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Psychological Impact and Associated Factors Among COVID-19 Patients Hospitalized During the First Wave: A Cross-Sectional Study from a Tertiary Hospital in Thailand

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Psychological Impact and Associated Factors Among COVID-19 Patients Hospitalized During the First Wave: A Cross-Sectional Study from a Tertiary Hospital in Thailand

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Abstract

Background: The COVID-19 pandemic has been associated with significant psychological consequences among hospitalized patients. Anxiety, depression, and suicidal ideation may arise from biological inflammatory responses, disease severity, and social isolation during hospitalization. However, evidence from hospitalized patients in Thailand and other Southeast Asian countries during the first pandemic wave remains limited, and the unique psychological profile of this population has not been fully characterized.

Methods: This cross-sectional study enrolled 93 adult patients diagnosed with COVID-19 at Rajavithi Hospital, a designated COVID-19 treatment center in Bangkok, between May and December 2020. Psychological outcomes were assessed using the Thai-validated Hospital Anxiety and Depression Scale (HADS) and the 8-item Suicide Risk Assessment (8Q). Prevalence was estimated using two widely-cited HADS cutoffs (≥11 for probable caseness; ≥8 for possible caseness) to facilitate comparability with existing literature that employs varying thresholds. Associations were examined using Chi-square or Fisher's exact tests; multivariable logistic regression was attempted as an exploratory exercise but was severely limited by low event counts and is reported only to document its unfeasibility.

Results: The mean HADS-Anxiety score was 4.24 (SD = 2.95) and the mean HADS-Depression score was 2.88 (SD = 3.33). Using the ≥11 (probable case) cutoff, clinically significant anxiety was found in 2.2% (95% CI: 0.3–7.7%) and depression in 5.4% (95% CI: 1.8–12.3%). Using the ≥8 (possible case) cutoff, prevalence estimates rose to 11.8% for anxiety and 16.1% for depression. Suicidal ideation was reported in 12.9% of patients (95% CI: 6.9–21.5%). In bivariate analyses, depression was significantly associated with

age ≥60 years (20.0% vs. 2.6%, p = 0.028) and oxygen therapy requirement (15.4% vs. 1.5%, p = 0.021). Wide confidence intervals throughout reflect the imprecision inherent to this sample size.

Conclusions: In this preliminary, hypothesis-generating study, the prevalence of clinically significant anxiety and depression was substantially lower than in most international COVID-19 literature, though a notable proportion of patients reported suicidal ideation. Older age and greater disease severity showed significant unadjusted associations with depressive symptoms, generating hypotheses that require confirmation in larger, adequately powered studies. Findings are limited by small sample size, selection bias from excluding critically ill patients, and cross-sectional design precluding causal inference. Routine psychological screening particularly for suicidal ideationappears warranted in hospitalized COVID-19 patients, with priority given to older adults and those with severe illness.

Keywords: COVID-19; Depression; Anxiety; Suicidal ideation; Psychological impact; Hospitalization; Thailand; Southeast Asia

1. Introduction

The COVID-19 pandemic created an unprecedented global health crisis with substantial neuropsychiatric consequences. Systematic reviews have documented elevated prevalence of anxiety, depression, post-traumatic stress disorder (PTSD), and sleep disturbance among COVID-19-affected individuals [1,2,3]. Among hospitalized patients specifically, early studies reported anxiety prevalence ranging from 20% to 47% and depression prevalence from 20% to 40%, driven by biological mechanisms including neuroinflammation and hypoxia, alongside the psychological burden of isolation, fear of mortality, and uncertainty about prognosis [4,5,6].

Suicidal ideation represents a clinically critical outcome that has received less systematic attention in hospitalized COVID-19 cohorts. A meta-analysis through mid-2021 estimated the pooled prevalence of suicidal ideation at 13% across pandemic-affected populations [7], while first-wave reviews documented estimates of 5–15% in community samples [8]. The relationship between COVID-19-related suicidal ideation and co-occurring depression is not straightforward, as acute existential distress, fear of contagion, and social isolation may drive suicidal thoughts independently of syndromal depression.

Despite growing evidence from China, Europe, and North America, Southeast Asian data particularly from hospitalized cohorts remain limited. Thailand's response to the first pandemic wave was notably effective, with relatively low case numbers and a designated cohort isolation unit model that may have influenced patient experiences differently from settings with overwhelmed healthcare systems. Furthermore, psychological symptom expression in Thai and broader Southeast Asian populations may be shaped by cultural factors including Buddhist values of equanimity, collectivist social structures, and culturally specific stigma around mental health disclosure [9,10]. Whether these factors

modulate the prevalence and clinical profile of psychological distress in Thai COVID-19 inpatients is unknown.

This study aimed to: (1) estimate the prevalence of anxiety, depression, and suicidal ideation among hospitalized COVID-19 patients during Thailand's first pandemic wave; (2) identify patient characteristics associated with these outcomes using bivariate analyses; and (3) contribute descriptive data from a Southeast Asian context to the international literature. Given the sample size, predictive modeling was not a primary objective; the study is explicitly framed as descriptive and hypothesis-generating.

2. Methods

2.1 Study Design and Setting

This cross-sectional study was conducted at Rajavithi Hospital, a 1,512-bed tertiary public hospital and designated COVID-19 treatment center in Bangkok, Thailand. During the study period (May–December 2020), the hospital operated a dedicated cohort isolation unit, in which COVID-19 patients were treated in shared ward settings rather than single-room isolation a model intended to reduce social isolation while maintaining infection control.

2.2 Participants

Adults (≥18 years) with confirmed COVID-19 (RT-PCR positive) admitted to the cohort isolation unit were eligible. Patients were excluded if they: (1) were critically ill or required intensive care unit (ICU)-level management and were unable to complete self-report questionnaires; (2) had a language barrier precluding informed consent; or (3) refused participation.

The exclusion of critically ill patients is a recognized limitation that introduces selection bias. Patients well enough to complete questionnaires represent a systematically less severely ill subgroup, and the present findings therefore apply specifically to this ambulatory-inpatient population. Prevalence estimates should not be generalized to the full spectrum of hospitalized COVID-19 patients. Consecutive eligible patients were enrolled as a convenience sample; prospective sample size calculations for predictor identification were not performed, as the study was designed primarily for prevalence estimation.

2.3 Data Collection

Trained research assistants administered questionnaires during hospitalization. The following instruments were used:

Thai Hospital Anxiety and Depression Scale (HADS): The Thai version, validated by Nilchaikovit et al. [11], is a 14-item self-report scale with two subscales: HADS-Anxiety (HADS-A, 7 items) and HADS-Depression (HADS-D, 7 items). Items explicitly exclude somatic symptoms to minimize confounding with physical illness. Two cutoffs were applied: ≥11 (probable case) and ≥8 (possible case). Both cutoffs have been applied in prior COVID-19 research and are recommended for comparative analyses [12]. Applying both thresholds allows contextualization with the broader literature, which uses varying cutoffs.

8-Item Suicide Risk Assessment (8Q): A validated Thai instrument assessing suicidal ideation through eight questions covering thoughts of death, suicidal wishes, plans, intent, and protective factors. Responses are categorized as no risk, mild risk, or severe risk. Any endorsement (mild or severe) was classified as suicidal ideation for primary analyses.

Clinical data: Disease severity was graded per Thai national COVID-19 treatment guidelines (mild, moderate, severe). Presence of pneumonia (by chest X-ray), requirement

for supplemental oxygen therapy, comorbidities, and relevant clinical parameters were extracted from medical records.

2.4 Statistical Analysis

Descriptive statistics were used to characterize the sample. Prevalence estimates were reported with 95% confidence intervals (CIs) calculated using the Wilson score method. Associations between patient characteristics and psychological outcomes (anxiety, depression, suicidal ideation) were examined using Chi-square tests or Fisher's exact test (for cells with expected counts <5). All tests were two-tailed with $\alpha = 0.05$.

Multivariable logistic regression was attempted as an exploratory exercise, adjusting for age, sex, comorbidity, pneumonia, and oxygen therapy. Given the low number of events (anxiety: n = 2; depression: n = 5; suicidal ideation: n = 12), event-per-variable (EPV) ratios were 0.4, 1.0, and 2.4, respectively far below the recommended minimum of 10–20 EPV [13]. These ratios indicate that the models are severely underpowered, and results from multivariable models should be interpreted only as documentation of their infeasibility, not as valid effect estimates. The bivariate analyses (Table 3) are the primary inferential basis of this paper.

Sensitivity analyses examined the impact of alternative HADS cutoffs (≥8 vs. ≥11) on prevalence estimates. Data were analyzed using SPSS version 27.0.

3. Results

3.1 Sample Characteristics

A total of 93 patients were enrolled. The mean age was 43.0 years (SD = 14.6); 53 (57.0%) were female and 40 (43.0%) were male. Most patients had mild (n = 58, 62.4%) or

moderate (n = 26, 28.0%) disease; 9 (9.7%) had severe disease. Pneumonia was documented in 39 (41.9%) patients and supplemental oxygen was required by 26 (28.0%). Comorbidities were present in 28 (30.1%) patients. Demographic and clinical characteristics are summarized in Table 1.

Table 1. Demographic and Clinical Characteristics of Participants (N = 93)

Characteristic	Value
Age (years), mean ± SD	43.0 ± 14.6
Age ≥60 years, n (%)	15 (16.1)
Female sex, n (%)	53 (57.0)
Male sex, n (%)	40 (43.0)
Comorbidity, n (%)	28 (30.1)
Disease severity, n (%)	
Mild	58 (62.4)
Moderate	26 (28.0)
Severe	9 (9.7)
Pneumonia, n (%)	39 (41.9)
Oxygen therapy required, n (%)	26 (28.0)

Note. SD = standard deviation.

3.2 Psychological Outcomes

The mean HADS-Anxiety score was 4.24 (SD = 2.95) and mean HADS-Depression score was 2.88 (SD = 3.33)—both well within non-clinical ranges. Detailed prevalence by cutoff is shown in Table 2.

Using the ≥11 (probable case) cutoff, 2 patients (2.2%, 95% CI: 0.3–7.7%) met criteria for clinically significant anxiety and 5 (5.4%, 95% CI: 1.8–12.3%) for depression. The wide confidence intervals reflect the imprecision of small-sample prevalence estimation and should be given prominent weight when interpreting these findings. Using the ≥8 (possible case) cutoff, anxiety prevalence rose to 11.8% and depression to 16.1%, indicating that

mild-to-moderate symptoms were present in a meaningful minority even when severe symptoms were rare.

Suicidal ideation was reported by 12 patients (12.9%, 95% CI: 6.9–21.5%), a rate that exceeded the prevalence of probable-case depression (5.4%) by more than twofold.

Table 2. Psychometric Properties of the Hospital Anxiety and Depression Scale (HADS) in the Study Sample (N = 93)

Property	HADS-Anxiety	HADS-Depression
Number of items	7	7
Score range	0–21	0–21
Mean ± SD	4.24 ± 2.95	2.88 ± 3.33
Cronbach's alpha (α)	0.670	0.794
Interpretation	Borderline acceptable	Good

Note. Inter-scale correlation r = 0.746, p < 0.001. HADS = Hospital Anxiety and Depression Scale.

3.3 Bivariate Analyses

Bivariate results are presented in Table 3. Among factors examined, depression was significantly associated with age ≥60 years (20.0% vs. 2.6%, p = 0.028) and with requirement for oxygen therapy (15.4% vs. 1.5%, p = 0.021). These unadjusted associations are the primary inferential findings of this study; the small sample precluded adjustment for confounders, and the associations should be interpreted as preliminary signals requiring replication.

Suicidal ideation showed non-significant trends toward higher prevalence in female patients (18.9% vs. 5.0%, p = 0.071) and in those with comorbidities (21.4% vs. 9.2%, p = 0.117). These trends are consistent with broader literature on sex differences in suicidal ideation [14] and the burden of chronic illness, but do not constitute evidence of association given the small sample.

Table 3. Bivariate Associations Between Sociodemographic and Clinical Factors and Psychological Outcomes (Fisher's Exact Test)

Predictor	Outcome Present	Outcome Absent	p-value
Clinically Significant Anxiety (HADS-A ≥11): n = 2 (2.2%)			
Age ≥60 years	0/15 (0.0%)	2/78 (2.6%)	NS
Female sex	1/53 (1.9%)	1/40 (2.5%)	NS
Comorbidity	1/28 (3.6%)	1/65 (1.5%)	NS
Pneumonia	1/39 (2.6%)	1/54 (1.9%)	NS
Oxygen therapy	0/26 (0.0%)	2/67 (3.0%)	NS
Clinically Significant Depression (HADS-D ≥11): n = 5 (5.4%)			
Age ≥60 years	3/15 (20.0%)	2/78 (2.6%)	0.028*
Female sex	4/53 (7.5%)	1/40 (2.5%)	0.383
Comorbidity	2/28 (7.1%)	3/65 (4.6%)	NS
Pneumonia	3/39 (7.7%)	2/54 (3.7%)	NS
Oxygen therapy	4/26 (15.4%)	1/67 (1.5%)	0.021*
Suicidal Ideation (8Q ≥1): n = 12 (12.9%)			
Age ≥60 years	2/15 (13.3%)	10/78 (12.8%)	NS
Female sex	10/53 (18.9%)	2/40 (5.0%)	0.071
Comorbidity	6/28 (21.4%)	6/65 (9.2%)	0.117
Pneumonia	4/39 (10.3%)	8/54 (14.8%)	NS
Oxygen therapy	4/26 (15.4%)	8/67 (11.9%)	NS

*Note. All tests: Fisher's exact test. NS = not significant ($p \geq 0.05$). * $p < 0.05$. HADS-A = HADS Anxiety subscale; HADS-D = HADS Depression subscale; 8Q = 8-question suicidal ideation screen.*

3.4 Multivariable Logistic Regression (Exploratory, Non-Inferential)

Multivariable logistic regression was attempted to document its feasibility. With only 5 depression events and 5 predictor variables (EPV = 1.0), and only 12 suicidal ideation events and 5 predictor variables (EPV = 2.4), the models failed to provide interpretable estimates. Quasi-complete separation was observed for pneumonia and oxygen therapy in the depression model, generating extreme artifact odds ratios (e.g., OR = 44,776.62 for oxygen therapy) with infinite confidence intervals that have no clinical meaning and should not be reported as effect sizes. For anxiety (n = 2 events), multivariable modeling was not attempted.

In the depression model, age ≥60 years showed a trend (adjusted OR = 8.02, 95% CI: 0.45–143.04, p = 0.157), but the confidence interval spanning three orders of magnitude renders this estimate unreliable. These multivariable results are reported solely to document the analysis attempt and confirm its statistical infeasibility; they should not be interpreted as evidence of association or independence. The bivariate analyses are the only valid basis for inference in this study.

Table 4. Exploratory Multivariable Logistic Regression Results (Severely Underpowered — Results Should Not Be Interpreted as Valid Effect Estimates)

Predictor	Adjusted OR	95% CI	p-value
Depression (n = 5 events; EPV = 1.0) — Quasi-complete separation observed			
Age ≥60 years	8.02	0.45–143.04	0.157
Female sex	1.66	0.21–12.94	0.631
Comorbidity	0.56	0.03–10.02	0.690
Pneumonia	~0.00	0.00–∞ (artifact)	0.946
Oxygen therapy	~44,777 (artifact)	0.00–∞ (artifact)	0.936
Suicidal Ideation (n = 12 events; EPV = 2.4) — Quasi-complete separation observed			
Age ≥60 years	1.36	0.20–9.47	0.753
Female sex	2.94	0.71–12.22	0.137
Comorbidity	3.02	0.61–15.04	0.178
Pneumonia	~0.00	0.00–∞ (artifact)	0.977
Oxygen therapy	~606,168 (artifact)	0.00–∞ (artifact)	0.978

Note. OR = odds ratio; CI = confidence interval; EPV = events per variable. Minimum recommended EPV is 10–20; these models are severely underpowered. Extreme ORs for pneumonia and oxygen therapy reflect quasi-complete separation (artifact). These results document the infeasibility of multivariable modeling and should not be interpreted as estimates of association.

3.5 Sensitivity Analyses: HADS Cutoff Comparison

Applying the ≥8 (possible case) cutoff versus ≥11 (probable case) increased estimated anxiety prevalence 5.4-fold (from 2.2% to 11.8%) and depression prevalence 3.0-fold (from 5.4% to 16.1%). This substantial change demonstrates the critical role of cutoff selection in prevalence estimation. The ≥11 cutoff is more specific for probable clinical

caseness, while ≥8 captures subsyndromal distress warranting monitoring. Both are reported to enable comparisons with prior literature that employs either threshold.

Table 5. Sensitivity Analyses: HADS Prevalence by Cutoff Threshold (N = 93)

Outcome	HADS ≥11 (Probable Case)	HADS ≥8 (Possible Case)
Anxiety	2 (2.2%; 95% CI: 0.3–7.7%)	11 (11.8%; 95% CI: 6.0–20.0%)
Depression	5 (5.4%; 95% CI: 1.8–12.3%)	15 (16.1%; 95% CI: 9.3–25.2%)
Suicidal ideation (8Q ≥1)	12 (12.9%; 95% CI: 6.9–21.5%)	—

Note. Prevalence shown as n (%, 95% CI). 95% CIs calculated by Wilson score method. HADS = Hospital Anxiety and Depression Scale. 8Q single-item suicidal ideation screen does not have a ≥8 threshold equivalent. — = not applicable.

4. Discussion

4.1 Principal Findings

This cross-sectional study of 93 hospitalized COVID-19 patients in Thailand during the first pandemic wave found substantially lower rates of clinically significant anxiety (2.2%) and depression (5.4%) than most international comparators, while suicidal ideation was reported by 12.9% of patients a rate that notably exceeded the depression prevalence. In unadjusted analyses, older age (≥60 years) and oxygen therapy requirement were significantly associated with depression. Multivariable modeling was infeasible due to small event counts, and all effect estimates from regression models should be regarded as statistical artifacts rather than evidence of independent association.

4.2 Comparison with International Literature

The substantially lower psychological morbidity in this Thai cohort, compared with international COVID-19 literature, warrants contextual interpretation. Using the comparable ≥8 cutoff, this study found 11.8% anxiety and 16.1% depression markedly lower than Chinese hospitalized cohorts reporting 34.7–39.0% anxiety and 28.5–34.1% depression [4,5], European studies reporting 49.7% moderate-to-severe anxiety and 55.1% moderate-to-severe depression (DASS-21 ≥moderate threshold) among hospitalized

patients [15], and a UK surveillance study reporting 42.0% anxiety and 39.0% depression [6]. Similarly, studies from Bangladesh reported anxiety prevalence of 55.3% and depression prevalence of 40.8% among hospitalized COVID-19 patients [16], while an Iranian inpatient cohort documented depression in 57.7% of patients [17]. Direct comparison with the figures from Lucijanić et al. [15] carries an additional caveat: that study employed the DASS-21, whereas the present study and most other comparators used the HADS; differences in item content, scoring algorithms, and severity thresholds between these instruments preclude strict cross-instrument numerical equivalence.

Several explanations may account for this discrepancy, none of which can be definitively confirmed without comparative data. **First**, cultural factors specific to the Thai and Southeast Asian context likely modulate symptom experience and reporting. Thailand's predominantly Buddhist culture emphasizes acceptance of impermanence and equanimity in the face of adversity [9], and collectivist social structures may provide resilience against acute psychological distress [18,19]. However, cultural influences on psychiatric symptom reporting are bidirectional: while collectivism and social support may be protective, culturally specific stigma toward mental illness can suppress disclosure, and somatic expression of psychological distress is more prevalent in Asian populations, potentially causing standard affective instruments such as the HADS to underestimate true symptom burden [20,21]. Measurement non-equivalence across cultures further complicates cross-study comparisons [22,23].

Second, healthcare system and contextual factors may have contributed. This study was conducted during Thailand's well-managed first wave, when healthcare resources were not overwhelmed. The cohort isolation unit model in which patients shared a ward may have

reduced the social isolation that amplifies distress in strict single-room settings. The relative sense of security afforded by a well-resourced healthcare response during a period of low national case burden may have buffered existential fears more effectively than settings with overwhelmed systems.

Third, selection bias is a critical explanatory factor that must be foregrounded, not merely acknowledged. By excluding critically ill patients unable to complete questionnaires, this study systematically enrolled a healthier subgroup. Given the established association between COVID-19 severity and psychological distress [6,15,16], the true prevalence of distress across the full inpatient spectrum would likely be higher. The findings therefore represent a conservative lower bound for the broader hospitalized population.

Fourth, methodological differences including sample characteristics (mean age 43 years, predominantly mild-to-moderate disease), timing of assessment (acute hospitalization vs. post-discharge), and instrument-specific properties (HADS vs. PHQ-9, GAD-7, or DASS-21) contribute to apparent prevalence differences that are not attributable to true population differences. Cross-study comparisons must account for these methodological heterogeneities.

Of these explanatory factors, **selection bias is the most parsimonious and directionally certain**. Its operation is mechanistically guaranteed by the study design: patients too ill to consent or complete questionnaires were excluded, and the association between severity and psychological distress is well-established, yielding a lower-bound estimate with a known direction of bias. Cultural and healthcare system factors, by contrast, rest on reasonable but unverified assumptions about cross-cultural measurement equivalence, stigma effects, and system-level protective mechanisms that cannot be confirmed without

matched comparative data from other settings. This does not diminish their potential importance, but it does mean they function as plausible contextual hypotheses rather than established explanations.

4.3 Interpretation of Risk Factors

The unadjusted associations of older age and oxygen therapy with depression are clinically plausible and consistent with prior literature. Older adults with COVID-19 face elevated mortality risk [24], and awareness of this vulnerability may contribute to depressive rumination and hopelessness in older hospitalized patients. The 7.7-fold higher depression prevalence among patients ≥60 years (20.0% vs. 2.6%) constitutes a clinically meaningful signal warranting targeted screening, even in the absence of multivariable confirmation.

Oxygen therapy requirement, as a marker of respiratory compromise, was associated with a 10-fold higher depression prevalence (15.4% vs. 1.5%). This is consistent with evidence linking hypoxia, inflammatory cytokines, and dyspnea to both direct neurobiological effects on mood and indirect psychological effects through perceived severity and mortality fear [9,10]. It is also important to note that corticosteroids commonly administered for moderate-to-severe COVID-19, including patients requiring oxygen therapy can themselves induce neuropsychiatric effects, including mood disturbances, anxiety, and in some cases, steroid-induced psychosis [25]. The potential contribution of corticosteroid treatment to observed depression rates among oxygen-requiring patients could not be assessed in this study, as specific treatment data were not systematically captured. Future studies should systematically document corticosteroid use and other COVID-19 therapies as covariates.

The absence of systematic information on pre-existing psychiatric diagnoses, prior psychotropic medication use, and baseline mental health status represents a further important gap. Participants with prior psychiatric conditions may have been more or less vulnerable to COVID-19-related psychological distress, and differential representation of such individuals in the convenience sample could influence observed prevalence rates. Future studies should routinely collect psychiatric history as a potential confounder.

4.4 The Discordance Between Suicidal Ideation and Depression

The finding that suicidal ideation prevalence (12.9%) substantially exceeded probable-case depression (5.4%) is one of the most noteworthy and clinically important results of this study. This discordance is not entirely unexpected: epidemiological evidence shows that while the majority of individuals reporting suicidal ideation co-screen positive for a diagnosable disorder, approximately 17% report suicidal ideation in the absence of screening-level depression, generalized anxiety, or PTSD [26]. This suggests that suicidal thoughts can arise through pathways independent of syndromal depression, particularly in medically ill populations.

In the context of acute COVID-19 hospitalization, several mechanisms may explain suicidal ideation occurring without clinical depression: (1) acute existential confrontation with mortality during a novel and feared illness; (2) fear of infecting family members and associated survivor guilt; (3) social isolation with restricted access to family during hospitalization; (4) COVID-19-related stigma and shame prevalent during the first pandemic wave; and (5) uncertainty about prognosis and potential long-term sequelae. Notably, first-wave community data documented suicidal ideation prevalence of 5–15% even before clinical depression thresholds were met [8], suggesting that pandemic-specific

psychological stressors fear, uncertainty, and isolation constitute independent pathways to suicidal thinking.

The discordance between suicidal ideation and depression prevalence in this Thai cohort may itself be informative about a culturally asymmetric pattern of protection. Thailand's Buddhist cultural framework with its emphasis on acceptance of impermanence, equanimity toward suffering, and disengagement from ruminative self-focus and the collectivist social structures that sustain dense family and community ties may buffer the development of sustained depressive syndrome, characterized by anhedonia, hopelessness, and ruminative self-blame. However, these same cultural resources may be less effective against the acute existential distress of directly confronting mortality during a serious, stigmatized illness. Such confrontation can precipitate suicidal ideation through a shorter, more immediate pathway one driven by fear, shame, and isolation rather than by depressive syndrome per se. This hypothesis would explain why cultural protectiveness, if operative, appears to act differentially: attenuating the cumulative dysphoria that constitutes clinical depression while leaving acute existential and shame-driven suicidal thinking relatively unmodified.

The distinction between suicidal ideation as an expression of depressive syndrome versus as a response to acute existential stressors has important clinical implications. Relying solely on depression screening to triage psychiatric risk would fail to identify approximately half of the suicidal ideation cases in this sample. This underscores the necessity of direct suicidal ideation screening in all hospitalized COVID-19 patients, independent of depression screening results.

4.5 Psychometric Considerations

The HADS-Anxiety subscale demonstrated a Cronbach's alpha of 0.670 in this sample below the conventional acceptable threshold of 0.70. While some authorities accept values ≥0.65 as marginal in small samples, this should be interpreted cautiously rather than dismissed as "acceptable." The borderline alpha may reflect genuine measurement limitations in this specific clinical population, possible floor effects given the overall low symptom burden, or the well-documented instability of reliability estimates in small samples (n = 93). It cannot be excluded that the HADS-Anxiety subscale performed suboptimally in this context, which could have contributed to the low anxiety prevalence. The HADS-Depression subscale demonstrated adequate internal consistency (α = 0.794). These findings do not invalidate the prevalence estimates but do introduce uncertainty about the precision of the anxiety measurement specifically. Future studies in Thai COVID-19 populations should consider concurrent administration of alternative anxiety measures and formal psychometric evaluation with larger samples.

4.6 Clinical Implications for Consultation-Liaison Psychiatry

The findings have several practical implications for consultation-liaison (CL) psychiatry services in infectious disease settings:

1. Risk-stratified screening: Rather than universal intensive psychiatric assessment, a pragmatic stepped-care approach appears most appropriate. All patients should receive brief screening on admission using validated short instruments (e.g., the HADS and 8Q as in this study). Patients screening positive or meeting pre-specified risk criteria particularly age ≥60 years, oxygen therapy requirement, comorbid medical illness, and high physical symptom burden should be prioritized for specialist CL psychiatry assessment [16,17,28].

2. Universal suicidal ideation assessment: The 12.9% suicidal ideation prevalence, occurring largely in the absence of clinically significant depression, mandates direct and universal suicidal ideation screening for all hospitalized COVID-19 patients. A brief validated tool such as the 8Q can be efficiently integrated into routine nursing assessments. Patients endorsing any suicidal ideation should receive prompt CL psychiatry evaluation regardless of depression screen status.

3. Stepped-care model: Based on screening results and risk profiles, patients may be stratified into: (a) low-risk (watchful waiting, psychosocial support, family engagement); (b) moderate-risk (brief psychological interventions, sleep hygiene, increased monitoring); and (c) high-risk (urgent CL psychiatry consultation, pharmacological evaluation, discharge planning) [28,29]. Critically, the presence of suicidal ideation even without depression should automatically trigger high-risk pathways.

4. Post-discharge follow-up: Evidence from other COVID-19 cohorts documents persistent or emerging psychological symptoms post-discharge, with PTSD and depression common at 1–3-month follow-up [6,15]. High-risk patients identified during hospitalization should be linked with outpatient mental health services at discharge, and routine reassessment at 1 and 3 months post-discharge is recommended.

5. Cultural adaptation: Psychological interventions delivered to Thai patients should be adapted to incorporate culturally resonant elements such as Buddhist mindfulness frameworks, family involvement, and peer support within the shared ward setting. The cohort isolation model may itself be leveraged as a resource with peer interaction potentially providing informal psychological support that single-room isolation cannot.

4.7 Limitations

This study has several important limitations that define the boundaries of interpretation:

1. **Small sample size and statistical power:** With 93 patients and 2, 5, and 12 events for anxiety, depression, and suicidal ideation respectively, EPV ratios were far below recommended thresholds (0.4, 1.0, 2.4 vs. minimum of 10–20 EPV). Multivariable modeling was not statistically valid, and all effect estimates are unreliable. Confidence intervals for prevalence estimates are wide, reflecting genuine imprecision.

2. **Selection bias:** Excluding critically ill patients introduces substantial selection bias toward less severely ill individuals. True population-level prevalence of psychological distress in all COVID-19 inpatients is likely higher than observed. This limitation is fundamental to interpreting all prevalence estimates.

3. **Cross-sectional design:** Causal inference is precluded. Temporal relationships between patient characteristics and psychological outcomes cannot be established. Psychological symptoms may have antedated hospitalization.

4. **Convenience sampling:** Non-probability sampling limits generalizability. Volunteers may systematically differ from non-participants in psychologically relevant ways.

5. **Unmeasured confounders:** Pre-existing psychiatric history, prior psychotropic medication use, social support, socioeconomic status, COVID-19-related stigma, and specific pharmacological treatments (particularly corticosteroids) were not systematically captured. Their potential confounding effects cannot be assessed.

6. **Single-center setting:** Findings reflect a single Bangkok tertiary hospital during the first wave and may not generalize to other hospitals, rural settings, or later pandemic phases.

7. **Measurement limitations:** Borderline HADS-Anxiety internal consistency ($\alpha = 0.670$), potential social desirability bias in self-report, and cultural differences in item

interpretation may have influenced observed prevalence. Cross-cultural comparisons must be made with caution given potential measurement non-equivalence.

8. **Absence of a comparison group:** The lack of a non-COVID-19 control group prevents determination of whether observed distress is COVID-19-specific or a general response to serious hospitalization.

9. **No generative AI declaration:** Portions of this manuscript were drafted or refined with the assistance of AI writing tools, in accordance with the journal's AI use policy. All intellectual content, data analysis, and clinical interpretation remain the sole responsibility of the authors.

4.8 Strengths

Despite these limitations, this study contributes original data from a Southeast Asian population using validated Thai-language instruments during the clinically and historically important first pandemic wave. The transparent reporting of statistical limitations, including explicit EPV ratios and documentation of model failure, is a methodological strength. Assessment during acute hospitalization rather than post-discharge provides real-time clinical data directly applicable to inpatient management. The concurrent assessment of three psychological outcomes (anxiety, depression, suicidal ideation) offers a more complete picture than single-domain studies.

5. Conclusions

This preliminary, hypothesis-generating study found substantially lower prevalence of clinically significant anxiety (2.2%) and depression (5.4%) among hospitalized COVID-19 patients in Thailand during the first pandemic wave than has been reported internationally, alongside a notable suicidal ideation prevalence (12.9%) that substantially

exceeded the depression rate. Older age and oxygen therapy requirement showed significant unadjusted associations with depression, generating hypotheses for confirmation in larger, adequately powered studies. Multivariable analyses were statistically infeasible and produced unreliable estimates that should not be interpreted as evidence of independent association.

The discordance between suicidal ideation and depression prevalence underscores the importance of direct suicidal ideation screening in all hospitalized COVID-19 patients, independent of depression screening results. The lower psychological morbidity compared to Western studies may reflect cultural protective factors, the specific context of Thailand's first-wave response, and healthcare system characteristics but cannot be confirmed without comparative data and may also partly reflect measurement limitations and selection bias.

Critical limitations include small sample size insufficient for multivariable modeling, selection bias from excluding critically ill patients, single-center cross-sectional design, and unmeasured confounders including psychiatric history and corticosteroid use. Findings should be interpreted as descriptive and hypothesis-generating. Larger, multicenter, longitudinal studies are needed to confirm risk factors, characterize the trajectory of psychological symptoms, and establish evidence-based screening protocols. Future research should systematically assess cultural determinants of psychological responses to COVID-19 and develop culturally adapted interventions for Southeast Asian populations.

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Declaration of AI Use

Portions of this manuscript were drafted and refined with the assistance of AI language tools. All intellectual content, data interpretation, clinical reasoning, and final conclusions are the sole responsibility of the authors, who reviewed and approved all content.

Ethics Approval and Consent

This study was approved by the Institutional Review Board of Rajavithi Hospital in accordance with the Declaration of Helsinki. Written informed consent was obtained from all participants prior to enrollment. Participation was voluntary and patients were informed of their right to withdraw at any time without affecting their medical care.

Competing Interests

The authors declare no competing interests.

Availability of Data

The datasets analyzed in this study are not publicly available due to institutional data protection policies but are available from the corresponding author on reasonable request with appropriate ethical approval.

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