

Suicide Committing Trend According to Emergency Unit Records of Shahid Mohammadi Hospital in Bandar Abbas

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Abstract

Background: Suicide is a mental health problem. According to the world health organization report, it is the third leading cause of death in people aged 15–29 years. **Materials and Methods:** This descriptive study included 666 suicide cases who referred to the emergency unit of Shahid Mohammadi Hospital of Bandar Abbas, Iran during 2008-2014. The required data were analyzed with chi-square and one-way ANOVA tests in SPSS ver. 17.0. **Result:** The highest average age of those who committed suicide was that of the period 2008-2009, and this average age declined during 2010-2013. The suicide rate was significantly higher in men during 2008-2010, whereas the number of women was considerably larger in the three next years. There were not significantly different regarding marital status. It was higher among singles compared to married and divorced persons. Suicide rates were higher among the unemployed compared to the employed and housewives. **Conclusion:** Rate of suicide was higher at the age of 16-32-years, and in females, singles, unemployed, and urbanites. **Keywords:** Suicide Attempt, Trend, Bandar Abbas

Introduction

Suicide is a dilemma in mental health. Based on the World Health Organization (WHO) statistics, it is the third most common cause of death among people aged 15-44 years (1). Although the topic of suicide has attracted greater interest in developed countries, yet there are limited statistics in developing countries and no statistics in more than 50% of the countries in the world on suicide. Suicide rates during the last decade of the past millennium were widely different among countries that report suicide statistics to the WHO. The highest rates were those of the Eastern European countries, whereas the low suicide rates were mainly reported from Latin American and some Asian countries. There was a 24-fold difference between Lithuania and the Philippines with the highest and lowest suicide rates, respectively (2). A comparative study of suicide statistics in 29 provinces of Iran (not including Tehran) indicated that Lorestan, Ilam, and Kermanshah, all located at western of Iran, with 24.4, 19.8, and 14.0 and Ghom with 0.4 per 100,000 people had the highest and lowest suicide rates in the

country, respectively. Furthermore, Ilam, Lorestan, and Bushehr had the highest rate of suicide by self-immolation, Hamadan and Kermanshah the highest suicide rate by taking drugs and opium, and Gilan, Kermanshah, and Kerman the highest suicide rate by taking chemical poisons. Finally, the low age of people who committed suicide in all 29 provinces was of great importance (3). Based on 1998 statistics, global suicide rates among males and females were 9.26 and 8.2 per 100,000, respectively. Whereas according to statistics published by the Iranian Legal Medicine Organization (ILMO), the corresponding suicide rates in Iran in 2001 were 5.7 and 3.1 per 100,000, respectively (4). One of the very important aspects of studies on age and gender groups in suicide is to determine the suicide methods that each gender usually selects. For example, research in England in 2003 showed that suicide by hanging (46.1%) and by taking drugs (43.9%) were the most important methods among males and females, respectively. This indicated that English females used violent suicide methods such as hanging less than males done and preferred to take drugs. Use of more violent suicide methods among

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males compared to females has been reported in most countries (5). However, according to 2001 statistics published by ILMO, the most common methods used for committing suicide in Iran were hanging (56.5%) in males and self-immolation (62.39%) in females (6). Since suicide attempt is one of the most important issues in the field of mental health; and it may be related to factors predicting the high-risk population, better knowledge of these risk factors and the introduction of solutions for initial prevention can reduce suicide rates of both psychiatric and general population. The present research attempted to study suicide trend (changes in suicide rate based on demographic variables during a spectrum of time) in people referred to the emergency unit of Shahid Mohammadi Hospital in Bandar Abbas during 2008-2013.

Materials and Methods

This descriptive study was conducted during 2008-2013 based on cases of people who committed suicide or suicide attempt and were hospitalized at this hospital during the mentioned period simple sampling method was used, and data was collected using a researcher-made checklist, which was validated by one psychiatrist and one clinical psychologist. The checklist contained demographic characteristics (such as age, marital status, education level, job, place of residence, time of committing suicide, etc.) of the people taken from their files. Chi-square and one-way ANOVA tests employed to analyze the data using SPSS ver. 17.0.

Result

Six-hundred and sixty-six people who attempted to suicide during 2008-2013 and were referred to Shahid Mohammadi Hospital were studied. Suicide trends were investigated based on age, gender, marital status, place of residence (rural or urban), suicide method, and time of committing suicide (Table-1). Comparison of the suicide rates during the mentioned period by using the chi-square test revealed that the suicide rates during this period were significantly different

with respect to gender. These results are listed in Table 2. Results indicate that suicide rate was higher in female individuals (51.65% in females vs. 48.34% in males), while rate of suicide was significantly different between two periods of time (more males committed suicide than females during 2008-2010, whereas more females committed suicide than males during 2011-2013) ($X^2=12.64$, $P=0.02$). One-way ANOVA was used to compare the average ages of people who committed suicide during 2008-2013 (Table-3). According to the results the highest average age of those who committed suicide was that of the period 2008-2009, and this average age declined in 2010, 2011, 2012, and 2013, respectively. There was a significant difference between the mean ages of participants during those years ($F=2.37$, $P=0.037$). Suicide rate based on marital status presented in Table 4. The chi-square test revealed that the suicide rates were not significantly different with respect to marital status during 2008-2013. Results indicated that the suicide rate was higher among singles compared to married and divorced persons ($X^2=15.5$, $P=0.11$). The suicide rates were significantly different with respect to employment status during 2008-2013. For all years during this period suicide rates were higher among the unemployed compared to the employed and housewives (with the highest difference that of the year 2013) ($X^2=22.50$, $P=0.01$). Considering the place of residence (rural/urban) variable, results revealed 535 (87.8%) cases lived in cities and 81 (12.2%) in villages. The chi-square test showed that the suicide rates were not significantly different with respect to the place of residence during 2008-2013 ($P=0.12$). The suicide rates in urban areas were higher than rural areas for all years during 2008-2013 (with the highest difference that of the year 2010). The highest number of suicide cases happened during two months (late December to late January with 74 and late January to late February with 75 cases, respectively). The chi-square test revealed that the years of this period were significantly different with respect to the months with the highest suicide rates. The highest suicide rates during 2008-2012 happened in the two months mentioned above, whereas another month (late May-late June) had the highest suicide rate in 2013 ($X^2=74$, $P=0.04$). Among four methods of suicide (drug poisoning, self-immolation, self-harm, hanging), Chi-square test indicated that methods of suicide were not significantly different during 2008-2013, and use of drugs was the most frequently used method for all the years in this period ($X^2=21.43$, $P=0.37$).

Discussion

Suicide is the act of deliberately killing oneself (2). According to WHO estimates, there were more than 850,000 cases of suicide (with cases of suicide attempt 10-20 times higher) in the world in 2000, but

Table 1. Suicide rates in the various years of the period 2008-2013 according to emergency unit records of Shahid Mohammadi Hospital

Year	Number
2008	35
2009	62
2010	140
2011	147
2012	160
2013	121
Total	666

in 2020 there will be about 1,530,000 cases of suicide (with cases of suicide attempt 10-20 times higher). This means that in 2020 there will be one case of suicide and one of suicide attempt every 20 minutes and every 1-2 seconds, respectively (7). Based on estimates made in 2000, the WHO announced that death by suicide was the 25th cause of death in the Eastern Mediterranean Region, the 7th in the European Region, the 42nd in the Africa Region, the 21st in the Region of the Americas, the 16th in the South-East Asia Region, and the 8th in the Western Pacific Region. A closer look at death statistics in the Eastern Mediterranean Region (which in 2000 included the 22 countries of Cyprus, Kuwait, Qatar, the United Arab Emirates, Afghan-

istan, Bahrain, Djibouti, Egypt, Iraq, the Islamic Republic of Iran, etc.) yields an interesting suicide pattern. In the present research, data from 666 people who attempted suicide during 2008-2013 were referred to the Shahid Mohammadi Hospital were evaluated. The highest suicide rate in this period was that of 2012. The largest number of suicide attempts during 2008-2013, which was significantly higher than those of the other age groups, was by 16-32 years-old. In the study by Khajeh et al., the highest number of suicide cases, 89.2% of the total, was committed by 15-34 years-old (8). Poor et al. showed in their research that most of those who attempted suicide were in the 16-25 years age group, and their results

Table 2. Suicide rate based on gender during the 2008-2013 period according to emergency unit records of Shahid Mohammadi Hospital

Year	Males n (%)	Females n (%)	Total n (%)	df	X ²	P-value
2008	24 (3.60)	13 (19.5)	37 (5.55)	5	12.64	0.02
2009	31 (4.66)	30 (4.50)	61 (16)			
2010	80 (12.01)	6 (9.02)	140 (21.03)			
2011	65 (9.76)	82 (12.31)	147 (22.07)			
2012	72 (10.81)	88 (13.21)	160 (24.02)			
2013	50 (7.50)	71 (10.67)	121 (18.17)			
Total	322 (48.34)	344 (51.65)	666 (100)			

Table 3. Suicide rate based on the average of age during 2008-2013 according to emergency unit records of Shahid Mohammadi Hospital

Year	Minimum	Maximum	Mean	SD	df	F	P-value
2008	14	55	26.32	9.46	5	2.37	0.037
2009	15	65	26.75	10.96			
2010	14	47	24.60	7.79			
2011	9	65	23.59	8.65			
2012	13	52	23.09	7.72			
2013	13	77	25.2	10.46			
Total	9	77	24.42	8.89			

Table 4: Suicide rate based on marital status during 2008-2013 according to emergency unit records of Shahid Mohammadi Hospital

Year	Single n (%)	Married n (%)	Divorced n (%)	Total n (%)	X ²	Df	P-value
					0.11	10	0.11
2008	22 (3.30)	14 (37.80)	11 (2.7)	37 (5.56)	0.11	10	0.11
2009	35 (5.26)	26 (42.60)	0	61 (9.16)			
2010	84 (12.61)	56 (40.00)	0	140 (21.02)			
2011	79 (11.86)	68 (46.30)	0	147 (22.07)			
2012	107 (16.07)	53 (33.10)	0	160 (24.02)			
2013	71 (10.66)	49 (40.50)	1 (0.80)	121 (18.17)			
Total	398 (59.76)	266 (39.90)	2 (0.03)	666 (100)			

were in agreement with those of the present one (20).

The present study indicates that generally, suicide rate was more in female than males. Our findings are in concordance with most studies in this field. In the research by Khajeh et al., 63.3% of those who committed suicide were females and the rest males (19), whereas Poor et al. reported that 35% of those who committed suicide were males and the rest females (9). Jimenez-Trevino et al. showed that males and females accounted for 39% and 61% of suicide cases (10) and in the study conducted by Qari et al., it was found that 64.8% of the people who attempted suicide were females and the rest males (11). In the present research, more single persons committed suicide than married or divorced ones during 2008-2013. The present study indicated that marriage could be a factor protecting people against suicide, and is in line with research by Jimenez-Trevino et al. (21) and by Heidari et al. (12). The first study was conducted in 2011 by Luis Jimenez-Trevino et al. in Spain with the aim of investigating the rate of suicide attempt. All suicide attempters entering the hospital in De asturias in 2008-2009 were enrolled. A total of 308 suicides were committed, of which 39% were men and 61% were women. The researchers concluded that divorced and separated individuals were more at risk. According to the findings of another study which conducted among 106 cases (49.1% male and 50.9% female) with a mean age of 24.8 ± 8.4 years, the prevalence of suicidal risk factors was 63.2% in single individuals. The present study observed that suicide rates among the unemployed during 2008-2013 were higher compared to the employed and housewives. This difference increased during these six years, and 50.4 percent of those who committed suicide in 2013 were unemployed. This result is concordance with that of National Longitudinal Mortality Study, based on the 1979-1989 follow-up. Results from this study showed unemployment could strongly predict suicide in both sex (13).

A case-control study with 3,195 cases of suicide and 90,063 healthy people as the control group was conducted to investigate the relationship between suicide and jobs and socio-economic factors. The information on causes of death, jobs, history of hospitalization in psychiatric hospitals, marital status, and socioeconomic factors was obtained from recorded personal particulars. Of the 55 studied jobs, the risk for suicide varied from 0.44 among architects, engineers, and elementary school teachers to 2.7 among physicians. The high risk of suicide caused by socio-economic features of people in various jobs could be explained except for physicians and nurses. In most cases, physicians and nurses took drugs to commit suicide due to their greater knowledge of drugs. However, jobs had a weak relationship with suicide among people suffering from psychiatric illnesses (except for physicians) (14). Another study was carried out in England and Wales on the relationship between jobs and suicide during

2001-2005. Data on recorded mortality cases in England and Wales was used to calculate the premature mortality rate (PMR) and standardized mortality rate (SMR) for 20-64 years old males and females based on their jobs. Results showed that the highest suicide rates among males belonged to construction and machinery workers, followed by health specialists and agricultural workers with PMRs of 164 and 133, respectively. As for females, the highest suicide rates were observed among office workers and secretaries, whereas health personnel and those with sports and body fitness jobs had PMRs of 232 and 244, respectively (15). The great majority of people who committed suicide in the present study (87.8%) were urban citizens, and only 12.2% lived in villages. These results agree with those found by Yousefi et al. in their study. They noticed that 89.7% of those who committed suicide lived in cities and 10.3% in villages. Results of the present research demonstrated that the largest number of suicide cases happened in winter and autumn. Yousefi et al. also reported in their research that suicide rates were highest in winter (16) whereas Khajeh et al. noticed most suicide cases happened in summer (and in the last month of summer). In the study by Poor et al., one-third of suicide cases occurred in the spring, and summer had the second highest suicide rate. Yousefi et al. also reported in their research that most suicide cases happened in spring and summer (25). In research carried out in Iran, most suicide cases occurred in spring and summer, and researchers offered two hypotheses to justify the effect of seasons on suicide scientifically. The first hypothesis, a socio-demographic one, states that people's social relationships increase with the beginning of the warm season, and such relationships increase the mental pressure felt by people who cannot establish these relationships and, therefore, they commit suicide. The second hypothesis, a biometeorological one, expresses the idea that both temperature and daytime hours increase with the beginning of spring, and these important changes in the environment raise melatonin and cholesterol levels (and especially change the serotonin pathway) in people. These bodily changes enhance access to brain cells to serum tryptophan, which makes suicide more likely (86). The higher suicide rate in winter in the present research may be because weather conditions in the study area are different from those in the other parts of Iran: weather conditions in the study area in winter is similar to those of spring in the other parts of the country. A high percentage (88.7%) of the 666 people who attempted suicide in the present study used drugs. In research by Khajeh et al., it was found that the most common suicide methods were taking pills (77.7%), hanging (8.8%), and taking poison (8.3%) (19). Yousefi et al. reported that 87.8% of those who committed suicide took drugs. The reason why taking pills is the most common suicide method could be that these drugs are easily ac-

cessible at home, parents are careless in keeping, and there is a large number of unused drugs at home. This problem can be largely solved by raising public awareness so that these drugs are not easily accessible at home. Necessary warnings can be issued regarding drugs, their unsuitable prescription, and their storage at home. In general, the findings of the present research are in agreement with the statistics published by the WHO in 2010 (17) conducted in 2001–2007 in which 108,705 adults from 21 countries were evaluated for suicidal behaviors across demographic and psychosocial risk factors. Results showed Risk factors for suicidal behaviors in both developed and developing countries include: female sex, younger age, lower education and income, unmarried status, unemployment. Results of the present study showed that suicide attempts were more common among the females, youth, singles who are unemployed, and urban citizens, it occurred more frequently in winter and autumn, and the most prevalent suicide method was taking pills. Use of information in the archives of a hospital can be pointed out as one of the limitations of this study that could lead to obtaining biased results. We suggest that such studies continue in future, suicide trends are investigated in various areas, and people with multiple suicide attempts or those with a history of neurological and mental illnesses be included in research and their illnesses be recorded in the files and taken account in the studies.

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Conflict of interest

None

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