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Research Article

Threads of Vulnerability: A Cross-sectional Study on Factors Associated with Suicide and Self-harm in Pakistan

Shaib Muhammad[1], Rabbiya Ahmad[2], Pushp Lata Rajpoot[3], Rafia Tabassum[4], Muhammad Saleh Khaskheli[4], Jabbar Abbas[5], Razia Sultana[5], Shahida Tabassum[6], and Narendar Kumar[2,7]*

[1]Department of Pharmaceutics, Faculty of Pharmacy, University of Sindh, Jamshoro, Pakistan
[2]Discipline of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia, PulauPinang, Malaysia
[3]Department of Health Education and Promotion, College of Public Health and Tropical Medicine, Jazan University, Jazan, Saudi Arabia
[4]Department of Anesthesiology, SICU & Pain Center, Peoples University of Medical and Health Sciences for Women, Shaheed Benazirabad, Pakistan
[5]Institute of Pharmaceutical Sciences, People University of Medical and Health Sciences for Women, Shaheed Benazirabad, Pakistan
[6]Department of Statistics, The Women University Multan, Pakistan
[7]Department of Pharmacy Practice, Faculty of Pharmacy, University of Sindh, Jamshoro, Pakistan

Corresponding Author:
Narendar Kumar; email:
nkumar.bhojak@usindh.edu.pk

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Abstract

Background: Globally, over a million people commit suicide every year. Although suicide rates are more in high-income countries, many countries do not report suicide cases regularly to the World Health Organization (WHO). Therefore, this study aimed to determine the factor associated with suicide and self-harm in Pakistan.

Method: This cross-sectional study was conducted at Peoples Medical College Hospital (PMCH) in Shaheed Benazirabad, Sindh, Pakistan, from July to December 2019. A total of 131 cases of suicide/self-harm were included using a convenience sampling technique. Data were collected on a predesigned questionnaire consisting of 14 close-ended questions. A chi-square test was used to determine the association between different categorical variables.

Results: The majority of the subjects were males (53.4%), young adults aged between 16 and 30 years (69.5%), single (51.9%), and uneducated (57.3%). More than half (51.9%) of the subjects who attempted suicide or self-harm were unemployed. There was a significant association between education level (χ^2 =13.149, $P = 0.001$) and age groups (χ^2 = 15.554, $P = 0.001$) with health outcomes (suicide or self-harm) only. Moreover, gender (χ^2 = 20.776, $P = 0.004$), marital status (χ^2 = 69.047, $P < 0.001$), level of education (χ^2 = 63.144, $P < 0.001$), age groups (χ^2 = 69.848, $P < 0.001$), and employment status (χ^2 = 28.677, $P = 0.012$) were also associated with the reasons of suicide and self-harm.

Conclusion: Our study concluded that mostly single, unemployed males with low literacy and with marital and family issues are determined as factors associated with a high risk of self-harm and suicide.

Keywords: suicide, self-harm, pesticide, black stone, Pakistan

1. Introduction

Suicide is a fatal act resulting from a deliberate and hostile act by a victim with the intention of causing his/her death [1], and it is considered as a serious global health concern [2]. It is particularly alarming as psychiatrists label it an emerging epidemic [3–6]. On the other hand, self-harm is a nonfatal act of injuring oneself with varied intentions [7]. Globally, it has been estimated that more than 700,000 people commit suicide each year [2]. More than three-fourth of the global suicide cases occurred in low-middle income countries in 2019 and Asian counties, including India, China, and Japan, accounting for about 50% of these cases, making suicide the 13^{th} leading cause of death worldwide [8]. Notably, it was also the fourth leading cause of death among individuals aged 15–29 years in 2019 [2]. Moreover, roughly 57 countries including Pakistan, Indonesia, and Bangladesh, do not report suicide cases regularly to the World Health Organization (WHO). Studies conducted in West and other high-income countries highlighted that mental illness significantly influence suicidal actions [9, 10], whereas in non-Western context, especially, in South Asian culture, interpersonal relationship issues significantly influence suicidal behaviors [11].

Pakistan, with a population of over 200 million, ranked as the fifth most populated country globally [12], has more suicidal rates as compare to the global average [13]. A majority of the population (97%) comprise of Muslims, and 65% of the people live in rural areas [8]. The overall literacy rate is 62.8%, unemployment accounts for 6.3% of the population (12), and 12.4 of the population lives below the poverty line [13]. According to the WHO, in 2019, Pakistan reported 19,331 (14771 males and 4560 females) suicidal cases, estimating around 89 deaths per million population [14]. Moreover, it indicates a significant rise of 2.6% of cases compared to previously reported data in 2000 by the WHO [8, 15]. The major factors of suicide and self-harm in Pakistan are socioeconomic status, lower literacy rate, poverty, and unemployment. Further, the issues that lead to deliberate self-harm in Pakistan are family/domestic issues, domestic violence, gender discrimination, and relationship issues [16, 17].

Organophosphate poisoning (OPP) poses a major public health concern in Asian population, due to easy accessibility in the form of various pesticides. It accounts for 200,000 deaths per year due to poisoning in the region. Although it is frequently associated with suicidal intent, impulsive acts, homicidal, accidental, and various triggering factors are also involved [18].

In Pakistan, suicidal behavior is highly condemned as per Pakistan Panel Code, and the law is derived from Islamic tenants. Under this law, every case of deliberate self-harm must be referred to officially designated medico-legal centers within public sector hospitals [13]. However, the reality contradicts, as individual seeking medical treatment for deliberate self-harm often opt for private hospital to avoid legal implications. Therefore, private hospitals tend to classify these behaviors as accidental to provide alternative medical diagnosis to absolve both the patients and the hospitals. The high cost of treatment often deters patients from seeking further medical treatment following emergency treatment [4, 13]. The mental disorders play a major role in suicide and self-harm and remain unaddressed in Pakistan. The mental well-being in Pakistan is further complexed by multiple factors such as socioeconomic status, cultural values, legal obligations, and religious norms [13].

Research shows that suicide is a severe problem in Pakistan [17]. However, due to the lack of a national vital registration system in Pakistan, the mortality rate due to suicidal behavior remains unattended; as a result, the cases are insufficiently reporting to the WHO [13]. Increasing research in this context over the last few decades has drawn attention to suicide as it is emerging as a severe public health problem. This study aimed to determine the factors associated with suicide and self-harm in Pakistan.

2. Methods

2.1. Study design and setting

A cross-sectional study was conducted at Peoples Medical College Hospital (PMCH) of Shaheed in Benazirabad Sindh, Pakistan. PMCH is a tertiary care hospital affiliated with the Peoples University of Medical and Health Sciences for Women, Shaheed Benazirabad, Sindh, Pakistan. This healthcare facility geographically lies roughly in the center of Sindh province which is the second largest province of Pakistan [13, 19]. The study was carried out between 2019 July and December because during this period maximum cases start to be reported due to seasonal variation [20]. The research was performed and reported according to the guidelines for Strengthening the Reporting of Observational Studies in Epidemiology (STROBE).

2.2. Participants

All patients admitted to various departments of the hospital who attempted suicide and/or engaged in self-harm were enrolled in the study using a convenience sampling technique. However, only the patients or their caregivers who gave consent to participate were included in the study.

2.3. Research instrument

The initial draft of questionnaires was adopted from the studies conducted by the American Association of Poison Control Centers [21] and other published research in various cities of Pakistan [22–25]. After consultation with two academic researchers, specific changes were made to the questionnaire based on the local socioeconomic factors. Healthcare workers who administered the questionnaire underwent a training session. A pilot study was conducted to make necessary changes to the questionnaire, and the data collected during the pilot study were excluded from the final results. The changes in the questionnaire after consultation with academic experts and pilot study included the modification of the category “none” to “uneducated” in the level of education, addition of category “widow” in marital status, and “retired” in employment status. Further, addition of category of social deprivation in reasons of suicide and self-harm, addition of some more poisoning substances, and addition of tracheostomy and ventilator support in hospital management was done. Moreover, the question of referral to any other hospital was also added. The final draft of questionnaire contained 14 close-ended questions divided into three sections: demographic information (six questions), case information (three questions), and medical management (five questions).

2.4. Data collection

A total of 131 cases of suicide and self-harm were reported during the study period. Patients or caregivers were requested to provide honest response to the best of their knowledge. Every patient or caregiver (in case of unconscious patients) gave informed consent before filling out the questionnaire.

2.5. Data analysis

The collected data were coded and analyzed using the SPSS ver. 26.0 (Chicago, USA). Descriptive statistics were applied to determine the frequencies and percentages. The chi-square test was used to determine the association between categorical variables (gender, marital status, level of education, age group, employment status, and month of admission with the type of attempt, reason of attempt, and substance involved. All P-values ≤0.05 were considered statistically significant.

3. Results

3.1. Demographic characteristics

Table 1 shows the demography of the study participants. Data reveals that the majority of the subjects were male (53.4%), young adults aged between 16 and 30 years (69.5%), single (51.9%), and uneducated (57.3%). More than half (51.9%) of the subjects who attempted suicide or self-harm were unemployed. Furthermore, the majority of cases (26.7%) were reported in November, followed by December (21.4%) and September (20.6%), as given in Table 1.

3.2. Reasons and substances involved in the poisoning

Table 2 shows detailed information about suicide and self-harm attempts. It was found that approximately three-fourth of the cases (73.3%) were those who attempted suicide. Family issues were the main reasons for attempting suicide (38.9%) followed by self-harm (26.7%).Moreover, it was discovered that most of the subjects (73.3%) used pesticides for suicide attempts, followed by black stone (16.8%).

3.3. Clinical management of the participants

Regarding the clinical management of the poisoning cases, it was found that a large number of cases were directly coming from the patient's home while the rest were coming from different healthcare facilities. It was found that the patient's arrival at the hospital was very swift; in most cases, patients reached the hospital in 1–2 hr (61.8%), while only 3.1% reached after 24 hr of suicidal or self-harm attempt. Moreover, it was found that about half of the patients were managed by antidote administration and symptomatic treatment (48.1%). Furthermore, it was found that in 74.8% of cases, a specific antidote was available in the healthcare facility. Moreover, none of the cases were referred to other hospital. Of the 131 cases, 54.2% had a moderate injury, while 8.4% died due to suicide or self-harm attempts, as shown in Table 3.

3.4. Association of suicide and self-harm with group variables

Table 4 demonstrates the association of different group variables with: suicide or self-harm; the reason for suicide or self-harm; and the substances involved in suicide and self-harm. There was a significant association between education level ($\chi^2 = 13.149$, $P = 0.001$) and age groups ($\chi^2 = 15.554$, $P = 0.001$) with health outcomes (suicide or self-harm) only. Moreover, gender ($\chi^2 = 20.776$, $P = 0.004$), marital status ($\chi^2 = 69.047$, $P < 0.001$), level of education ($\chi^2 = 63.144$, $P < 0.001$), age groups ($\chi^2 = 69.848$, $P < 0.001$), and employment status ($\chi^2 = 28.677$, $P = 0.012$) were associated with the

Table 1: Demographic characteristics of the participants.

Variable	Characteristic	Frequency (%)
Gender	Male	70 (53.4)
	Female	61 (46.6)
Marital status	Married	63 (48.1)
	Single	68 (51.9)
Level of education	Primary	25 (19.1)
	Secondary	31 (23.7)
	Uneducated	75 (57.3)
Age group (yr)	1–15	16 (12.2)
	16–30	91 (69.5)
	31–45	12 (9.2)
	>46	12 (9.2)
Employment status	Full-time	27 (20.6)
	Part-time	36 (27.5)
	Unemployed	68 (51.9)
Month of admission	July	13 (9.9)
	August	6 (4.6)
	September	27 (20.6)
	October	22 (16.8)
	November	35 (26.7)
	December	28 (21.4)

reasons of suicide and self-harm. Additionally, only gender had a significant association ($\chi^2 = 16.045$, *P = 0.025*) with substances involved in suicide and self-harm.

3.5. Association of survival outcomes with group variables

Table 5 depicts the association of health outcomes (survived or dead) among different variables. Eight out of fifty-three females (15.1%) died due to poisoning. Furthermore, there was a significant association between survival outcomes within age groups (*P = 0.006*), the intention of poisoning (*P = 0.036*), and treatment provided in the hospital (*P < 0.001*).

4. Discussion

Due to the financial crisis, Pakistan is on the brink of economic breakdown. These financial difficulties put pressure on the general population as it burdens the low-income population [17, 26, 27]. Local customs such as forced marriages simultaneously create miseries for the people living in the rural areas [28]. The current study revealed that suicide and self-harm were slightly more prevalent in males (53.4%) compared to females (46.6%), which shows a similar rate as a study conducted in Pakistan in 2023 [13]. However, another study in Pakistan found that self-harm behavior was more prevalent in females because of lower literacy, unemployment, and financial difficulties [17, 29]. Furthermore, it was found that 51.9% of cases were single, and 48.1%

Table 2: Description of reasons and substances involved in the poisoning.

Variable	Characteristic	Frequency (%)
Intention of poisoning	Self-harm	35 (26.7)
	Suicidal	96 (73.3)
Reasons for suicide and self-harm	Depression	1 (0.8)
	Family issues	51 (38.9)
	Financial issues	1 (0.8)
	Marital issues	35 (26.7)
	Psychiatric	11 (8.4)
	Relationship issues before marriage	13 (9.9)
	Social deprivation	4 (3.1)
	Other	15 (11.5)
Substances involved	Acid	4 (3.1)
	Anti-lice shampoo	1 (0.8)
	Black stone	22 (16.8)
	Detergent	1 (0.8)
	Kerosene oil	1 (0.8)
	Pesticide	96 (73.3)
	Rodenticide	2 (1.5)
	Sedative	4 (3.1)

were married, which was a rate similar to that found in Khadem *et al.*'s study in Iran [30]. The results show that the rate of suicide and self-harm is almost the same among both genders and marital statuses. This is probably because of the forced marriages in society, which results in rage before marriage and misunderstandings afterward, leading to suicide and self-harm to avert these uncomfortable situations [31]. Although studies show that marriages lead to social integration and decreased risk of suicide, divorce on the other hand can increase the chances for the same. The age of the marriage also plays a very important role in these behaviors. In Pakistan, early childhood marriage is prevalent as compared to Western countries where there is a proper legal structure for divorce and property [32]. In Pakistan, there is also an association of marital adjustment and marital satisfaction with suicide and self-harm [13]. Moreover, it was observed in this study that the most affected age group was young adults in the range of 16–30 years, with more than two-third majority (69.5%), which is the most affected group worldwide [33]. The most common factor in south Asian countries is early marriage in most cases, which results in social and financial pressure on individuals that cannot be sustained by many [31]. The current study did not find the prevalence of elderly in suicide and self-harm. This may be due to the joint family system in Pakistan which provides greater care and support to elderly and may be a protective factor [13].

Moreover, it was also found that most cases were uneducated (57.3%) and unemployed (51.9%). From the current study, the relationship between the lack of education and self-poisoning to commit suicide has been observed statistically, which links a patient's education status with poisoning. A similar relationship was also found in a study conducted in Iran. In the same study, it was

Table 3: Clinical management of the participants.

Variable	Characteristic	Frequency (%)
Referral from	Patient's home	52 (39.7)
	Basic healthcare unit	11 (8.4)
	Rural healthcare unit	8 (6.1)
	Taluka hospital	50 (38.2)
	District hospital	10 (7.6)
Exposure to reporting time (hr)	1–2	81 (61.8)
	3–6	39 (29.8)
	7–24	7 (5.3)
	≥24	4 (3.1)
Hospital management	Symptomatic	17 (13.0)
	Symptomatic and ventilator	11 (8.4)
	Symptomatic and antidote	63 (48.1)
	Symptomatic, ventilator, and antidote	28 (21.4)
	Symptomatic, ventilator, and tracheostomy	5 (3.8)
	Symptomatic, ventilator, antidote, and tracheostomy	7 (5.3)
Antidote availability	No	33 (25.2)
	Yes	98 (74.8)
Medical outcome	Minor injury	24 (18.3)
	Moderate injury	71 (54.2)
	Major trauma	25 (19.1)
	Death	11 (8.4)

found that the majority of the participants were unemployed, and the poisoning was majorly intentional [13]. Unemployment and lower educational level, concerning social disadvantage, are associated with most suicidal attempt cases [16]. As the current study as well as the previous literature shows that unemployment is one of the factors that play role in suicide and self-harm [17, 29], the government and relevant institutions should take concrete measures to increase literacy rate and employment. Relaxing the pressure to earn money, developing careers, strengthening family support, and maintaining relationships will prevent hopelessness and result into decrease in deliberate self-harm.

The factors responsible for attempted suicide are poverty, chronic stress, psychiatric and medical co-morbidity, hospitalization, and repeated suicide attempts, all of which have adverse long-term consequences [33]. Studies have shown that in Western industrialized countries, mental disorders and in south Asian cultures like Pakistan (non-Western countries), primarily interpersonal relationship problems based on family issues appear to play a role in the attempted suicidal behavior [8, 13]. Some studies in Pakistan show that interpersonal and relationship problems and mental disorders such as depression, schizophrenia, alcoholism, and drug abuse are significant factors in suicide [35]. While the current study also showed a similar pattern. It was found in this study that the reason for

Table 4: Association of suicide and self-harm, its reasons and substance involved with various group variables.

Variable	Characteristic	Frequency (%)	Suicide and self-harm		Reason of suicide and self-harm		Substances involved in suicide and self-harm	
			χ^2	P-value	χ^2	P-value	χ^2	P-value
Gender	Male	70 (53.4)	0.827	0.363	20.776	**0.004**	16.045	**0.025**
	Female	61 (46.6)						
Marital status	Married	63 (48.1)	2.203	0.130	69.047	<**0.001**	6.922	0.437
	Single	68 (51.9)						
Level of education	Primary	25 (19.1)	13.149	**0.001**	63.144	<**0.001**	20.591	0.113
	Secondary	31 (23.7)						
	Uneducated	75 (57.3)						
Age group	1- 15 years	16 (12.2)	15.554	**0.001**	69.848	<**0.001**	21.811	0.410
	16-30 years	91 (69.5)						
	31-45 years	12 (9.2)						
	Over 46 years	12 (9.2)						
Employment status	Full time	27 (20.6)	2.443	0.295	28.677	**0.012**	19.485	0.147
	Part time	36 (27.5)						
	Unemployed	68 (51.9)						

suicide and self-harm in the majority of cases were family (38.9%), marital (26.7%), and pre-marriage relationship issues (9.9%). However, 8.4% of patients had psychiatric problems. Family, marital, and interpersonal relationship issues are playing a major contribution to suicide and self-harm and one of the major factors which contributes to these issues is the mental health of a person [17, 38]. Pakistani society has stigma associated with mental health problem which leads to persons suffering in silence rather than calling for help. This is also evidenced by the underreporting of mental health issue in previous studies [13] as well as in this study as only 9.2% mental health issues were reported. Effective steps should be taken through education and literacy so that people can speak up their mind and better handle the routine problems of life.

Research shows that substances involved in suicide and self-harm in developed countries include opioid overdoses, tricyclic anti-depressants, benzodiazepines, and illegal drugs such as cocaine and amphetamine [39]. However, common substances used in developing countries including Pakistan over the last few decades are mainly agricultural pesticides [17]. However, this study indicated that 73.3% of cases used pesticides, while 16.8% and 3.1% used black stone and sedatives, respectively. In rural areas of low- to middle-income countries (LMIC), the most commonly used poisonous substances are pesticides (aluminum phosphide, carbonate, organophosphate, paraquat, and organochlorine) due to their easy availability and as they are highly dangerous with high mortality rates. On the contrary, medicines are the most common poison in urban areas, having fewer mortality rates and not very harmful [22].

A review has been conducted to explore causes, leading factors, and other suicidal cases determined in Pakistan, and firearm, poison ingestion,

Table 5: Association of survival outcome with various group variables.

Variables	Characteristic	N (%)	Survivors	Non-survivors	P-value
Gender	Male	70 (53.4)	67	3	0.069
	Female	61 (46.6)	53	8	
Marital status	Married	63 (48.1)	64	7	0.281
	Single	68 (51.9)	56	4	
Level of education	Primary	25 (19.1)	25	0	0.202
	Secondary	31 (23.7)	27	4	
	Uneducated	75 (57.3)	68	7	
Age group (yr)	1–15	16 (12.2)	16	0	**0.006**
	16–30	91 (69.5)	84	7	
	31–45	12 (9.2)	12	0	
	≥46	12 (9.2)	8	4	
Intention of attempt	Suicide	96 (73.2)	85	11	**0.036**
	Self-harm	35 (26.7)	35	0	
Employment status	Full time	27 (20.6)	27	0	
	Part time	36 (27.5)	33	3	0.176
	Unemployed	68 (51.9)	60	8	
Substance involved	Acid	4 (3.1)	4	0	0.961
	Anti-lice shampoo	1 (0.8)	1	0	
	Black stone	22 (16.8)	19	3	
	Detergent	1 (0.8)	1	0	
	Kerosene oil	1 (0.8)	1	0	
	Pesticide	96 (73.3)	88	8	
	Rodenticide	2 (1.5)	2	0	
	Sedative	4 (3.1)	4	0	
Hospital management	Symptomatic	17 (13.0)	17	0	<**0.001**
	Symptomatic and ventilator	11 (8.4)	8	3	
	Symptomatic and antidote	63 (48.1)	62	1	
	Symptomatic, ventilator, and antidote	28 (21.4)	28	0	
	Symptomatic, ventilator, and tracheostomy	5 (3.8)	5	0	
	Symptomatic, ventilator, antidote, and tracheostomy	7 (5.3)	0	7	

and hanging were observed as the three most common ways of suicide in Pakistan. On the other hand, medicines (psychotropic or analgesics) were not commonly used for suicide, although such medications are readily available as over-the-counter medicine [8]. In the current study, it has also been observed that most subjects (73.3%) used pesticides for suicide attempts, followed by

black stone (16.8%). As insecticides and pesticides (containing organophosphate compounds) are readily available in many household and agricultural products in urban and rural areas, most victims use them for poisoning. Pakistan being an agriculture-based country, pesticides are readily available in rural areas [40]. Whereas black stone is commonly used by poor populations for hair dyeing as it is very cheap and can be easily purchased from any shop [24]. The government should make strict regulations on the sale and purchase of substances frequently used in suicide and self-harm [41].

It is observed that the early recognition and proper management of poisoned patients have significantly improved during the treatment. In contrast, the delay in recognition and suboptimal management increased morbidity and mortality [42]. This study found that many cases directly came from the patient's home while the rest were from different healthcare facilities. This may be because of the unavailability of proper healthcare facilities in the rural area, and patients were directly shifted to tertiary care hospitals, which may have increased transit time. It was also found that the patient's arrival time at the hospital was 1-2 hr (61.8%). The arrival delay may be due to damaged roads and infrastructure and the unavailability of ambulance services in rural areas. Furthermore, a sufficient budget should be placed to develop the healthcare infrastructure in rural areas [27]. Special consideration should also be given to establishing Poison Control Centers for better handling and managing poisoned patients [43].

The availability of specific antidotes can reduce the rate of mortality, morbidity, hospitalization, and medical interventions. Antidotes are the necessary lifesaving pharmaceuticals for countries with a high rate of poisoning cases [44]. This study observed that the antidotes were present in 74.8% of cases. This is a very positive indication, however, the more readily available antidotes should be assured [45].

Factors relating to outcomes of suicide and self-harm were described based on the studies conducted in Pakistan and India. In this study, after evaluating poisoning exposure, outcomes of the patients were categorized into four levels; (1) minor injury if the patients were discharged after giving treatment in an emergency department; (2) moderate injury if the patients were admitted to wards; (3) major injury, if patients were admitted in ICU; and (4) death, for patients who did not survive [46]. Results revealed that the majority of the patients had moderate injury (64.6%), and the respective percentages for major injury, minor injury, and death cases were 17.5%, 12.5%, and 5.3%. Studies conducted earlier in Pakistan also showed similar results [22]. Although there was a recovery in most of the situations and patients were having a moderate injury, better handling and management of patients can decrease the harm caused by the poison [42].

This study was conducted in Shaheed Benazirabad, Sindh, Pakistan, so the results cannot be generalized for other cities of Pakistan and cannot represent suicide and self-harm in other regions. The study may not show the whole burden of suicide and self-harm in the country. The prevalence, reasons, and causes may vary from one area to the other as well. The bias due to convenience sampling include that our sample did not include the cases of suicide and self-harm that were not reported to the center of study and may have got proper treatment at primary and secondary healthcare facilities or died before reaching to the center of this study. This study also did not have any control group with suicide and self-harm to compare the results

with. Moreover, the study only included persons using poisons for suicide and self-harm showing the underrepresentation of other lethal forms that are used in cases of suicide and self-harm. The answers of the respondents may also be biased as in south Asian societies, mental health issues are stigmatized, and many other cases of intentional poising cases may be reported as unintentional poisoning during the study period. There may also be bias in the time of exposure and arrival at the hospital as it depends upon the memory of the person. However, because of conveyance sampling, it was possible to carry out a prospective study for six months with limited resources, funding, and staff. A comprehensive study was not previously conducted in this region of Pakistan and is rarely carried out in other regions of the world. Such studies should also be conducted in other cities of Pakistan and other regions of the world to determine what forces the masses to go for suicide or self-harm.

Properly identifying, accurately assessing, and providing evidence-based treatment to manage suicide and self-harm will lead to decreased injuries due to suicide and self-harm. The demographical, psychological, and legislative needs highlighted in this study are very important and identifies factors which can decrease suicide and self-harm. Changes in the pattern found in this study and factors which are consistent with previous studies suggest that this population is at much higher risk of suicide and self-harm if the precautionary measures are not taken. This study will inform government and non-government organizations to take necessary measures to control suicide and self-harm and their management in the hospitals of the reported area for the vulnerable groups. Although suicide is a punishable offence as per Pakistan Penal Code, none of the cases in this study was reported as medicolegal case [13]. Furthermore, The Mental Health Act of 2001 states that if a person attempts suicide, he/she should be assessed by psychiatrist for mental disorder [13]. However, the implementation of both laws are not observed in Pakistan. Further, a detailed assessment of the poisoning in other regions of Pakistan should be carried out to understand the pattern and causes of poisoning. This can save many lives. Pakistan lacks a proper surveillance system for reporting and management of poisoning cases. Literature suggests that Pakistan is unable to annually report the number of suicide and self-harm cases [13]. Therefore, a centralized surveillance system through Poisoning Control Centers, regulatory and law enforcement agencies should be established for reporting and management of cases of suicide and self-harm.

5. Conclusion

Suicide and self-harm cause morbidity and mortality among Pakistan's young adults, resulting in lower life expectancy. Our study concluded that mostly single unemployed males with low literacy and marital and family issues are associated with a high risk of self-harm and suicide.

The emerging and ongoing threats, such as the COVID-19 pandemic, global recession, and climate change, will affect suicide and self-harm. Aging population, data, new technologies, and suicide prevention in LMICs are additional challenges. Future research might best focus on intervention in settings where our understanding is poor. Health services should aim to implement what is known and provide high-quality care for every patient with suicidal behavior. Future research should identify methods of reducing suicide and self-harm in

the population of Pakistan, particularly those with these additional prognostic factors.

Declarations

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Ethical Considerations

Ethical permission to conduct the study was taken from the Ethical Review Committee of PMCH (Ref. No. PMCHN (SBA)/20486/90). A written consent was obtained from all the participants before enrolling them in the study. The confidentiality of participants was strictly maintained throughout the research process.

Competing Interests

The authors declare no competing interests.

Availability of Data and Material

The data will be provided upon reasonable request.

Funding

The authors received no funding for this research.

Abbreviations and Symbols

WHO: World Health Organization

PMCH: Peoples Medical College Hospital

OPP: Organophosphate poisoning

STROBE: Strengthening the Reporting of Observational Studies in Epidemiology

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