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Study Problems in Ugandan Secondary School Students: A Controlled Evaluation

By KLAUS K. MINDE

Recent reviews dealing with psychiatry in sub-Saharan Africa have stressed the overall similarity in the incidence of psychiatric conditions and their diagnostic distribution to those seen in other parts of the world (German, 1972; Giel and Van Luijk, 1969; German and Arya, 1969). All authors emphasize, however, that some clinical pictures seen in Africa, such as those of depression and anxiety states, vary from the manifestations one encounters in European and North American patients.

One particular condition which has been described in both West and East Africa as characteristically African with specific symptoms is the so called 'brain fag syndrome'. First described by Prince (1960) in Nigeria, and confirmed by Mbanefo (1966) and German *et al.* in Uganda (1970), it affects African schoolchildren, who usually complain of a variety of symptoms associated with muscle tension, such as headache and pain in the eyes, chest or abdomen (Prince, 1962). Very similar symptoms have been observed in African undergraduates studying in Britain, whereas graduate students more frequently express stress in the form of general fatigue (Malleson, 1973). Brain fag is said to be very common in Nigeria, and Prince reports 32–64 per cent of schoolchildren to be affected in various schools, but information about the exact incidence, severity and associated background data of youngsters so effected is speculative. Isolation from parents, hierarchical barriers in school between teachers and students, communication in a second language, the great intergenerational discrepancy in life s s, borderline intelligence and faulty study h ts have been regarded as important aetiol al factors (German *et al.*, 1970). None of these factors, however, has ever been investigated in a matched control sample and no effort has been made to evaluate specific treatment procedures. The present study attempts to answer some of these questions.

Background of Study

The present author, while working at Makerere University, the only university in Uganda, in September 1971 began monthly visits to a local 250-bed general hospital, 220 miles north of the capital city Kampala. This hospital had for three years been regularly visited by one of the university psychiatrists in an attempt to treat psychiatric patients within their own district rather than in the only mental hospital of the country which was removed from local community resources and lacked the patient's family support. The local hospital in question had in fact developed a six-bed psychiatric unit, normally run by a psychiatric nurse. The psychiatrist during his monthly visits discussed particular problems with the nursing staff, held a general outpatient clinic and gave lectures about particular psychiatric problems to interested hospital staff and community members.

The author noticed during his visits that up to 25 per cent of the 40–50 patients attending his morning clinic were students from a local secondary school who complained of symptoms usually associated with the brain fag syndrome. The school was a boarding school offering some 680 boys, aged 13–25, complete secondary education. There were 140–150 youngsters per grade in the junior section and about 50 per year in the senior classes. The boys came primarily from the northern districts of Uganda which have only within the last 20 years been in closer contact with modern education, secondary schools having been established mainly after independence in 1962. The school itself was organized very much along British lines, the boys living in particular houses and

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being looked after by tutors. Classes were held from 7 a.m. to 2 p.m., followed by lunch, a rest period and study sessions lasting until 10 p.m. There were very few recreational possibilities available to the boys, as broken sports equipment could often not be replaced because of a chronic financial crisis; the library had shrunk to a few volumes, and indoor games had all but disappeared. Despite these difficulties, the school had a generally devoted staff of well-qualified teachers and an excellent medical tutor. He, together with the previous psychiatrist, had given the students suffering from symptoms associated with brain fag high doses of various antidepressant and anxiolytic medication for many months without much symptom relief.

In an attempt to deal with these schoolboys more effectively, the author, in conjunction with the medical tutor of the school, decided to investigate the students so affected more thoroughly and thereafter treat them in groups.

Samples

All 15 boys of S1–S4 who had previously regularly attended the psychiatric out-patient clinic for at least six months without any symptom relief were asked to participate in the group. Another ten were selected on a first come, first served basis by the medical assistant at the college. All of them had frequently visited the dispensary for pains in their head or chest and general inability to read or concentrate, and had received various types of drug treatment. All students were eager to participate in the group. Following the selection of patients, the medical assistant chose the alphabetically next boy in the class of each patient as his control, giving a potential sample of 25 problem and 25 control students.

Procedure

The author met all problem and control students on separate occasions at the beginning of the first term and asked them to fill in a questionnaire of 46 questions. The questions asked for data of the students' background (age; tribe; family size; language spoken at college and at home; socio-economic status of family; past illnesses; repeated school years; past school marks; separations in childhood). They furthermore enquired about study difficulties, their causation and previously attempted remedies, study habits (hours of studying per day; before examination; mode of studying) and personal feelings of the student (numbers of friends; closeness to staff; type of recreation).

The questions were discussed with the students and the treatment outlined for the 'problem' group. Treatment consisted of one 90-minute group session each for two groups of 12–13 students once per month, held at the tutor's house on campus. The sessions were also attended by the tutor and the medical assistant. A total of six sessions were held.

Six weeks before the year's final examinations both problem and control students received a follow-up questionnaire with 18 questions enquiring about changes in their condition and an evaluation of the group meetings. Several questions from the initial questionnaire were asked again (study habits, hours of work, cause of condition) to permit comparison with pre-treatment data.

In addition, the author went through each boy's school file recording:

(1) Marks in all subjects since entry into the school.
(2) Disciplinary notations or other correspondence indicating psychological or physical difficulties.

Initial Data

Tables I and II give the ages and socio-economic status of the two groups, using Hollinghead's (1958) criteria. It will be noted that the size of the control group had decreased to 20 from an optimal 25. This was due to the refusal of two students to fill in the initial questionnaire and to the exclusion of three others because they claimed to suffer from mild to moderate study problems and hence could not function as controls.

Table I shows the problem students to be significantly older than their controls. This may be related to their age at school entrance, as they come from generally poorer families (see Table II) where children often start school at nine or ten years of age only.

It may also be a reflection of past academic

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TABLE I
Age in years

	Problems	Controls
N	25	20
Mean ..	18·24	16·6
S.D. ..	2·45	1·63

$= 2{\cdot}56$; d.f. $= 43$; $p < {\cdot}02$

TABLE II
S–E class

	I–II	III	IV & V
Problems			
N = 24 ..	1	1	22
Controls			
N = 20 ..	1	5	14

$\chi^2 = 4{\cdot}62$; d.f. $= 2$; $p < {\cdot}01$

TABLE III
Years repeated

	None	1	2 or more
Problems			
N = 23 ..	8	13	2
Controls			
N = 20 ..	15	4	1

$\chi^2 = 14{\cdot}39$; d.f. $= 2$; $p < {\cdot}001$

TABLE IV
Standing in class previous year

	1st quartile	2nd quartile	3rd quartile	4th quartile
Problems				
N = 23 ..	9	5	3	6
Controls				
N = 19 ..	6	8	3	2

$\chi^2 = 3{\cdot}51$; d.f. $= 3$; N.S.

success, since there was a significantly higher number of primary and secondary school repeaters among the problem students (see Table III).

The possible conclusion that brain fag students do less well academically than their pe is refuted, however, as Table IV shows nc ifference in the past year's academic performance between the two groups.

The same results apply when previous school years are compared.

The possibility that the problem students had deteriorated in their work after the onset of symptoms was also investigated by comparing the marks of the year preceding the onset of symptoms with the final results of the 1971 academic year. To our astonishment we could only find six boys whose symptoms began later than S1. All others had suffered similar complaints far earlier, the average duration of symptoms being 3·25 years. Of the six boys who could be investigated two had deteriorated academically, two had improved and two showed no change since onset of symptoms.

A further indication of the seriousness of the condition in the patient group was the fact that 11 boys claimed to be handicapped every day by their symptoms, 8 several times per week, and only 6 an average of one a week. Twelve boys had seen a number of doctors for more than two years, 9 had been admitted to hospital as well, and 6 had undergone various additional native treatments, all without relief.

The actual symptoms centred around severe headaches and watering eyes (9 boys), together with chest pains and muscle tension (8 boys), dizziness, palpitations (3 boys) and various other combinations (5 boys).

Having established that the brain fag students were not inferior academically, we turned to their past personal lives. Both groups came primarily from farming backgrounds where the polltax rarely exceeded 80 shillings per year. This tax is assessed annually by the local chief and reflects his judgement of the family's cash income from the sale of crops and cattle. The minimum each family has to pay is 60 shillings per year and the maximum is 600 shillings. Salaried employees have the appropriate tax deducted at source. Only two of the brain fag group and three amongst the controls spoke between 25 and 50 per cent English when at home. Four in each group could speak three or more languages, and both groups came from large families having averages of 9·4 and 8·4 living siblings respectively by the same father.

More than 80 per cent of both groups had been living away from home during the first ten years of their life, but in only one boy of each group was this move triggered by psychologically traumatic reasons such as desertion,

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death of parents, or misbehaviour of the child. All other children moved into relatives' or friends' homes because they lived closer to school or to help a respective relative. These moves were thus within the cultural context of the tribe and cannot be associated with psychological neglect.

One interesting point emerged, however, in that the problem youngsters reported to have suffered significantly more serious past medical illnesses (see Table V) than their control peers. Serious illnesses were conditions which involved a hospital stay of over one week, any operations, and specifically named diseases with potentially dangerous sequelae such as meningitis, fever resulting in convulsions, and clinical tuberculosis. Admissions to hospital for complaints associated with the present difficulties were not counted as past medical illnesses.

TABLE V
Past medical history

	None	One serious illnesses	Several serious illnesses
Problems N = 24 ..	13	9	2
Controls N = 20 ..	17	3	0

$\chi^2 = 7{\cdot}51$; d.f. = 2; $p < {\cdot}05$

TABLE VI
Way of studying

	Reading only	Reading and oral	Others
Problems N = 25 ..	15	7	3
Controls N = 20 ..	9	11	0

$\chi^2 = 6{\cdot}68$; d.f. = 2; $p < {\cdot}05$

TABLE VII
Way of relaxation

	Physical activities	No relaxation needed	Lying down	Others
Problems N=25..	10	3	9	3
Controls N=19..	10	5	2	2

$\chi^2 = 5{\cdot}15$; d.f. = 3; $p < {\cdot}1$

TABLE VIII
Professional goal in life

	Teacher	Doctor	Vet or agriculture	Others	Don't know
Problems N = 25	4	9	3	2	7
Controls N = 20	3	4	4	4	5

$\chi^2 = 2{\cdot}75$; d.f. = 4; N.S.

TABLE IX
Parental reaction to failure

	Compassion	Angry	Sad	No fees	Others
Problems N = 25	6	8	4	2	5
Controls N = 19	9	2	0	3	5

$\chi^2 = 13{\cdot}33$; d.f. = 4; $p < {\cdot}01$

A number of educators have speculated that study habits, isolation in college and excessive hours of work are responsible for many symptoms associated with study problems. Our investigation revealed that a significantly higher number of problem students studied by reading only, while the control students used primarily discussions and oral recitations together with reading (see Table VI).

The two groups did not differ, however, in the amount of time they studied per day (3·1 vs. 3·5 hours per day), but the problem students worked an additional 2·9 hours per day before examination time whereas the controls added only 1·4 hours ($t = 2{\cdot}07$, $p < {\cdot}01$).

The brain fag students also chose different ways of relaxation, 35 per cent chosing to lie down rather than participate in physical activities (see Table VII).

Both groups acknowledged having many good friends, more than half the boys of either group claiming more than ten and none being lonely and friendless. Furthermore, all but three of the problem students stated that they

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could go and talk to a particular member of the staff easily and freely. Both groups had nearly identical professional goals in life (see Table VIII), but they varied significantly in their assessment of their parents' reaction to their failing an important examination such as the Cambridge Leaving Certificate (see Table IX).

The groups also differed in the assessment of the incidence of study problems in their classmates. Of the troubled group 50 per cent thought that more than five and 20 per cent that more than ten additional boys in their class suffered similar complaints. The comparative figures among the control group was 20 per cent and 15 per cent respectively ($\chi^2 = 11 \cdot 0$, $p < \cdot 05$).

Treatment

Following the initial evaluation the author began to treat all affected boys in two groups. Therapy in the groups was aimed at a discussion of each boy's problem and an explanation of his symptoms in simple terms, such as the consequence of muscle tension. The students invariably asked a great number of questions dealing with the whole physiology of their bodies and basic issues of development. They also discussed their work habits, and the policies of the school and wanted to learn how to relax. This latter demand led the author to introduce formal relaxation exercises, beginning with muscle groups of the extremities followed by the abdominal and finally the head muscles. This together with discussion of different study habits made up the content of most of the later sessions.

The main difficulty in the groups centred around some boys' irritation about the author's refusal to give them drugs. These students found it extremely difficult to conceptualize their symptoms as general signs of tension and anxiety, but felt that they had a very particular illness which required very specific medical attention.

The author did not encourage the discussion of intrapsychic problems, as the majority of the students felt such a discussion would be embarrassing and not to the point. Study problems for them were definitely not related to deep psychological conflicts. The presence of a teacher and the medical assistant was also felt to be a contra-indication for such therapy.

Follow-up Data

The follow-up questionnaire was answered by 19 students. Six students did not return the forms within three and a half weeks, following which the school was prematuredly closed, as all available chairs and tables had to be used for those students writing examination papers, in S.IV and S.VI. There being a general shortage of equipment, all other classes had to go home.

The average number of attended sessions was 4·8, and all but one student felt satisfied with the material covered in the meetings. On a seven-point scale measuring improvement, one boy felt he had improved very much, five considerably, six a little. Five saw no change and two had become a bit worse. Seven students saw the most striking improvement in their general mood, all talking about feeling happier, being able to look ahead or feel near to success in their exams. Five talked about a relief of all their symptoms to varying degrees, but seven had not seen any changes in their symptoms. Five of these had developed new symptoms. The same was stated by two other boys who otherwise claimed to be generally improved. Hours of study per day had not changed (3·37 vs. 3·55), but the extra study hours before examination time had decreased significantly (2·92 vs. 1·86; $p < \cdot 05$). The final question which read 'Would you want to get more medication for futher study problems?' produced an overwhelming 'yes', despite the many hours of discussion directed against a purely pharmacological approach to study problems.

Discussion

The study presented raises a number of questions both methodological and clinical. The sample of 25 problem students is small and may not be representative of the school, as only those boys seeking out help were included in the groups. Treatment was not administered on a double-blind basis with independent observers such as teachers or tutors assessing the students before and after, as none of them was able to spend the necessary time on this task.

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The treatment group was nevertheless considered homogeneous, as all students had received generous doses of anxiolytic or antidepressant drugs for at least six months without any gross benefit. The group discussions were seen as a new treatment such as is used in a cross-over design of multiple drugs studies, evaluations using the students as their own controls. This procedure allows us to generalize our results at least to students who have study problems which cannot be relieved by medication. The exact proportion of this group amongst the total population of brain fag students is uncertain. A review of 20 charts of Makerere University undergraduate students suffering from the same condition revealed 13 students still coming for regular medication nine months after their initial clinical contact. As their clinical notes mentioned only minimal symptom relief, and medication had been changed frequently, these patients may well have qualified for the discussion group, giving a drug only success rate of 35 per cent.

From a clinical point of view some of the background data demonstrate interesting differences among the groups. The problem group of students came from somewhat poorer homes where the educational jump from father to son was very wide. They appear to have started school later and been generally more anxious about being a success than their untreated peers, although their academic achievements did not warrant this concern. They furthermore saw their parents as less tolerant to any failure on their part and 65 per cent claimed to have other family members suffering from similar study problems.

The symptoms themselves had been with the group for many years, frequently beginning as early as P.VI or P.VII. They had tried a great variety of treatments, and some letters the author received and several personal interviews showed some boys to be virtually paralyzed by their affliction. Some lay in bed unable to do any work 'just waiting for the exam to come', some ran away from school periodically, sleeping in the bush, some others had spent previous semesters at home and not sat any examination. Yet the problem boys claimed to have as many or more friends than their controls and could talk to teachers easily, thus showing none of the symptoms associated with social isolation.

On the other hand, the problem students claimed to have experienced more previous medical illnesses than their peers. These illnesses could possibly have conditioned them to experience any kind of discomfort in a somatic form rather than as anxiety. Bennett (1969), in his work at the Makerere University Health Service, comments on how students from tribes which use ritual skin scratchings and burnings as main therapeutic agents against various diseases were significantly more prone to complain about functional disorders than those from tribes practising a different type of native medicine. The higher incidence of affected siblings in the brain fag group may possibly support this hypothesis.

Both groups of our sample aimed to join the high prestige professions of Africa such as doctors, and nobody showed any interest for technical vocations. They also preferred to speak English with their friends, though the majority came from one big local tribe, so demonstrating their desire to join the modern Western world.

Their study habits, however, showed marked differences. While the control students used predominantly the oral and visual modalities of learning, the brain fag group studied mainly by reading only. This group also increased the number of study hours per day before examinations more than the controls did. Both these results can be seen as signs of general anxiety and possibly the result of faulty study habits, as it has been demonstrated that retention is higher if material is presented in more than one modality (Hilgard, 1962).

The result of the discussions are difficult to evaluate. The majority of students saw themselves as better, and had in fact modified some of their study habits. Yet all of them still thought of medication as a good way of treating such a condition in other students, and hence had not abandoned the purely medical concept of their problem. This occurred despite the consistent attempt of the author to demonstrate how general tension and anxiety can create physical symptoms and how systematic muscle relaxation may relieve them. It is possible that more hours of discussion are required to change

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such beliefs, and it is furthermore likely that a number of students with similar problems are helped by medication alone. The consistent reporting of feeling happier, having lost a heavy load, being able to plan ahead now, may indicate that in at least some students the symptoms marked a depressive element.

In summary the study indicates that the brain fag syndrome, besides its rather uniform symptomatology, may occur more frequently in certain types of students. Its treatment, as is demonstrated, must extend beyond the purely pharmacological and include systematic psychotherapeutic measures. These should be developed in conjunction with the school staff and medical assistants and do not require highly skilled medical personnel, as our study gives no indication that these students show any other gross neurotic or psychopathic symptomatology.

The model developed at Makerere University, together with the national training institution for secondary school teachers, is a week-end meeting between doctors interested in brain fag symptoms and all local secondary school teachers of a particular area. Both groups have intensive discussions about specific school stresses in the area and are taught basic principles of relaxation. One particular teacher in a school can then be selected to form groups of 10–12 students, and with the support of the school's medical assistant and the back up service of a physician will, it is hoped, be able to decrease significantly the dropout of potentially good students and the immense suffering the condition presently creates in the secondary schools of Africa.

Summary

The study examines the background of 25 Ugandan secondary school students presenting with moderate to serious symptoms of brain fag to a psychiatric clinic, and compares it with 20 matched control students. It furthermore evaluates the efficacy of group treatment for the problem group.

The results show the problem students to vary from their control peers on a number of background variables. Systemic relaxation of muscle groups improved 70 per cent of the brain fag students, while high doses of antidepressant and anxiolytic medication had failed to do so.

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