

Detecting child psychiatric disorders during routine clinic work: A pre-interventional study of primary care physicians in Ilorin, Nigeria

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Background. Primary care physicians (PCPs) are accessible to most patients and are gatekeepers to specialist care. In our hospital the primary care department is potentially the main source of referral to our recently established child and adolescent psychiatric clinic, which is experiencing low attendance or under-utilisation. We suspected that child mental health problems were being under-detected at the primary level of care and that we needed to intervene.

Objective. To explore the existing level of ability of PCPs in our primary care unit to identify children with mental health problems.

Study setting. The study was carried out in the Paediatric Clinic of the Department of Family Medicine, University of Ilorin Teaching Hospital, Ilorin, Nigeria.

Method. A cross-sectional two-stage study in which 350 children aged 7 - 14 years, seen by PCPs in the course of their routine work, were subsequently screened with the parents' version of the Child Behaviour Questionnaire or Rutter Scale A2. Of these, a stratified sub-sample of 157 children, consisting of all the 36 high scorers (score ≥ 7) and 121 low scorers (i.e. about 1 in every 3 low scorers), were selected and interviewed jointly with their mothers using the children's version of the Schedule for Affective Disorders and Schizophrenia (K-SADS) to establish *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV) diagnoses.

Results. The PCPs identified 12 of the 157 children (7.6%) as having mental health problems of some sort. The K-SADS identified 40 of the 157 children (22.5%) as having a psychiatric disorder. A comparison of diagnoses by PCPs and the K-SADS shows that 8 of the 12 children diagnosed as having mental health problems

were among the 40 identified by the K-SADS, suggesting that PCP had a low diagnostic ability rating of 8/157 (5.1%). The PCPs performed poorly in discriminating between cases and non-cases ($p=0.002$). Poor school attendance ($p=0.001$), frequent hospital visits ($p=0.009$) and longstanding illness ($p=0.039$) were significantly associated with a child being identified as having a psychiatric disorder.

Conclusion. Because of the apparent poor ability of the PCPs in this study to detect child psychiatric cases, some form of intervention is vitally needed to improve attendance at our child and adolescent psychiatric unit. Use of a guideline or protocol and interactive educational programmes to improve the child mental health literacy of our PCPs are being considered.

Primary care physicians (PCPs) are the most accessible and affordable group of doctors in the health care system, and their gate-keeping role means that they care for all categories of patients, unrestricted by age, gender, organ or disease, as they enter, move through and re-enter the health care system.^{1,2} PCPs therefore see large numbers of children and should play a significant role in childhood mental health.^{3,4} Mental health problems are common in paediatric primary care clinics, where prevalence figures in the range of 10 - 30% have been reported.^{5,7} The ability of PCPs to recognise and take appropriate decisions on child mental health conditions should therefore be of concern to psychiatrists, as the gate-keeping role is vital for the effective planning and organisation of child mental health programmes.

Several reports suggest that PCPs do not identify child psychiatric problems adequately, and that when they do, they do not take appropriate decisions.⁸⁻¹¹ It has been suggested that this is due to perceived or actual lack of the necessary knowledge and skill, lack of sufficient interest, and a negative attitude.¹ The opportunities offered by the contact children and their mothers have with PCPs during their sometimes frequent visits to primary care centres are therefore often wasted as far as mental health care delivery is concerned.^{2,12} The end result is sub-maximal psychosocial development of these children, and psychological problems that may get worse or be carried over into adult life with unfortunate consequences.

Also of importance is that referrals from primary care to child and adolescent psychiatric clinics, giving affected children the maximum opportunity to be helped, will only take place if PCPs are able to detect disorders reasonably well. Despite the scarcity of child and adolescent psychiatric services in developing countries,

including Nigeria,¹³ the few units that are available have problems of poor attendance and under-utilisation. It is evident that PCPs need to play a significant role in improving the delivery of child mental health services in these countries.¹⁴

Addressing the problem of child mental care at the primary care level requires a collaborative effort that should start with PCPs. Our study is informed by problems of our recently established child and adolescent psychiatric clinic, which suffers from low attendance despite advocacy and efforts to increase awareness among parents, teachers and the general public. We decided to assess the current level of ability of our PCPs to detect child mental problems during their routine clinical work, without prior warning. We hoped that this would help in designing an intervention programme to solve the problems of the young clinic, and that our experience might be of value to other centres with similar problems.

Methods

Study setting

The study was conducted in the Family Medicine Practice Department (FMPD) of the University of Ilorin Teaching Hospital, a 450-bed tertiary institution located in Ilorin, the capital of Kwara State, Nigeria.

Although the clinic is situated in a teaching hospital, it offers primary health care in that no referrals are required. The FMPD has 6 general practice consultants, 2 of whom deal exclusively with children and 17 other doctors in residency training.

Subjects

In the first stage of the study, mothers of children aged 7 - 14 years consulting the FMPD during the 6-month study period (September 2008 - February 2009) were encouraged to participate after they had been seen by their PCPs. All those who gave consent were recruited into the study. Patients who were very ill and needed immediate attention and those not accompanied by their mothers were excluded. Those who consented had a form filled by the attending PCPs giving data on reason for consultation, physical diagnosis, presence of mental health problems and psychiatric diagnosis, if any, as documented in the case notes.

The study was restricted to children aged 7 - 14 years because this age group can understand and express themselves appropriately;¹⁵ also, the standard instruments used have been validated locally in this age group.¹⁶ Since mothers' participation was required, children over 14, who are less likely to be accompanied by their mothers, were excluded.

The 350 children recruited into the study were then screened with the parents' version of the Child Behaviour Questionnaire (CBQ) or Rutter Scale A2,¹⁵ a widely used 31-item screening instrument that investigates the child's behaviour in the previous 12 months. It has been found to be acceptable, applicable, reliable and valid in various treatment and epidemiological settings. The parent is asked

to indicate the extent to which the statement applies to the child, the frequency of occurrence of the behaviour and the degree of its severity. Each item is rated 0 - 2 (0 = does not apply; 1 = applies somewhat; 2 = certainly applies). This produces a total score within the range of 0 - 62. In the original study by Rutter *et al.*,¹⁵ a cut-off score of 13 was used. A previous study has shown that a cut-off score of 7 had maximum sensitivity and specificity among non-English-speaking children in a setting similar to that of our subjects and gave the best trade-off between high sensitivity and a low false-positive rate.¹⁶ For these reasons, and in order to increase the chance of selecting potential cases for interview and reducing false negatives, we therefore used 7 as a cut-off point. The CBQ (either the English version or the Yoruba version, as appropriate) was read to the mothers because of the generally low of literacy in the area of study and for the sake of uniformity (asking some subjects to fill in forms and reading them out to others may introduce bias).

For the second stage of the study, a stratified sub-sample of 157 children (all those with high scores, i.e. ≥ 7 , and 1 out of every 3 with low scores to optimise the true-negative rate or specificity rate) were then further interviewed by three trainee psychiatrists using the children's version of the Schedule for Affective Disorders and Schizophrenia (K-SADS)¹⁷ to arrive at a specific *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV) diagnosis.

A prior pilot study carried out on 10 inpatients with physical illnesses found good agreement when interviews by the three trainee psychiatrists were compared. Each interview was found to last 35 - 45 minutes.

Statistical analysis

Routine diagnoses by the PCPs and actual cases identified following the K-SADS and psychiatric interviews were compared. An inter-rater agreement analysis was done, including the calculation of Kappa statistics. Sensitivity, specificity and the relative risk (RR) and confidence intervals associated with various risk factors for mental health problems were also calculated.

Results

During the study period, a total of 350 children aged 7 - 14 years were screened. Of these 157 children went forward to the second stage of the study. There were no significant differences in terms of age and gender distribution between the initial 350 children recruited and the 157 who went through to the second stage, meaning that they were similar and therefore comparable (Table I).

The diagnostic categories made by the PCPs are in Table II. The PCPs identified 12 children as having some mental health problems (12/157=7.6%), while the K-SADS identified 40 as having psychiatric disorders; however only 8 of the 12 cases identified by PCPs had a psychiatric diagnosis on the K-SADS.

Chi-square analysis indicates that the PCPs performed poorly in discriminating between cases and non-cases ($p=0.002$, Fisher's

Table I. Mean age and age and gender distribution of children seen in the first and second stages of the study

| Variable | First stage (N (%)) | Second stage (N (%)) | p-value |
|------------------------|------------------------|-------------------------|---------|
| Gender distribution | | | |
| Male | 181 (51.7) | 82 (52.2) | 0.923 |
| Female | 169 (48.3) | 75 (47.8) | |
| Total | 350 (100) | 157 (100) | |
| Age distribution (yrs) | | | |
| 7 | 62 (17.7) | 30 (19.1) | 0.991 |
| 8 | 63 (18.0) | 28 (17.8) | |
| 9 | 47 (13.4) | 16 (10.2) | |
| 10 | 53 (15.1) | 23 (14.6) | |
| 11 | 41 (11.7) | 20 (12.7) | |
| 12 | 40 (11.4) | 19 (12.1) | |
| 13 | 25 (7.4) | 15 (9.6) | |
| 14 | 19 (5.4) | 6 (3.8) | |
| Total | 350 (100) | 157 (100) | |
| Mean age (yrs) (SD) | 9.75 (2.11) | 9.78 (2.14) | 0.899 |

SD = standard deviation.

Table II. Categorisation of routine diagnoses made by PCPs

| | N | % |
|--|-----|-------|
| General diagnoses | | |
| Physical health problems alone | 145 | 92.4 |
| Physical and mental health problems combined | 11 | 7.0 |
| Mental health problem alone | 1 | 0.6 |
| Total | 157 | 100 |
| Specific diagnoses | | |
| Anxiety-related disorders | 2 | 16.7 |
| Mental retardation | 2 | 16.7 |
| Enuresis | 2 | 16.7 |
| Attention deficit hypersensitivity disorder | 3 | 25.0 |
| Conduct disorders | 1 | 8.3 |
| Depression | 1 | 8.3 |
| Psychosis | 1 | 8.3 |
| Total | 12 | 100.0 |

exact test). The overall diagnostic sensitivity and specificity of PCP assessment when compared to the psychiatrists' diagnoses were 20% and 96.6%, respectively (Table III).

The result of inter-rater analysis of the PCPs' and psychiatrists' ability to diagnose DSM-IV disorders is shown in Table III. Inter-rater variation between the two groups was assessed with Kappa statistical analysis. Kappa statistics are intended to give a quantitative measure of the magnitude of agreement between observers. The Kappa score is standardised to lie on a scale of -1 to +1, where 1 is perfect agreement, 0 agreement that would

Table III. Comparison of routine clinical diagnoses of mental disorder by PCPs and DSM-IV diagnoses by psychiatrists

| | Mental disorder present (PCP) | Mental disorder absent (PCP) | Total |
|--|----------------------------------|---------------------------------------|-------|
| Case (presence of DSM-IV diagnosis as determined by psychiatrist) | 8 | 32 | 40 |
| Non-case (absence of DSM-IV diagnosis as determined by psychiatrist) | 4 | 113 | 117 |
| Total | 12 | 145 | 157 |

Diagnostic sensitivity 20%, diagnostic specificity 96.6%, actual agreement 77.1%, chance agreement 70.7%, Kappa coefficient 0.22.

be expected by chance, and a negative score agreement that is less than chance, i.e. potential systematic disagreement between observers.¹⁸ In Table III actual agreement and chance agreement are 77.1% and 70.7%, respectively; the Kappa coefficient is 0.22, indicating a fair degree of agreement.¹⁸

RR analysis of consultation pattern, length of children's illnesses and number of days missed from school is shown in Table IV. The more hospital visits made by the child in the preceding 3 months, the higher was the RR of having a mental health problem. Children with chronic medical illnesses also were more at risk of having a DSM-IV diagnosis, as were children who missed school frequently and those who were not in school at all (Table IV).

Table IV. Relative risk analysis of associated factors identified with presence of a psychiatric disorder

| Factors | RR | 95% CI | Chi-square | p-value |
|----------------------|------|-------------|------------|---------|
| School attendance | | | | |
| Missed 1 day/term | 0.69 | 0.25 - 2.41 | 20.16 | <0.001 |
| Missed 2 days/term | 1.01 | 0.42 - 2.41 | | |
| Missed ≥3 days/term | 2.19 | 1.30 - 3.67 | | |
| Not at school at all | 4.44 | 3.30 - 5.97 | | |
| Hospital visits | | | | |
| 1 | 0.39 | 0.11 - 1.33 | 11.54 | 0.009 |
| 2 | 1.43 | 0.71 - 2.87 | | |
| ≥3 | 2.28 | 1.36 - 3.81 | | |
| Chronic illness | | | | |
| Yes | 2.30 | 1.14 - 4.64 | 4.28 | 0.039 |
| No | 0.55 | 0.29 - 0.86 | | |

RR = relative risk; CI = confidence interval.

Discussion

Hospital child and adolescent psychiatric services in Nigeria are still few, and characteristically services are generally poorly attended and demand is low.¹³ At primary care level attempts have been made to incorporate services, but poor infrastructure and inadequate awareness on the part of parents, teachers and caregivers pose

serious challenges. The evolving trend is for tertiary institutions with psychiatric facilities to establish child and adolescent psychiatric services, but many suffer problems of poor attendance and under-utilisation.

In this study we hoped to determine the current state of ability of PCPs working in the primary care unit of our hospital to detect child psychiatric disorders. This unit is potentially the main source of referrals for our child and adolescent psychiatric clinic. We need this information in order to plan an intervention to remedy the poor attendance and under-utilisation being experienced by this young psychiatric facility. The study suggests that our PCPs perform poorly with regard to ability to detect child psychiatric disorders during the course of their routine clinical work. This is based on the low diagnostic ability rating of 8/157 (5.1%), a diagnostic sensitivity of 20% and a high diagnostic specificity level of 96.6%. They performed poorly in discriminating between cases and non-cases ($p=0.002$). This finding confirms several previous reports.^{29-31,19,20} In the health care system most patients, including children, are seen at primary care level. PCPs working as 'first-contact' or 'gate-keeping' doctors see most of these patients. The large numbers of children this category of doctors come across in their daily clinical work confers on them great potential for child psychiatric care – curative, preventive and promotive. When knowledge, attitude and skills are not adequate, this potential cannot be tapped. In Nigeria, for instance, it is probable that these factors have undermined previous and ongoing attempts to integrate mental health into primary care.²²¹

The high levels of diagnostic specificity of our PCPs, the degree of actual agreement with ratings by psychiatrists and a fair Kappa coefficient are remarkable when compared with other studies.²²² This finding affirms the competence and experience of these PCPs in identifying children who do not have mental disorders, and suggests that what may be needed is a resetting of their mindset to include the possibility of mental disorders during their clinical evaluation of children. This can be achieved through collaboration with psychiatrists, who will initiate strategies to fill this gap.²³

The other aspect of PCP involvement in child mental health is whether they are able to make a correct diagnosis when they suspect that a problem is present. This is important, because such decisions determine whether they manage or refer the child. A wrong diagnosis results in either managing wrongly or referring wrongly; both can have negative psychosocial and economic consequences for the child and his or her family. The PCPs in this study had a remarkable ability to correctly diagnose the mental health disorders they identified. They had an actual diagnostic agreement with DSM-IV diagnoses by the psychiatrists of 75.8%; this was better than the observed chance agreement (70.7%). Statistically this means they had a level of performance above what could have occurred by chance alone, suggesting that they had a relatively good degree of ability to correctly diagnose the cases they

suspected. This finding could be effectively used in the interactive educational programmes planned to improve detection and management at this level of care.

As part of an attempt to identify ways of involving PCPs in child mental health, clinic-based factors that constituted risks for psychiatric problems were investigated. Extensive investigation of these factors could help in the formation of protocols or guidelines to assist PCPs in handling child psychiatric disorders.²⁴ In this paper we considered three characteristics previously identified as putative risk factors for psychiatric disorders, namely poor school attendance, frequent hospital visits, and prolonged physical illness.² These factors were also found to be significantly associated with a higher RR of mental health problems in this study. If these factors can be ingrained in the mindset of PCPs through education and practice, they would look out for children who fit these patterns and screen them for problems,²⁵ thus enhancing detection, management and referral.

Differences in interest and experience mean that variations in the ability of PCPs to detect psychiatric disorders are inevitable. The influence of these factors was not explored in this study, limiting its generalisability. Many more risk factors would have been identified if the study population had been larger; the number of children in the second stage was dependent on the number screened in the first. PCPs' ability to detect cases in older adolescents was not explored in this study, the main reason being that they were less likely to be accompanied to the clinic by their mothers, making the application of the CBQ and K-SADS more difficult, since they are parent-dependent instruments.

We conclude that child psychiatric disorders are still under-detected in our primary care setting, so children with these problems may suffer avoidable psychosocial problems and carry the risk of psychopathology in adult life. PCPs may have a low level of ability to detect psychiatric disorders owing to lack of time, knowledge or skill, with the result that management of cases is likely to be poor and referrals to our clinic to continue to be few. Our intervention programme requires child psychiatrists to assist PCPs in developing adequate knowledge, attitude and skills in the detection and possibly the management of child psychiatric disorders, and to sustain our existing advocacy and efforts to increase awareness among parents, teachers and the general public.^{1,21,25} Finally, the appropriate infrastructure and manpower must be developed to encourage the growth and development of child mental health care delivery.^{26,27}

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