

COMPARATIVE ASSESSMENT OF MENTAL HEALTH AMONG RURAL AND URBAN SCHOOL CHILDREN IN HARYANA USING THE GENERAL HEALTH QUESTIONNAIRE (GHQ-12)

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ABSTRACT

Background: Mental health disorders affect approximately 10–20% of children and adolescents globally and often persist into adulthood, adversely affecting physical health, social functioning, and productivity. The 12-item General Health Questionnaire (GHQ-12) is a validated, widely used screening instrument for assessing psychological well-being across diverse populations and cultural contexts. **Methods:** A controlled comparative observational study was conducted among 2,000 school-going children aged 5–12 years (1,000 rural; 1,000 urban) across selected government and private schools in Haryana, India. Participants were categorized into four age groups (Group I: 5–6 years; Group II: 7–8 years; Group III: 9–10 years; Group IV: 11–12 years). The GHQ-12 was administered using a four-point Likert-type scale. One-way analysis of variance (ANOVA) was used to assess differences across age groups, gender, and residential setting, with a p-value of <0.05 considered statistically significant. **Results:** The majority of participants scored within the "Good" (n=1,154; 57.7%) and "Average" (n=785; 39.3%) categories. Severe psychological distress ("Poor" category) was rare (n=9; 0.45%). Female participants, particularly those from urban areas, demonstrated higher GHQ-12 scores across multiple items. No statistically significant differences were found between rural and urban children or between genders (p >0.05). **Conclusion:** The GHQ-12 proved to be a reliable and practical screening instrument for large-scale mental health assessment in school settings. Although severe distress was uncommon, the findings highlight the need for context-sensitive, school-based mental health interventions for both rural and urban child populations.

KEYWORDS: Child; Mental health; Psychological Distress; Rural Population; Urban Population.

INTRODUCTION

Globally, an estimated 10–20% of children and adolescents experience mental health disorders, many of which persist into adulthood and exert long-term effects on physical health, social functioning, and economic productivity. Mental health is increasingly recognized as a multidimensional construct of well-being that integrates both adverse conditions — such as depression, anxiety, and behavioural difficulties — and positive dimensions, including resilience, self-concept, and overall psychological functioning.^[1] Owing to their substantial impact, mental disorders contribute significantly to the global burden of disease, and projections from the World Health Organization (WHO) indicate that by 2030, they will remain among the leading causes of disability worldwide.^[2]

The assessment of mental health in community and school settings often relies on self-administered screening instruments. Among the available measures, the 12-item General Health Questionnaire (GHQ-12) has emerged as one of the most extensively utilized instruments for evaluating psychological well-being across diverse populations, languages, and cultural contexts.^[3] Originally developed by Goldberg and colleagues in the early 1970s, the GHQ was designed to detect psychiatric morbidity in community and primary care settings.^[4]

Over time, shorter versions of the original 60-item instrument were developed, including the GHQ-12, GHQ-20, GHQ-28, and GHQ-30.^[5] Of these, the GHQ-12 has gained the widest acceptance due to its brevity, ease of administration, and robust psychometric properties.^[6] The GHQ-12 assesses current psychological well-being by asking respondents to compare their recent mental state with their usual level of functioning.^[7] It comprises 12 items evaluating mood and behavioural functioning, with six positively and six negatively worded items. Each item is rated on a four-point response scale. Scoring can be performed using either a binary method (0-0-1-1) or a four-point Likert-type method (0-1-2-3). Total score ranges from 0 to 12 under the binary scoring system and from 0 to 36 under the Likert method, with higher scores indicating greater psychological distress.^[8–10]

Despite the extensive use of the GHQ-12 in adult populations globally, evidence on its application in younger age groups — particularly school-aged children in rural and urban settings of developing countries such as India — remains limited. The present study therefore aimed to: (i) compare the psychological well-being of school-aged children (5–12 years) in rural and urban areas of Haryana, India, using the GHQ-12; and (ii) examine differences in psychological well-being across age groups and gender.

MATERIAL AND METHODS

Study Design and Setting

The present study employed a controlled comparative observational design to assess the mental health status of children aged 5–12 years residing in rural and urban areas of Haryana, India. Data were collected from selected government and private schools during regular school hours.

Study Population and Sampling

A total of 2,000 school-going children participated in the study. Sample size was calculated based on data obtained from previous studies using Power & Precision software. The sample comprised 1,000 students from rural schools and 1,000 students from urban schools. Participants were categorized into four predefined age groups: Group I (5–6 years), Group II (7–8 years), Group III (9–10 years), and Group IV (11–12 years) to facilitate age-wise comparisons.

Inclusion Criteria

Children aged 5–12 years enrolled in the selected schools and present on the day of data collection were included. Both sexes were eligible for participation.

Exclusion Criteria

Children with a diagnosed psychiatric disorder, severe medical condition, communicable disease, or any genetic disorder were excluded from the study.

Data Collection and Procedure

Data collection was carried out during morning school sessions on regular academic days. Participants completed the questionnaire in a classroom setting under the supervision of trained investigators to ensure clarity and uniformity of instructions. The average time required to complete the instrument was approximately 2–3 minutes. Students were briefed about the purpose of the study and assured of confidentiality prior to participation.

Study Instrument

Mental health status was assessed using the GHQ-12, a validated screening tool widely used to evaluate psychological well-being across populations.^[3,6] Responses were recorded using a four-point Likert-type scale (0-1-2-3), and scoring was performed as per standard guidelines. Total scores ranged from 0 to 36, with higher scores indicating greater psychological distress. For the purpose of this study, GHQ-12 scores were categorized into four interpretive bands: Brilliant (0–9), Good (10–18), Average (19–27), and Poor (28–36).

Ethical Considerations

The study protocol was reviewed and approved by the Institutional Ethics Committee (IEC) prior to data collection (Project No. 2329). Permission was obtained from the respective school authorities. Written informed consent was secured from parents or guardians, and assent was obtained from participating children. Confidentiality and anonymity of participants were strictly maintained throughout the study.

Statistical Analysis

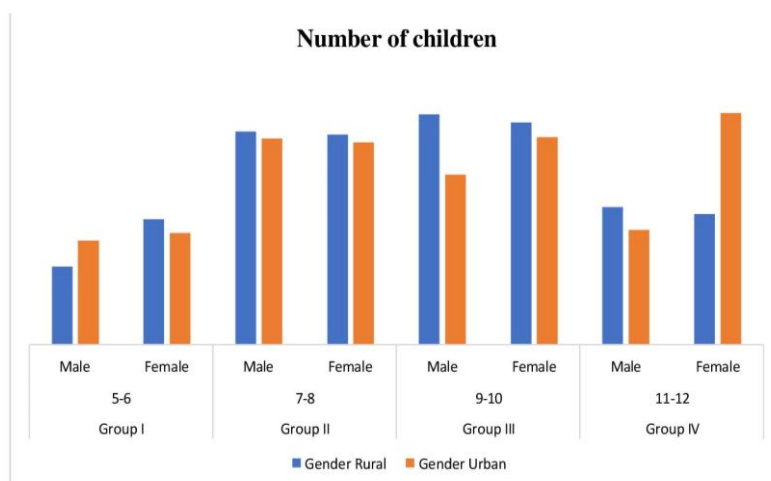
Data were entered and analysed using appropriate statistical software. Descriptive statistics were computed for all demographic variables. One-way ANOVA was performed to assess differences in GHQ-12 scores across age groups, gender, and rural–urban categories. A p-value of <0.05 was considered statistically significant.

RESULTS**Demographic Characteristics of Participants**

A total of 2,000 school-going children participated in the study (1,000 rural; 1,000 urban). Participants were categorized into four age groups as per the study design. Female participants constituted a slightly higher overall proportion (53.5%) compared to males across the four age groups. The distribution of participants across rural and urban settings was balanced by design. No statistically significant difference was observed in the number of participants between rural and urban areas across any of the four age categories. The distribution is presented in Table 1 (Figure-1).

Table 1: Number of children in Rural and Urban area.

		Group I	Group II	Group III	Group IV
Area	Gender	Number	Number	Number	Number
Rural	Male	58	158	171	102
	Female	93	156	165	97
Urban	Male	77	153	126	85
	Female	83	150	154	172

**Figure 1: Number of children in Rural and Urban area.****Distribution of GHQ-12 Scores**

The distribution of GHQ-12 scores across rural and urban settings is presented in Table 2. Overall, the majority of participants fell within the Good category ($n=1,154$; 57.7%), followed by the Average category ($n=785$; 39.3%). A smaller proportion were categorized as Brilliant ($n=52$; 2.6%), while only 9 participants (0.45%) fell within the Poor mental health category, indicating a very low prevalence of severe psychological distress.

Table 2: Number of children scoring GHQ- 12 score.

Groups	Age	Gender	Score 0-9 (Brilliant Mental Status)		Score 10-18 (Good)		Score 19-27 (Average)		Score 28-36 (Poor Mental Status)	
			Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Group I	5-6	Male	6	3	21	44	31	29	0	1
		Female	3	0	43	48	46	35	1	0
Group II	7-8	Male	7	4	103	83	48	66	0	0
		Female	4	3	98	77	54	70	0	0
Group III	9-10	Male	4	3	105	68	60	55	2	0
		Female	4	1	105	87	55	64	1	2
Group IV	11-12	Male	2	3	64	48	36	33	0	1
		Female	4	1	60	100	33	70	0	1
Total			34	18	599	555	363	422	4	5

Rural–Urban Comparison

In rural areas, 599 children (59.9%) were classified as Good, 363 (36.3%) as Average, 34 (3.4%) as Brilliant, and 4 (0.4%) as Poor. In urban areas, 555 children (55.5%) were categorized as Good, 422 (42.2%) as Average, 18 (1.8%) as Brilliant, and 5 (0.5%) as Poor. Rural children demonstrated a slightly higher proportion in the Good and Brilliant categories, whereas urban children showed a relatively higher representation in the Average category. The prevalence of Poor mental health remained minimal and comparable between groups. The difference in categorical distribution between rural and urban settings was not statistically significant (chi-square test, $p > 0.05$).

Age-wise Distribution

Across age groups, children in Groups II (7–8 years) and III (9–10 years) showed the highest proportions in the Good category. Group IV (11–12 years) demonstrated a relatively higher representation in the Average category, particularly among urban females, suggesting increased vulnerability in early adolescence. The Poor category was sparsely and inconsistently distributed across age groups.

Gender-wise Distribution

Gender-based analysis revealed that females, particularly in urban areas, had a marginally higher proportion in the Average category compared to males. Males were slightly more represented in the Brilliant category in rural settings. Gender differences in GHQ-12 score distribution did not reach statistical significance ($p > 0.05$).

Average Score Per Question of GHQ-12

Item-level mean scores (mean $\pm$ SD) for all 12 GHQ-12 questions, disaggregated by age group, area of residence, and gender, are presented in Table 3.

- Group I (5–6 years): Rural males showed lower overall values, particularly in Q6 (1.24 ± 0.97), whereas rural females recorded higher scores, with peaks in Q2 (1.65 ± 1.14) and Q7 (1.62 ± 1.18). Urban females demonstrated the strongest responses in the group, with Q2 (1.75 ± 1.12) and Q12 (1.67 ± 1.15) being the highest values.
- Group II (7–8 years): Rural males demonstrated lower mean scores overall, with Q9 and Q10 showing the lowest values (~ 1.20 – 1.24). Urban females consistently scored higher, with elevated scores in Q1 (1.65 ± 1.10) and Q10 (1.58 ± 1.06).
- Group III (9–10 years): Distinct gender differences were observed. Rural females showed item-specific peaks in Q3 (1.64 ± 1.03) and Q7 (1.75 ± 1.14). Urban females maintained consistently higher averages, with Q1 (1.59 ± 1.12) and Q9 (1.59 ± 1.08) particularly elevated.
- Group IV (11–12 years): Rural males recorded highest scores in Q3 (1.68 ± 1.07) and Q12 (1.72 ± 1.10). Urban females maintained the strongest performance within the group, with the highest scores in Q10 (1.59 ± 1.12) and Q2 (1.49 ± 1.15).

Table 3: Average Score per question of GHQ-12.

GROUP I													
Area	Gender	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Rural	Male	1.39 $\pm$ 1.15	1.58 $\pm$ 1.07	1.56 $\pm$ 1.09	1.55 $\pm$ 1.01	1.51 $\pm$ 1.21	1.24 $\pm$ 0.97	1.39 $\pm$ 1.15	1.5 $\pm$ 1.06	1.32 $\pm$ 1.08	1.43 $\pm$ 1.10	1.55 $\pm$ 1.01	1.58 $\pm$ 1.13
	Female	1.51 $\pm$ 1.15	1.65 $\pm$ 1.14	1.43 $\pm$ 1.10	1.46 $\pm$ 1.03	1.41 $\pm$ 1.12	1.56 $\pm$ 1.10	1.62 $\pm$ 1.18	1.60 $\pm$ 1.12	1.59 $\pm$ 1.17	1.50 $\pm$ 1.11	1.52 $\pm$ 1.07	1.48 $\pm$ 1.13
Urban	Male	1.35 $\pm$ 1.09	1.71 $\pm$ 1.15	1.31 $\pm$ 1.06	1.19 $\pm$ 0.98	1.48 $\pm$ 1.16	1.5 $\pm$ 1.10	1.41 $\pm$ 1.15	1.53 $\pm$ 1.10	1.31 $\pm$ 1.05	1.59 $\pm$ 1.11	1.49 $\pm$ 1.11	1.35 $\pm$ 1.12
	Female	1.51 $\pm$ 1.07	1.75 $\pm$ 1.12	1.48 $\pm$ 1.11	1.42 $\pm$ 1.16	1.42 $\pm$ 1.16	1.63 $\pm$ 1.01	1.27 $\pm$ 1.08	1.48 $\pm$ 1.17	1.61 $\pm$ 1.16	1.45 $\pm$ 1.12	1.63 $\pm$ 1.16	1.67 $\pm$ 1.15
GROUP II													
Area	Gender	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Rural	Male	1.50 $\pm$ 1.09	1.27 $\pm$ 1.08	1.68 $\pm$ 1.08	1.36 $\pm$ 1.07	1.35 $\pm$ 1.17	1.31 $\pm$ 1.03	1.61 $\pm$ 1.05	1.29 $\pm$ 1.16	1.20 $\pm$ 1.10	1.24 $\pm$ 1.09	1.26 $\pm$ 1.14	1.66 $\pm$ 1.08
	Female	1.44 $\pm$ 1.13	1.29 $\pm$ 1.01	1.44 $\pm$ 1.06	1.45 $\pm$ 1.04	1.46 $\pm$ 1.16	1.50 $\pm$ 1.08	1.51 $\pm$ 1.16	1.51 $\pm$ 1.17	1.34 $\pm$ 1.10	1.35 $\pm$ 1.14	1.41 $\pm$ 1.12	1.38 $\pm$ 1.16
Urban	Male	1.44 $\pm$ 1.07	1.22 $\pm$ 1.08	1.59 $\pm$ 1.17	1.47 $\pm$ 1.07	1.60 $\pm$ 1.17	1.47 $\pm$ 1.13	1.50 $\pm$ 1.06	1.59 $\pm$ 1.14	1.39 $\pm$ 1.03	1.32 $\pm$ 1.08	1.43 $\pm$ 1.11	1.52 $\pm$ 1.03
	Female	1.65 $\pm$ 1.10	1.43 $\pm$ 1.13	1.54 $\pm$ 1.19	1.51 $\pm$ 1.12	1.51 $\pm$ 1.06	1.57 $\pm$ 1.10	1.56 $\pm$ 1.13	1.5 $\pm$ 1.06	1.55 $\pm$ 1.15	1.58 $\pm$ 1.06	1.58 $\pm$ 1.16	1.42 $\pm$ 1.10
GROUP III													
Area	Gender	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Rural	Male	1.49 $\pm$ 1.10	1.35 $\pm$ 1.00	1.42 $\pm$ 1.11	1.45 $\pm$ 1.03	1.26 $\pm$ 1.07	1.42 $\pm$ 1.09	1.50 $\pm$ 1.14	1.63 $\pm$ 1.08	1.42 $\pm$ 1.10	1.33 $\pm$ 1.13	1.35 $\pm$ 1.08	1.43 $\pm$ 1.06
	Female	1.53 $\pm$ 1.05	1.33 $\pm$ 1.06	1.64 $\pm$ 1.03	1.38 $\pm$ 1.10	1.16 $\pm$ 1.09	1.37 $\pm$ 1.11	1.75 $\pm$ 1.14	1.44 $\pm$ 1.16	1.39 $\pm$ 1.15	1.33 $\pm$ 1.04	1.36 $\pm$ 1.11	1.36 $\pm$ 1.09
Urban	Male	1.64 $\pm$ 1.13	1.44 $\pm$ 1.13	1.43 $\pm$ 1.03	1.54 $\pm$ 1.21	1.38 $\pm$ 1.09	1.57 $\pm$ 1.10	1.41 $\pm$ 1.14	1.60 $\pm$ 1.14	1.43 $\pm$ 1.09	1.5 $\pm$ 1.14	1.47 $\pm$ 1.10	1.51 $\pm$ 1.13
	Female	1.59 $\pm$ 1.12	1.40 $\pm$ 1.07	1.54 $\pm$ 1.06	1.40 $\pm$ 1.13	1.44 $\pm$ 1.12	1.64 $\pm$ 1.11	1.48 $\pm$ 1.15	1.53 $\pm$ 1.09	1.59 $\pm$ 1.08	1.56 $\pm$ 1.07	1.44 $\pm$ 1.16	1.49 $\pm$ 1.10
GROUP IV													
Area	Gender	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Rural	Male	1.34 $\pm$ 1.09	1.44 $\pm$ 1.12	1.68 $\pm$ 1.07	1.52 $\pm$ 1.02	1.21 $\pm$ 1.17	1.33 $\pm$ 1.09	1.61 $\pm$ 1.13	1.46 $\pm$ 1.04	1.20 $\pm$ 1.06	1.44 $\pm$ 1.09	1.30 $\pm$ 1.11	1.72 $\pm$ 1.10
	Female	1.62 $\pm$ 1.03	1.27 $\pm$ 1.02	1.46 $\pm$ 1.10	1.38 $\pm$ 1.10	1.31 $\pm$ 1.14	1.38 $\pm$ 1.12	1.61 $\pm$ 1.09	1.47 $\pm$ 1.06	1.23 $\pm$ 1.10	1.42 $\pm$ 1.09	1.50 $\pm$ 1.11	1.62 $\pm$ 1.02
Urban	Male	1.49 $\pm$ 1.09	1.43 $\pm$ 1.09	1.42 $\pm$ 1.18	1.44 $\pm$ 1.19	1.55 $\pm$ 1.09	1.48 $\pm$ 1.12	1.58 $\pm$ 1.25	1.22 $\pm$ 1.14	1.64 $\pm$ 1.06	1.48 $\pm$ 1.10	1.41 $\pm$ 1.14	1.32 $\pm$ 1.11
	Female	1.54 $\pm$ 1.15	1.49 $\pm$ 1.15	1.53 $\pm$ 1.15	1.54 $\pm$ 1.05	1.51 $\pm$ 1.08	1.57 $\pm$ 1.09	1.43 $\pm$ 1.09	1.49 $\pm$ 1.13	1.56 $\pm$ 1.08	1.59 $\pm$ 1.12	1.38 $\pm$ 1.10	1.46 $\pm$ 1.11

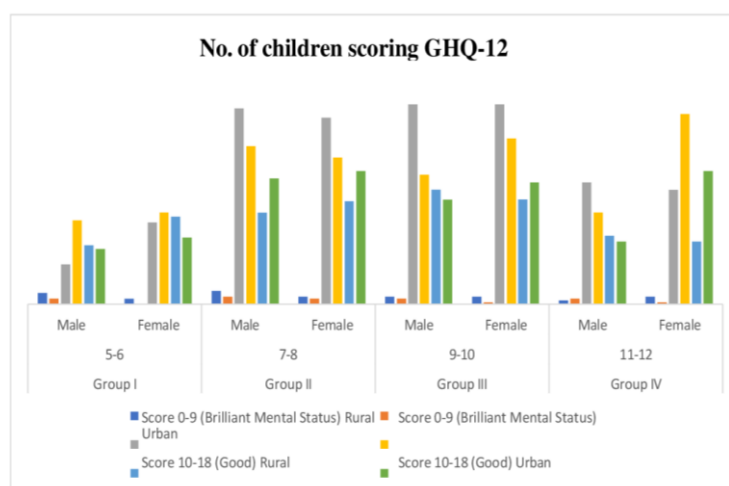


Figure 2: Number of children scoring GHQ-12 score.

DISCUSSION

The present study provides a comparative assessment of psychological well-being among school-aged children in rural and urban areas of Haryana using the GHQ-12. The majority of participants fell within the "Good" and "Average" score ranges, reflecting generally stable mental health across both settings. Only a small proportion were categorized within the "Poor" range, suggesting a low prevalence of severe psychological distress in the sampled population.

Gender-based analysis revealed that female participants consistently demonstrated higher GHQ-12 scores compared to males.^[4] This aligns with previous research reporting greater psychological vulnerability among females. However, the proportion classified in the "Poor" category in the present study was lower than that reported in certain earlier investigations.^[9] This difference may reflect contextual influences, including cultural, familial, and school-related protective factors within the Indian setting.

Urban children, particularly females, exhibited relatively higher scores on several GHQ-12 items compared to their rural counterparts. Notably, in Group IV (11–12 years), urban females demonstrated elevated responses on specific items (e.g., Q10), indicating increased psychosocial sensitivity. This pattern may be attributable to greater exposure to academic competition, performance expectations, and social comparison in urban environments. Similar findings have been reported in studies emphasizing contextual and cultural determinants of psychological outcomes.⁶ Collectively, these findings underscore the role of environmental and sociocultural factors in shaping mental health trajectories during childhood and early adolescence.

Age-wise trends suggest that psychological vulnerability may increase in later childhood, particularly among urban girls. This highlights the importance of early identification and targeted mental health interventions within school systems. The findings further support the utility of the GHQ-12 as a practical screening instrument for large-scale assessments in educational settings.^[6]

LIMITATIONS

Several limitations should be acknowledged. First, the analysis relied exclusively on the Likert scoring method (0–1–2–3) for the GHQ-12. Although widely used, reliance on a single scoring approach may limit direct comparability with studies employing binary scoring methods.^[11] Second, the study used exclusively self-reported data, which may

introduce response bias, including social desirability effects and subjective item interpretation. The absence of clinical assessment limits diagnostic validity. Future research would benefit from multi-method approaches, including structured clinical interviews or parent/teacher-reported measures, to enhance robustness.^[12] Finally, the cross-sectional design restricts causal inferences regarding the relationship between demographic factors and psychological well-being. Longitudinal studies are warranted to elucidate developmental trajectories and contextual influences on child mental health.

CONCLUSION

The findings of the present study demonstrate that the GHQ-12 is an effective and reliable screening instrument for assessing psychological well-being among school-aged children in educational settings. The tool proved suitable for large-scale application across rural and urban populations, facilitating early identification of emotional and psychosocial concerns.

The majority of children exhibited moderate-to-good psychological well-being, with severe distress being notably rare. Rural children demonstrated a marginally higher proportion within the Good category compared to their urban counterparts, whereas urban older girls displayed relatively higher representation in the Average score category, indicating comparatively greater psychosocial vulnerability in this subgroup.

Inferential analysis revealed no statistically significant differences between rural and urban participants or between genders, suggesting that overall psychological well-being patterns were broadly comparable across demographic groups. Collectively, the results underscore the importance of implementing context-sensitive, school-based mental health promotion strategies. The study provides evidence to inform policymakers, educators, and public health professionals in designing region-specific and gender-responsive mental health frameworks aimed at promoting holistic child development.

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