

## Association of Chronic Illness and Suicidal Risk: A Cross-Sectional Study on Patients with Cancer, Diabetes and Chronic Pain

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### Abstract

Patients with chronic illnesses like cancer, diabetes, and chronic pain conditions often endure prolonged physical and emotional sufferings which tend to increase their vulnerability to suicidal ideation. Despite the global rise in chronic diseases, limited research exists on their psychological impact, especially in low-resource settings like Bangladesh. A cross-sectional study was conducted in the Department of Medicine, Rajshahi Medical College, Bangladesh, between June and December of 2023, to assess the association between chronic illness (cancer, diabetes, and chronic pain) and suicidal risk in a Bangladeshi patient population. Using purposive sampling, a total of 60 patients with cancer, diabetes, or chronic pain were enrolled. Data on demographics, illness duration, severity, and suicidal risk were collected using standardized tools. Suicidal risk was assessed using the Beck Scale for Suicide Ideation (BSS), and illness severity was measured using disease-specific scales. Logistic regression was used to see the association. Among participants, 35% had diabetes mellitus, 30% had cancer, and 35% had chronic pain conditions. Suicidal risk was significantly higher in cancer (44.4%) and chronic pain (38.1%) patients compared to diabetic patients (23.8%). Longer duration of illness (>5 years) was strongly associated with increased suicidal risk ( $p < 0.05$ ). Logistic regression identified cancer (OR=2.8, 95% CI: 1.2–6.5) and chronic pain (OR=2.5, 95% CI: 1.1–5.7) as independent predictors of suicidal risk. Our data suggests that chronic illnesses, particularly cancer and chronic pain, significantly increases suicidal risk. Early psychological screening and integrated mental health care are essential to mitigate suicidal ideation and improve outcomes in this vulnerable population, especially in resource-limited settings like Bangladesh.

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### Introduction

Chronic illnesses such as cancer, diabetes, and chronic pain are major public health challenges worldwide, contributing significantly to morbidity, mortality, and reduced quality of life.<sup>1</sup> These conditions are often associated with prolonged physical suffering, emotional distress, and social isolation, which can exacerbate psychological vulnerabilities and increase the risk of suicidal ideation and behavior.<sup>2,3</sup> Suicide is a leading cause of death globally, and individuals with chronic illnesses are at a disproportionately higher risk due to the cumulative burden of their disease and its impact on mental health.<sup>4</sup> The relationship between chronic illness and suicidal risk is complex and multifaceted. Cancer patients, for instance, often face existential distress, fear of recurrence, and treatment-related side effects, which can lead to hopelessness and suicidal thoughts.<sup>5</sup> Similarly, individuals with diabetes may experience chronic stress related to disease

management, complications such as neuropathy or nephropathy, and the stigma associated with the condition, all of which can contribute to psychological distress.<sup>6</sup> Chronic pain, on the other hand, is strongly linked to depression and anxiety, with studies showing that up to 50% of chronic pain patients experience suicidal ideation.<sup>7</sup> Despite these

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associations, the psychological burden of chronic illnesses remains underrecognized and undertreated, particularly in low- and middle-income countries (LMICs) like Bangladesh.<sup>8</sup> In South Asian region, the prevalence of chronic diseases is rising due to urbanization, lifestyle changes, and an ageing population.<sup>9</sup>

However, mental health services are often inadequate in the region including Bangladesh, and the psychological impact of chronic illnesses is rarely addressed in clinical practice.<sup>10</sup> This gap in care is concerning, as untreated psychological distress can worsen disease outcomes, reduce treatment adherence, and increase healthcare costs.<sup>11</sup> Understanding the association between chronic illness and suicidal risk is therefore critical for developing targeted interventions to address the mental health needs of this vulnerable population. During research, ensuring special attention to address the vulnerability and need of the patients as well being culturally sensitive are very important.<sup>12</sup> Previous studies have explored the link between chronic illness and suicidal risk, but most have focused on high-income countries or specific patient populations.<sup>13,14</sup> There is a paucity of research in LMICs, where healthcare systems are often overburdened and mental health resources are limited.<sup>15</sup> This study aims to fill that research gap by determining the association between chronic illness and suicidal risk in a Bangladeshi patient population, with a focus on identifying high-risk groups and informing targeted interventions. By addressing this critical issue, the study seeks to contribute to the growing body of evidence on the psychological impact of chronic illnesses and advocate for integrated care models that address both physical and mental health needs. Such approaches are essential for improving patient outcomes, reducing

the burden of suicide, and promoting holistic healthcare in resource-limited settings.

## Methods

This cross-sectional study was conducted in the Department of Medicine, Rajshahi Medical College, Bangladesh, from June to December of 2023. Using purposive sampling, a total of 60 patients having previously diagnosed cancer, diabetes, or chronic pain were enrolled. Data on demographic variables, illness duration, severity, and suicidal risk were collected through structured interviews and medical records. Suicidal risk was assessed using the Beck Scale for Suicide Ideation® (BSS), a validated 19-item tool that measures the intensity of suicidal thoughts and plans.<sup>16</sup> Illness severity was evaluated using disease-specific scales, such as the Visual Analog Scale (VAS) for pain.

Data were analyzed using SPSS version 26.0 for windows. Descriptive statistics summarized participant characteristics, while chi-square tests and logistic regression examined associations between chronic illness and suicidal risk.

Ethical approval was obtained from the Institutional Review Board of Rajshahi Medical College, Rajshahi, Bangladesh. Besides, practical considerations about the physical environment and clinical setting where study procedures, including risk monitoring and safety planning were looked after meticulously.

## Results

Among 60 patients with chronic illnesses, comprising 21(35%) with diabetes mellitus, 18(30%) with cancer, and 21(35%) with chronic pain conditions. The mean age of the participants was 52.4±8.7 years, with a slight male predominance (55%) (n=33). The mean duration of illness was 7.2±3.5 years (Table-I).

Suicidal risk, as measured by the Beck Scale for Suicide Ideation® (BSS), was significantly higher in patients with cancer 8(44.4%) and chronic pain 8(38.1%) compared to those with diabetes 5(23.8%) (Table-II). Longer illness duration (>5years) was strongly associated with increased suicidal risk ( $p<0.05$ ) (Table-III). Logistic regression identified cancer (OR=2.8, 95% CI: 1.2–6.5) and chronic pain (OR=2.5, 95% CI: 1.1–5.7) as independent predictors of suicidal risk (Table-IV).

**Table-I:** Demographic and clinical characteristics of the patients (N=60)

Variables	Total	Diabetes	Cancer	Chronic Pain
		(n=21)	(n=18)	(n=21)
Age (in years)	52.4±8.7	54.2±7.8	50.8±9.1	52.1±8.5
Male (%)	33 (55%)	12 (57%)	10 (56%)	11 (52%)
Female (%)	27 (45%)	9 (43%)	8 (44%)	10 (48%)
Duration of illness (in years)	7.2±3.5	6.8±3.2	7.5±3.7	7.1±3.6

**Table-II:** Distribution of suicidal risk across chronic illnesses (N=60)

Types of chronic illness	Frequency (Percentage)	Patients with suicidal risk
		Frequency (Percentage)
Diabetes	21 (35)	5 (23.8)
Cancer	18 (30)	8 (44.4)
Chronic pain	21 (35)	8 (38.1)

**Table-III:** Association between duration of illness and suicidal risk

Duration of illness	Patients with suicidal risk	Patients without suicidal risk	p-value
	(n=21)	(n=39)	
≤5 years	6	25	<0.05 <sup>s</sup>
>5 years	15	14	

P value reached from Chi-square test; s=significant

**Table-IV:** Logistic regression analysis of suicidal risk predictors

Variables	Odds Ratio (OR)	95% Confidence Interval (CI)	p-value
Cancer	2.8	1.2–6.5	<0.05
Chronic pain	2.5	1.1–5.7	<0.05
Duration of illness (>5 years)	2.2	1.0–4.8	<0.05

## Discussion

This study highlights the significant association between chronic illnesses – cancer, diabetes, and chronic pain – and suicidal risk among patients in a Bangladeshi tertiary care setting. The findings revealed that patients with cancer and chronic pain are at a substantially higher risk of suicidal ideation compared to those with diabetes, aligning with previous research.<sup>2,7</sup> The elevated suicidal risk in cancer patients (44.4%) and chronic pain patients (38.1%) underscores the profound psychological burden associated with these conditions, which often involve prolonged suffering, functional limitations, and existential distress.<sup>5,17</sup> The higher prevalence of suicidal risk in cancer patients can be attributed to factors such as fear of disease progression, treatment-related side effects, and the emotional toll of a life-threatening diagnosis.<sup>13</sup> Similarly, chronic pain patients often experience persistent physical discomfort, social isolation, and depression, all of

which contribute to suicidal ideation.<sup>18</sup> In contrast, diabetic patients exhibited a lower but still significant suicidal risk (24.8%), likely due to the chronic nature of the disease, the burden of self-management, and complications such as neuropathy or nephropathy.<sup>6</sup> These findings emphasize the need for routine psychological screening and intervention in patients with chronic illnesses, particularly those with cancer or chronic pain. The study also identified longer illness duration (>5 years) as a significant predictor of suicidal risk, which is consistent with the findings of some previous studies.<sup>3,7,14,19</sup> Prolonged exposure to the physical and emotional challenges of chronic illness can lead to hopelessness, helplessness, and a diminished quality of life, increasing vulnerability to suicidal thoughts.<sup>19,20</sup> Logistic regression analysis further confirmed that cancer and chronic pain are independent predictors of suicidal risk, highlighting the need for targeted mental health support for these patient groups. The findings of this study have important implications for clinical practice. Integrating mental health screening into routine care for patients with chronic illnesses can facilitate early identification of suicidal risk and timely intervention.<sup>21</sup> By engaging in such research, we felt that we achieved a better understanding about suicidal behaviour among chronically ill patients and thereby “uncover and pursue the best ways to reach and treat those who struggle with suicidal ideation”<sup>12</sup>, especially for patients who are suffering from long standing cancer, chronic pain or diabetes mellitus. Multidisciplinary approaches, including psychological counseling, pharmacotherapy, and patient education, should be prioritized to address the complex interplay between physical and mental health.<sup>15</sup> Additionally, healthcare providers should be trained to recognize the signs of psychological distress and provide empathetic, patient-centered care.<sup>1</sup>

Our study has some limitations. The cross-sectional design precludes establishing causal relationships, and the relatively small sample size may limit the generalizability of the findings. Furthermore, the use of purposive sampling may introduce selection bias. Future longitudinal studies with larger, more diverse samples are needed to explore the temporal relationship between chronic illness and suicidal risk and to identify additional risk factors.

## Conclusion

This study highlights the significant association between chronic illnesses—particularly cancer and chronic pain—and increased suicidal risk among patients in Bangladesh. Longer illness duration and higher disease severity further exacerbate this risk. Early psychological screening, integrated mental health care, and targeted interventions are essential to mitigate suicidal ideation and improve outcomes in this vulnerable population. Addressing the mental health needs of patients with chronic illnesses should be a priority in healthcare systems, especially in resource-limited settings. To address the heightened suicidal risk in patients with chronic illnesses, routine psychological screening should be integrated into chronic disease management programs. Healthcare providers must be trained to identify and address psychological distress, while patient education and support systems should be strengthened to enhance coping strategies and treatment adherence.

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