Psychiatric Disorders Among the Mentally Retarded Children: A cross sectional study in a tertiary care hospital

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Summary
It has been experienced that a significant number of children with mental retardation have psychiatric disorders. The objective of this study was to find out the pattern of psychiatric disorders among the mentally retarded children in a tertiary care hospital. A cross-sectional study was conducted with all consecutive mentally retarded patients attending outpatient department of psychiatry and pediatric neurology department of BSMMU, Dhaka from July 2007 to June 2008. Total number of samples was 50. In this study a semi structured questionnaire, Developments and Well – Being Assessment (DAWBA), ICD-10 and WISC R have been used as research instruments. In this study, 22% of mentally retarded children have emotional disorders and 24% behavioral disorders. In total 46% of samples have psychiatric disorders. Among emotional disorders major depressive disorder and generalized anxiety disorder are more common and both are 6%. Among the behavioral disorders the hyperkinetic disorder and oppositional defiant disorder are 16% and 8% respectively. In case of mild mental retardation the emotional disorders are more common (81.8%) but in case of moderate mental retardation the behavioral disorder are more common (83.3%). The mean IQ of emotional disorder children is 59.45 and mean IQ of behavioral disorder children is 45.50. Most of the psychiatric morbidity presents in the age group of 5-10 years (47.1%). The findings emphasize the necessity to evaluate psychiatric problems in children with mental retardation for early diagnosis and proper management to improve the quality of life of those children.

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**Introduction**

Mental retardation is a term for a pattern of persistently slow learning of basic motor and language skills ("milestones") during childhood, and a significantly below normal global intellectual capacity as an adult. On common criterion for diagnosis of mental retardation is a tested intelligence quotient (IQ) of 70 or below and deficits in adaptive functioning. People with mental retardation may be described as having developmental disabilities, global developmental delay, or learning difficulties. Mental retardation is present in 2-3% of individuals in the general population either as isolated findings, or as part of an underlying disorder. It is the reason for a substantial part of referrals of patients and families to the pediatric genetic counseling units. Mental retardation may be genetically determined, or due to environmental (including perinatal) influences, physicians often are unable to define the etiology, in at least 30-50% of cases. This report presents the experience with 100 consecutive children with mental retardation admitted to the section of clinical genetics of the university pediatric hospital in Sofia over one year period. The reported prevalence of psychiatric disorders among the mentally retarded are higher than those in the general population, but because of methodological problems, the range of estimates is wide. The lower the IQ is the greater the difficulty in diagnosing psychiatric syndromes. The severity of retardation affected the type of psychiatric disorder. Disruptive and conduct disorder behaviors occurred more commonly in the mildly retarded group; those with severe mental retardation have particularly high rate of autistic disorder and pervasive developmental disorders. The point prevalence of Schizophrenia in people with mental retardation is about 3% compared with 1% in the general population. The rate of depressive disorders is similar to that in the general population anxiety disorders are also frequent. Adjustment disorders are common among people with mental retardation. Post traumatic Stress disorders have been reported in people with mental retardation who have suffered physical or sexual abuse. Obsessive compulsive disorders are also found and may be more frequent than in the general population. Conversion and dissociative symptoms are sometimes florid, taking forms understandable in terms of the patient’s understanding of illness. Persons with fragile X syndrome have extremely high rates (Up to three fourths of those studied) of attention-deficit/hyperactivity disorders. In Down syndrome, language function is a relative weakness; where as sociability and social skills, such as interpersonal cooperation and conformity with social conventions are relative strengths. Personality disorder is common among people with mental retardation, but is difficult to diagnose. In this population, there is a considerable overlap between the diagnosis of behavior disorder and of personality disorder. In the prominent Isle of Wight study (Rutter, 1970), the frequency of psychiatric disorders reported by Rutter and his associates were three to four times greater for children with mental retardation than for children with normal intelligence. Similarly, rates found in the longitudinal study conducted by koller et al 1982, were approximately four to five times higher than in the total age cohort, and
serious behaviour problems were seven times more prevalent in the group with mental retardation several investigators concluded that the level of ability of the individual partly determines the manifestation of specific psychiatric disorders. Corbett et al. 1975, noted a higher prevalence of severe stereotypies, childhood psychosis, and hyperkinetic disorders among children with severe mental retardation, compared with those with milder forms of retardation.

A study of psychiatric outpatient attendance at the National Institute of Mental Health in Dhaka revealed that 8.6% of cases were children or adolescents. In a different analysis of psychiatric morbidity among the outpatients of the same institute, emotional disorders where found to be the largest group with 32.5%, followed by conduct disorder 18.8%, mental retardation comprised 16.2%, psychotic condition 11.2%, epilepsy with behavioral problems 12.5% and the rest 8.5% comprised of the other group of disorders.

From the above studies, it can be concluded that a significant number of mental retarded children having psychiatric disorder. During clinical work researcher observe that majority of the mentally retarded children referred to the psychiatric outpatient department has one or more psychiatric co-morbidity. In our country possible similar picture also observed with other mentally retarded children who attended in the hospital for medical care. These findings encouraged the researcher to explore the psychiatric morbidity among mentally retarded children in Bangladesh.

The general objective of this study was to find out the pattern of psychiatric disorders among the mentally retarded children in a tertiary care hospital. The specific objectives are to identify the type of psychiatric disorders among mentally retarded children and to identify emotional and behavioral disorders according to the severity of mental retardation.

Method
It was a cross sectional study done on special group of children who were mentally retarded and came to the outpatient department of psychiatry and pediatric neurology in BSMMU. The above mentioned departments of Bangabandhu Sheikh Mujib Medical University were chosen because this is a tertiary level hospital of health care system of Bangladesh. This is an academic as well as research institute for the post graduate students, patients are consulted by specialist with full laboratory facilities. Consultation-Liaison psychiatry is also well developed in this institute. Besides this, patients come to this hospital from all parts of the country. Services were easily affordable to people of all economic status. The inclusion criteria for the sample were the diagnosed cases of mental retardation of either sex and age limit was 5 to 18 years. The exclusion criteria were the patients who were severely debilitated and cognitively impaired and those whose guardians refused to give consent for the study. The duration of the study was from July 2007 to June 2008. During this period all consecutive patients who fulfilled the inclusion criteria were taken as the samples. The researcher had to approach a total of 57 consecutive patients, who were diagnosed by the consultants of the respective department.
patients, two guardians of the patients refused to participate in the study either due to shortage of time or they somehow avoided, the other five patients data sheets were found incomplete before final scrutiny prior to analysis of data. And then the final sample size was 50. Prior to the study pre testing was carried out among cases equivalent to at least 10% of total study population, before finalizing the instruments and methodology. Some modification of questionnaires and other aspects were done. The researchers were duly careful about ethical issues related to this study. In this study the following criteria were set to ensure maintaining the ethical values: The study was not involved with one’s body organ, body fluids or fetal tissues. In this study precaution was taken to protect confidentiality of the participants. Informed written consent was obtained from the subject and or from parents or guardian, if subject is minor to give reliable information. The contents of the informed consent are as such-

Explanation of the nature and purpose of the study,

Explanation of the procedure, benefit and duration of the study and

Explaining that they have the right to refuse or accept to participate in the study.

The patients did not gain financial benefit from this study.

In this study the following research instruments were used:

1. Semi structured questionnaire for the study “Psychiatric morbidity among children and adolescents with mental retardation attending psychiatric care facilities in a tertiary hospital” which was designed by the researchers containing socio-demographic variables like age, sex, habitat, religion, educational status of the child and parents, monthly family income etc.

2. Developments and Well – Being Assessment (DAWBA): The research assessment of emotional and behavioral disorders was carried out using the (DAWBA) developed by Goodman et al. 2000. It is an internationally well accepted research instrument, and a novel package of questionnaires, interviews, and rating techniques designed to generate ICD-10 and DSM-IV psychiatric diagnoses among children and adolescents of 5 to 16 years (extended up to 18 years). This instrument has been translated in Bangla and standardized and validated by Mullick MSI, 2005. The validated Bangla version of DAWBA was used in this study. The researcher was trained by the supervisor of the study.

3. ICD-10: Diagnostic Criteria for Research: ICD-10 (International classification of disease – 10th edition) classification of mental and behavioral disorders is acceptable to a wide range of users in different cultures. It is easy to use and available in widely spoken languages. This is the official diagnostic tool for mental and behavioral disorders. It has three versions. The first of these consists of clinical descriptions and diagnostic guidelines. The second version is the operational criteria entitle ‘Diagnostic Criteria for Research’. The third document is a
shorter, simpler version of the clinical
description, which is suitable for use
in primary care. A multi axial system
is also produced. To make the study
much more sound, the Diagnostic
Criteria for Research was used. The
content of Diagnostic Criteria for
Research is derived from chapter V
(F), mental and behavioral disorders,
of ICD-10. It contains specific criteria
for the diagnoses contained in clinical
descriptions and diagnostic guidelines
(CDDG), which was produced for
general clinical and educational use
by psychiatrists and other mental
health professionals.

4. WISC R: A test measuring intelligence
in 6 to 16 year old is called the
Wechslser Intelligence Scale for
Children (WISC) It was revised in
twice in 1974 and 1991. It has two
components. Verbal scale and
performance scale.

During the procedure of data collection,
first the children and adolescent who
satisfied the inclusion and exclusion
criteria were selected. Then informed
consent was taken from the parents or
legal guardian of the cases. After taking
consent, they were interviewed by the
researcher by using questionnaire for
socio-demographic variables. Then the
parents of all cases were interviewed by
using parent version of DAWBA. In this
study, standardized and validated Bangla
version was used for the diagnosis of
emotional and behavioral problems. Then
ICD-10 was used to assign the diagnosis
of above disorders and other co morbid
psychiatric disorders. IQ assessments
were done by using WISC-R by the child
psychologist of pediatric neurology,
BSMMU. To reduce the biasness during
the application of the DAWBA,
researcher was blind to the IQ
assessment. The data was computed into
the computer based diagnostic program
for generating computer-based diagnosis.
Then it was rated by the consultant
psychiatrist who is an internationally
recognized and experienced rater for the
diagnosis. All collected data were
checked and rechecked for omissions,
inconsistencies and improbabilities. Data
analysis was performed by Statistical
Package for Social Science (SPSS),
version-12. After cleaning of data it was
edited, coded and entered into the
computer. Then rate of emotional and
behavioral disorders were estimated
between children with MR. After this,
specific types of psychiatric disorders
were calculated in two groups. Type of
psychiatric disorder in relation to IQ was
also analyzed and t test (one tailed) was
done to measure the level of significance.
Result was presented as text, tables and
figures. The level of significance in this
study was considered as 5% level or
higher.

Results
In this study participation rate of
samples was found 87.72%.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total samples approached</td>
<td>57</td>
<td>100</td>
</tr>
<tr>
<td>Refused to participate by guardians</td>
<td>2</td>
<td>3.51</td>
</tr>
<tr>
<td>Missing data</td>
<td>5</td>
<td>8.77</td>
</tr>
<tr>
<td>Final participation</td>
<td>50</td>
<td>87.72</td>
</tr>
</tbody>
</table>
Figure 1: Distribution of Psychiatric disorders among participants

Figure 1 shows the distribution of psychiatric disorders among 50 mentally retarded children where 46% participants had psychiatric disorders.

Figure 2: Broad category of psychiatric disorders

Figure 2 shows the broad category of psychiatric disorders, where the emotional category was 22% and the behavioral category was 24%.
Figure 3: Specific type of psychiatric disorders (emotional and behavioral categories)

Figure 3 shows the specific type of psychiatric disorders (emotional and behavioral category) where the hyperkinetic disorder was 16% and oppositional defiant disorder was 8%. The other diagnoses were major depressive disorder (6%), generalized anxiety disorder (6%), separation anxiety disorder (2%) and other anxiety disorder (8%).

Table 2: Distribution of emotional and behavioral disorder among mental retarded children

<table>
<thead>
<tr>
<th>Severity of mental retardation</th>
<th>Psychiatric disorders</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Emotional disorder</td>
<td>Behavioral disorder</td>
</tr>
<tr>
<td>Mild</td>
<td>9 (81.8%)</td>
<td>2 (16.7%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>2 (18.2%)</td>
<td>10 (83.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>11 (100%)</td>
<td>12 (100%)</td>
</tr>
</tbody>
</table>

† Figure within parentheses denoted corresponding percentages

# Chi square test was done to measure the level of significance

** Highly significant (P< 0.005)

Table 2 shows that in mild mental retarded children and adolescents 9 (81.8%) had emotional disorders and 2 (16.7%) had behavioral disorders. In moderate mental retarded children and adolescent 2 (18.2%) had emotional disorders and 10 (83.3%) had behavioral disorders. The result is statistically significant.
Table 3: Distribution of emotional and behavior disorders by Mean IQ.

<table>
<thead>
<tr>
<th>category</th>
<th>Number of cases having psychiatric disorders</th>
<th>Mean IQ of disordered respondents</th>
<th>SD</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional</td>
<td>11</td>
<td>59.45</td>
<td>8.548</td>
<td></td>
</tr>
<tr>
<td>Behavioral</td>
<td>12</td>
<td>45.50</td>
<td>5.317</td>
<td>0.0001**</td>
</tr>
</tbody>
</table>

# t-test (one tailed) was done to measure the level of significance
** Highly significant (P < 0.005)

Table 3 shows that mean IQ of emotional disorder children was 59.45 and mean IQ of behavioral disorder children was 45.50. The P value was highly significant. (P = 0.0001)

Table 4: Distribution of respondents by age (in years)

<table>
<thead>
<tr>
<th>Age</th>
<th>Psychiatric disorders</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present (n=23)</td>
<td>Absent (n=27)</td>
</tr>
<tr>
<td>5-10 Years</td>
<td>16 (47.1%)</td>
<td>18 (52.9%)</td>
</tr>
<tr>
<td>11-18 Years</td>
<td>7 (43.8%)</td>
<td>9 (56.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>23 (46.0%)</td>
<td>27 (54.0%)</td>
</tr>
</tbody>
</table>

† Figure within parentheses denoted corresponding percentages
# Chi square test was done to measure the level of significance
  Chi-Square = .048; df=1; p< .827

Table 4 shows that in age group 5-10 years of respondents: psychiatric disorder present 16(47.1%) and absent 18(52.9%). In age group 11-18 years of cases: psychiatric disorder present 7(43.8%) and absent 9(56.3%).
Table 5: Distribution of total respondents by socio-demographic characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Respondents n=50</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean IQ</strong></td>
<td>49.98±10.034</td>
</tr>
<tr>
<td><strong>Age (in years)</strong></td>
<td></td>
</tr>
<tr>
<td>5-10</td>
<td>34 (68.0%)</td>
</tr>
<tr>
<td>11-18</td>
<td>16 (32.0%)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>32 (64.0%)</td>
</tr>
<tr>
<td>Female</td>
<td>18 (36.0%)</td>
</tr>
<tr>
<td><strong>Habitat</strong></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>26 (52.0%)</td>
</tr>
<tr>
<td>Urban</td>
<td>24 (48.0%)</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
</tr>
<tr>
<td>Islam</td>
<td>44 (88.0%)</td>
</tr>
<tr>
<td>Hinduism</td>
<td>6 (12.0%)</td>
</tr>
<tr>
<td><strong>Educational status</strong></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>31(62.0%)</td>
</tr>
<tr>
<td>Special education</td>
<td>15(30.0%)</td>
</tr>
<tr>
<td>Up to primary</td>
<td>4(8.0%)</td>
</tr>
<tr>
<td>Up to secondary</td>
<td>0(0.0%)</td>
</tr>
<tr>
<td><strong>Monthly family income in Tk.</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;10000 Tk.</td>
<td>19 (38.0%)</td>
</tr>
<tr>
<td>10000-20000</td>
<td>16 (32.0%)</td>
</tr>
<tr>
<td>&gt;20000 Tk.</td>
<td>15 (30.0%)</td>
</tr>
</tbody>
</table>

Figure within parentheses denoted corresponding percentages

Discussion
Childhood is the perfect period of one’s physical, mental, social and moral development. Since the experience and attitude of this age is carried throughout his life and determine to a considerable extend how the child will adjust to later life. Childhood is not a homogeneous epoch and child change with age. Many psychiatric conditions in childhood are distortions of psycho-social development. The child’s disorder must therefore be appraised in a developmental context. An influential conceptual approach emphasizing this and thereby forging links between the study of development and psychiatric disorder is termed developmental psychopathology. This concerns itself with explanations as to why variations between children arise in emotional, behavioral and cognitive development, examines the continuities and discontinuities between normality and abnormality and considers interactions between genetic and environmental influences. Disorders are understood to be the outcome of complex interactions between etiological factors rather than resulting from single disease processes.

Mental retardation is not a disease: rather it is the result of a pathological process in the brain characterized by limitations in intellectual and adaptive function. The
cause of mental retardation is often unidentified, and the consequences become evident by a person's difficulty with intellectual functioning and living skills. It is, therefore important to understand and focus probable emotional or behavioral disorders of mentally retarded children for their healthy and sound mental developmental functioning. Reviewing different literature on mental retardation, we tried to understand the distress of huge burden of psychiatric problem on children with mental retardation considerable evidence indicates that emotional and behavioral problems are more frequent among mentally retarded children than without mental retardation. Our study was a cross sectional study done in patients attending psychiatric care-facilities in a tertiary hospital. We observe psychiatric disorder among child with MR was 46%. This result is consistent with the prominent Isle of Wight study. The prominent study about the frequency of psychiatric disorders was conducted in Isle of Wight by Rutter and his associates. The results were three to four times greater for children with mental retardation than for children with normal intelligence.

We found different specific types of emotional and behavioral disorders among children with mental retardation. These include major depressive disorder (6.0%), generalized anxiety disorder (6.0%), separation anxiety disorder (2.0%), other anxiety disorder (8.0%), hyperkinetic disorder (16.0%), and oppositional defiant disorder (8.0%). All of these have higher incident among children with mental retardation, but the result were statistically non significant due to small sample size which was a limitation of this study.

Reiss found the prevalence of anxiety disorders among children with mental retardation was 31.4% of individuals at a community based day program for individuals with MR. A small European study of a psychiatric clinic for children younger than 16 years of age with mental retardation found that 22% had anxiety disorders. The reported prevalence of hyperkinetic disorders among European children with mental retardation was 11%. These findings are consistent with the present study.

The present study shows that emotional disorder (81.8%) are more common among mild mentally retarded children and behavioral disorders (83.3%) are more common among moderate mentally retarded children. The findings also consistent with the Isle of Wight study, have found that the frequency of most behavior disorder is inversely related to IQ among children with and without mental retardation.

In Bangladesh, generally emotional disorders are the commonest childhood psychiatric diagnosis. Mulllick, Khanam and Islam (1995) found that the largest group of children (32.5%) attending outpatient department of the Institute of Mental Health and Research had emotional disorder. This may be due to protective factors of Bangladeshi culture, this may have reflected in the present study.

The findings emphasize the necessity to evaluate and address psychological problems in children with mental retardation. We suggest that assessment of the child's behavioral and emotional functioning in early childhood can make children proper function in future life.

In the light of this research work, the researcher recommended to make awareness among parents, mental health workers, agencies who work for mental
retardation about psychiatric disorders, to arrange programs where psychiatrists, pediatricians, neurologists, psychologists, social workers, school teachers and psychiatric nurses will work together as a multidisciplinary team for children and adolescents on the management of psychiatric disorders with mental retardation. Treatment of emotional and behavioral disorders should be made available in the hospital and provide parent education. Further multi-centered prospective and population-based studies should be designed to find out the exact situation.

Psychiatric morbidity was significantly present in children with mental retardation that was found in this study and supported other represented studies that need to be addressed. The findings emphasize the necessity to evaluate psychiatric problems in children with mental retardation for early diagnosis and proper management to improve the quality of life of those children.

References


