

Economic Burden of Moderate and Severe Anxiety and Depression Symptoms Among Adults in Saudi Arabia: Evidence from a Web Panel Survey



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INTRODUCTION

Anxiety and depression are leading global causes of disability and premature death. Before COVID-19, depression ranked first (7.5%) and anxiety sixth (3.4%) among contributors to global disability (1). Together, they cost the world economy about US\$1 trillion annually in lost productivity, projected to reach US\$16 trillion by 2030 (2-3).

In Saudi Arabia, anxiety and depression rank among the top six contributors to years lived with disability (4). The Saudi National Mental Health Survey (SNMHS) reported that 34.2% of adults (15-65 years) experienced at least one mental disorder in their lifetime and 20.2% in the past year, with anxiety (12.3%) and mood disorders (6.8%) being most common (5-6).

This study estimates the prevalence and economic burden of moderate-to-severe anxiety and depression among adults in KSA using a web-panel survey (8-9) and the validated PHQ-4 tool (10), capturing healthcare costs, absenteeism, and reduced on-the-job productivity (presenteeism).

METHODS

PARTICIPANTS

A cross-sectional online survey targeted Saudi citizens aged ≥18 years from Kantar's national web panel (≈45,000 panellists across 13 regions). Recruitment was via email invitations and convenience sampling, with data collected 25 Sep-10 Oct 2023 in Arabic or English.

A total of 1,164 respondents completed the PHQ-4 for themselves and 3,202 adult household members. Those scoring ≥6 were invited to a follow-up survey on healthcare use and labour productivity. In total, 269 respondents with moderate-to-severe symptoms passed the attention check and were included in the analysis.

MEASURE

PREVALENCE OF ANXIETY AND DEPRESSION

The PHQ-4, combining the PHQ-2 and GAD-2, was used to screen for anxiety and depression symptoms, validated tool with high sensitivity and specificity (10). Individuals scoring ≥6 on the total score were classified as having moderate-to-severe symptoms, which formed the basis for estimating prevalence.

HEALTHCARE UTILISATION

Based on the Medical Expenditure Panel Survey (13), respondents reported 3-month frequencies of outpatient visits and 12-month serious-event occurrences. Annualised visit rates were monetised using SHC unit costs. Per-person and total national costs were estimated using adult population counts (≥20 years; 22.54 million) (14).

ABSENTEEISM AND PRESENTEEISM

Work-loss costs followed the human-capital approach using the Work Productivity and Activity Impairment Questionnaire (WPAI) (15-19). Absenteeism and presenteeism were scaled to 6-month episodes and monetised with median Saudi wages (SAR 8,928.57/month) (20-21). Labour-force totals (15.91 million) (14, 22) yielded national cost estimates.

RESULTS

PREVALENCE OF DEPRESSION AND ANXIETY

Among 3,202 adults, 26.2% had symptoms of anxiety and/or depression, and 19.5% were never formally diagnosed. After excluding those who failed the attention check, the final sample included 269 respondents with PHQ-4 ≥6.

RESPONDENT CHARACTERISTICS

Table 1 compares respondent characteristics with national data (14). Respondents were more often female, married, employed, and higher-income. Among the unemployed (n=28), 28.6% linked their unemployment to symptoms. Differences from the general population are expected, as only those with moderate-to-severe symptoms completed the longer survey.

Table 1 Characteristics of sample and general population

Characteristic	Sample with anxiety/depression	General population
Mean age	33.1 (6.2)	29.0 (NA)
Female (%)	64.7%	38.8%
Married (%)	88.5%	55.0%
Education (tertiary)	84.0%	NA
Employed (%)	89.6%	60.4%
Monthly income (%)		
5999 SAR and less than	5.8%	Avg monthly income:
6000 SAR – 14,999 SAR	44.4%	SAR 10,739
15,000 SAR and above	49.8%	
EQ-5D-5L overall score	0.747	NA
N	269	32,175,224

ANNUAL HEALTHCARE RESOURCE UTILISATION

Table 2 summarizes utilisation patterns. Over 80% sought mental health care in the past year; within 3 months, 79.9% visited a provider, mostly psychiatrists (74.6%), psychologists (64.3%), non-specialists (42.9%), and social workers (40.2%), averaging ~4 visits per person. Over 90% used prescription medication, mainly daily for >6 months. In the past year, 40.2% visited the ED, 28% were hospitalized after an ED visit, and 26% were hospitalized directly.

Table 2 Healthcare utilisation

Category	% Used	Mean (SD) visits/user
Healthcare consultations		
Any consultation for anxiety/depression (12 mo)	83.3%	–
Any consultation for anxiety/depression (3 mo)	79.9%	–
Non-specialist provider (e.g., GP/clinic)	42.9%	3.91 (2.26)
Psychiatrist	74.6%	4.31 (2.58)
Psychologist	64.3%	3.67 (2.64)
Social worker	40.2%	3.74 (2.48)
Use of medication		
Currently taking prescription medications	91.3%	–
1–2 medications	37.6%	–
3–5 medications	52.3%	–
6 or more medications	10.1%	–
Frequency of consumption		
As needed	25.1%	–
Daily	74.9%	–
Duration of consumption		
Less than 1 month	2.1%	–
1–5 months	20.4%	–
6 months or more	77.5%	–
Serious medical event		
Any ED visit/hospitalisation (12 mo)	56.5%	–
ED visit without hospitalisation	40.2%	3.11 (2.47)
ED visit with hospitalisation	28.3%	2.97 (2.64)
Direct hospitalisation without an ED event	26.0%	3.13 (2.38)

PER-PERSON DIRECT AND INDIRECT ECONOMIC BURDEN

Table 3 shows the average direct healthcare costs were SAR 3,431.95 per person, totalling SAR 20.3 billion nationally. Employed individuals missed 21.7 workdays (≈ SAR 9,702.87) annually, and reported 67% reduced productivity (presenteeism score 6.7), equivalent to 55 days lost (SAR 24,577.28). Combined productivity losses totalled SAR 143 billion.

Table 3 Per-person and total costs of anxiety/depression in KSA (SAR)

Cost category	Per person costs	Total costs (Billion)	Share of costs (%)
Healthcare	3,431.95	20.3	12.4%
Absenteeism	9,702.87	40.5	24.8%
Presenteeism	24,577.28	102.5	62.8%
Total	37,712.10	163.3	100

DISCUSSION

This is the first study to estimate the annual economic burden of anxiety and depression in KSA. Average healthcare costs were SAR 3,432 per person, while indirect costs from absenteeism (SAR 9,703) and presenteeism (SAR 24,577) dominated total losses.

Overall, 26.2% of adults reported symptoms, higher than SNMHS estimates (12.3% anxiety; 6.8% mood disorders) based on WHO CIDI (5, 24). The PHQ-4, though not diagnostic, aligns with a 2022 KSA study using PHQ-9/GAD-7 (25) and may reflect post-COVID-19 increases (7). The online format may have reduced reporting bias (26).

Around 20% of symptomatic respondents were undiagnosed, indicating a treatment gap. Given large productivity losses, preventive and therapeutic interventions could be cost-effective.

The total burden, SAR 163.3 billion (4.1% GDP), exceeds estimates from Singapore (2.9%) (8), the US (1.6%) (27), and Europe (~4%) (28-30), reflecting higher prevalence and utilisation in KSA.

CONCLUSION

About 26% of adults in KSA experience anxiety and/or depression, with nearly 20% untreated. The economic burden (SAR 163.3 billion; 4.1% GDP) is mainly due to lost productivity. High emergency and hospitalisation rates underscore the need for evidence-based, cost-effective interventions to lessen the health and economic impact of these conditions in Saudi Arabia.

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