

## ADAPTATION AND VALIDATION OF THE GHQ-28 IN ORPHAN ADOLESCENTS IN PAKISTAN

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### Abstract

This study aimed to translate, culturally adapt, and validate the General Health Questionnaire-28 (GHQ-28) for orphan adolescents in Pakistan, addressing a critical gap in mental health assessment tools for this vulnerable population. A total of 300 orphan adolescents (ages 12–18) from orphanages in Lahore participated in the validation process. The GHQ-28 was translated into Urdu following rigorous multi-step guidelines, including forward and backward translation, expert panel review, cognitive interviews, and cross-language validation. Psychometric evaluation using SPSS 27 and AMOS 24 demonstrated excellent internal consistency (Cronbach's  $\alpha = .76$ ) and strong test-retest reliability. Confirmatory factor analysis supported the original four-factor structure—Somatic Symptoms, Anxiety and Insomnia, Social Dysfunction, and Severe Depression—with excellent model fit indices ( $\chi^2/df = 1.50$ , CFI = .919, TLI = .916, RMSEA = .042). Item-total correlations ranged from .56 to .76, indicating robust internal homogeneity. The Urdu GHQ-28 exhibited strong cross-linguistic equivalence with the original English version ( $r = .81$ ,  $p < .001$ ), confirming its reliability and validity for assessing psychological distress in orphan adolescents. This validated instrument provides a culturally relevant and psychometrically sound tool for mental health screening and research in marginalized youth populations in Pakistan, facilitating early identification and intervention.

**Keywords:** GHQ-28, orphan adolescents, mental health assessment, cultural adaptation, Pakistan

### INTRODUCTION

Globally, children are considered precious assets of any nation; however, socioeconomic and parental challenges can push them into situations that make them vulnerable to adverse experiences. Losing one or both parents exposes children to vulnerability, including poverty, illiteracy, begging, neglect, and family separation. These children often face significant challenges adjusting to society, frequently resulting in placement in orphanages. Consequently, orphanages and care centers often become their primary familial environment, where they experience both joyful and challenging moments of life. A common factor among these children is poverty, which often necessitates their residence in orphanages or care centers (Mahmood et al., 2020).

Current global estimates suggest that if orphans constituted a country, its population would rank ninth worldwide, surpassing countries such as Russia, Germany, and the United Kingdom. Among the estimated 153 million orphans worldwide, approximately 7 million reside in orphanages or residential care settings (Devidas & Mendonca, 2017). In Pakistan, the death of a parent significantly affects a child's mental and physical well-being due to the strong emotional bonds and high levels of dependency within familial units. Following parental loss, these emotional connections are weakened, creating a void in the child's life. Within the family system, mothers and fathers hold distinct and critical roles; fathers are generally considered protectors and providers, while mothers cater to children's daily needs and offer emotional support. Parental loss not only results in emotional pain but also disrupts the family support system (Gežová, 2015).

The permanence of death confronts children with the reality that they will never see their parents again. This realization can evoke hopelessness and helplessness, potentially developing into depression over time. Some children may internalize blame or develop poor self-image and low self-esteem, exacerbating depressive symptoms (Aguirre et al., 2024).

Orphanhood, defined as the loss of one or both parents during childhood, is recognized as a significant psychological stressor and a potential risk factor for mental health problems. Recent global data estimate that 153 million adolescents have lost one parent, with approximately 17.8 million having lost both parents (DeLuca, 2019).

In Pakistan, research examining depression, decision-making abilities, anxiety, and stress among adolescents residing in orphanages remains limited. Shafiq et al. (2020) reported that orphan adolescents in Lahore experience higher levels of depression, anxiety, and stress, which negatively affect their decision-making abilities. Some studies suggest that adolescents in foster care exhibit fewer psychological issues compared to those in orphanages. Adolescents in

orphanages often experience limited positive emotions, low self-confidence, and a higher prevalence of emotional and behavioral problems. Bano et al. (2023) found that orphans in Lahore exhibited significant depression and anxiety, often accompanied by shame and guilt. Aziz et al. (2023) reported that 20.9% of female orphan adolescents in Islamabad and Rawalpindi experience clinical-level anxiety. These findings highlight that institutionalized orphan adolescents face considerable behavioral, emotional, and psychological challenges.

A two-year follow-up study in Iraqi Kurdistan found that orphans in traditional foster care demonstrated better emotional competence and fewer PTSD symptoms than those in orphanages (Ahmed et al., 2005). Similarly, children in orphanages report lower happiness and self-esteem compared to children living with biological families (Farooqi & Intezar, 2019; Mostafaei et al., 2021). Behavioral problems are more prevalent in conventional orphan homes than in structured care settings such as SOS Villages (Lassi et al., 2011).

Health is defined as a state of complete physical, mental, and social well-being, not merely the absence of disease (World Health Organization [WHO], 1946). Mental health is a fundamental component of overall well-being, encompassing the ability to manage stress and contribute productively to society (WHO, 2001; Vera-Villaruel et al., 2016; WHO, 2014). Despite its importance, mental health is often neglected, although it plays a critical role in education and personal development (Wash, 2011).

Child and adolescent mental health is a pressing global concern, particularly in low- and middle-income countries (LMICs) such as Pakistan, where overlapping risk factors affect more than 20% of the population (Hussain & Mahmud, 2007). National data suggest that 19–34% of children and adolescents experience social and emotional difficulties, and many psychiatric inpatients present with neurotic, somatoform, or stress-related disorders.

Mental health services in Pakistan remain severely underfunded, receiving less than 1% of the total health budget, despite growing awareness of adolescent mental health needs. Imran et al. (2021) reported that Pakistan has only one child and adolescent inpatient psychiatry unit with a six-bed capacity. There are only five qualified child and adolescent psychiatrists serving a population exceeding 220 million. Consequently, adolescents with mental health needs are often referred to adult specialists in urban centers, highlighting the urgent need for specialized mental health services, including preventive, early-intervention, and inpatient programs.

### **Objectives**

1. To translate, adapt, and validate the GHQ-28 questionnaire.
2. To evaluate the psychometric properties of the GHQ-28 questionnaire.

### **Participants and Sampling**

Data were collected from orphanages in Lahore. A total of 300 adolescent orphans aged 12 to 18 years participated. Purposive sampling was employed to include participants of different ages and genders. Informed consent was obtained from all participants, as well as institutional consent from orphanage administrators. All procedures adhered to international ethical standards for research involving human participants and marginalized populations (American Psychological Association, 2017; Council for International Organizations of Medical Sciences [CIOMS], 2016; United Nations, 1989; World Medical Association, 2013).

### **Instrument Translation**

The GHQ-28 was translated into Urdu following MAPI Institute guidelines for Health Outcome Assessments (2012), including:

- Forward translation
- Backward translation
- Clinician review
- Cognitive interviews
- International harmonization (if applicable)
- Proofreading
- Reporting

### **Procedure**

Formal permission and a license agreement for the authorized use and Urdu translation of the GHQ-28 were obtained from MAPI Research Trust via ePROVIDE. The officially translated version was used without modification to maintain linguistic and conceptual equivalence.

Participants were briefed on the study's objectives, and informed consent was obtained from participants, guardians, and orphanage officials. Data collection was conducted in a quiet, private room to minimize distractions and maintain confidentiality. Administration of the GHQ-28 took approximately 15–20 minutes per participant. All procedures adhered to institutional ethical guidelines and the Declaration of Helsinki (1964, including amendments).

### **Translation and Cultural Adaptation**

A rigorous, multi-step translation and adaptation process ensured cultural and linguistic relevance of the GHQ-28 for Pakistani adolescents (Breslin, 1970; Hambleton & Patsula, 1999).

### **Step 1: Forward Translation**

Five bilingual experts translated the GHQ-28 from English to Urdu, ensuring linguistic and conceptual equivalence. Experts included an assistant professor of psychology, a clinical psychologist, a trained schoolteacher, a PhD scholar, and a child psychologist. Translators were fluent in Urdu and English, familiar with both Western and Pakistani cultures, and experienced in psychological test development.

**Step 2: Reconciliation and Expert Review**

A committee reconciled the five forward translations into a single unified version. Subject matter experts reviewed the translations for theoretical consistency, grammatical accuracy, and cultural relevance.

**Step 3: Back Translation**

Five new bilingual experts, blinded to the original English version, conducted back translations to ensure semantic and conceptual equivalence.

**Step 4: Expert Panel Final Review**

The expert panel compared the back-translated and original English versions to confirm equivalence and accuracy, considering participants’ mental age, comprehension, and emotional maturity.

**Step 5: Cross-Language Validation**

The Urdu and English versions were administered to two groups of 40 orphan adolescents each, aged 12–18 years. A two-week interval was used to assess test-retest reliability and cross-linguistic consistency. SPSS version 27 was used for statistical analyses.

**Administration of the GHQ-28 (Urdu Version)**

The GHQ-28 was administered individually in a calm, quiet, and private room. Standard instructions were read, and participants could ask clarifying questions. Each session lasted approximately 13–18 minutes. Participants experiencing distress were referred to an on-site counselor or psychologist for psychological first aid.

**Data Management**

Completed questionnaires were checked on the spot for missing or inconsistent responses. Each questionnaire was assigned a unique code to ensure confidentiality. Data were stored securely, and entry was carefully monitored to prevent errors.

**28-Item General Health Questionnaire (GHQ-28; Goldberg, 1978)**

The GHQ-28 consists of 28 items designed to assess deviations from an individual’s typical mental state. It is a scaled version of the original 60-item GHQ developed by Goldberg (1978).

**Table 1: Means, Standard Deviations, and Correlations between Urdu and English Versions (n = 80)**

**Table 1**

Means and standard deviation, Pearson product correlation between Urdu and English versions of GHQ-28 (n=80)

Variable	M	SD	alpha	R
GHQ-28 English	22.4	7.1	.74	.81***
GHQ-28 Urdu	23.0	7.3	.76	

Note: GHQ-28= Generalized Health Questionnaire, \*\*\*P<.001

Above table shows Means and standard deviation, Pearson product correlation between Urdu and English versions of GHQ-28 (n=80).

Both versions showed strong positive correlations, indicating excellent cross-linguistic reliability.

**Table 2: Socio-Demographic Profile of Experimental Group (n = 300)**

Variables	Categories	f	%
Gender	Girls	171	57
	Boys	129	43
Age	12-14	213	71
	15-18	87	29
Education	Primary	180	60
	Secondary	120	40
Orphan by Both or Single Parent	Motherly orphan	123	41
	Fatherly Orphan	108	36
	Orphan by both	69	23
Any Psychiatric family history	Active	11	3
	No-Active	289	96
Living Years in Orphanage Home	Less than 3 Years	176	58
	More than 3 Years	124	41

**Table 3: Item-Total Correlation of GHQ-28 (n = 300)**

Items	R
GHQ 1	.68
GHQ 2	.56
GHQ 3	.57
GHQ 4	.69
GHQ 5	.69
GHQ 6	.67
GHQ 7	.73
GHQ 8	.76
GHQ 9	.59
GHQ 10	.60
GHQ 11	.69
GHQ 12	.74
GHQ 13	.68
GHQ 14	.73
GHQ 15	.73
GHQ 16	.56
GHQ 17	.60
GHQ 18	.59
GHQ 19	.68
GHQ 20	.74
GHQ 21	.67
GHQ 22	.65
GHQ 23	.73
GHQ 24	.70
GHQ 25	.58
GHQ 26	.58
GHQ 27	.66
GHQ 28	.68

*Note: All item-total correlations fall within the acceptable range (.56–.76).*

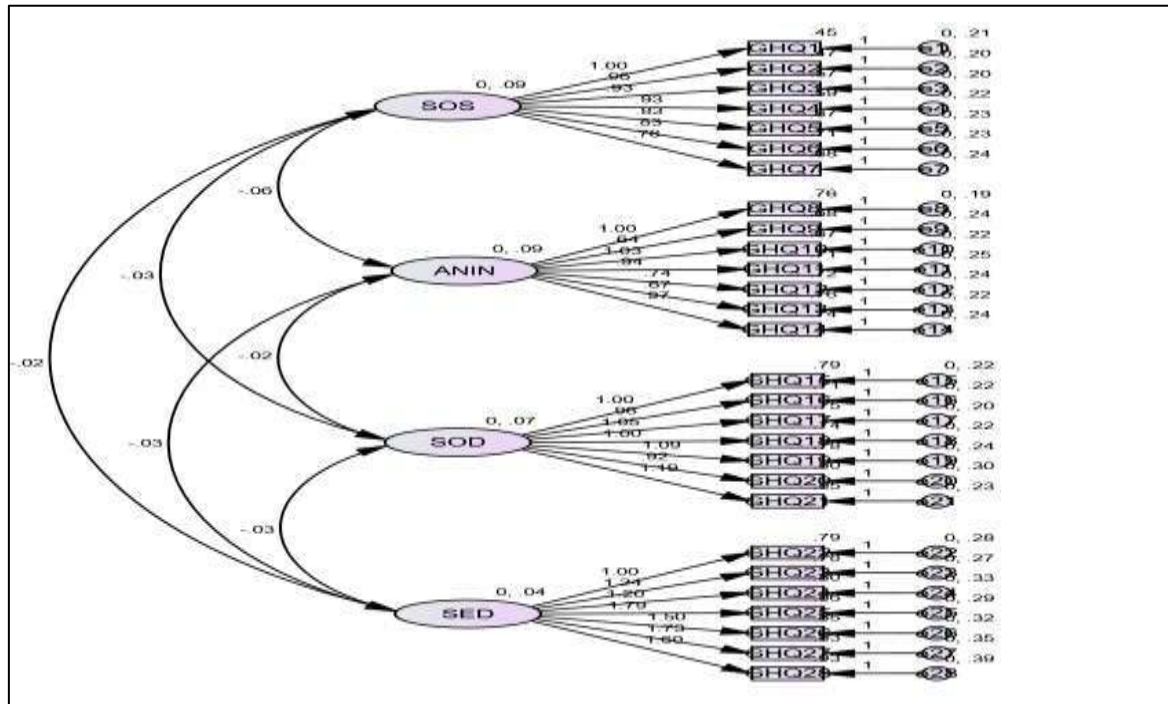
**Table 4: Confirmatory Factor Analysis Model Fit Indices (n = 300)**

	$\chi^2(df)$	IFI	TLI	CFI	RMSEA	$\Delta\chi^2(\Delta df)$
Model 1	1.5	.901	.916	.919	.042	.0

*Note:  $\chi^2$  = Chi-Square; df = degrees of freedom; RMSEA = Root Mean Square Error of Approximation; IFI = Incremental Fit Index; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index (Barrett, 2007; Berry, 1994; Bentler, 1990; Hu & Bentler, 1999; Brown, 2006; Homburg & Baumgartner, 1998; Browne & Cudeck, 1993). All indices are within acceptable ranges.*

**Statistical Analysis**

Confirmatory Factor Analysis (CFA) was conducted using AMOS 24. Goodness-of-fit indices included CFI, TLI, and RMSEA. Internal consistency was measured using Cronbach’s alpha (Tabachnick & Fidell, 2019).



## DISCUSSION

The present study confirmed that the original four-factor structure of the GHQ-28—comprising Somatic Symptoms, Anxiety and Insomnia, Social Dysfunction, and Severe Depression—was valid for orphan adolescents, as indicated by model fit indices. These findings are consistent with previous CFA validations across diverse cultural contexts, including South Africa (Francois et al., 2013), Peru (Rita et al., 2022), Bangladesh (Kishor & Noor, 2021), and the Born in Bradford Cohort in the United Kingdom (Prady et al., 2013). Although some exploratory studies have reported three-factor or two-factor solutions, these discrepancies likely reflect differences in sample characteristics and population demographics. The primary aim of cross-cultural validation is to preserve equivalence with the original instrument, and CFA allows testing of the theoretical model. In the present study, CFA results demonstrated good model fit, supporting the retention of the four-factor structure.

The findings indicated that the English and Urdu versions of the GHQ-28 produced similar mean scores and standard deviations, with acceptable internal consistency and a strong, significant correlation between the two versions. These results suggest that the Urdu translation is comparable to the original English version, supporting its reliability and cross-cultural validity for assessing psychological distress among orphan adolescents.

Demographic analysis showed that the sample included slightly more girls (57%) than boys (43%), reflecting typical participation rates in orphanage populations. The majority of participants were early adolescents (12–14 years; 71%), with fewer in the 15–18 age range (29%), consistent with reports that institutionalized populations often skew younger. Regarding educational attainment, 60% were enrolled in primary classes, while 40% had progressed to secondary education, indicating potential academic disruption associated with parental loss and orphanage placement. Concerning orphan status, 41% had lost their mother, 36% their father, and 23% had lost both parents, underscoring the heterogeneity of caregiving vulnerabilities. Only a small proportion (3%) reported a psychiatric family history, which may reflect underreporting and limited awareness of mental illness in Pakistani families. Additionally, 58% had resided in the orphanage for less than three years, while 41% had longer stays, indicating varied exposure to institutional environments. Collectively, these characteristics highlight developmental, educational, and psychosocial risk factors that should be considered when interpreting GHQ-28 responses in this population.

Confirmatory factor analysis provided robust evidence for the structural validity of the Urdu GHQ-28. The chi-square to degrees of freedom ratio ( $\chi^2/df = 1.50$ ) was below the commonly accepted cutoff of 3.0, indicating excellent model fit. Incremental fit indices were also within acceptable ranges, with IFI = .901, TLI = .916, and CFI = .919, all exceeding the recommended threshold of .90. The RMSEA value of .042 further confirmed a good fit to the data. These findings align with established guidelines for evaluating model fit (Bentler, 1990; Browne & Cudeck, 1993; Hu & Bentler, 1999). Importantly, these results are consistent with GHQ-28 validation studies in other languages, including Persian, which reported comparable fit indices (Noorbala et al., 2009).

## Credit for Authorship Contribution Statement

- **Hajara Sahar Chaudry:** Writing—original draft, writing—review & editing, conceptualization, project administration, data curation, methodology, data interpretation, formal analysis, corresponding author.
- **Sadia Aleem:** Writing—original draft, writing—review & editing, supervision, methodology.
- **Tanvir Akhtar:** Investigation, conceptualization, final approval of the manuscript.

#### **Declaration of Competing Interest**

The authors declare that they have no conflicts of interest or personal relationships that could have influenced the research reported in this paper.

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