A CROSS-SECTIONAL RETROSPECTIVE STUDY ON SUICIDAL ATTEMPTS IN A MEDICAL COLLEGE HOSPITAL

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ABSTRACT

BACKGROUND

The heterogenic nature of suicide and suicidal attempts, in prevalence, age distribution, sex distribution, mode of attempt, cause of attempt, psychiatric morbidity, is a well-recognized fact in recent literatures. Analysing those factors at regional and local levels to plan accordingly for prevention strategies is also an advocated strategy world over. This observational study on suicidal attempt was conducted in an attempt to report from our tertiary care institution. This study was planned to assess the case burden, age and sex distribution, modes of attempt, course and outcome, psychiatric referrals and opinions of suicidal attempts in a medical college hospital.

METHODS

This cross-sectional retrospective study was conducted at Government Dharmapuri Medical College Hospital. Case records of all suicidal attempts from January to March 2018 were taken up for study. The case records were analysed at medical records office. Information on demographic factors modes of attempt, course and outcome, psychiatric referrals were observed. Statistical analysis was done as necessary.

RESULTS

627 cases have been admitted for suicidal attempts during the study period. Self-poisoning alone accounted for 21% of admissions in General Medicine Department. Majority of (45%) cases were in 20-30 years age group. Gender neutrality was observed overall. In age specific groups, females dominated in 13 to 19 years age group, males dominated in 41 to 60 years age group. 85% of the cases were reported from rural area. 69% female patients were married. 39% of cases had attempted with pesticide poisoning. 46% of cases have been referred for psychiatric consultation. Diagnosable mental disorders have been observed in 33% of referred cases. 7 to 10 % have ended up with fatal outcome. 55% of fatal outcomes were because of pesticide poisoning.

CONCLUSIONS

Age specific, issue based, regular, periodic, school and community based suicidal prevention programs would be helpful in reducing suicidal behaviours.

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BACKGROUND

Suicide is intentional ending of one's own life. Suicidal attempts are intentional acts of self- injury (or) self - poisoning which may or may not have fatal intent or outcome. Suicide and suicidal attempts are projected to be a growing burden on global health care in coming decades. WHO receives reports on suicide through vital registration system from member states. As reports on suicide itself is lagging behind globally, findings and observations on suicidal attempts are being analysed from data published in scientific literatures.

Based on WHO report it is estimated that one million people die of suicide throughout the world at the rate of 16.7 per 1,00,000 persons per year. Suicide is the 14th leading cause of death worldwide and second leading cause of death in 15 to 29 years age group.[1] Based on the reports from Centers for Disease Control, United States, it is stated that there are roughly 25 suicidal attempts tend to occur for one suicide and for the age group 15-24 years approximately 100 to 200 suicidal attempts for each suicide.[2]

In western countries male predominance and more mental disorder (90-95%) have been reported on suicide. But in Asian countries like India, China less sex differences, less mental disorders (60%) have been reported on suicide.[3]

Suicidal attempts are observed to be strongly associated with younger age, female sex, low education, unemployment. Again, marital status, and frequency of mental disorders, and causes of attempts have been observed to vary between countries and communities.[4]

The two constant observations in many literatures are i) prevalence of suicidal behaviour high in the 15-29 age group and ii) pesticide poisoning as the leading cause of suicidal deaths globally.

One of the interesting observations of a systematic review by Matthew K. Nock et al states that the differences between the countries and within countries are stable over

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time and it advocates to elucidate for those stable different determinants. Suicidal attempts in the family and community begets more suicidal attempts and suicides in the upcoming generations both at family and community level. Thus, identifying the risks and reasons for suicidal attempts is a need of the family and community to protect the human lives. To plan at local level and to compare at global level this institutional based study was carried out at our medical college hospital.

METHODS

This study was planned to analyse three months case records of suicidal attempts at Government Dharmapuri Medical College hospital, Dharmapuri, a peripheral district in Tamilnadu State. It is the nearest tertiary care centre for two other rural districts. This study was approved by the ethical committee of our institution. Case records were analysed at Medical records office of our medical college hospital. Among the Medico-legal case records self-injury and self-poisoning case records from January to March 2018 were taken up for study. Information on demographic factors, modes of attempt, duration of stay, course and outcome, psychiatric referral and opinions, modes of discharge were observed from all case records. Data entered in a self - designed proforma, results were analysed and expressed in percentages and proportions. Statistical analyses done at needed places. 'P' values calculated by using non - parametric chi-square test.

RESULTS

Within those three months study period, a total number of 627 suicidal attempts have been registered in our Hospital. This study population expanded from 9 years old female child with OPC poisoning to 85 years old male with attempted hanging.

After excluding burns and cut - injury cases, self-poisoning alone accounted for 21% (609) of total admissions (2948) in the general medicine department during these three months study period.

Among the total cases 52% were represented by males and 48% were represented by females. Majority (45%) of cases were from 20-30 years age group. Gender difference was not significant in both overall and predominant age group population. In age specific groups, females have shown significant predominance in 13 to 19 years and males have shown predominance in 41 to 60 years age group (Table 1).

Among the female population 69% were married, 17% were between 10-18 yrs. age and one female child was 9 years old. Marital status of other female cases could not be ascertained from case records. Likewise, marital status of men also could not be ascertained as they have father's name in their address entry.

Our medical college being located in rural district and catering medical care to nearby two rural districts most of the patients (85%) were from rural villages and 10% were from semi - urban taluk headquarters area and 5% were from urban district headquarters area. (Table 2).

On mode of attempts 39% have attempted thro pesticide poisoning 14% have consumed plant poisons, 16% have attempted thro household chemicals. 10% each represented by rodenticide and tablet poisoning. Attempted hanging reported in 5% of cases. 2% have attempted by self - immolation, 1% by cut - injuries. Among the 6 cases of cut injuries 4 men have attempted cut - throat injury, 2 women have exhibited forearm and wrist injuries (Table 3).

In pesticide poisoning males have shown significant predominance. In Tablet and household chemicals poisoning females have represented more than males.

In the total cases, 7% (45) of patients have been certified as died. Among the fatal outcomes 64% were males and 36% were females that included 4 teen agers. 55% of fatal outcomes have occurred with pesticide poisoning. 18% of death were due to self – immolation (Table-4). All patients of fatal outcomes have hailed from rural areas.

Apart from fatal outcomes another 7% (46) of cases have succumbed to grave complications in the form of loss of consciousness, respiratory failure, aspiration pneumonia, hepatorenal syndromes, coagulopathy, and they had been treated with ventilatory support, tracheostomy, blood transfusions and other measures. Among them 19 cases (41%) have been recovered and discharged well. 17 cases (37%) happened to be discharged gravely. Other 4 cases had been referred. On adding the gravely discharged patients to the certified deaths the fatal outcome may come around 10%.

After excluding the fatal outcomes, gravely complicated patients, and those absconded/discharged within 2 days, from the remaining possible referrals, 46% of patients had been referred for psychiatric consultation. Among the psychiatric referrals 33% cases were found to have diagnosable mental disorders, 60% have been opinionated as impulsive acts due to family stress / conflicts. 7% have attributed to physical illness. There was no significant gender difference noted in both impulsive acts and mental disorders (Table 5) On duration of stay, after excluding fatal outcomes, 53% cases have been in hospital for 3 to 7 days, 29% have stayed for 2 days. 14% have absconded from the hospital within a day. 4% had been in hospital for 8 to 16 days, 4 cases have been treated for 17 to 30 days (Table 6).

On mode of discharges 47% of cases have been certified as discharged well, 35% cases have been certified as absconded from the ward, 10% have been discharged as went on against medical advice. 7% were certified as died and 1% had been referred.

The above described observations and results convey the struggles of medical fraternity and public in dealing the suicidal attempt events which are all purported to have largely preventable causes.

DISCUSSION

In this institutional based study gender neutrality have been observed in overall and predominant age group population. Among the age groups, 13 to 19 years have shown female predominance and 41 to 60 years have shown male predominance. This gender neutrality and age-related

gender variance have been reported in other Indian studies.[5] In contrast male (or) female predominance also have been reported in other Indian studies.[6] This gender variation appears to be a stable variant among different study population.

On comparing the common notion of age association, in this study also majority of cases (45%) were reported from 20-30 years age group. This is in concordance with many studies.[7]

As with the many Indian studies in this study also married women represented more (69%) among the female attempters.[8] This marital status variability in Indian studies is one of the contrasting features with western studies due to socio-cultural differences.

In this study 85% of the subjects are from rural area. Although same rural population represented more in other studies, this rural and urban representation appears to depend on location of the institution.

On mode of attempts 39% cases have attempted thro pesticide poisoning. Both pesticide and plant poisoning have accounted for 53% of cases. This common mode of attempt have been observed in many studies.[9] The rural background and the agricultural based life could explain these common modes of attempt.

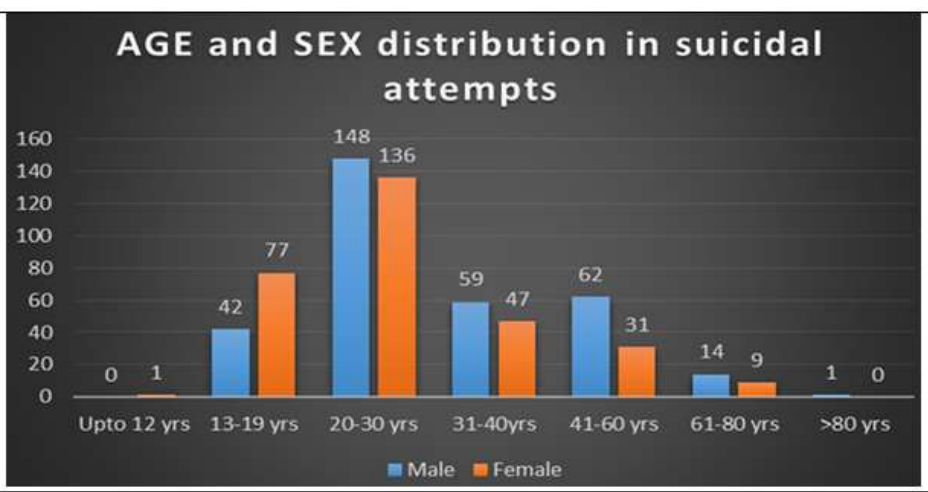
Among the psychiatric referrals 33% of cases have been opinionated as having diagnosable mental disorder. Although it was a routine OP (or) IP evaluation by our on-duty psychiatrists, this prevalence is in concordance with other studies.[10] 60% of the attempts were regarded as impulsive act due to family stress / conflicts which is also an acceptable feature with other studies.[11]

Among the certified 7% fatal outcomes 64% have occurred with males and 36% have occurred with females. This male predominance in completed suicides is also an accepted observation in suicide literatures. 55% of the fatal outcomes have resulted from pesticide poisoning. 17% have died of suicidal burns and 9% have died of hanging. The above represented modes of attempt among fatal outcomes have been observed in many Indian studies on suicide.[12]

The other observations on duration of stay, morbidity and mode of discharges may have its reasons and meanings around the suicidal intent and lethality of attempt which could be explained by future exploratory prospective studies.

Age	Male	Female	Total	Percentage	p-Value
Up to 12 Yrs.	-	01	01	0.1%	-
13-19 Yrs.	42 (35%)	77 (65%)	119	19%	0.002
20-30 Yrs.	148 (52%)	136 (47%)	284	45%	0.514
31-40 Yrs.	59 (56%)	47 (44%)	106	17%	0.285
41-60 Yrs.	62 (67%)	31 (33%)	93	15%	0.002
61-80 Yrs.	14 (61%)	09 (39%)	23	4%	0.405
>80 Yrs.	01	-	01	0.1%	-
Total	**326**	**301**	**627**		**0.338**

Table 1. Age and Sex Distribution



Graph 1

Area	Male	Female	Total	Percentage
Rural	275	259	534	85%
Semi-Urban	38	27	65	10%
Urban	13	15	28	5%
Total	**326**	**301**	**627**	

Table 2. Residential Area

	Male	Female	Total	Percentage	p-value
Pesticide Poisoning	163	82	245	39%	0.001
Plant Poisons (Oleander Seeds, Oduvan Leaf, Kanavalli, Ettikai, Datura, Calotropis, Parthenia)	49	41	90	14%	0.461
Household Chemicals (Mosquito Liquid, Cow Dung Powder, Dettol, Lysol, Phenol, Harpic, Cockroach Killer, Fly-Killer, Kerosene, Ant-Killer, Unni-Killer	27	78	105	16%	0.001
Rat killer paste poisoning	34	28	62	10%	0.526
Tablet poisoning	19	48	67	10%	0.001
Attempted hanging	19	14	33	5%	0.487
Burns	07	06	13	2%	0.999
Cut-injuries (neck & wrist)	04 (neck)	02 (wrist & forearm)	06	1%	0.688
Drowning	-	01	01	0.2%	-
Miscellaneous (wood preservative, unknown poisons)	04	01	05	0.8%	0.375
Grand Total	326	301	627		0.338

Table 3. Mode of Attempts

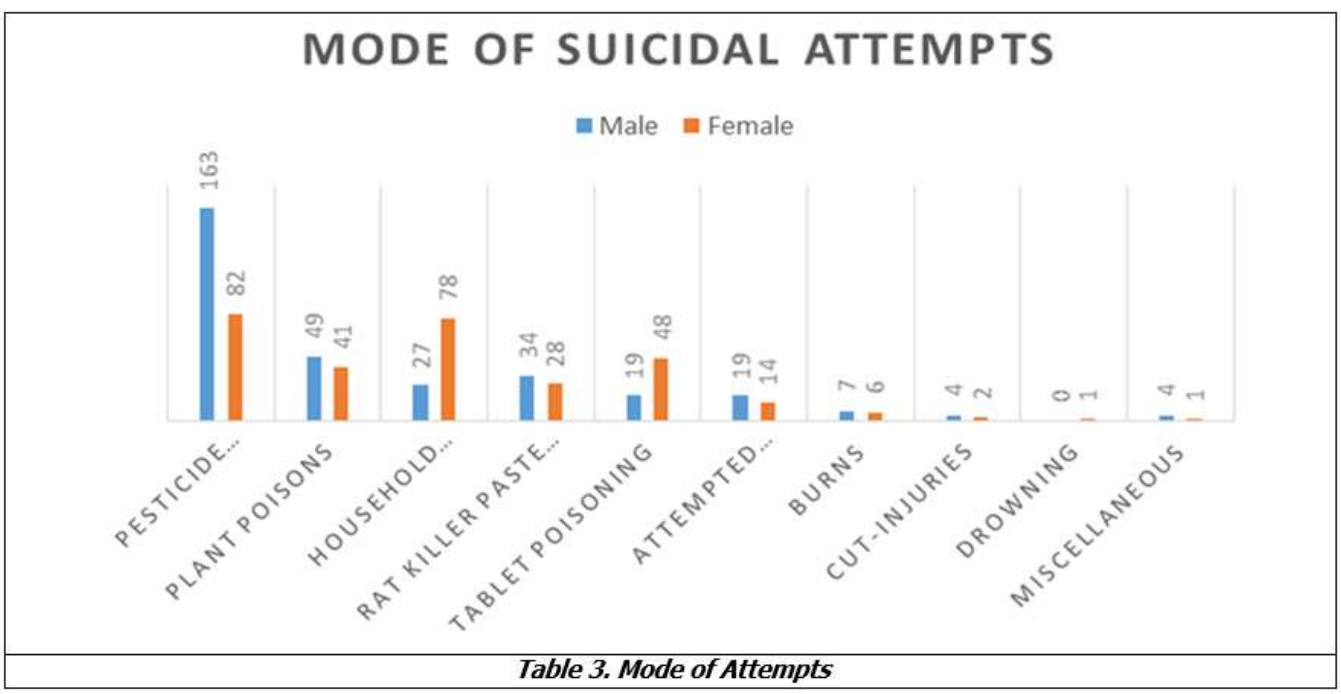


Table 3. Mode of Attempts

	Male	Female	Male Teens	Female Teens	Total	Percentage
Pesticides	20	04	-	01	25	55%
Burns	02	04	01	01	08	18%
Hanging	02	01	-	01	04	9%
Plant Poison (Oduvan Leaf)	02	02	-	-	04	9%
Tablet Poison (TCA and BDZ)	01	-	-	-	01	2%
Rat Killer Paste	02	02	-	-	03	7%
Total	**28**	**13**	**01**	**03**	**45**	

Table 4. Mode of Attempts in Fatal Outcomes

Mental Disorders	Male	Female	Total	Percentage
Depressive Dissolves	12	15	27	17%
Alcohol Dependence	11	02	13	10%
Bipolar Mood Disorder	01	03	04	3%
Schizophrenia	01	01	02	1.3%
Personality Disorder	01	-	01	0.6%
Impulse Control (Pathological Gambling)	01	-	01	0.6%
Total	**27**	**21**	**48**	**33%** **p-Value-0.471**
Others				
Attribution to Physical Illness	-	10	10	0.7%
Impulsive Acts	34	53	87	60% **p-Value-0.053**
Total			**145**	

Table 5. Psychiatric Morbidity Among Referred Cases

	Male	Female	Total	Total Percentage
< 1 Day	41	39	80	14%
2 Days	78	88	166	29%
3-7 Days	164	145	309	53%
8-16 Days	09	14	23	4%
17-30 Days	04	0	4	0.7%
Total			**582**	

Table 6. Duration of Hospital Occupancy (Excluding Fatal Outcomes)

CONCLUSIONS

This hospital-based study has found gender neutrality in overall and majority study population. In the age - specific groups, gender predominance has been noted. Most of the cases were from rural areas and married women represented more in women population. On mode of attempt, men have shown predominance in pesticide poisoning and women have shown predominance in household chemical and tablet poisoning. Although psychiatric referrals are less, more of impulsive acts and less mental disorders were observed in both genders.

This study has its imitations due its retrospective nature, single hospital-based study population, less psychiatric referrals and unplanned evaluation by different psychiatrists.

Along with other suicide-prevention strategies, age related, issue based, regular, periodic, school and community-based suicide prevention programmes would be helpful in reducing the suicidal behaviours in upcoming generations.

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