For this, asthma is more commonly treated with a selective B-adrenoleptor against such as albuterol.

This continuous anxiety reactions (trait anxiety) lead to the stimulation of B2 blockers antagonist leading to asthma development/disorder. This explanation however does not account for all asthmatic disorder as there are those with asthma but had no trait anxiety.

Conversely trait anxiety does not account for the severity and number of attacks among the participants examined. As such no significant differences were found on the number of attacks and severity on trait anxiety (see Table 3). Similarly no significant relationships were found among trait anxiety, number of attacked as well as severity of attacks respectively (Table 2).

Hence, one may speculate that trait anxiety and explain to some extent the actiology of asthmatic disorder but not the maintenance of the disorder. Over 80% of the participants examined in the study had their diagnoses prior to 10 years of age. As such, trait personality may play more ….during the early childhood stage on the development of asthmatic disorder. Some people may have genetic predisposition to traits while others may have acquired such through constant early environmental experiences (Larsen & Buss, 2002).

On the other hand, state anxiety showed significant relationship with the number of attacks among the participants. Invariable it could be the either ways of the reactions. Either state anxiety brings about increase in the number of attacks or number of attacks bringing about

increase on state anxiety. However, further examination of the causal relationship showed that anxiety had a relative contribution to asthmatic attack with state anxiety having the significant causal effect. This shows that individual state anxiety could predict a significant extent the frequency of asthmatic attacks of the individual.

The findings of Veira et al, (2011), that showed a higher prevalence of anxiety symptoms in patients with uncontrolled asthma and those of Katson at al, (2004); Iloer brooks et al, (2012); and Fernandes et al, (2010).

On the other hand, significant interaction affect of trait and state anxiety was found on number of attacks among the participant examined. Those with low trait (LTA) and high state anxiety (HSA) had more asthma attacks in a week than others. A closer examination of the interaction graph showed that those with high trait anxiety (HTA) with HSA showed less number of attacks than those with LTA with HSA. Similarly those with LTA with LSA showed less numbers than those HTA with LSA (see Table 4).

4. RECOMMENDATION

The following are recommendations from the findings:

(a) Trait anxiety may be implicated in the actiology of asthma among some asthmatic patients and should be put into consideration by pediatric respiralogist as well as pediatric health psychologist.

(b) The interactions of trait and state anxieties should further inform physicians to identify patients with high number of attacks on possible causes. This may also include assessment of their state anxieties and trait anxieties to see the group they belong.

CONCLUSION AND LIMITATIONS OF THE STUDY

The study was concluded by discussing the critical roles of the findings on management of asthma patients.

The major limitation of the study was we of subjective assessment severity of asthma. Current functional objective assessment could have given more valid data.

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