

BRAIN FAG SYMPTOMS IN NIGERIAN UNIVERSITY STUDENTS OF LANGUAGES AND MEDICINE

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Introduction

According to the DSM-IV of the American Psychiatric Association (1994) brain fag was initially used in West Africa to describe a condition experienced by high school or university students in response to the challenges of schooling. Symptoms include difficulties in concentrating, remembering and thinking, and students often state that their brains are “fatigued”. Additional somatic symptoms are usually centered around the head and neck and include pressure or tightness, blurring of vision, heat, or burning. This type of distress is found in many cultures, and resulting syndromes can resemble certain anxiety, depressive, and somatoform disorders. Prince (1960) first described the “brain fag” syndrome in Nigerian students as an adolescent affective disorder. The main features of the syndrome are: (1) Unpleasant head symptoms (pain, burning, crawling’ sensations, vacancy feelings), (2) Visual disturbances (dimness of vision, pain in the eyes and tearing), (3) Cognitive impairments (inability to grasp the meaning of written and sometimes of spoken words, inability to concentrate, poor retention), and (4) A variety of other symptoms such as weakness, dizziness, writer’s cramp, and bodily sensations of crawling, burning or migrating pains (Prince 1989b). All these symptoms occur or are exacerbated while reading, or occasionally, while listening to lectures.

The onset of the condition is usually gradual, the somatic symptoms in the head commencing before intellectual impairment. The patient notices the burning in the head while reading heavy material, but is able to read newspapers and other light materials without difficulty. Later, symptoms occur with intellectual activity of any kind; finally the symptoms may be present continually and the patient may isolate /p. 202/ himself from all intellectual activity. Mild early cases may respond rapidly to treatment; some severe chronic cases persist in spite of intensive treatment and force the patient to give up further study. Many authors have described it as a depressive equivalent or a masked depression with anxiety as an important accompaniment (Prince 1989b). Guinness (1992a) considers it as somatized anxiety with hysterical features. There has been considerable controversy however as to whether brain fag is a syndrome in its own right or is to be regarded as a depressive equivalent (Jegede 1983). In considering whether brain fag is a distinctive syndrome, it should be noted that when students in Western cultures develop study inhibition (i.e. have difficulty in concentrating or retrieving what they have studied) it is almost always in the context of an adverse life event such as a break with a girlfriend or family difficulties. In contrast, although African students may link their brain fag symptoms to life problems in some cases, most often the stress of intensive reading alone is reported sufficient cause for symptom generation. Another distinct feature of African student disorders is the much greater centrality and prevalence of attention complaints as compared to Western students where the attention problem is not as common and is usually secondary to other complaints (depression, anxiety, discouragement, etc.). Finally, there is the clear distinction from Western patients in terms of the somatic complaints of heat and crawling (Prince 1989b).

Prince (1983: 54) notes, "the brain fag syndrome is exceedingly common and often incapacitating among students in Africa south of the Sahara. It is as though a black depressive cloud descends upon perhaps one quarter to one half of adolescent

high school and university populations, blocking their educational progress. ”

Various authors (Prince 1989b; Jegede 1983) reported 32 to 58% of secondary school students reporting brain fog symptoms in Nigeria. Only a few older studies have been conducted on the epidemiology of brain fog symptoms among university students such as in Liberia (Thebaud & Rigamer 1976), Nigeria (Anumonye 1980), and in Uganda (German & Assael 1971). Wintrop (1971) conducted a systematic sociopsychological interview survey of all first year University of Liberia students and found that 20% of students were found to suffer brain fog. On the basis of clinical studies, brain fog has been reported as much commoner in males than in females (Peltzer & Woldu 1990; Prince 1989b). German & Arya (1969) attributed this male preponderance to the much greater /p. 203/ difficulty for girls to obtain higher education; they reasoned that this selective factor would weed out girls with a potential for brain fog or other problems, leaving a healthier group of girls than boys.

Morakinyo (1980a, 1980b, 1983) has provided perhaps the best appraisal of etiological factors for brain fog. According to his studies, students suffering from brain fog: tend to score high on the neuroticism scale of the Eysenck Personality Inventory, have a high achievement orientation, derive from economically deprived social backgrounds, often suffer from sleep deprivation during intensive study for examinations and, related to this latter, they may use amphetamines or strong coffee to keep themselves awake. Prince (1960) noted that among Nigerian students, education is often a family affair in that one of the brighter children may be supported financially by family members, the educated member in his or her turn is expected to be responsible for other family members should the need arise. Because of this family-affair aspect of education, the student is burdened by the responsibility of maintaining family prestige. His or her success or failure looms much larger than for European or American students. Most authors have found that the

students most prone to brain fog are those who come from the least Westernized families, for whom adaptation to the alien educational milieu is most arduous (Prince 1989b). German, Assael & Muhangi (1970) pointed out isolation from parents, hierarchical barriers in school between teachers and students, communication in a second language, the great intergenerational discrepancy in life-styles and faulty study habits as important etiological factors.

The aims of the study were to estimate the prevalence and some general assessment of possible etiologic factors in the brain fog syndrome in Nigerian university students in relation to age, gender, socioeconomic status, cultural orientation, course of study, stressful events and minor psychiatric morbidity. Intelligence level and academic ability were excluded since it has been constantly shown that no relationship exists with brain fog (e.g. Guinness 1992b; Minde 1974; Morakinyo 1980b, 1983).

Method

Sample and procedure

The sample included a convenient sample of 94 second year language students (49 Yoruba and 45 modern languages) and 101 /p.204/ third year medical students from the Obafemi Awolowo University, Nigeria. The language students were 47 (50%) male, and 47 (50%) female, in the age range of 17 to 29 years ($M=23.2$ years, $SD=4.6$). The ethnicity was 84 (89.4%) Yoruba, 7 Igbo (8.3%) and 3 Edo (3.2%). The medical students were 53 (52.5%) male, and 48 (47.5%) female, in the age range of 19 to 31 years ($M=22.2$ years, $SD=4.1$). The ethnicity was 90 (89.1%) Yoruba and 11 Igbo (10.9%).

The questionnaires were administered to all students in a classroom situation and confidentiality was assured.

Instruments

The questionnaire included 10 items on socioeconomic background: age, sex, religion, ethnicity, occupation, education and income of parents. Details of the additional instruments used are the following:

A 26-item Cultural Orientation Scale (Bierbrauer, Meyer & Wolfredt 1994) consisted of 13 normative items (e.g. “How often do teenagers listen to their parents’ advice on dating?”) and 13 evaluative items (e.g. “What do you think of teenagers listening to their parents’ advice on dating?”). The normative items were answered on a seven point Likert scale, from 1 (not at all) to 7 (always), and the evaluative items were answered on a seven point Likert scale, from 1 (very bad) to 7 (very good). Cronbach alpha as well as split-half reliability coefficient for the Cultural Orientation Scale was .73 for this sample.

A 31-item Student Stress Scale (Zimbardo 1992) represents an adaptation of Holmes and Rahe’s Social Readjustment Rating Scale consisting of items in relation to interpersonal (e.g. “Death of a close family member?”), study (e.g. “Failing an important subject?”), financial (e.g. “Change in financial status?”), illness (e.g. “Major personal injury or illness?”) and other factors (e.g. “Pregnancy?”, “Sex problems?”). Students were asked to answer either “yes” or “no”. Cronbach alpha as well as split-half reliability coefficient for the Student Stress Scale was .76 for this sample.

The 20-item Self Reporting Questionnaire measured minor psychiatric morbidity (WHO 1994) consisting often depressive (e.g. “Do you feel unhappy?”), five anxiety (e.g. “Are you easily frightened?”) and five somatic complaints (e.g. “Do you have uncomfortable feelings in your stomach?”). Students were asked to answer either “yes” or “no”. Cronbach alpha as well as split-half /p. 205/ reliability coefficient for Self Reporting Questionnaire was .8 for this sample.

A seven-item Brain-fag Syndrome Scale (Morakinyo 1996)

associated with reading or study anchored by 2=often to 0=never (see *Table 1*). Cronbach alpha as well as split-half reliability coefficient for Self Reporting Questionnaire was .72 for this sample.

Results

The findings are categorised into (1) frequency of brain fog symptoms (v. *Table 1*), and (2) factors of significant relationship with brain fog symptoms.

1. Frequency of brain fog symptoms

Table 1 indicates frequency of brain fog symptoms.

TABLE 1: *Brain-fog symptoms by frequency in percent*

Brain fog symptoms	language Students		Medical Students	
	Often	Sometimes	Often	Sometimes
1. I get period of complete exhaustion and fatigue	72,0	14,0	84,5	5,2
2. When I read, I feel that the words don't make senses	71,0	4,3	70,4	2,0
3. I find difficult to concentrate when studying	64,5	5,4	73,5	1,0
4. I experience brain burning, crawling heat or cold or other unpleasant sensations in my head, while studying	30,1	4,3	27,4	1,1
5. These unpleasant sensations (burning, crawling, heat, cold) make it difficult to me to study or assimilate what I read	55,6	22,2	48,6	22,9
6. I am satisfied with my general efficiency in studying and with retention (assimilation) of what I study	51,7	43,8	36,0	56,2
7. I suffer unpleasant in my body related to study	48,3	3,4	25,6	2,3

Very high prevalence rates of brain fog symptoms were found among both languages and medical students. The majority of the students seem to have experienced one brain fog symptom at least /p. 206/ some times. The three most self-reported (more than 64%) brain fog symptoms were complete exhaustion and fatigue, followed by “When I read, I feel that the words don’t make sense” and difficulty to concentrate when studying.

2. Factors of significant relationship with brain fog symptoms

Table 2 indicates for language students that the relationship between minor psychiatric morbidity, depression, anxiety, somatic complaints and student stress but not language course and socioeconomic status with brain fog symptoms. Lower socioeconomic status was among medical students significantly related with brain fog symptoms (see Table 2).

TABLE 2 : F ratios from Analysis of Variance showing the significance of brain fog symptoms

Independent variable	Language students	Medical students
	F	F
Yoruba <i>versus</i> modern languages	0.59	
Age	1.01	2.94
Sex	0.670	0.378
Cultural orientation	0.878	0.528
Socioeconomic status (lower)	0.918	4.914***
SRQ score	3.88***	0.378
Depressive score of the SRQ	3.88***	0.277
Anxiety score of the SRQ	2.32*	0.413
Somatic complaints score of SRQ	4.39***	1.352
Student stress	3.05*	0.995
Position in family	1.73	1.445
Number of members in family	1.72	1.320

*** p<.001, **p>.01, * p<.05

Age, gender, position in family, family size, and cultural ori-

entation were in both languages and medical students not associated with brain fog symptoms.

Discussion

This study found very high frequencies of often experienced brain fog symptoms among both languages and medical Nigerian /p. 207/ university students. These very high prevalence rates of brain fog symptoms seem to be higher than among university students in other countries such as Liberia (Thebaud & Rigamer 1976), Malawi (Peltzer 1987), Nigeria (Anumonye 1980), and Uganda (German & Assael 1971). Prince (1983) indicated that the brain fog syndrome is a stereotyped psychiatric syndrome that affects 20 to 40% of Secondary School and University students in diverse cultures across Africa south of the Sahara.

The data from the language students suggest that brain fog is also associated with being a depressive and somatoform syndrome (Anumonye 1980, Prince 1989b) as well as an anxiety disorder (Guiness 1992a), while medical students suffered from brain fog symptoms not associated with depression, anxiety nor somatoform disorder. Anumonye (1980) notes that depressives can present some somatic complaints with considerable sensory disturbances as the visual difficulties and dizziness frequently mentioned in this sample. However, four major clusters of symptoms (unpleasant head symptoms, visual difficulties, fatigue and sleepiness, and body pains) reflect a somatic complaint in the absence of negative affect symptomatology indicating as Prince (1989a) suggested, a somatic complaint syndrome. Anumonye (1980) also suggests that the most acceptable possibility is that the student's life stress would give rise to features of distress which in turn get translated into physiological disturbance and subsequent symptoms of brain fog.

Furthermore, the frequency of brain fog seems to vary directly with the level of Westernization of the Culture in the area

from which the student comes (Prince 1983; Guinness 1992b). This was not supported by this study since there was no relationship between the Cultural Orientation Scale and brain fag symptoms. Among rural South African secondary school pupils, Peltzer, Cherian & Cherian (1998) found that traditional cultural orientation was associated with brain fag symptoms. This may indicate that pressures from cultural adaptation may reduce from changing from secondary to tertiary educational institutions. Further, this study did find a significant difference regarding brain fag symptoms between modern language such as English, French or German and Yoruba language students (studying in their mother tongue). German, Assael & Muhangi (1970) had found communication in a second language as an etiological factor for brain fag.

This study did not find that student's life stressors were related to brain fag symptoms. Other studies also found that precipitating /p. 208/ factors or life problems were not related to brain fag symptoms (Prince 1989b). This confirms the finding that oftentimes the stress of intensive reading alone is a sufficient cause for symptom generation (Boroffka & Marinho 1963; Prince 1960). Unlike in Western students where the pattern is a distressing interpersonal event leading to emotional upheaval and then to a study inhibition, among brain fag students it is hard intellectual work, followed by the appearance of brain fag symptoms, followed by anxiety or despair over an inability to study or continue with their education (Prince 1989b). However medical students with brain fag symptoms tended to come from a lower socioeconomic background. Morakinyo (1980a) noted that brain fag students come from an economically deprived family or adverse social background — a biographical occurrence that tends to constitute a threat to the chance of achieving their educational objectives in life, which in turn tends to increase their drive for achievement.

The finding that age was not related to brain fag symptoms concurs with the findings of other studies (Guinness 1992b;

Prince 1983). Further, no significant sex difference was found in brain fog symptoms and this concurs with the findings of Jegede (1983). There are other clinical studies such as those of Anumonye (1980) and Prince (1989b) which indicated a 60% higher incidence of brain fog symptoms among males. These studies that do not concur with the finding of this study. It is possible that the sex imbalance seen at medical clinics may represent differences in service utilization and/or symptom perception. It is also possible that women were showing an histrionic response set or men were under reporting (cf. Goldberg 1972). Further, it may also be possible that females at university level in Nigerian society are similarly seen in a competitive and economic context of familial responsibility (cf. Peltzer & Woldu 1990). These factors could contribute to no sex difference in brain fog symptoms.

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SUMMARY:

The study investigated brain fog symptoms in Nigerian university students of languages and medicine. A Cultural Orientation Scale, a Student Stress Scale, and a Self Reporting Questionnaire were administered to collect data on socioeconomic background, cultural orientation, stress events, neurotic /p. 211/ disorder and brain fog symptoms. The sample included a convenient sample of 94 second year language and 101 third year medical students. Results indicated very high prevalence rates of brain fog symptoms among both languages and medical student. For language students a relationship between minor psychiatric morbidity, depression, anxiety, somatic complaints and student stress but not language course with brain fog symptoms was found, while among medical students only lower socioeconomic status was among associated with brain fog symptoms. Age, gender, position in family, family size, and cultural orientation were in both languages and medical students not associated with brain fog symptoms.

Key words: • Brain fag symptoms • University students (in Medicine, in Languages) • Nigeria • Yoruba • Igbo • Edo • Student Stress Scale • Likert Scale • Cultural Orientation Scale • Self Reporting Questionnaire

RÉSUMÉ:

LES SYMPTÔMES DU SURMENAGE INTELLECTUEL
CHEZ LES ÉTUDIANTS NIGERIENS
EN LANGUES ET EN MÉDECINE

Les AA., un psychologue clinicien Allemand et un psychiatre Nigerian, étudient les symptômes du surmenage intellectuel chez les étudiants universitaires en langues et en médecine de l'université Obafemi Awolowo au Nigéria. Plusieurs échelles et questionnaires ont été utilisés pour recueillir des informations sur l'arrière plan socio-économique, l'orientation culturelle, les événements provoquant du stress, les troubles névrotiques, et les symptômes de surmenage intellectuel (*Cultural Orientation Scale*, *Student Stress Scale* et *Self Reporting Questionnaire*). La population d'étude comprenait un échantillon de 94 étudiants inscrits en seconde année de langues et 101 étudiants de troisième année de médecine. Les résultats révèlent un très fort taux de prévalence de symptômes de surmenage intellectuel tant parmi les étudiants de langue que chez les étudiants de médecine. Pour ce qui concerne les étudiants en langues, une relation entre des signes mineurs de morbidité psychiatrique, de dépression et d'anxiété, de plaintes somatiques et de stress de la vie estudiantine a été relevée mais sans signification statistique avec le syndrome de surmenage intellectuel. Tandis que parmi les étudiants en médecine on ne relevait une association significative avec les symptômes de surmenage intellectuel qu'avec un statut socio-économique bas. Dans les deux groupes d'étudiants en langues et d'étudiants en médecine, l'âge, la position dans la constellation familiale, l'orientation culturelle n'étaient pas associés avec les symptômes de surmenage intellectuel.

Mots clés : • Syndrome de surmenage intellectuel • Étudiants universitaires (en Médecine, en Langues) • Nigeria • Yoruba • Igbo • Edo • Échelle de stress étudiant • Échelle de Likert • Échelle d'orientation culturelle • Self Reporting Questionnaire.