Prevalence of suicidality and its associated risk factors among the adolescents of selected school of Kathmandu valley: A mix method pilot study

Srijana Bhattarai[1], Bijay Thapa[2], Shital Bhandary[3]
[1]Student, Master of Public Health, [2]Assistant Professor, [3]Associate Professor, School of Public Health, Patan Academy of Health Sciences, Lalitpur, Nepal

ABSTRACT

Introduction: Suicidality is a mental health condition that includes suicidal ideation, plan, and attempt. Prevalence of Suicidality from the pilot study conducted in 2018 in Nepal shows 8.7% among adolescents of age 13 to 17 years. The study aimed to determine the prevalence of Suicidality and its associated factors in the purposively selected adolescents in the Kathmandu valley.

Method: A cross sectional study was conducted among 42 adolescents from the purposively selected school of Kathmandu valley and five in-depth interview and key informant interview was taken from the adolescent respondents, guardian and teacher for exploration on adolescent suicidality. Validated self-administered tools, suicidal action and plan tool was used to assess the prevalence of suicidality.

Result: Prevalence of suicidality in the current pilot study were; suicidal thoughts was found in 16.7%, suicidal plan was made by 14.29% and suicide was attempted by 4.76% of the respondents. The factors associated with adolescent suicidality in the current study were depression, loneliness and cigarette smoking.

Conclusion: Prevalence of suicidality among adolescents indicates for the prompt interventional strategies from the government and concerned authority. It also urges for further study with large sample size and representative sampling methods.

Keywords: adolescents, associated risk factors, suicidality

CORRESPONDENCE
Ms. Srijana Bhattarai
MPH Student
School of Public Health, Patan Academy of Health Sciences, Lalitpur, Nepal.
Email: mph.srijanabhattarai@pahs.edu.np

INTRODUCTION

Mental health conditions account for 16% of the global burden of disease in people aged 10–19 years.[1]Half of all mental health conditions start by 14 years of age.[1] Suicidality is a mental health condition including suicidal ideation, plan, thoughts and attempt.[2]Suicide is the third leading cause of death in 15-19 years-old adolescents in the world.[1]

The global average of suicide death rate is 10.6 per 100000 population.[1] World Health Organization (WHO) region-wise data shows that the prevalence of suicide death is 15.4 per 100000 population in Europe as highest rate followed by 13.2 in the South East Asia.[1]

Prevalence of Suicidality from the pilot study conducted in Nepal in 2018 shows 8.7% among adolescents of age 13 to 17 years.[2] Suicidality is a public health concern under mental health with emerging need of action for its prevention.[2] The inclusion of mental health in the Sustainable Development agenda, is a crucial step toward reducing preventable deaths among adolescents.[3] The current pilot study was done to provide a comprehensive picture of suicidality with a motive to conduct a large version study in future. Thus, the study aimed to determine the prevalence of Suicidality among adolescents and its associated factors in the purposively selected adolescents in the Kathmandu valley.

METHOD

The pilot study was conducted by applying concurrent parallel mix method design. Purposive sampling technique was used to select the adolescents of 13 to 19 years from the selected school of Kathmandu valley. The calculated sample size was 466 taking prevalence of 8.75% from a pilot study of a national mental health survey of Nepal.[2] Out of the total sample size, 10 % was taken for this pilot study. Data was collected from 42 respondents with a response rate of 91.3%.

To assess the suicidality suicidal action and plan tool adopted from the Transcultural psychosocial organization of Nepal was used in the study.[4] Factors associated with suicidality were assessed by global school-based student health survey questionnaires and patient health questionnaires-Adolescents version.[5,6] Further in-depth exploration was done to identify the factors associated with suicidality.

The mix- method studies have included an in-depth interview and key informant interview where the interview guide was finalized from an extensive literature review, presentation, and discussion with supervisors. A total of five interviews were conducted from the adolescent's respondents, their guardian, and teacher of the respondents. Approval was taken from Patan academy of health science to conduct the pilot study and from the authority of the selected school. The IRC approval number for its final study is PHP2007161394 approved on 2020-7-16. Informed consent was taken from the teachers and assent was taken from the adolescents for conducting the study.

The collected data was entered in Epi-info version 7 software and analyzed using Easy R (EZR) version 1.38 software. Descriptive analysis was done and inferential statistics was computed by using Pearson's chi-square and Fisher exact test using EZR version 1.38. Fisher exact test was used in those variables having an expected cell value of less than 5 in zin the cross-tabulation. Similarly, the qualitative data collected from IDI and KII were transcribed in Nepali, translated to English, and coding was done in R software package for qualitative data analysis (RQDA) and thematic analysis was done manually using the six steps of Braun and Clarke to synthesize the findings.[7]

RESULT

The prevalence of suicidality among adolescents were; suicidal thoughts in 16.7% of the respondents, a suicidal plan made by 14.29% of the respondents and suicide attempted by 4.76% of respondents. The alpha reliability computed for the suicidal thought, plan, and attempt is 0.74%.
The quantitative result and the interview taken qualitatively on the prevalence of suicide had the convergent finding that there is the increasing trend of suicide among adolescents highlighted by the verbatim of key informant

"The teenagers adolescents choose the path of suicide and it is increasing day by day"

Table 1. Prevalence of Suicidality among adolescent

Suicidal thought	Frequency	Percentage
No	35	83.3
Yes	7	16.7
Total	42	100
Suicidal plan		
No	36	85.7
Yes	6	14.2
Total	42	100
Suicidal attempt		
No	40	95.2
Yes	2	4.7
Total	42	100

Table 2. Distribution of suicidality by socio-demographic variables.

	Suicidal thought			n=42
Gender	**No**	**Yes**	**Total**	**p-value**
Female	84.2%	15.8%	100.0%	1
Male	82.6%	17.4%	100.0%	
Total	**83.3%**	**16.7%**	**100.0%**	
Ethnicity				
Dalit	100.0%	0.0%	100.0%	0.846
Advantaged Janjati	84.6%	15.4%	100.0%	
upper caste	79.2%	20.8%	100.0%	
Total	**83.3%**	**16.7%**	**100.0%**	
Religion				
Hindu	82.1%	17.9%	100.0%	1
Buddhist	100.0%	0.0%	100.0%	
Total	**83.3%**	**16.7%**	**100.0%**	
Type of family				
Nuclear	80.0%	20.0%	100.0%	0.691
Joint	86.4%	13.6%	100.0%	
Total	**83.3%**	**16.7%**	**100.0%**	
Fathers occupation				
Agriculture	87.5%	12.5%	100.0%	0.827
Service	90.0%	10.0%	100.0%	
Business	77.8%	22.2%	100.0%	
Foreign employment	100.0%	0.0%	100.0%	
Daily wages	66.7%	33.3%	100.0%	
Others	100.0%	0.0%	100.0%	
Total	**83.3%**	**16.7%**	**100.0%**	
	Suicidal attempt			p-value
Gender	**No**	**Yes**	**Total**	
Female	100.0%	0.0%	100.0%	0.492
Male	91.3%	8.7	100.0%	
Total	**95.2%**	**4.8%**	**100.0%**	
Ethnicity				
Dalit	100.0%	0.0%	100.0%	0.638
Advantaged Janjati	100.0%	0(0.00)	100.0%	
Upper caste	91.7%	8.3%	100.0%	
Total	**95.2%**	**4.76%**	**100.0%**	
Religion				
Hindu	94.9%	5.1%	100.0%	1
Buddhist	100.0%	0.0%	100.0%	
Total	**95.2%**	**4.8%**	**100.0%**	

Table 1. Distribution of suicidality by mediating variables. n=42

Variables	Suicidal thought			p-value
Depression	**No**	**Yes**	**Total**	
No depression	92.9%	7.1%	100.0%	0.023*
Moderate or severe depression	61.5%	38.5%	100.0%	
Total	**83.3%**	**16.7%**	100.0%	
Loneliness				
No	93.1%	6.9%	100.0%	0.021*
Yes	61.5%	38.5%	100.0%	
Total	**83.3%**	**16.7%**	100.0%	
Bullying				
No	91.3%	8.7%	100.0%	0.214
Yes	73.7%	26.3%	100.0%	
Total	**83.3%**	**16.6%**	100.0%	
Substance use				
Cigarette smoking				
No	87.9%	12.1%	100.0%	0.155
Yes	66.7%	33.3%	100.0%	
Total	**83.3%**	**16.7%**	100.0%	
Parental support				
No parental support	100.0%	0.0%	100.0%	1
Medium parental support	83.3%	16.7%	100.0%	
High parental support	81.5%	18.5%	100.0%	
Total	**83.3%**	**16.7%**	100.0%	
Close friends	**No**	**Yes**	**Total**	
No	0.0%	100.0%	100.0%	0.167
Yes	85.4%	14.6%	100.0%	
Total	**83.3%**	**16.7%**	100.0%	
Variables	**Suicidal attempt**			**p-value**
Depression category	**No**	**Yes**	**Total**	
No depression	100.0%	0.0%	100.0%	0.095
Moderate or severe depression	84.6%	15.4%	100.0%	
Total	**95.3%**	**4.7%**	100.0%	
Bullying				
No	95.7%	4.3%	100.0%	1
Yes	94.7%	5.3%	100.0%	
Total	**95.3%**	**4.7%**	100.0%	
Substance use				
Cigarette smoking				
No	100.0%	0.0%	100.0%	0.04*
Yes	77.8%	22.2%	100.0%	
Total	**95.3%**	**4.7%**	100.0%	
Alcohol drinking				
No	100.0%	0.0%	100.0%	0.07
Yes	89.5%	10.5%	100.0%	
Total	**95.3%**	**4.7%**	100.0%	
Parental support				
No parental support	100.0%	0.0%	100.0%	1
Medium parental support	100.0%	0.0%	100.0%	
High parental support	92.6%	7.4%	100.0%	
Total	**95.3%**	**4.7%**	100.0%	

*= p-value<0.05

The table shows the distribution of suicidality by socio-demographic variables. Out of total respondents 16.7 % has experienced suicidal thought among which14.29 % have made suicidal plans. Out of total respondents, 4.76 % have attempted suicide among which all were male respondents. The current study did not reveal a significant association between suicidality and socio-demographic variables like gender, ethnicity, and religion, type of family, and fathers' occupation. The finding from the KII of qualitative study revealed that suicide is common among females and adolescents age. However, the sex wise distribution of suicidality in quantitative findings is divergent with the

Table 4. Findings from IDI and KII of qualitative study

SN	Themes	Verbatim
1	Personal /behavioral factors	*''Yes, I started to take drugs more frequently" (IDI)* *''I was alone all day and helpless" (IDI)* *''I was advised to stay separate in class by my teachers with the fear of I would transmit the disease to other and I had the feeling of loneliness''* *''the case of that girl was of tragedy in relationship with a boy. She had break up with her boyfriend and ended up committing suicide''(KII)* *''Suicide is common among females in our society" (KII)*
2.	Family environment	*''my parents may have been suspicious and came to the roof and stopped me from attempting suicide''(IDI)* *''They are not mature enough; we should guide them.''(KII)* *''Nowadays these teenagers are committing suicide only because of their quarrels with their parents and guardians.''(KII)*
3.	Health problems in the family	*''Only buwa had problem with depression and high sugar''(IDI)* *''She had to take break from studies due to TB (by parents)''(KII)* *"I heard that the girl who committed suicide was suffering from mental illness."*
4.	Environmental factors	*''I can say his friend circle was not good.''(KII)* *''It made me awkward in that group and due to peer pressure, I also started to use drugs''(IDI)*

qualitative finding in the current study. The data has shown that suicidal attempt is done by the male respondent and the qualitative result has highlighted that suicide is more common in females

The findings presented the distribution of suicidality concerning different mediating variables (Table-3). Out of 16.67% of suicidal ideation of the respondents, 5(38.46% out of 13) of them had moderate to severe depression. There is a significant difference in suicidal thoughts among the respondents with no severe depression and respondents with moderate and severe depression. Out of 4.88% of the suicidal attempt made by the respondents, two of them had moderate to severe depression which is 15.38 % of total 13 depressions. However, the study did not reveal a significant relationship between depression and suicidal plan.

The findings revealed that 38.46% of respondents experiencing loneliness had suicidal thoughts and the respondent's not experiencing loneliness i.e. 6.90% had suicidal thoughts which was statistically significant. The study also revealed that 22.22% of respondents having high parental support has made suicidal plans.

Regarding substance use, suicidal attempts were done by two of the smokers which was 22.22% of total smoker respondents and the finding is statistically significant.

The descriptive findings suggest that suicidal attempt is more common in adolescents being involved in substance abuse, depressive diseases and feeling of loneliness.

The study revealed that loneliness among adolescent can lead to suicidality as stated by the interviewee during an in-depth interview that she has faced loneliness due to her disease condition. The qualitative study also revealed that Substance abuse has been the main issue that has lead adolescents to commit suicide. Regarding the parental support, during the KII of the teacher, she stated that nowadays adolescents commit suicide due to parental concerns, scolding, and intrusion.

DISCUSSION

Suicidality among adolescents is a topic of increasing concern and there are a huge number of studies being conducted in this area in recent years in the developed countries**.** The current study revealed that suicidal ideation, plan, and an attempt is high among adolescents of the age group 13 to 19 years which contrasts with the findings of the global school-based student health survey.[5,8,9] The prevalence of suicidal ideation and plan computed in the current pilot study is high than that of the prevalence of suicidality computed by a pilot study of national mental health survey of Nepal.[2]

The qualitative finding from the current study has highlighted that the risk of suicide increased with age.[10] The current study revealed that suicidality is high among male but this finding contradicts with the findings from the study of GSHS done in Nepal in which it was common among females.[5]

Regarding the different socio-demographic variables like age, ethnicity, religion, the current study did not reveal significant relationship in contrast to the study done in united states adolescents where suicidality was high among different race and ethnic group.[11] However, the findings from the psychological autopsy of Nepal has revealed that suicidality is high among particular ethnic group.[12]

The current study has highlighted the significant relationship between adolescents' suicidality and depression which is similar to the findings of the other study conducted in South East Asia.[10] The current study also revealed the significant relationship between suicidality and loneliness.[5] Perceived burdensome can often lead the adolescents to loneliness as argued by the joiner's interpersonal theory of suicide and is one of the risk factors of suicidal behavior.[13] Similarly, cigarette smoking is seen as significant mediating variables causing suicidal attempt and the finding was similar from the findings of global school health survey revealing that in many countries, substance abuse contribute to suicidal behavior in adolescents age.[5,10]

The IDI and KII in the current study revealed that a history of chronic illness in adolescents age can contribute to suicidality.[14,15] Risk for suicidality seems to be increased as a function of the number of comorbid disorders.[14]

CONCLUSION

The prevalence of high suicidality among adolescents age group indicates for interventional strategies from the government and concerned authority. Nepal is in the window period of demographic transitions comprises a high percentage of adolescents and youth group. Therefore, it is an area of concern to safeguard the adolescents by early screening, diagnosis of suicide and address the risk factors. There are few studies conducted in the mental health of adolescents in Nepal so more robust studies are needed to promote their mental health.

ACKNOWLEDGEMENT

We would like to thank School of Public Health, PAHS for providing opportunity for conducting this research. We are grateful to all the samples institutes for their unconditional support and most importantly we are indebted to all the eligible respondents who responded the self-administered questionnaires as well as in-depth interview which provided insight on perceived factors associated with adolescent suicidality.

REFERENCES

1. World Health Organization. Adolescent mental health [Internet]. World Health Organization. 2020 Sep 28; Fact sheets. Weblink
2. Jha AK, Ojha SP, Dahal S, BC RK, Jha BK, Pradhan A, Labh W, Dhimal M. A report on pilot study of national mental health survey (September, 2018). Kathmandu: Nepal Health Research Council; 2018. PDF
3. UNICEF. Adolescents overview: Investing in a safe, healthy and productive transition from childhood to adulthood is critical [internet]. UNICEF data. 2019 Oct. Weblink
4. Karki KB, Aryal KK, Ojha SP, Sapkota DR, Koirala S, Adhikari R, et al.Assessment of suicide and risk factors in Illam district of Nepal, 2015/16.
5. Pandey AR, Bista B, Ram Dhungana R, Aryal KK, Chalise B, Dhimal M. Factors associated with suicidal ideation and suicidal attempts among adolescent students in Nepal: Findings from global school-based students health survey. PLoS One. 2019;14(4):1-13.
6. All NA. PHQ-9: Modified for teens, scoring the PHQ-9 modified for teens. Guidelines for Adolescent Depression in Primary Care, Version 2, 2010. 2010;9:71-2.
7. Braun V, Clarke V, Braun V, Clarke V. Qualitative research in psychology. Journal of Psychology. 2006;3(2):77-101.
8. Uddin R, Burton NW, Maple M, Khan SR, Khan A. Suicidal ideation, suicide planning, and suicide attempts among adolescents in 59 low-income and middle-income countries: a population-based study. Lancet Child Adolesc Heal. 2019;3(4):223-33. Almansour AM, Siziya S. Suicidal ideation and associated factors among school going adolescents in Swaziland. Afr Health Sci. 2017;17(4):1172-7.
9. World Health Organization. Mental health status of adolescents in South-East Asia: Evidence for action. New Delhi: World Health Organization, Regional Office for South-East Asia; 2017. 70p. PDF
10. Shain BN, American Academy of Pediatrics Committee on Adolescence. Suicide and suicide attempts in adolescents. Pediatrics. 2007;120(3):669-76.
11. Hagaman AK, Khadka S, Lohani S, Kohrt B. Suicide in Nepal: a modified psychological autopsy investigation from randomly selected police cases between 2013 and 2015. Soc Psychiatr Epidemiol. 2017 Dec;52(12):1483-94.
12. Barzilay S, Feldman D, Snir A, Apter A, Carli V, Hoven CW, et al. The interpersonal theory of suicide and adolescent suicidal behavior. J Affect Disord. 2015;183(May):68-74.

13. Carballo JJ, Llorente C, Kehrmann L, Flamarique I, Zuddas A, Purper-Ouakil D, et al. Psychosocial risk factors for suicidality in children and adolescents. Eur Child Adolesc Psychiatry. 2020;29(6):759-76. PDF

14. Pelkonen M, Karlsson L, Marttunen M. Adolescent suicide: epidemiology, psychological theories, risk factors, and prevention. Curr Pediatr Rev. 2011;7(1):52–67.