

# Alcohol use/abuse in suicide attempters: a study in psychiatric out-patient clinic of a teaching hospital of eastern Nepal

## Abstract

**Background:** Alcohol use is common in Nepalese society. Substance use/abuse is described as one of the 3 of the deadliest combination for suicide. There is a scant data from Nepal about the relationship of alcohol with suicide. We aim to see alcohol use/abuse in cases of suicide attempt.

**Methods:** It is a hospital based descriptive study conducted among the cases with suicide attempt. All the patients consulting the investigating psychiatrist of a department of psychiatry of a teaching hospital in eastern Nepal within study period were enrolled after informed consent. With usual detailed work-up, suicidal state was ascertained. Relevant informations were recorded in the proforma. An intensive exploration was made in all suicide-attempt subjects into a range of alcohol use/abuse. Alcohol use/disorder was operationally sorted out into various categories in relation to suicide attempt.

**Results:** Out of 150 total cases of suicide attempt, 68% (102) were married and 58.7% (88) were female. Average age was  $28.8 \pm 12.329$  years. More of the cases were from village and semi-urban settings. Some cases had used alcohol for the first time immediately prior to the attempt and some other had Alcohol dependence syndrome (ADS). A clear and possible association was seen in 56/150 (37%).

**Conclusion:** Alcohol use/abuse is common and appears to precipitate and predispose the DSH attempt.

**Keywords:** alcohol use, deliberate self harm, alcohol use disorder, Nepal, suicide

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**Abbreviations:** ADS, alcohol dependence syndrome; ARD, alcohol related disorder; AUA, acute use of alcohol; AUD, alcohol use disorders; BPKIHS, bp koirala institute of health sciences; DSH, deliberate self harm; DSM, diagnostic and statistical manual of mental disorders; HUA, harmful use of alcohol; ICD 10, the international classifications of diseases 10<sup>th</sup> edition; IERB, institute ethical review board; SPSS, statistical package for social studies

## Introduction

Suicide is a complex phenomenon with multi-factorial causation.<sup>1-4</sup> Complex interplay of various psychological, social, cultural and biological factors is implicated behind suicide and its attempt<sup>2-5</sup> though many of times; some particular precipitating event/factor stands out in particular set-up and region indicating need for the identification and some specific strategies.<sup>3</sup> Among suicide attempters, the combination of depression, hopelessness and substance/alcohol use/abuse has been reported as the deadliest one as risk.<sup>5</sup> Alcohol use/abuse is common and suicide/attempt has been observed more among alcohol users in Nepalese context too.<sup>6,7</sup> Data on magnitude of alcohol use/abuse in suicide/attempt will help guide devising needful strategies.<sup>3</sup> There is, however a dearth of information about alcohol use and related disorders among suicide attempters in Nepalese setting. This study was conducted in the department of psychiatry, B.P. Koirala Institute of Health Sciences, Nepal in 2011 to sort out the alcohol use/ related disorders among suicide attempters.

## Methods

It is a hospital based-cross sectional descriptive study looking into

alcohol use/abuse among suicide attempters. All patients consulting the investigating psychiatrists-team of B. P. Koirala Institute of Health Sciences, Dharan, Nepal, within study period (12 months, 2010 October/ 2011 September) were enrolled after informed consent. With usual detailed work-up, suicidal state was ascertained. Relevant information's were recorded in a predesigned proforma. An intensive exploration was made in all the subjects into a range of alcohol use and alcohol use disorders (ICD-10).<sup>8</sup> Alcohol use/abuse was categorized in relation to suicide attempt into:

- Single and first time use just prior to the attempt.
- Occasional but not during attempt.
- Occasional and also during attempt.
- Harmful use and also during attempt.
- Harmful use but not during the attempt.
- Regular use/Alcohol dependence syndrome (ADS) but not during attempt.
- ADS and use during attempt. The information and views collected from the subjects and their care takers (when the subject was not in position to respond) (through semi-qualitative approach) regarding the role of alcohol use and disorder in the suicide attempt were sorted out. The information was kept confidential. Ethical clearance was obtained from the Institute Ethical Review Board of BPKIHS. Data were entered into a computer and analyzed using 'Statistical Package for Social Studies' (SPSS) - software 17.

## Results

- Out of the total of 150 cases enrolled in this study; 88 were female, with M : F ratio of 0.71: 1.
- Average age was  $28.8 \pm 12.329$  years, with age range of 14-81. Patients of age groups (20-29) and (<20) years constituted the largest proportion 40.7% and 22.7%. Majority 102, 68.0% were married; with 43, 28.7% single, 3, 2.0% widow and 1, 0.7% each divorcee and engaged. Great majority 82% were educated to various levels (Table 1).
- Caste/ethnicities classified as per the system of 'Government of Nepal, 2007 for Free Health services, District Health Service Report 2064' revealed: Upper Hill caste (e.g. Brahmin, Chhetri, Thakuri, etc.), disadvantaged Hill Janajati (e.g. Magar, Rai, Tamang, Limbu, Sherpa, etc) and relatively advantaged Janajati (e.g. Newar, Gurung, Thakali) as the commonest caste/ethnicities. Hindu cases (127, 84.7%) predominated here; with 11, 7.3% Kirat; 6, 4.0% Buddhist; 4, 2.7% Muslim and 2, 1.3% Christian. Half of the total 75, 50.0% were from villages; 24, 16.0% from cities and 51, 34.0% semi-urban (Table 2).
- Majority of these subjects (115, 76.7%) had psychiatric disorder. The most common psychiatric diagnosis was depression (unipolar mainly and some bipolar) (Table 3).
- Consumption of poison was the most common mode (118, 75%) of suicide attempt\*. Among the 118 subjects attempting suicide by consuming poison, the commonest poison used was Organophosphorous compounds. Two subjects had consumed 2 poisons (Table 4).
- Many cases 71/150 had high intent and 58/150 had high lethality of effect of the attempt (Table 5).
- More than half of subjects (82/150, 54.7%) reported to use psychoactive substance, mainly alcohol (Table 6).
- One third of the subjects 50/150, 33.3% reported to consume alcohol immediately prior to the suicide attempt (Table 7).
- In 56, 37.3% cases, some relationship (definite and possible) was reported between alcohol use/abuse and suicide attempt (Figure 1).

**Table 1** Age, Marital status and Education of suicide attempt cases

Age group (yrs.)	No. (%)
<20	34 (22.7)
20 - 29	61 (40.7)
30 - 39	26 (17.3)
40 - 49	18 (12.0)
≥05	11 (7.3)
<b>Marital status</b>	
Single	43 (28.7)
Married	102 (68.0)
Separate/ divorce	1 (0.7)
Widow	3 (2.0)
Engaged	1 (0.7)
<b>Education level</b>	
Illiterate	27 (18.0)

Table Continued...

Age group (yrs.)	No. (%)
Literate - 3	16 (10.7)
4 - 7	29 (19.3)
8 - SLC	52 (34.7)
PCL and above	26 (17.3)

**Table 2** Caste/Ethnicity, Religion, Family type and Residential settings

Caste/ Ethnic groups	No. (%)
Upper Hill	40 (26.7)
Upper Terai	15 (10.0)
Relatively Advantaged Janajati	16 (10.7)
Religiously Minorities/ Muslim	5 (3.3)
Disadvantaged Non-Dalit Terai	21 (14.0)
Disadvantaged Hill Janajati	39 (26.0)
Disadvantaged Terai Janajati	1 (0.7)
Hill Dalit	11 (7.3)
Terai Dalit	2 (1.3)
<b>Religion</b>	
Hindu	127 (84.7)
Buddhist	6 (4.0)
Muslim	4 (2.7)
Christian	2 (1.3)
Kirat	11 (7.3)
<b>Family Type</b>	
Nuclear	74 (49.3)
Joint	54 (36.0)
Broken/ Separated/ Alone/ Other	22 (14.7)
<b>Residential Setting</b>	
Urban	24 (16.0)
Semi-Urban	51 (34.0)
Rural	75 (50.0)

**Table 3** Psychiatric diagnoses\*

ICD Code	Psychiatric Diagnosis	No. (%)
	Suicide, Impulsive	35 (23.3)
	Present	115 (76.7)
	Physical Disease	8 (5.33)
F10-19	Psychoactive Substance Use	48 (32.00)
F20-29	Schizophrenia, Schizotypal & Delusional	10 (6.67)
F30-39	Mood (Affective)	59 (39.33)
F30-34,38,39	Manic Episode, Bipolar Affective	1 (0.67)
	Depressive Episode, Bipolar Affective	4 (2.67)
	Depressive (Including Dysthymia-I)	54 (36.00)
	Stress Related/Adjustment	17 (11.33)
Others	Organic/ Mental Retardation/ Personality	16 (10.67)

\*Multiple response category - One respondent may have one or more responses.

**Table 4** Mode of Suicide attempt and Type of Poisons used\*

Mode of attempt	No. (%)	Mode of poisoning	No. (%)
Poisoning	118 (74.55)	Organophosphorous	92 (77.9)
Hanging	23 (15.33)	Zinc Phosphide	15 (12.7)
Strangulation	5 (3.33)	Drug Overdose	6 (5.1)
Cut/Injury	6 (4.00)	Chemical	4 (3.4)
Other/Mixed	9 (6.00)	Other/Mixed	3 (2.5)

**Table 5** Intent and Lethality of suicide attempt

Intent of attempt	No. (%)	Lethality of attempt	No. (%)
Low	26 (17.3)	Low	38 (25.3)
Moderate	44 (29.3)	Moderate	54 (36.0)
High	71 (47.3)	High	58 (38.7)
Not available	9 (6.0)	Not applicable	0 (0)

**Table 6** Substance use among out patients with Suicide attempt\*

Substance use	No. (%)
None/Never	68 (45.3)
Occasional/Social Alcohol	20 (13.3)
Harmful Use of Alcohol	27 (18.0)
Alcohol Dependence	20 (13.3)
Alcohol + Other Substance	8 (5.3)
Other Substance	8 (5.3)
Inadequate	7 (4.7)

**Table 7** Alcohol use during Suicide attempt

Substance use during suicide attempt	No. (%)
Not Present	91 (60.7)
Never Used	68 (45.3)
Occasional but not During Act	13 (8.7)
Harmful Use but not During Act	9 (6.0)
Present	50 (33.3)
First time Use at the Time of Act	5 (3.3)
Occasional and Use During Act	7 (4.7)
Harmful and use During Act (Excluding First Time Use)	18 (12.0)
Regular and Use During Act	8 (5.3)
Increased Regular Use During Act	12 (8.0)
Inadequate Information	9 (6.0)

## Discussion

Suicide and its attempts is a serious problem with great impact for individual, family, society and nation.<sup>9,10</sup> Its rate is reported to increase in recent years,<sup>2</sup> more so in the developing countries.<sup>10</sup> Nepal is also witnessing high and rising suicide rates, in various settings<sup>11,12</sup> though we have a limited nationwide community based data.<sup>13</sup> Suicide is the result of a complex process of interaction of protective

and risk factors, i.e. interplay of bio-psycho-socio-cultural factors.<sup>1-5</sup> Hence, the prevention efforts are challenging and also required to be multi-factorial and multi-dimensional.<sup>2,9</sup> As with other health problems, suicide prevention endeavours include primary, secondary and tertiary prevention in the form of universal, selective, targeted and indicated interventions.<sup>2,9</sup> Related factors may predispose or precipitate the suicide phenomena and may also contribute to cause repeated attempts.<sup>2,9</sup> Important perspective is to analyze and address modifiable factors in a particular setting and locality.<sup>3,14</sup> Identification of modifiable factors and managing them consist of an important aspect of suicide prevention.<sup>3</sup> We have some studies looking into associated clinical correlates including depression and other psychiatric morbidities<sup>15</sup> and common stressors<sup>16</sup> in suicide attempt subjects. We aim in this study to see the alcohol use and disorders among suicide attempt cases coming in psychiatric department of a teaching hospital in eastern Nepal. Since alcohol use and disorders are remarkably high in this part,<sup>7,17</sup> we view that this effort would make a meaningful step towards comprehensive understanding and suicide prevention here.

Occurrence of any factor in a health problem can be of coincidental, co-occurrence or causal (cause and effect) relationship. Alcohol use and its related disorders in suicide also may be one of these possibilities; complex and still far from conclusive.<sup>2,3,9,14</sup> In this study, we aim to see the occurrence of a spectrum of alcohol use and alcohol use disorders among the psychiatric patients seeking consultation for suicide attempts. Alcohol use/abuse was operationally categorized in this study in relation to suicide attempt into:

- Single and first time use immediately prior to the attempt.
- Occasional but not during attempt.
- Occasional and also during attempt.
- Harmful use and also during attempt (excluding first time use just prior to the attempt in this study which is conceptually a Harmful use).
- Harmful use but not during the attempt.
- Regular use/Alcohol dependence syndrome (ADS) but not during attempt.
- ADS and use during attempt. We explored in the subjects (by semi-qualitative approach; i.e. their information and view) into the possibility of the role of the alcohol use and related factors in suicide attempt. Analysing (statistical and definite) the relationship and mechanisms of alcohol and suicide is beyond the scope of this study; however, this could be the area of further study in this setting as well.

Other perspective is acute alcohol use (AUA) just prior to the attempt and chronic long standing use resulting into alcohol use disorder (AUD) among the cases of suicide attempt. Both of these have been reported higher among suicide and suicide attempts.<sup>3</sup> We have 50/150 (33.3%) of the suicide attempt subjects using alcohol before the attempt which is comparable to available literature.<sup>3,18,19</sup> Nearly one third of the subjects (32%) fulfilled the criteria for one or other alcohol use disorder (ICD-10: Acute Intoxication, Harmful use, Alcohol dependence syndrome, other induced disorders)<sup>8</sup> again keeping this study in line with available data from other parts.<sup>3,20</sup> Exploration was made through semi-qualitative approach into the relationship/association of alcohol in suicide attempt. Some

association was seen in 56/150 (37%) of the deliberate self harm (DSH) attempters. Five cases had used alcohol for the first time prior to the attempt and some other had Harmful use (18%), and Alcohol dependence syndrome (ADS) (13.3%) comparable to large scale study from Canada.<sup>9</sup> We have over all 50% of suicide attempt cases who have alcohol use/abuse, replicating the similar finding in other areas.<sup>1,9</sup> It makes a strong ground for the alcohol prevention programs here as well which will positively impact the public mental health and help reduce suicide risk in/directly.<sup>2</sup>

Both suicide/attempt and substance are stigma laden issues and their information is hidden.<sup>9</sup> We made an attempt to collect information about suicide and alcohol use/abuse in suicide attempt cases. Hence, the collected information is liable to forgetting, modification and hiding. In some cases, information was not available/inadequate in this study to ascertain some important issues, i.e. intent/ lethality of suicide attempt, substance/alcohol use/disorders in these suicide cases. Many of these cases might add to the figure of substance/alcohol use/abuse in these cases during the suicide and as a whole. Second issue is that our study is hospital based and is among psychiatry patients seeking consultation for suicide attempts. This bias may limit its generalization to other setting. However, we believe that for a suicide like phenomenon (relatively epidemiologically rare, complex and stigmatized issue), it is a method<sup>3</sup> and it does not make difference for the study objective of looking into alcohol ab/use among suicide attempters. Definite statistical correlational analysis and other in-depth cause effect analysis is beyond the scope of this study which could be the objective of further study though challenging in this type of subject.<sup>2</sup> We intended only to directly see the occurrence of alcohol use/abuse in suicide attempt cases. We did not mean in this work to intensively explore in-depth to other possible bio-psycho-social and cultural factors somehow associated with suicide attempt in acute alcohol use (AUA), e.g. circumstances/motivation to drink, distress/mental state, impulsivity, etc. and in alcohol use disorder (AUD) subjects, e.g. depressive disorder, AUD symptoms severity, low social support, stressful life events, medical illness or complaints, and unemployment or other indications of economic adversity etc. which are not less important.<sup>3</sup>

This study is however expected to open avenues for the in-depth and large study on the relationship of substance and suicide and might indicate various future study areas, e.g. effect of acute (AUA) and chronic use (AUD), many other associated factors. Overarching the objective of this study would be to devise the strategies as targeted and indicated measures for these high risk and survivors of suicide attempts in this setting, e.g. sensible/reduced drinking, comprehensive treatment including that for alcohol problem,<sup>3</sup> exploring and monitoring the suicide risk at intervals in follow ups and consultations.<sup>2</sup> For this, it is important to give information and training to the related stakeholders, e.g. general practitioners and other health professionals, parents, teachers, clean ex-users of substance coming in contact with at-risk individuals.<sup>2</sup>

## Conclusion

Among the subjects seeking psychiatric consultation for suicide attempt; female were more, majority were less than 30 years and more were married. Three fourths had psychiatric disorder, the most common being depression. Poisoning was the most common mode of suicide attempt and the commonest poison used was organophosphorous compound. Half of these subjects reported to use psychoactive substance, mainly alcohol. One third of the cases had

consumed alcohol immediately prior to suicide attempt. Some (clear and possible) relationship was seen between alcohol use/abuse and the suicide attempt in 37% of the cases. This indicates the need to explore and treat substance/alcohol use disorder simultaneously in these suicide attempt cases and to screen and manage suicide risk in alcohol ab/use cases.

## Declaration

Ethics approval and consent to participate- Approval from Institute Ethical Review Board (IERB) of BPKIHS (Ref. No.- Aca 216/068/069) and Consent to participate taken from the subjects. Consent to publish- Since no individual detail, images, or videos are involved and confidentiality not breached, Not Applicable to this study. Availability of data and materials since it is conducted among the clinical subjects in a hospital setting and information needs to be kept confidential for individual subjects (participant confidentiality), kept with investigator team.

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## Conflict of interest

The author declares no conflict of interest.

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None.

## Authors' contributions

Overall responsibility born by the author (solo).

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