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A study on suicidal ideation and depression among patients attending out patient department (OPD) of Community Medicine and General Medicine at a tertiary care hospital in Kolkata

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Abstract: *Background:* There has been a rampant increase in the number of suicides of late, especially in those suffering from depression. *Objectives:* To assess the suicidal ideation and depression among the patients visiting the Out Patient Department (OPD) of a tertiary care hospital and to study their association with each other and with other variables. *Materials and Methods:* A descriptive type of observational study, cross-sectional in design was conducted among 157 patients attending the Community Medicine and General Medicine OPD at IPGME&R and SSKMH, Kolkata from November to December, 2019. The tool employed was a predesigned, pretested, structured schedule which included Suicidal Ideation Scale and Patient Health Questionnaire-9 (PHQ-9). Data were analyzed using descriptive and inferential statistics. *Results:* About 75% participants had mild to severe depression while 50.3% had suicidal ideation. Education and socio-economic status had statistically significant association with depression while age, gender, education, employment, socio-economic status, domestic violence, acute trauma and depression were associated with suicidal ideation. *Conclusion:* Depression and suicidal ideation were a major burden among the patients attending the Community Medicine and General Medicine Out Patient Department in Kolkata. Presence of moderate to severe depression increased the risk of suicidal ideation.

Keywords: Suicidal ideation, Depression, Patients, Risk factors, Kolkata

Introduction

WHO defines depression as a mental disorder characterized by "persistent sadness and lack of interest or pleasure in previously rewarding and enjoyable activities" with or without disturbance in sleep and appetite, tiredness and poor concentration [1]. Depression on long standing can give rise to suicidal ideation which has been defined as a wish to take one's own life or thinking about suicide [2]. Suicide is the 2nd leading cause of death among individuals 15-29 years old, accounting for 2,22,093 deaths (57.4% among males) in the year 2016 as per WHO global health estimates [3].

There is evidence suggesting that there is one death by suicide every 40 seconds [3]. As per Borges et al [4] (2010), suicidal behavior was higher in inhabitants of developing countries like India compared to developed countries. Every suicidal attempt may not result in death but it can lead to serious physical and mental affliction in both the person making the attempt and the people surrounding him/her.

Global burden of depression is 264 million [4], of which more than 75% are either misdiagnosed or even if diagnosed do not receive any treatment [5] and may develop suicidal ideation. People who have gone through adverse life events like unemployment, bereavement, psychological trauma are more likely to develop depression. Ribeiro et al [6] (2018) found that depressive symptoms had a significant role in prediction of both suicidal ideation and attempt.

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There is dearth of data regarding suicidal ideation, especially in patients attending the out-patient department (OPD) for non-psychiatric symptoms. Park et al [7] (2016) found an association between suicidal ideation and co-morbid physical conditions. These patients are currently under psychological stress as a result of their ailment. This stress may result in depression depending on the duration and severity of their physical suffering. If not cured, this depression may increase in gravity, ultimately resulting in suicidal ideation and attempt. Suicides are preventable with timely, evidence-based and often low-cost interventions. With this background a study was conducted to assess the suicidal ideation and depression among the patients visiting the OPD of a tertiary care hospital and to study their association with each other and with the socio demographic and other variables.

Material and Methods

Study design, setting and population: A descriptive type of observational study, cross sectional in design was conducted onpatients attending at General OPD and Medicine OPD of Institute of Post-Graduate Medical Education & Research and Seth Sukhlal Karnani Memorial Hospital (IPGME&R and SSKMH), Kolkata, from 1st November to 31st December 2019 for a period of 8 weeks.

We included new patients, aged 18 years or more, irrespective of their gender, who gave informed written consent to participate in the study. Seriously ill patients and those with pre-diagnosed psychiatric disorders were excluded from the study.

Sample size was calculated using the formula, $N = Z^2pq/l^2$, where Z=1.96, p=proportion of patients with suicidal ideation, q=1-p, l=0.05. Considering the prevalence of suicidal ideation to be 10.3% (Jordans et al 2018) [8], with an absolute precision of 5% and 95% level of confidence, the sample size was calculated as 142. After adding a non response rate of 10%, the final sample size of 157 was selected by systematic random sampling technique.

Data collection was initiated only after obtaining approval from the Institutional Ethics Committee (IEC) of IPGMER/SSKM hospital (IPGMER/IEC/2019/CM-597). Besides, informed written consent was obtained from the study population after explaining the purpose & nature of the study and ensuring their anonymity & confidentiality. Then face to face exit interview was conducted with the help of study tools- which were a predesigned, pretested structured schedule, Modified Suicidal Ideation Scale Junior (SIQ-JR ([9] and Patient Health Questionnaire-9 (PHQ-9) [10] printed in English, Hindi and Bengali.

Data were then tabulated in Microsoft Office Excel 2010 (Microsoft Corp, Redmond, WA, USA) and analysed using Statistical Package for the Social Sciences (IBM, New York City, USA) Version 16.0. Chi square test was used to test the association between the dependent (suicidal ideation) and the independent variables (socio-demographic variables, domestic violence, acute trauma, huge financial loss and depression). The independent variables which were observed to have a statistically significant association with the dependent variable on Chi-square test were then included in the binary logistic regression after checking the data for multi-collinearity (VIF<10, tolerance>0.1). A p-value of < 0.05 was considered as statistically significant.

Operational definitions:

Suicidal Ideation Scale [9] consists of 15 questions (7 point likert; scores ranging from 0 to 6 for each question) enquiring about feelings in the past 1 month. Thus the total score can range from 0 to 90. Suicidal ideation was stamped to be significant if the suicidal ideation score obtained by the individual was more than the median score (median score = 6.5).

PHQ-9[10] has been used for the assessment of depression based on experiences for the last 2 weeks. It consists of 10 questions; where the first 9 questions have scores ranging from 0 (not at all) to 3 (nearly every day) while the last question assesses difficulty in performing daily work because of depressive symptoms. Based on the total score attained, depression is classified into “Minimal”, “Mild”, “Moderate”, “Moderately severe” and “Severe”.

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Domestic Violence is "any behaviour within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship" [11]. It also includes child or elder abuse, or abuse by any member of a household.

Acute Trauma is a traumatic incident like being a victim of a crime or a natural disaster. It also includes death of near or dear ones.

Huge financial loss refers to any kind of financial loss like loss in business or of property.

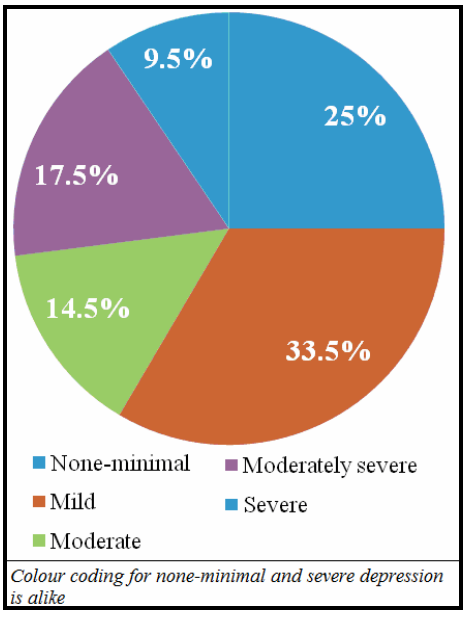
Results

Table 1 shows thedistribution of the study population based on socio-demographic characteristics. A total of 157 patients were interviewed of which 54.1% belonged to the age group of 21-40 years, 56.1% were males and 54.8% followed Hinduism. Most of them resided in rural areas (51.7%) and had attained an education of secondary level or above (51.6%). 71.3% were married. 53.5% were employed, 22.3% were homemakers, 15.3% were either students or had retired while 8.9% were unemployed. 63.7% of the sample belonged to class III or above as per Modified BG Prasad Scale 2019[12].19.1% of the total sample suffered from domestic violence, 38.9% had a history of acute trauma while 32.5% suffered a recent financial loss.

Table-1: Distribution of the study population based on socio-demographic characteristics (N = 157)

Sl No.	Socio-demographic Variables	Number	% age
1	**Age (completed years)**		
	≤ 20	15	09.6
	21-40	85	54.1
	41-60	49	31.2
	≥ 60	08	05.1
2	**Gender**		
	Males	88	56.1
	Females	69	43.9
3	**Religion**		
	Hindu	86	54.8
	Muslim	71	45.2
4	**Caste**		
	General	89	56.7
	Others (SC, ST, OBC)	68	43.3
5	**Residence**		
	Rural	81	51.7
	Urban	76	48.3
6	**Education**		
	Illiterate &Non Formal Education	24	15.3
	Primary to less than secondary	52	33.1
	Secondary & above	81	51.6
7	**Marital Status**		
	Married	112	71.3
	Single	45	28.7
8	**Employment**		
	Employed	84	53.5
	Homemaker	35	22.3
	Retired/Student	24	15.3
	Unemployed	14	08.9
9	**Number of family members**		
	< 4	33	21
	≥ 4	124	79
10	**Per Capita Monthly Income(PCMI) as per Modified BG Prasad Scale 2019**		
	< III	57	36.3
	≥ III	100	63.7

Fig-1: Pie diagram showing distribution of the study population as per different grades of depression (N = 157)



Around 75% participants had mild to severe depression (41.4% had moderate to severe depression) [Figure 1] while 50.3% had suicidal ideation [Figure 2].

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Fig-2: Bar diagram showing distribution of the study population as per suicidal ideation scores (N = 157)

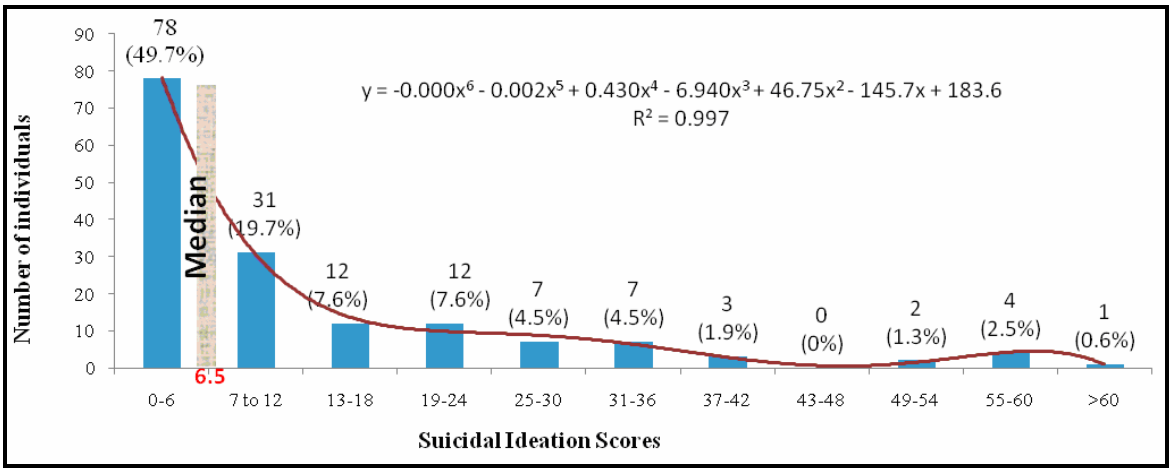

Table-2: Associates of depression with socio demographic and some other variables (N=157)

		< Moderate depression	≥ Moderate depression	Chi-square (χ^2)	p-value
		Number (%)	Number (%)		
A. Socio-demographic Variables					
1	**Age** (completed years)				
	≤ 20 (n = 15)	7(46.7%)	8(53.3%)	1.57	0.67
	21-40 (n = 85)	50(58.8%)	35(41.2%)		
	41-60 (n = 49)	31(63.3%)	18(36.7%)		
	> 60 (n = 8)	4(50%)	4(50%)		
2	**Gender**				
	Males (n = 88)	54(67.4%)	34(32.6%)	0.63	0.43
	Females (n = 69)	38(47.9%)	31(52.1%)		
3	**Religion**				
	Hindu (n = 86)	58(61.4%)	28(38.6%)	6.13	0.01
	Muslim (n = 71)	34(55.1%)	37(44.9%)		
4	**Caste**				
	General (n = 89)	54(60.7%)	35(39.3%)	0.30	0.59
	Others (SC, ST, OBC) (n = 68)	38(55.9%)	30(44.1%)		
5	**Residence**				
	Rural (n = 81)	43(53.1%)	38(46.9%)	2.10	0.15
	Urban (n = 76)	49(64.5%)	27(35.5%)		
6	**Education**				
	Illiterate &Non Formal Education (n = 24)	6(25%)	18(75%)	17.30	<0.01
	Primary to less than secondary (n = 52)	28(53.8%)	24(46.2%)		
	Secondary & above (n = 81)	58(71.6%)	23(28.4%)		
7	**Marital Status**				
	Married (n = 112)	68(60.7%)	44(39.3%)	0.72	0.40
	Single (n = 45)	24(53.3%)	21(46.7%)		

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Cont…Table-2		< Moderate depression	≥ Moderate depression	Chi-square (χ^2)	p-value
8	**Employment**				
	Employed (n = 84)	53(63.1%)	31(36.9%)	4.22	0.24
	Homemaker (n = 35)	22(62.9%)	13(37.1%)		
	Retired/Student (n = 24)	10(41.7%)	14(58.3%)		
	Unemployed (n = 14)	7(50%)	7(50%)		
9	**Number of family members**				
	< 4 (n = 33)	20(60.6%)	13(39.4%)	0.07	0.79
	≥ 4 (n = 124)	72(58.1%)	52(41.9%)		
10	**Per Capita Monthly Income (PCMI) as per Modified BG Prasad Scale 2019**				
	< III (n = 57)	40(70.2%)	17(29.8%)	4.94	0.03
	≥ III (n = 100)	52(52%)	48(48%)		
B.	**Psycho-Social Variables**				
1	**Domestic Violence**				
	Absent (n = 127)	79(62.2%)	48(37.8%)	3.56	0.06
	Present (n = 30)	13(43.3%)	17(56.7%)		
2	**Acute Trauma**				
	Absent (n = 96)	61(63.5%)	35(36.5%)	2.49	0.11
	Present (n = 61)	31(50.8%)	30(49.2%)		
3	**Financial Loss**				
	Absent (n = 106)	65(61.3%)	41(38.7%)	1.00	0.32
	Present (n = 51)	27(52.9%)	24(47.1%)		

Illiteracy or non formal education (p<0.01), following Islam (p=0.01) and socio-economic status of Class III and above as per Modified BG Prasad Scale 2019 (p=0.04) had statistically significant association with depression [Table 2] while young age (p=0.02), male gender (p=0.03), education of secondary and above (p=0.03), being employed (p<0.01),socio-economic status of Class III and above as per Modified BG Prasad Scale 2019 (p<0.01), absence of domestic violence and acute trauma (p=0.0002) and moderate to severe depression (p<0.01) were associated with suicidal ideation. [Table 3]

Table 4 shows binary regression model of suicidal ideation on the variables observed to have a significant association with the dependent variable in Chi-square test. In this model we noticed that variables like age group, level of education, per capita monthly income and domestic violence lost their significance. Male gender (p-value 0.03, OR=0.421) had a significantly lower odds ratio of suicidal ideation while other socio-demographic variables like being a home-maker (p-value 0.04, OR=3.003) or a retiree/student (p-value <0.01, OR=5.711) had a significantly higher odds ratio of suicidal ideation compared to the reference category. Psycho-social variables such as presence of acute psychological trauma (p-value <0.01, OR=3.748) and suffering from depression of moderate intensity or above (p-value <0.01, OR=2.632) had a significantly higher odds ratio of suicidal ideation than the reference group.

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Table-3: Associates of suicidal ideation with socio demographic and some other variables (N=157)					
		< Median Suicidal Ideation Score	**≥ Median Suicidal Ideation Score**	**Chi-square (χ^2)**	**p-value**
		Number (%)	**Number (%)**		
A. Socio-demographic Variables					
1	**Age** (completed years)				
	≤ 20 (n = 15)	12(80%)	3(20%)		
	21-40 (n = 85)	35(41.2%)	50(58.8%)		
	41-60 (n = 49)	25(51%)	24(49%)	10.06	0.02
	60 (n = 8)	6(75%)	2(25%)		
2	**Gender**				
	ales (n = 88)	37(42%)	51(58%)	4.67	0.03
	Females (n = 69)	41(59.4%)	28(40.6%)		
3	**Religion**				
	Hindu (n = 86)	40(46.5%)	46(53.5%)	0.76	0.38
	Muslim (n = 71)	38(55.9%)	33(46.5%)		
4	**Caste**				
	General (n = 89)	40(44.9%)	49(55.1%)	1.85	0.17
	Others (SC, ST, OBC) (n = 68)	38(55.9%)	30(44.1%)		
5	**Residence**				
	Rural (n = 81)	43(53.1%)	38(46.9%)	0.78	0.38
	Urban (n = 76)	35(46.1%)	41(53.9%)		
6	**Education**				
	Illiterate &Non Formal Education (n = 24)	18(75%)	6(25%)		
	Primary to less than secondary (n = 52)	24(46.2%)	28(53.8%)	7.30	0.03
	Secondary & above (n = 81)	36(44.4%)	45(55.6%)		
7	**Marital Status**				
	Married (n = 112)	54(48.2%)	58(51.8%)	0.34	0.56
	Single (n = 45)	24(53.3%)	21(46.7%)		
8	**Employment**				
	Employed (n = 84)	36(42.9%)	48(57.1%)		
	Homemaker (n = 35)	17(48.6%)	18(51.4%)	45.24	<0.01
	Retired/Student (n = 24)	16(66.7%)	8(33.3%)		
	Unemployed (n = 14)	9(64.3%)	5(35.7%)		
9	**Number of family members**				
	< 4 (n = 33)	14(42.4%)	19(57.6%)	0.88	0.35
	≥ 4 (n = 124)	64(51.6%)	60(48.4%)		
10	**Per Capita Monthly Income (PCMI) as per Modified BG Prasad Scale 2019**				
	< III (n = 57)	38(66.7%)	19(33.3%)	10.33	<0.01
	≥ III (n = 100)	40(40%)	60(60%)		

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Cont…Table-3		< Median Suicidal Ideation Score	≥ Median Suicidal Ideation Score	Chi-square (χ^2)	p-value
		Number (%)	Number (%)		
B.	**Psycho-Social Variables**				
1	**Domestic Violence**				
	Absent (n = 127)	58(45.7%)	69(54.3%)	4.28	0.04
	Present (n = 30)	20(66.7%)	10(33.3%)		
2	**Acute Trauma**				
	Absent (n = 96)	38(39.6%)	58(60.4%)	10.08	<0.01
	Present (n = 61)	40(65.6%)	21(34.4%)		
3	**Financial Loss**				
	Absent (n = 106)	56(52.8%)	50(47.2%)	1.29	0.26
	Present (n = 51)	22(43.1%)	29(56.9%)		
4	**Depression**				
	<Moderate (n=92)	59(64.1%)	33(35.9%)	16.96	<0.01
	≥Moderate (n=65)	20(30.8%)	45(69.2%)		

Table-4: Multivariate binary logistic regression of presence of Suicidal Ideation on socio demographic and psycho-social variables (N=157)

Variables	p value	AOR	95% CI for AOR	
			Lower	Upper
A. Socio-Demographic Variables				
1. **Age** (completed years)				
≤ 20	0.902	0.933	0.309	2.817
21-40	0.805	0.759	0.084	6.812
41-60	0.551	0.666	0.175	2.539
>60		1		
2. **Gender**				
Male	0.033	0.421	0.190	0.934
Female		1		
3. **Education**				
Primary and Middle	0.059	0.326	0.102	1.044
Secondary and above	0.959	1.022	0.447	2.336
Illiterate and Non-formal education		1		
4. **Employment**				
Employed	0.458	1.780	0.388	8.159
Home-maker	0.043	3.003	1.035	8.711
Retired/Students	0.010	5.711	1.521	21.434
Unemployed		1		
5. **Per Capita Monthly Income (PCMI) as per Modified BG Prasad Scale 2019**				
<Class III	0.739	1.139	0.531	2.445
≥Class III		1		

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Cont…Table-4 Variables	p value	AOR	95% CI for AOR	
			Lower	Upper
B. Psycho-Social Variables				
1. **Domestic Violence**				
Present	0.128	1.952	0.824	4.624
Absent		1		
2. **Acute Psychological Trauma**				
Present	0.000	3.748	1.867	7.526
Absent		1		
3. **Depression**				
≥Moderate	0.008	2.632	1.292	5.362
<Moderate		1		
Constant	0.010	0.093		
Omnibus test p value<0.01; Hosmer and Lemeshow test p value=0.114; Nagelkerke R^2=0.314				

Discussion

In the present study, 41.4% of the participants had moderate to severe depression which was comparable to the findings of some previous studies done in India [12-14]. A community based cross sectional study by Chaudhuri et al [12] among adult population of Siliguri sub division of Darjeeling district revealed that 47%of the study participants were depressed; among which 36% were moderately and 11% were severely depressed. Another studyby Nakulanetal in Kerala among community resident older subjects showed that 39.1% of the study population had depressive episodes [13]. Goswami et al at rural area of Maharashtra found the magnitude of depression among the elderly population was 41.7% [14].

The similarity in the observations of those studies with our study could be due to similarity in the socio-demographic characteristics of the study population. However, findings of our study was relatively much higher compared to study by Poongothai et al among urban population from Chennai, South India(15.1%) [15]; Meitei KT et al at Manipur (19.6 %) [16]; Nautiyal et al in Dehradun City (29.94%) [17]; Mathias et al at Uttarkhand (6%) [18]; Shidhaye et al at Amravati district in Vidarbha, Maharashtra (14.6% ([19]; and Sadia et al Uttar Pradesh (11.9%) [20]. In contrast, prevalence of depression was quiet higher in a study by Goyalet al at Punjab (77%) [21]; Kanimozhi et al at Puducherry (57.7%) [22]; and Daya et at Tamilnadu (73.5%) [23]. This variation may be attributed to the difference in differing methodologies, sample sizes, sampling techniques, study instruments, case definitions and on different study populations at different time periods.

This study revealed that the proportion of depression was highest among adults which was corroborative with studies at Siliguri [13], Kerala [14], Chennai [15], Vidarbha [19], UP [20], and Punjab [21]. This observation may be due to the fact that adult age group bears the major burden of the responsibility at not only the family level but also at the level of the society. Considering the rates among the two sex groups, most of the studies conducted in different parts across the globe gave supporting results for our studythat the proportion of depression was more among females than among males [13-16, 19-24]. It probably might be the concern of the females for the stress and strains of other members of the family makes them more prone to poor mental health.

In our study, significant association between depression and lower educational status was noticed which was in agreement with some previous studies in India and abroad [13, 16, 18-19, 21-22, 24]. Moreover it also revealed that the proportion of depression decreased with increase in the level of education [13]. Higher education helps a person in securing

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better job which keeps a person more satisfied on the work front. A working person can hardly find time to think about his/her worries. In this way, higher education might guard against depression. Siliguri study [13] and this study demonstrated that the proportion of depression was more among rural residents. This finding was surprising for the reason that village dwellers do not lead a lifestyle which is as demanding as that of the city people. There is an atmosphere of calmness in the villages of West Bengal.

About 50.3% of our study population had suicidal ideation which was higher than findings of many previous researchers worldwide; like Katual et al [25] among patients visiting psychiatric OPD at Shree Birendra Hospital, Kathmandu Nepal (12.5%), Riberio et al [6] in their meta-analysis (18.7%), Jordans et al [8] at Ethiopia, Uganda, South Africa, India & Nepal(10.3%), Halvorsen et al [26] at Oslo, Norway(10.5%), Jonas et al [27] in rural Central India(5.1%),Nock et al [28] across 17 countries (9.2%), Thakur et al [29] in a hilly state of India (30.9%), Casey et al [30] among general population in 5 centre analysis (7.4% in Norway, 2.3% in Spain, 7.4% in Wales, 9.8% in Finland and 14.6% in Ireland), and Xu et al [31] at China (4.29%). This differences might be due to different scale used, different study population, and at different settings. However the present study findings demonstrated the gravity of the situation in the eastern part of India where the social and cultural beliefs may be different from other parts of the world.

In contrast to the present study and study by Nock et al [28], no evidence of association between suicidal ideation and age group was observed by Jordans et al [8]. However, similar to the current study Jordan et al [8] reported a relationship between socio-economic status and suicidal ideation which was not noticed by Nock et al [28].The present study discovered that suicidal ideation was associated with female gender which was akin to results of studies conducted by Jordan et al [8], Nock et al [28] and Thakur et al [29]. Such an observation suggests that irrespective of their socio-cultural background, females are prone to suicidal ideation which might induce them to attempt suicide. This gender paradox might be justified by the fact that females feel shy and uncomfortable to share their thoughts & problems with peers or families resulting in feeling of being socially isolated.

Corroborative to our findings, Ribeiro et al [6] in their meta-analysis of published studies from 1971 to 31 December 2014 found an association between depressive symptoms and suicidal ideation. Many other studies have also confirmed this association between suicide ideation and depression [26-28]. Thus, in order to reduce the burden of suicidal ideation in the community, it is important to take appropriate steps to address the problem of depression in the society.

Like other studies, our study had some *limitations.*There was no component in the schedule to take suggestions from the participants on mitigation of depression and suicidal ideation. Another limitation of the study was its cross- sectional design. Besides, it was a hospital-based study, conducted in only two OPDs of a single tertiary care hospital, over a shorter period of time.

Conclusions

Depression and suicidal ideation were observed to be major public health problems among the patients attending Community Medicine and General Medicine OPDs in Kolkata. While socio-economic status had a bearing on depression, factors like female gender and presence of acute psychological trauma influenced suicidal ideation. Moderate to severe depression was noted to pre-dispose to suicidal ideation.

Recommendations:

1. The clinicians in the non psychiatric OPDs should be trained to screen the patients for depression and to treat them effectively in order to prevent both suicidal ideation and attempt.
2. Programmes creating awareness among the general public regarding depression and suicidal ideation should be conducted at frequent intervals so as to encourage them to seek help when needed.

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