

*Original Article*

# Study of Psychiatric Comorbidities and Quality of Life in Persons with Intellectual Disability

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**Abstract:** Psychiatric co-morbidities are frequently found in persons with intellectual disability (ID). These co morbidities along with severity of ID play significant role in overall functioning and quality of life. This study assessed the prevalence of psychiatric co morbidities and quality of life in persons with intellectual disability. A cross-sectional hospital-based study was conducted among 44 patients with intellectual disability diagnosed by Clinical Psychologist visiting outpatient Department of Psychiatry of Manipal Teaching Hospital, Pokhara, Nepal. Informed written consent was taken. The socio demographic data and relevant variables were collected using a predesigned proforma. Psychiatric co morbidity was diagnosed according International Classification of Disease-10. The Quality of life of the subjects was assessed with Quality-of-Life Inventory-Disability Scale. Data entry and analysis was done using Statistical Package for the Social Sciences version 23.0. The p value less than 0.05 was considered statistically significant. The mean age of the participants was 11.98 years (SD±4.16). The majority of participants were male, Hindu and belonging to rural population. Also, majority of respondent were literate. The prevalence of psychiatric co morbidity was 29.5% and mean score of quality of life was 56.04. The mean score of quality of life had significant association with severity of intellectual disability (ID). Psychiatric co-morbidity in intellectual disability (ID) children showed no statistically significant association with age group, gender, religion, place of residence and employment status of father. Patients with intellectual disability has high rate of co morbid psychiatric disorder. Proper diagnosis of psychiatric co morbidity and severity of intellectual disability (ID) is required to improve quality of life in persons with intellectual disability (ID).

**Keywords:** child, co morbidity, intellectual disability, Nepal, psychiatry, quality of life

## 1. INTRODUCTION

Mental health disorder and Mental Retardation is major existential public health issue in current scenario. Mental health disorder is accountable for more than 14% of global health burden while mental retardation occupies a place among top 20 source of most costly disorder [1]. Intellectual disability (ID) is a disorder with onset during the developmental period. This includes both intellectual and adaptive functioning deficits in conceptual, social, and practical domains [2]. Intellectual disability is diagnosed by an assessment of the intelligence quotient (IQ) when scores are two standard deviations or more

below the population, which equals an IQ score of about 70 or below [3]. Adults with intellectual disabilities are thought to experience health inequalities and earlier age of death compared with the general population [4]. However, there is little reported information on their wider experience of multimorbidity/comorbidity (two or more conditions additional to the intellectual disabilities) in this population across the adult lifespan. Comorbidity is clinically important, as it may require a different management approach to the care of an individual disease, and may introduce pharmacological contraindications [5]. There is increasing awareness of its clinical importance, due to the relatively recent studies of multi-morbidity in the general population showing that it starts to become more common over the age of 50 and increases in the elderly [6]. In people with intellectual disabilities, rates of individual disorders have been previously reported, for example, a point-prevalence of 40 % for additional mental ill-health [7], 30 % for epilepsy [8], and 50 % for gastro-esophageal reflux disorder [9]. This might suggest that multi-morbidity would be a particular problem for this population, but we have only been able to find two previous studies on the topic, both of which were focused only on older people with intellectual disabilities [10,11]. Both reported high rates of multimorbidity/comorbidity; 71 % in 695 older persons with intellectual disabilities [12], and 80 % in 1047 older persons receiving paid support [13]. These studies did not draw direct comparisons with rates in the general population living in the same areas, nor at the same age. The extent of multimorbidity is higher in the general population living in more deprived neighborhoods [14]. It is therefore important to examine if this is also true for people with intellectual disabilities, since this would indicate higher needs in this population which may need specific organization to meet. Both children and adults with intellectual disabilities are more likely to live in more deprived areas [15,16]. However, the impact this has on their health and health care has been little studied [17]. Psychiatric co-morbidities among the patients with intellectual disability are common and has marked associations with Quality of life (QOL) [18]. Co-morbidities associated with ID includes Epilepsy, Attention Deficit Hyperactivity Disorder, Autism, Anxiety, Depression, Bipolar Disorder, Schizophrenia, Obsessive Compulsive Disorder and other Emotional and Behavioral Disorder [19]. The World Health Organization (WHO) defines Quality of Life as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. QOL is usually quantified in terms of life satisfaction (cognitive appreciation), affect (a person's feelings or emotional states, both positive and negative, typically measured with reference to a particular point in time) and eudemonics (a sense of having meaning and purpose in life) [20]. Co-morbid psychiatric disorders in intellectual disability affect the overall management with implication in the individual's life, in their caregiver's burden, in psycho pharmacological and psychological treatment and in service providers [21,22]. Historically, there has been a long standing debate concerning the co-occurrence of psychiatric disorders among people with intellectual disability [23]. Until the 1980s, people with intellectual disability were considered cognitively incapable of suffering from a mental illness and protected from psychological stress; thus, behavioral anomalies were considered part of intellectual disability itself [24]. However, latest studies have largely confirmed that psychiatric disorders are separate entities from intellectual disability and now, it is accepted that people with intellectual disability may experience the same psychiatric disorders as adults without intellectual disability [25]. At present, few studies have reviewed this topic, concluding that the total prevalence of psychiatric disorders in adults with intellectual disability is higher than in the general population, with a rate between 7% to 97%. However the exact number is unclear [26,27]. No studies have been carried out in Nepal till now regarding this topic. This study helped to find the prevalence of co-occurring psychiatric disorder and their impact on quality of life of patients with intellectual disability attending tertiary care hospital. This study determined the psychiatric co morbidities and quality of life in persons with intellectual disability.

## 2. MATERIALS & METHOD

This study is hospital based observational cross-sectional study. It was conducted for the duration of 14 months. This was conducted in Out Patient Department in Department of Psychiatry, Manipal Teaching Hospital, and Pokhara, Nepal. Before commencing with the study, approval was taken from the Institutional Review Committee of Manipal College of Medical Sciences, Pokhara, Nepal. Written informed consent was taken from the Parents/Guardians/caretakers before they were enrolled in the study. Every case had the right to withdraw from the study at any point of time, if he/she wished to do so. Patient's identity and personal information was kept confidential throughout the study. Patients aged 5 to 18 years, diagnosed with intellectual disability were included from the Out Patient Department of Psychiatry Department of Manipal Teaching Hospital, Pokhara, Nepal. Now to calculate the sample size,  $n = Z^2 (PQ) / d^2$

$n$  = required sample size

$Z$  = reliability coefficient (1.96 for 95% reliability)

$P$  = estimated prevalence,  $Q = 1 - P$

$d$  = maximum tolerance error (up to 10% i.e. 0.1) Prevalence: (13.9% i.e. 0.13)

Sample size ( $n$ ) =  $(1.96)^2 0.13(1-0.13) / (0.1)^2 = 43.44$

Required sample size: 44

Hence, 44 cases were included in the study. Non probability convenient sampling method was used. After taking written consent from the Parents/Guardians/caretakers, all the patients diagnosed with intellectual disability by the Clinical Psychologist fulfilling the inclusion criteria were included in the study. The informants were clearly explained about the purpose and procedure of the study in Nepali language. Detailed history and relevant examination were performed and the proforma was filled. The psychiatric co morbidity was diagnosed using ICD-10. Quality of life score was evaluated using Quality of Life Inventory-disability scale. The data was recruited serially until the required sample size was reached. All the data was entered and analyzed using IBM SPSS version 23 using appropriate statistical methods. A p-value of  $< 0.05$  is considered statistically significant. Socio-Demographic Proforma, Developmental Screening Test (DST) and Wechsler Adult Intelligence Scale (WAIS).

ICD-10

Quality of Life Inventory-Disability (QI- Disability)

Socio-demographic variables were collected in a predesigned Proforma. Socio-demographic data included were name, age, gender, address, religion, education, employment status of father. Education of patient is defined in terms of illiterate (who has never gone to school and doesn't know how to read and write) and literate (includes all the children who have gone to school up to grade 6 and below and know how to read and write). Developmental Screening Test (DST) is 88 items semi-structured interview that is performed with caregiver of the participants aged 0-15 years. The test includes the motor, speech & language, and personal-social development of a child. The Scores on the test is obtained by the IQ calculator that is designed for DST to determine the level of development in a child. Validity of DST was established by the criterion validity using correlation between the Sequin Form Board Test (SFBT); the Columbia Mental Maturity Scale (CMMS) and the DST. The obtained correlation was 0.85 with SFBT and 0.75 with CMMS, showing 0.05 and 0.01 level of significance, respectively [28]. Wechsler Adult Intelligence Scale–Fourth Edition (WAIS-IV) was developed to assess cognitive ability for adults. This instruments aids in examining the relationship between intellectual functional and memory. It is a

well-established scale and has high consistency. Over (2-12) weeks' time period, the test-retest reliabilities ranged from 0.70 (7 subscales) to 0.90 (2 subscales). Inter-scorer coefficients were very high, all being above 0.90. The WAIS correlated highly with the Stanford-Binet IV test (0.88) [29]. ICD-10 was designed and developed by the Mental Health Division of World Health Organization. They provide operational criteria for the diagnoses of mental disorder. Epilepsy cases were also included as a part of co morbidity in ICD-10 where it is coded as G40 [30]. Quality of Life Inventory-Disability (QI-Disability) is a 32-item parent-report measure based on extensive qualitative data and developed for children with intellectual disability. There are six domains in the questionnaire: social interaction (seven items), positive emotions (four items), negative emotions (seven items), physical health (four items), leisure and the outdoors (five items) and independence (five items). Parents are asked to rate their observations of their child's well-being and enjoyment of life over the past month for each item on a 5-point Likert scale. Item scores were linearly transformed to a scale of 0 to 100, with higher scores representing better Quality of Life [31]. Cronbach's alpha values ranged from 0.72 to 0.90 and indicative of satisfactory convergent validity [32]. Data was entered in excel and analyzed using Statistical Package for the IBM Social Sciences version 23.0 (SPSS). Categorical data was presented as frequency and percentages. Continuous data was presented as mean and standard deviation. Association of socio-demographic variable with severity of ID and psychiatric co- morbidities were tested using Chi-square Test. Relationship between Mean score of quality of life and psychiatric co-morbidities was assessed using independent sample T-Test. Association of mean score of quality of life with socio-demographic profile and severity of ID was tested using one-way analysis of variance (ANOVA). Level of significance was set as p less than 0.05.

### 3. RESULTS & DISCUSSION

A total of 44 participants were selected and analyzed in this study

**Table 01:** Descriptive statistics of the age of the patient

|                | Minimum Age (in years) | Maximum Age (in years) | Mean Age (in years) | Standard Deviation |
|----------------|------------------------|------------------------|---------------------|--------------------|
| Age (In years) | 5                      | 18                     | 11.98               | ± 4.16             |

Table 01 shows the age of the participants ranged from 5 years to 18 years with mean age 11.98 years (SD± 4.16).

**Table 02:** Age groups of patients

| Age group (in years) | Frequency (n) | Percentage (%) |
|----------------------|---------------|----------------|
| 5-11 years           | 18            | 40.9%          |
| 12-18 years          | 26            | 59.1%          |
| Total                | 44            | 100%           |

Table 2 presents the age distribution of the study group. Maximum number of participants were between age group 12 to 18 years (59.1%) and (40.9%) of participants were between 5-11 years.

**Table 03:** Gender distribution of patient

| Gender | Frequency (n) | Percentage (%) |
|--------|---------------|----------------|
| Male   | 27            | 61.4%          |
| Female | 17            | 38.6%          |
| Total  | 44            | 100%           |

Table 03 shows the distribution of gender in the study. Majority of participants were male (61.4%) and rest were female (38.6%).

**Table 04:** Place of residence of patient

| Permanent address | Frequency (n) | Percentage (%) |
|-------------------|---------------|----------------|
| Rural             | 26            | 59.1%          |
| Urban             | 18            | 40.9%          |
| Total             | 44            | 100%           |

Table 04 indicates the residence distribution of the study sample. 59.1% of the participants were from rural area and 40.9% were from urban area.

**Table 05:** Religion distribution of patient

| Religion | Frequency (n) | Percentage (%) |
|----------|---------------|----------------|
| Hindu    | 41            | 93.2%          |
| Others   | 3             | 6.8%           |
| Total    | 44            | 100%           |

Table 05 shows religion distribution of the study. Majority of them were Hindu 93.2%. Remaining other participants were following Buddhist, Christian and Muslim religion.

**Table 06:** Education status of patients

| Education  | Frequency (n) | Percentage (%) |
|------------|---------------|----------------|
| Illiterate | 13            | 29.5%          |
| Literate   | 31            | 70.5%          |
| Total      | 44            | 100%           |

Table 06 presents education level of the study sample. Maximum number of participants was literate (70.5%) while rest of them was illiterate (29.5%).

**Table 07:** Employment status of father of patient

| Employment status of father | Frequency (n) | Percentage (%) |
|-----------------------------|---------------|----------------|
| Employed                    | 24            | 54.5%          |
| Unemployed                  | 20            | 45.5%          |
| Total                       | 44            | 100%           |

Table 07 indicates the distribution of employment status of father of the study population. The result showed that 54.5% father of participants were employed while 45.5% were unemployed.

**Table 08:** Psychiatric co-morbidities in patients with ID

| Psychiatric Co-morbidities | Frequency (n) | Percentage (%) |
|----------------------------|---------------|----------------|
| Present                    | 13            | 29.5%          |
| Absent                     | 31            | 70.5%          |
| Total                      | 44            | 100%           |

Table 08 summarizes the frequency of psychiatric co-morbidities among the study population. 29.5% of the participants had psychiatric co-morbidities.

**Table 09:** Psychiatric co morbidities (specific) in patients with ID

| Co morbidity                           | Frequency (n) | Percentage (%) |
|----------------------------------------|---------------|----------------|
| Other Anxiety Disorder                 | 3             | 6.8%           |
| Epilepsy                               | 5             | 11.4%          |
| Oppositional defiant Disorder          | 1             | 2.3%           |
| Hyperkinetic Disorder (ADHD)           | 3             | 6.8%           |
| Pervasive Developmental Disorder (ASD) | 1             | 2.3%           |
| Total                                  | 13            | 29.5%          |

Table 09 further elaborates the table 8 showing the specific psychiatric co-morbidities among 13 study participants. The prevalence was 11.4%, 6.8%, 6.8%, 2.3% and 2.3% of Epilepsy, Other Anxiety Disorder, Hyperkinetic Disorders, Oppositional Defiant Disorder and Pervasive Developmental Disorder respectively.

**Table 10:** Severity of ID

| IQ         | Frequency (n) | Percentage (%) |
|------------|---------------|----------------|
| Borderline | 1             | 2.3%           |
| Mild       | 14            | 31.8%          |
| Moderate   | 11            | 25%            |
| Severe     | 18            | 40.9%          |
| Total      | 44            | 100%           |

Table 10 presents the severity of ID in participated children. Most of the children had severe ID (40.9%) while moderate, mild and borderline ID were 25%, 31.8% and 2.3% respectively.

**Table 11:** Relationship between socio-demographic profile and severity of ID (n=44)

|                             |            | Borderline ID | Mild ID   | Moderate ID | Severe ID | P value |
|-----------------------------|------------|---------------|-----------|-------------|-----------|---------|
| Age                         | 5-11       | 1(5.6%)       | 7(38.9%)  | 4(22.2%)    | 6(33.3%)  | 0.485   |
| (In years)                  | 12-18      | 0(0%)         | 7(26.9%)  | 7(26.9%)    | 12(46.2%) |         |
| Gender                      | Male       | 0(0%)         | 11(40.7%) | 3(11.1%)    | 13(48.1%) | 0.022   |
|                             | Female     | 1(5.9%)       | 3(17.6%)  | 8(47.1%)    | 5(29.4%)  |         |
| Address                     | Urban      | 0(0%)         | 6(33.3%)  | 5(27.8%)    | 7(38.9%)  | 0.84    |
|                             | Rural      | 1(3.8%)       | 8(30.8%)  | 6(23.1%)    | 11(42.3%) |         |
| Education                   | Illiterate | 0(0%)         | 0(0%)     | 3(23.1%)    | 10(76.9%) | 0.007   |
|                             | Literate   | 1(3.2%)       | 14(45.2%) | 8(25.8%)    | 8(25.8%)  |         |
| Religion                    | Hindu      | 1(2.4%)       | 14(34.1%) | 11(26.8%)   | 15(36.8%) | 0.199   |
|                             | others     | 0(0%)         | 0(0%)     | 0(0%)       | 3(100%)   |         |
| Employment status of father | Unemployed | 0(0%)         | 6(30.0%)  | 3(15.0%)    | 11(55.0%) | 0.249   |
|                             | Employed   | 1(4.2%)       | 8(33.3%)  | 8(33.3%)    | 7(29.2%)  |         |

Table 11 shows the association between socio demographic variables and severity of ID. In the table chi-square test showed statistically significant association of severity of ID with gender of the study population ( $p=0.022$ ). The study also found statistically significant association with education of patient ( $p=0.007$ ).

**Table 12:** Relationship between socio-demographic profile and psychiatric co- morbidities

|                             |            | Co morbidity Present | Co morbidity Absent | P value |
|-----------------------------|------------|----------------------|---------------------|---------|
| Age                         | 5-11       | 7(38.9%)             | 11(61.1%)           | 0.258   |
| (In years)                  | 12-18      | 6(23.1%)             | 20(76.9%)           |         |
| Gender                      | Male       | 10(37.0%)            | 17(63.0%)           | 0.170   |
|                             | Female     | 3(17.6%)             | 14(82.2%)           |         |
| Address                     | Urban      | 3(16.7%)             | 15(83.3%)           | 0.119   |
|                             | Rural      | 10(38.5%)            | 16(61.5%)           |         |
| Education                   | Illiterate | 4(30.8%)             | 9(69.2%)            | 0.908   |
|                             | Literate   | 9(29.0%)             | 22(71.0%)           |         |
| Religion                    | Hindu      | 12(29.3%)            | 29(70.7%)           | 0.882   |
|                             | others     | 1(33.3%)             | 2(66.7%)            |         |
| Employment status of father | Employed   | 5(20.8%)             | 19(79.2%)           | 0.165   |
|                             | Unemployed | 8(40.0%)             | 12(60.0%)           |         |

In table 12, chi-square test showed no any statistically significant association between socio-demographic variables and psychiatric co-morbidities.

**Table 13:** Descriptive statistics of score of Quality of life of patient with ID

|      | Minimum score | Maximum score | Mean score | Standard Deviation |
|------|---------------|---------------|------------|--------------------|
| Mean | 34.61         | 72.32         | 56.04      | ± 9.27             |

Table 13 presents the mean score of quality of life of the study population as 56.04 with minimum mean score 34.61, maximum 72.32 and standard deviation ± 9.27.

**Table 14:** Mean score of Quality of life (of individual domain) in patients with ID.

| Domain of Quality of life | Mean Score | Standard Deviation |
|---------------------------|------------|--------------------|
| Physical Health           | 64.91      | ± 12.73            |
| Positive Emotion          | 53.55      | ± 12.45            |
| Negative Emotion          | 59.99      | ± 12.25            |
| Social Interaction        | 50.32      | ± 12.43            |
| Leisure and outdoor       | 53.64      | ± 15.30            |
| Independence              | 53.86      | ± 17.4             |

The above table shows the descriptive statistics of mean score of different domains of quality of life. In the study population physical health domain has highest mean score 64.91 while social interest has lowest mean score 50.32.

**Table 15:** Relationship between psychiatric co morbidities and mean score of quality of life

| Co morbidity | Mean    | Standard Deviation | P value |
|--------------|---------|--------------------|---------|
| Present      | 59.3554 | ±10.46396          | 0.127   |
| Absent       | 54.6616 | ±8.53540           |         |

Table 15 presents the association of mean score of quality of life with presence or absence of psychiatric co morbidity using independent samples t-test. The study failed to show any statistical significance ( $p=0.127$ ).

**Table 16:** Relationship between severity of ID and mean score of Quality of life

| ID         | Mean score (QOL) | Standard Deviation | p value |
|------------|------------------|--------------------|---------|
| Borderline | 72.32            |                    | <0.001  |
| Mild       | 61.48            | ± 5.43             |         |
| Moderate   | 59.12            | ± 7.68             |         |
| Severe     | 49.04            | ± 7.90             |         |
| Total      | 56.04            | ± 9.27             |         |

In table 16 association of severity of ID with mean score of Quality of life was determined using the one-way ANOVA test and found statistically significant association ( $p<0.001$ ). SD of the Borderline ID could not be calculated because of only one sample.

**Table 17:** Relationship of socio-demographic profile and mean score of Quality of life in patients with ID

|                 |            | Mean score (QOL) | P value |
|-----------------|------------|------------------|---------|
| Age<br>In years | 5-11       | 58.32            | 0.179   |
|                 | 12-18      | 54.47            |         |
| Gender          | Male       | 55.31            | 0.517   |
|                 | Female     | 57.20            |         |
| Address         | Urban      | 56.35            | 0.856   |
|                 | Rural      | 55.83            |         |
| Education       | Illiterate | 47.83            | <0.001  |
|                 | Literate   | 59.49            |         |
| Religion        | Hindu      | 56.49            | 0.243   |
|                 | others     | 49.94            |         |

The above table shows mean score of quality of life in various socio-demographic groups and also analyzes if any statistically significant difference exists between them. Using one-way ANOVA test, it was seen that mean score of QoL were significantly different according to education level of the participants ( $p<0.001$ ). On further analysis it was found that mean score was higher in literate children than in illiterate. There was no significant difference seen among other socio-demographic variables.

## DISCUSSION

Psychiatric co-morbidities are common in persons with intellectual disability. Severity of ID and psychiatric co morbidities have significant role in maintaining quality of life of the person. Considering it important to find the association between them, this study was conducted. The study sample consisted of 44 patients diagnosed with Intellectual Disability selected from Psychiatry OPD of Manipal Teaching Hospital. They were categorized according to their socio-demographic profile as well as clinical profile. Intellectual Disability was established by Clinical Psychologist using Developmental Screening Test (DST) and Wechsler Adult Intelligence Scale (WAIS). The psychiatric co-morbidities were established by using ICD-10. Quality of life was assessed using Quality of Life Inventory-Disability (QI- Disability) scale. The age of participants included in current study ranged from 5 to 18 years with a mean age of 11.98years ( $SD\pm4.16$ ). Almost similar findings seen in studies done in India ( $10.62\pm3.67$ ), Egypt ( $12.34\pm3.64$ ), Turkey ( $12.1 \pm 3.2$ ) and Australia ( $11.8 \pm 3.9$ ) [33,34]. Majority of participants in the present study were from the



age group 12-18 years (59.1%). This observation is in accordance to a study conducted in Turkey among 111 children with ID where they found 56.76% were above 12 years while 43.24% were below 12 years [35]. All of these studies have shown similar mean age group and similar age distribution as in our study. It may be explained as the age increases parents are more concerned about their child's disability and they bring their children to medical attention. In our study shows male patients were more in number than females (61.4% Vs 38.6%). Similar observation was seen in a study conducted in India which showed 68.33% patients were males and 31.67% patients were females [36]. Another similar study done in Turkey implicated the majority of participants were males [37]. The above observation was further supported by a study done in Egypt among children and adolescence with ID which showed 75.67% of them were males and 24.3% were female [38]. All of this study showed the predominance of ID in males. This observation can be explained as in context of Nepal male child is given more importance and the chances of taking male child for treatment is more. Another possible explanation could be biological vulnerability in male child to have neurodevelopment disorders [39]. In the current study majority of study population were literate (70.5%). Similar results were seen in another study conducted in Turkey among children with ID which showed the predominance of literate [41]. Further, this observation is also supported by a study done in India by Kishore et al showing literate participants in 57% of the total sample [40]. But in all these studies more than 30% children are illiterate. It may be explained as parents don't send their child to school who have intellectual disability likely due to unavailability of disable friendly institute which helps the disabled child. Another possible explanation could be these children with ID who show abnormal behaviors are not tolerated well in normal school [42]. The study sample had majority of Hindu participants (93.2%). This observation is in accordance with the religious distribution of Nepal [43]. The majority of study populations were from rural areas 59.1%. It could be explained as most of the participants visiting the hospital are from rural areas. In the current study most of the father of the participants were employed (54.4%). The study indicates the prevalence of psychiatric co-morbidities among the participants and found to be 29.5% which includes Epilepsy, Other Anxiety disorder, Hyperkinetic disorder (ADHD), Pervasive Developmental Disorder (ASD) and Oppositional Defiant Disorder as 11.4%, 6.8%, 6.8%, 2.3% and 2.3% respectively. A study done by Barwani, India among 262 patients with intellectual disability found prevalence of psychiatric co-morbidities as 54% [21]. The high prevalence was also found in the study conducted in Turkey among children with mild ID with prevalence of psychiatric co- morbidities as 80.2% where Hyperkinetic Disorder (ADHD), Oppositional Defiant Disorder, Anxiety Disorders, Enuresis, Conduct Disorder (CD) and Depressive Disorder were 64.9%, 21.6%, 18.0%, 16.2%, 10.8% and 6.3% respectively [48]. Similar results were seen in another study done in India among 60 patients where it was observed that co-morbid prevalence of psychiatric disorder of 56.67% [38]. Furthermore, in a systematic review done from 2003-2010 regarding the prevalence of psychiatric co morbidity in person with intellectual disability, prevalence was found between 13.9-75.2% [30]. However, studies done in normal children, prevalence of psychiatric disorders was found as 7.1%, 17.7%, 15%, 12.7%, and 11.2% in Norway, Ethiopia, Bangladesh, Brazil and Nepal respectively [44,45]. The above studies highlight the high prevalence of psychiatric co morbidities among the patients with ID. These observation can be explained as the person with ID have low self-esteem, negative self-image, poor frustration tolerance, interpersonal dependence, rigid problem solving style which increases the risk of psychiatric disorder.<sup>67</sup> These findings are further supported by studies done in UK which found that children with ID have low communication skill , poor coping skill, poor self-care, lack of social and cognitive ability, neglect and lack of social support system which directs the child towards mental health disorder [46,46]. In the study majority of children had severe ID (40.9%) while moderate, mild and borderline were 25%, 31.8% and 2.3% respectively. In a study done in India among 262 participants the result found severity among borderline, mild, mod, severe and profound ID child as 1.9%, 30.2%, 38.2%, 24% and 5.7% respectively [21]. Another study done in India among 60 participants findings were 38.3%, 20%, 18.33% and 11.66% in mild, mod, severe and profound ID person [40]. In all the studies cases of

borderline ID and profound ID are very low. And in the current study we find no cases of profound ID and only one borderline ID case. This observation can be explained as parents brought their child to hospital whose behavior is more impaired (mild, moderate and severe ID and didn't bother about child whose behavior can be tolerated as in borderline [21]. The study showed statistically significant association between gender and severity of ID. This observation is in accordance with studies done in South Africa, Egypt and Turkey [46-48]. These studies also show the prevalence of ID is more in male gender than in female. It can be explained as males with ID has more behavioral problems than females, especially disruptive, self-absorbed, autistic and antisocial behaviors which pushes them to severe ID [49]. Another possible explanation could be the ratio of manifestation of ID in male is more than female child due to genetical vulnerability in male [50]. The data in the current study also showed the significant association of severity of ID with education of participants ( $p=0.007$ ). It indicates that severity of ID is more in illiterate children than literate one. In a study done in Nepal regarding educating students with ID revealed that children who attend school learn basic life-skills that includes personal and oral hygiene, toilet training, eating independently and communication which helps in improving their quality of life [51]. The current study found no statistically significant difference between socio-demographic profile and psychiatric co-morbidities. This observation is supported by study done in India by Ram Lakhan among 262 children with ID [21]. similar results were observed by other studies done in Egypt, Turkey and Australia too [20,46,48]. However, a study conducted by Goodman & Graham in London observed statistically significant association of psychiatric co-morbidities with age of the participant with ID [52]. They found higher levels of mental disorder in younger children (<13 years) with intellectual disability. The study also explains that younger children are more affected by adverse parenting and parental depression. Furthermore, Emerson and Hatton in 2007 found that males with intellectual disability were significantly more likely to have conduct disorder and hyperactivity disorder than females [53]. Table shows mean score of Quality of life in person with ID as 56.04 with standard deviation  $\pm 9.27$ . In a study conducted in Australia among 447 patients with ID found mean quality of life score as 69.2 with Standard deviation  $\pm 12.7$  [20]. Furthermore, in a study done in Portugal comparing Quality of life in person with and without ID, it was found the score for quality of life was higher in person without ID than with ID [53]. The difference in mean score of quality of life between these studies among ID children may be due to various factors like better health care and rehabilitation facility, education and economic status of people living in developed countries [54]. The current study found no statistically significant association between psychiatric co- morbidities and mean score of quality of life in children with ID. However, in a study done in Australia among ID children, the significant association was found. The study says that ID children with recurrent pain, sleep disturbance, seizure are negatively associated with child's quality of life [20]. This can be explained as children with these features are severely disabled which may have more impact on child leading to poorer quality of life [49]. The study also observed statistically significant association between severity of ID and mean score of quality of life ( $p<0.001$ ). In the study mean score of quality of life in ID children was found as 72.32 in mild ID, 59.12 in mod ID while 49.04 in severe ID child. It indicated the inverse relation of severity of ID with mean score of quality of life. This observation is supported by a study conducted in Australia which shows that child with higher levels of impairments with poor functioning and dependence (indicating severe ID) had lower QoL score [20]. Likewise, in a study done in Italy in 2007 among 141 participants with ID it was found that as the severity of ID increases there is decrement in the level of self-determination and quality of life [49]. Thus, children with severe ID who are dependent in managing personal needs, unable to walk and communicate, decreased social interaction, unable to express their emotions, poor eye contact while speaking, poor sleep hygiene, recurrent pain, seizures, leads in deterioration in their day-to-day living causing poor quality of life [20,50,49]. The study also showed statistically significant association of mean score of quality of life with education of patient. It indicates that quality of life of literate child is better than illiterate one. A study done in Nepal regarding educating child with ID demonstrates that intellectually disabled child is

significantly different from children without disabilities in domains of their cognitive abilities, learning styles, motivation, and learning pace. Further it states that ID children cannot get benefit from general education setting without modifying the curriculum [54].

#### 4. CONCLUSIONS

The present study, conducted among 44 participants diagnosed with intellectual disability (ID), highlights the significant burden of psychiatric comorbidity and its impact on quality of life. Nearly one-third of the children (29.5%) were found to have psychiatric comorbidities, underscoring the importance of mental health screening in this vulnerable population. The findings further revealed that increasing severity of ID was strongly associated with a decline in quality of life, while education and gender also emerged as significant factors influencing outcomes. However, psychiatric comorbidity itself did not show a significant association with sociodemographic variables. These results reaffirm that psychiatric disorders are common in children with intellectual disability (ID) and that quality of life is intricately linked with the severity of disability. The co-occurrence of mental health conditions in this group not only exacerbates individual challenges but also compounds the societal burden of care. Recognizing the severity of intellectual disability (ID) alongside psychiatric comorbidities is therefore critical for designing targeted interventions aimed at improving overall well-being. By addressing both intellectual and psychiatric dimensions, clinicians, educators, and policymakers can contribute to enhancing the quality of life and reducing the long-term impact of disability on families and communities.

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