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Research Article

**RATES OF REPORTED SUICIDE AND SUICIDAL ATTEMPTS
AND ITS ASSOCIATED FACTORS IN THE MENTAL HEALTH
HOSPITAL IN TAIF CITY, SAUDI ARABIA**

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Abstract:

Background: Among the Saudi population, the attributable population fraction of hopelessness, depression, and other risk factors for suicidal ideation and attempts are unclear. The influence of hopelessness and depression is also reported to be minimized by social support. **Methodology:** This was a cross-sectional study conducted to assess the rate and correlations of reported suicidal attempts in psychiatric inpatients in The Mental Health Hospital, Taif city, Saudi Arabia. Data were collected from the medical records of the participants. **Results:** A total of 21 participants were included in this study; 81% were females and with a mean age (33 ± 8.5). According to the modified Becks Suicide Intent scale score, most of them (75%) were at low risk, and 15% were at medium risk. The vast majority of the cases (95.2%) were suicidal attempts, and 4.2% committed suicide. Gender and nationality were significantly associated with the event type ($P=0.035$) and ($P=0.012$), respectively. We found a significant association between living alone and the event type ($P=0.035$), as the case who committed suicide (100%) and 15% of those who attempted suicide were living alone. **Conclusion:** We demonstrated a higher risk of attempting suicide than committing suicide in Taif city, Saudi Arabia. All of the participants were at low and medium risk of suicidal intention. The female participants were more frequent to commit suicide than the males.

Keywords; Suicidal attempts, committing suicide, Saudi Arabia.

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INTRODUCTION:

Suicide is death caused by self-directed injurious behavior with any intent to die due to the behavior. The suicidal attempt is a non-fatal self-directed, potentially injurious behavior with any intent to die as a result of the behavior. A suicide attempt may or may not result in injury.(1)

According to the WHO, 1.4% of all deaths worldwide were due to suicide. Globally, suicide ranked as the second leading cause of death among young adults 15–29 years of age and the fifth among adults aged 30–49. (2)

Suicidal attempt prevalence is estimated to be 0.3% for developed countries and 0.4% for developing countries. (3) Patients with mental disorders had a 10-fold higher risk of suicide than the general population. (4) The suicide risk was especially high during admission to the hospital. (4, 5) Psychotic disorders, mood disorders, personality disorders, and substance abuse were among the highest risk group. (4, 6) Having a mental disorder was also associated with a higher risk of repeated suicide attempts. (7)

In Saudi Arabia, the Suicide rate in the general population is estimated to be about 1.1/ 100,000 individuals. (8) Mental disorders and a previous suicidal attempt are among prominent indicators of suicide. (9-11)

A study done in Easter province, Saudi Arabia, found that most cases with admission of deliberate self-harm (DSH) were single, younger than 30 years, more in females. Reactive depression was the commonest diagnosis (60%), and Interpersonal conflicts were reported in (72.5%). (12)

In 2017, **Dahale et al.** conducted a retrospective study in India to assess the sociodemographic and clinical profile of psychiatric inpatients who committed suicide from 1985 to 2014. Data were collected from medical records. The rate of inpatient suicide in this study was around 10 per 100 000 admissions. (13)

In 2002, **Spiessl et al.** conducted a study to investigate prevalence and risk factors of different types of suicidal behavior before and during inpatient care using a basic psychiatric documentation system. The study included 21,062 patients in 39,372 episodes of inpatient care between 1989 and 1999. The mean annual inpatient suicide rate was 76 per 100 000 admissions. A total of 296 (0.8%) attempted suicides were recorded during the 11 years. Risk factors of a suicide attempt during hospitalization

were suicidal thoughts and attempted suicide on admission. Besides personality disorder (like borderline personality disorder), only patients diagnosed with affective disorder or schizophrenia are at an increased risk of attempting suicide while hospitalized. The statistically significant predictors account for 15.6% of the variance, but the model failed to identify any suicide attempters. (14)

Borges et al. conducted a twelve-month survey in 21 countries to assess suicidal behaviors and potential risk factors. The prevalence of suicidal attempts was 0.3% for developed countries and 0.4% for developing countries. Female gender, younger age, unmarried, unemployment, lower education, and parent psychopathology, childhood adversities, and presence of DSM-IV mental disorders were found to be risk factors for suicidal behavior. (3)

Mahdi et al. conducted a case series study on deliberated self-harm (DSH) in King Fahad University Hospital in Khobar Over Six years. DSH was more in the female with a male: female ratio 1:1.8. 74.3 % were below 30 years. Nearly two-thirds of subjects were diagnosed with either personality or adjustment disorder. Most frequent drug overdose method (71.5 %), followed by self-cutting (16.3%). (15) Psychiatric inpatients are at a higher risk for suicide. However, Studies concerning suicidal attempts in this population are limited in Saudi Arabia.

Aim of the study

To assess the rate and correlations of reported suicidal attempts in psychiatric inpatients in The Mental Health Hospital, Taif city.

Specific objectives

1. To assess the rate of a reported suicide and suicidal attempts in psychiatric inpatient in The Mental Health Hospital.
2. To identify the associated factors of reported suicidal attempts in psychiatric inpatient in The Mental Health Hospital.

METHODOLOGY:

Study design

A cross-sectional study.

Study area

The study was done in The Mental Health Hospital, Taif city, Makkah region, Saudi Arabia.

Study Sampling

The total number of admissions to The Mental Hospital from January 1, 2018, to December 31,

2020, was 5260. One case of committed suicide and 20 cases of suicidal attempts (18 patients) were reported during this period.

Inclusion criteria

- All reported cases that committed or attempted suicide inside the hospital were included in the study.
- Patients, less than 65 years as hospital policy does not admit patients aged above 65 years old.

Exclusion criteria

- Cases that committed or attempted suicide outside the hospital, including patients, were admitted but were on a trial leave.
- Patients aging more than 65 years.

Data collection tool

The researchers developed a data collection tool, and it included 7 main sections:

- Sociodemographic data including age (in years), gender: male or female, nationality: Saudi or non-Saudi, marital status, educational level, and employment.
- Becks suicide intent scale score (low risk, medium risk, and high risk).
- Previous history of suicidal attempt.
- Family and social history, including living alone and a family history of psychiatric disorder.
- Psychiatric disorders including past history of anxiety disorder, past history of mood disorder, past history of psychosis, past history of a substance use disorder, past history of alcohol use, and past history of personality disorder.
- Method of suicidal attempt including hanging, asphyxia, firearm, explosions, medication overdose, poisonings, cutting, piercing, and jumping from a height.

Validation of the Data collection tool

Two Psychiatric consultants revised and validated the tool. Also, Pilot testing was done to assess the availability of the required data and the ease of use.

Data collection technique

This study data were collected from patients's medical records from The Mental Health Hospital under the Saudi Ministry of Health.

E-health systems are not utilized in all facilities of MOH. (16) Medical records of committed suicide and suicidal attempt cases were identified from the annual statistics of the quality office. The principal investigator filled the data collection tool.

Data entry and analysis

Statistical Package for Social Sciences (SPSS) software version 22.0 was used for data entry and analysis. Statistical tests were applied as appropriate.

Ethical consideration

Acceptance from the Regional Research and Ethics committee was obtained.

Permission of the psychiatric hospital Director was obtained. All information

was collected from secondary data. Neither personal identifier was obtained, nor were patients contacted. No conflict of interest.

RESULTS:

Table (1) shows the sociodemographic characteristics of 21 participants. Most of the participants (81%) were females; age ranges from (19-58), and with a mean age of (33 ± 8.5). Most Saudi participants (85.7%) and less than half of them (47.6%) never married. Nearly (38.1%) had secondary education, 33.3% had primary education or less, 19% had intermediated education, and only 9.5% had a university degree. The majority (95.2%) were unemployed. According to the modified Becks Suicide Intent scale score, most of them (75%) were at low risk, and 15% were at medium risk. The vast majority of the cases (95.2%) were suicidal attempts, and 4.2% committed suicide.

Table (2) investigates the associations between the sociodemographic characteristics and the type of event. Gender and nationality were significantly associated with the event type ($P=0.035$) and ($P=0.012$), respectively. All-female cases (100%) attempted suicide, while a male case (25%) committed suicide. All Saudi cases (100%) attempted suicide, and one non-Saudi case (33.3%) committed suicide. We did not find any significant association between age ($P=0.426$), marital status ($P=0.216$), education ($P=0.552$), and employment ($P=0.819$).

Table (3) indicates the associations between the previous history of suicidal attempts and the event type. The case who committed suicide (100%) and 80% of the reported cases with suicidal attempts had a previous history of suicidal attempts; this association was not statistically significant ($P=0.619$). We found a significant association between living alone and the event type ($P=0.035$), as the case who committed suicide (100%) and 15% of those who attempted suicide were living alone. Family history of psychiatric disorder was found among 45% of the suicidal attempt cases; this association was not statistically significant ($P=0.375$). Past history of

anxiety was detected among only 5% of those who attempted suicide; this association was not statistically significant ($P=0.819$). Past history of mood disorder was found among 25% of those who attempted suicide; this association was not statistically significant ($P=0.567$). Past history of psychosis ($P=0.421$) and asphyxia ($P=0.329$) were detected in the case who committed suicide and 60%

and 50% of those who attempted suicide, respectively. Including alcohol was detected among 20% of the cases who attempted suicide ($P=0.619$), past history of personality disorder was found on 35% of those who attempted suicide ($P=0.469$), hanging was implemented by 10% of those who attempted suicide ($P=0.740$), and cutting was done by 40% of those who attempted suicide ($P=0.421$).

Table (1): The sociodemographic characteristics of the participants (n=21).

Parameter	Frequency (%)	
Age, y	19 -	8 (38.1%)
	31 -	5 (23.8%)
	≥ 36	8 (38.1%)
	Mean ± SD (Min-Max)	33.0 ± 8.5 (19-58)
Gender	Male	4 (19%)
	Female	17 (81%)
Nationality	Saudi	18 (85.7%)
	Non-Saudi	3 (14.3%)
Marital	Married	5 (23.8%)
	Never Married	10 (47.6%)
	Divorced	4 (19%)
	Widow	2 (9.5%)
Education	Primary or less	7 (33.3%)
	Intermediate	4 (19%)
	Secondary	8 (38.1%)
	College / University	2 (9.5%)
Employment	Employed	1 (4.8%)
	Unemployed	20 (95.2%)
Modified Becks suicide intent scale score	Low risk	15 (75%)
	Medium risk	5 (25%)
	High risk	0 (0%)
Event	Committed suicide	1 (4.8%)
	Suicidal attempt	20 (95.2%)

Table (2): The association between the sociodemographic characteristics and the suicidal event.

Parameter		Committed suicide (%)	Suicidal attempt (%)	X ²	P-value
Age, y	19 -	1 (12.5%)	7 (87.5%)	1.71	0.426
	31 -	0 (0%)	5 (100%)		
	≥ 36	0 (0%)	8 (100%)		
Gender	Male	1 (25%)	3 (75%)	4.46	0.035
	Female	0 (0%)	17 (100%)		
Nationality	Saudi	0 (0%)	18 (100%)	6.3	0.012
	Non-Saudi	1 (33.3%)	2 (66.7%)		
Marital status	Married	0 (0%)	5 (100%)	4.46	0.216
	Never Married	0 (0%)	10 (100%)		
	Divorced	1 (25%)	3 (75%)		
	Widow	0 (0%)	2 (100%)		
Education	Primary or less	1 (14.3%)	6 (85.7%)	2.1	0.552
	Intermediate	0 (0%)	4 (100%)		
	Secondary	0 (0%)	8 (100%)		
	College / University	0 (0%)	2 (100%)		
Employment	Employed	0 (0%)	1 (100%)	0.06	0.819
	Unemployed	1 (5%)	19 (95%)		

Table (3): Previous history of suicidal attempts in association with the suicidal event.

Parameter	Committed suicide (% total)	Suicidal attempt (% total)	X ²	P-value
Past history of suicidal attempt	1 (100%)	16 (80%)	0.25	0.619
Living alone	1 (100%)	3 (15%)	4.46	0.035
Family history of psychiatric disorder	0 (0%)	9 (45%)	0.79	0.375
Past history of anxiety	0 (0%)	1 (5%)	0.05	0.819
Past history of mood disorder	0 (0%)	5 (25%)	0.33	0.567
Past history of psychosis	1 (100%)	12 (60%)	0.65	0.421
Including alcohol	0 (0%)	4 (20%)	0.25	0.619
Past history of personality disorder	0 (0%)	7 (35%)	0.53	0.469
Hanging	0 (0%)	2 (10%)	0.11	0.740
Asphyxia	1 (100%)	10 (50%)	0.96	0.329
Firearm	0 (0%)	0 (0%)		
Explosions	0 (0%)	0 (0%)		
Drug overuse	0 (0%)	0 (0%)		
Poisoning	0 (0%)	0 (0%)		
Cutting	0 (0%)	8 (40%)	0.65	0.421
Piercing	0 (0%)	0 (0%)		
Jumping	0 (0%)	0 (0%)		

DISCUSSION:

Suicide is a complex problem that is influenced by psychological, biological, and social factors worldwide. It is primarily a human concern and continues to be a significant public health problem. (17) This study aims to assess the rate and correlations of reported suicidal attempts in

psychiatric inpatients in The Mental Health Hospital, Taif city, Saudi Arabia.

This study reported that all participants had a low and moderate risk of suicidal intention; most of them (75%) attempted suicide, 25% committed suicide, and the female participants were predominant. **Issa et**

al. reported 53.7% of participants committed suicide, 42.5% were males. (9) Our findings were consistent with those of a study conducted by **Kosaraju et al.**, which found that females aged 20–30 years had a higher rate of suicidal attempts. (18)

Neuner et al. conducted a study in Germany to explore the prevalence and risk factors of inpatient suicides and attempted suicides. A mean annual suicide rate of 101 per 100,000 admissions and a mean annual rate of attempted suicides was 529 per 100,000 admissions. Patients who attempted suicide were significantly more often female and younger. (19) **Nock et al.** conducted a study to estimate the prevalence of suicidal behaviors across 17 countries and assess associated risk factors. The estimated prevalence in low- and middle-income countries was 0.7–4.7% and 0.5–5.0% in high-income countries. Female gender younger age, less educated, unmarried, and having a mental disorder were consistent risk factors across the 17 countries. (25) Another Saudi study included all Saudi cases admitted as deliberate self-harm (DSH) to a university teaching hospital. DSH accounted for 0.47% of all Saudi medical admissions. The majority of cases were single, 95% were below the age of 30 years, more in the female with female: male ratio 4:1. The most frequent method was Drug overdosage (80%). Reactive depression was the commonest diagnosis (60%), and Interpersonal conflicts were reported in (72.5%). (12)

Gender and nationality were significantly associated with the event type, as all of the female cases (100%) attempted suicide, while a male case (25%) committed suicide. All Saudi cases (100%) attempted suicide, and one non-Saudi case (33.3%) committed suicide. However, according to Shariah doctrine, suicide is prohibited in Islamic countries such as the Kingdom of Saudi Arabia (KSA). It is regarded as a criminal act against one's own self. (20) Thus, our results regarding Saudi nationality could be biased by the small sample size. **Bernal et al.** conducted a study in six European countries (Belgium, France, Germany, Italy, the Netherlands, and Spain) to assess the prevalence and correlations of suicidal ideas and attempts. The lifetime prevalence of suicidal attempts was 1.3%. Female gender, younger age, being divorced or widowed, and psychiatric diagnoses were associated with a higher prevalence. (24)

Suicide attempts may be used to demonstrate the need for support by women who are permitted (in terms of social acceptance) to show vulnerability and ask for help. When confronted with psychological distress or disease, women may be more likely than

men to attempt suicide, less with the intent to die and more as a means of communicating distress. (21)

The current study demonstrated a significant association between living alone and the event type, as the case who committed suicide and 15% of those who attempted suicide were living alone. Living alone has been demonstrated in 22–25 percent of suicide victims in a row. (22) Living alone was also demonstrated as a significant risk factor for suicide among the rural population in South India ($P < 0.000$). (23)

This study found no significant association regarding the previous history of suicidal attempts, the family history of psychiatric disorder, the past history of anxiety, the past history of mood disorder the past history of psychosis, asphyxia, including alcohol, past history of personality disorder, hanging, and cutting and the event type. **P B Mortensen et al.** conducted a population-based nested case-control study based on register data. Data were collected on a random 5% sample of the Danish population aged 16–78 years during 15 years (1980–94). Unemployment, low income, single, and a history of mental illness necessitating hospital admission were associated with an increased risk of suicide. However, in the multivariate analysis, the strongest risk factor was mental illness necessitating hospital admission; the risk of suicide was especially high during admission (relative risk 62.6 [95% CI 41.1–95.4]) and the year after discharge (6.51 [5.03–8.44]). (5)

Limitations

Data quality could be biased as information collected from stored data. The small sample size may also affect the reliability of our findings.

CONCLUSION:

This study demonstrated a higher risk of attempting suicide than committing suicide in Taif, Saudi Arabia. All of the participants were at low and medium risk of suicidal intention. The female participants were more frequent to commit suicide than the males. We found that gender and nationality were found significantly associated with the event type.

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