



## Background

**S**uicidal behavior is an important public health problem worldwide. The World Health Organization (WHO) reports that in 2000, more than 800,000 people died of suicide around the world <sup>[1]</sup>. Worldwide, about 4 million adolescents attempt suicide annually, resulting in at least 100,000 deaths <sup>[2]</sup>. Suicidality in young people encompasses a full range of behaviours, including ideation, deliberate self-harm, attempts, and completed suicide <sup>[3]</sup>. Suicidal thoughts (ideation) are common in children and adolescents of both genders and are by no means always associated with other features of psychopathology. Suicide attempts are considerably less common than suicidal ideas <sup>[4]</sup>.

Results from the 2005 national Youth Risk Behavior Survey (YRBS) in USA indicated that nationwide, 16.9% of students had seriously considered attempting suicide (suicidal ideation) during the 12 months preceding the survey and 13.0% of students had made a plan about how they would attempt suicide (suicidal attempt) during the 12 months preceding the survey <sup>[5]</sup>. In a Malaysian school survey, 7% (312 out of 4454) of the adolescent students (age 12-19 years) had suicide ideation, and 4.6% had attempted suicide at least once during the 12 months preceding the survey <sup>[6]</sup>. In Lebanon, overall, 16.0% of high school students seriously considered attempting suicide during the past 12 months and 11.1% of students made a plan about how they would attempt suicide during the past 12 months <sup>[7]</sup>, this is very similar to the prevalence reported by Sibai & Kanaan for Lebanon older students 15.2% whereas the Sibai & Kanaan prevalence of making a plan was much lower 4.8% <sup>[8]</sup>.

There are several risk factors related to suicidal ideation and attempt among in-school adolescents. For both genders, higher levels of depression are associated with the increased probability of suicidal ideation <sup>[9]</sup> and suicide attempt <sup>[4]</sup>. Anxiety disorders increase the risk of suicidal ideation and attempt for both genders <sup>[4]</sup>. Findings reported by Liu X et al, (China, 2005) showed that depression was significantly associated with increased risk for suicidal ideation, while poor academic performance, depression, and aggression were related to suicide attempts among high school students <sup>[10]</sup>.

Feeling of loneliness and sadness, significant worry and lack of parental supervision <sup>[11-12]</sup> and low parental care <sup>[13]</sup> were associated with suicidal ideation among school students. Also, association have been found between suicidal behaviour and several types of

violence, including child maltreatment <sup>[1]</sup>. Suicidality is common in runaway youth, who often have a history of previous child abuse. Hawton and colleagues reviewed 3 studies that showed an association between physical abuse and suicidal behavior <sup>[3]</sup>. However, there is paucity of data on suicidal ideation, attempted suicide and suicide among adolescents in Iraq. Hence, the objectives of this study were to assess the prevalence and some associated factors of suicidal behavior (suicidal ideation and attempt) among adolescent students in Kut City.

## **Methodology**

### **Study design and sampling technique :**

A school-based cross-sectional comparison study was conducted on school students in 7<sup>th</sup> through 11<sup>th</sup> grades in Kut City/Iraq at 2007, by using a self-completed anonymous questionnaire as a part of the Global School-based Student Health Survey GSHS questionnaire. A multistage, probability sampling technique stratified by urban and rural settings, school type and gender, in which schools, classrooms and students selected randomly. The overall response rate was 90% (N = 1067).

### **Instruments :**

Our main outcome variable was self-reported history of suicidal ideation and attempt within the past 12 months. Study participants were asked the questions: During the past 12 months, did you ever seriously consider attempting suicide? During the past 12 months, did you make a plan about how you would attempt suicide? responses were dichotomous (yes, no) (*Cronbach .79*).

Data were also collected on age, gender, depression, anxiety, corporal punishment at home, and poor school grade. Depression-related questions: During the past 12 months, how often have you felt lonely? During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing your usual activities? Anxiety-related questions: During the past 12 months, how often have you been so worried about something that you could not sleep at night? During the past 12 months, how often have you been so worried about something that you could not eat or did not have an appetite? Each question has 5-point Likert scale (never to always) (*Cronbach .80*). Responses were collapsed into three level for final analysis. Corporal punishment: Were you subjected to the corporal punishment (hitting, slapping, punching, kicking, pinching, shoving) by hand or use

of various objects (belts, sticks, or others) at home? Poor grade level: How many years you have reset? Response; (never, 1-year, 2-3 years).

## Procedure

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Written consent was sought from the General Directorate for Education in Wasit Province and school management and verbal consent from all study participants. Students were briefed about the purpose of the study, encouraged to participate and to express their experiences.

## Statistical analysis

Data was entered and analyzed by using SPSS (Statistical Package for Social Sciences) Version 10.0 for Windows. Descriptive statistics and the Pearson  $\chi^2$  were used.  $P$ -value  $<0.05$  was considered Statistically Significant.

## Results

The overall prevalence of suicidal behavior among secondary school students in our sample was 8.3% (89 out of 1067) [Tables 1, 2].

**Table 1 :** frequency distribution of suicide behavior among secondary school students

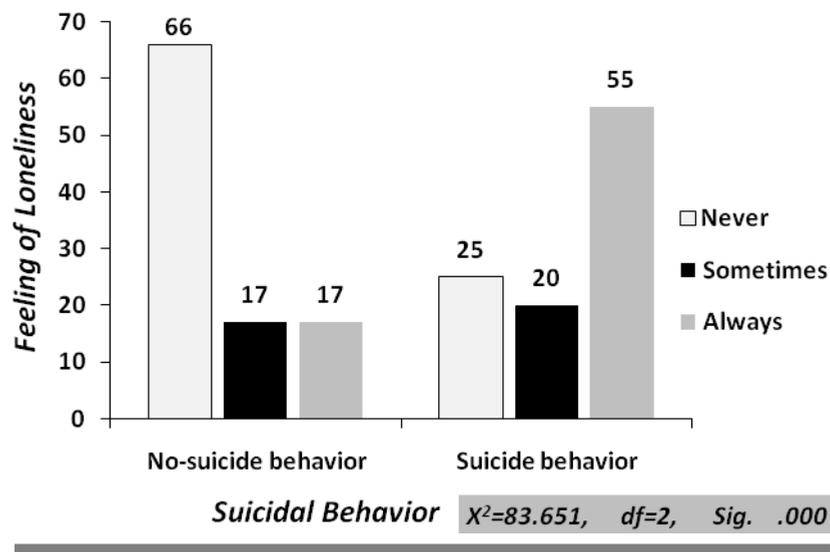
Suicide Behavior	Frequency	%
No-suicide behavior	978	91.7
Suicide behavior	89	8.3
Total	1067	100

**Table 2 :** frequency distribution of students engaged in suicidal ideation, attempt and both

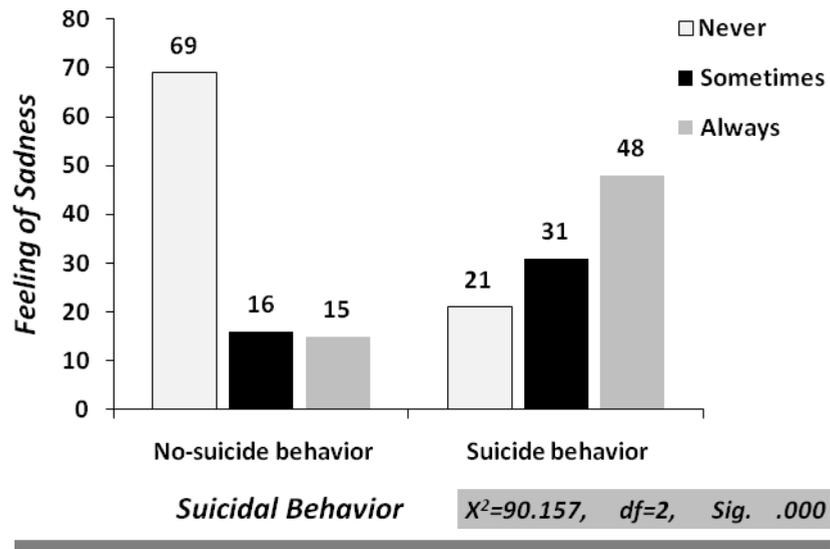
Suicide Behavior	Frequency	%
<i>Ideation</i>	8	9
<i>Attempt</i>	36	40.5
<i>Both (ideation &amp; attempt)</i>	45	50.5
Total	89	100

Association of suicidal behavior with our explanatory variables was highly significant. Results shows that students who felt loneliness were more likely involved in

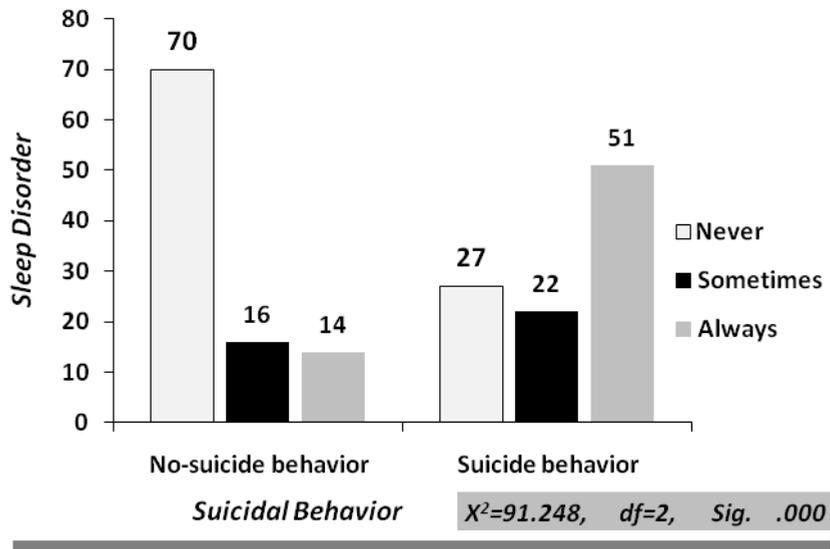
suicidal behavior [Fig. 1], students who felt sad or hopeless were more likely involved in suicidal behavior [Fig. 2], our findings indicated that students who have sleep and appetite disturbances were more likely involved in suicidal behavior [Fig. 3], [Fig. 4] respectively. This study shows that students who were subjected to corporal punishment were more likely involved in suicidal behavior [Fig. 5]. Furthermore, we found that in-school adolescents who have poor grade level were more likely involved in suicidal behavior [Fig. 6].



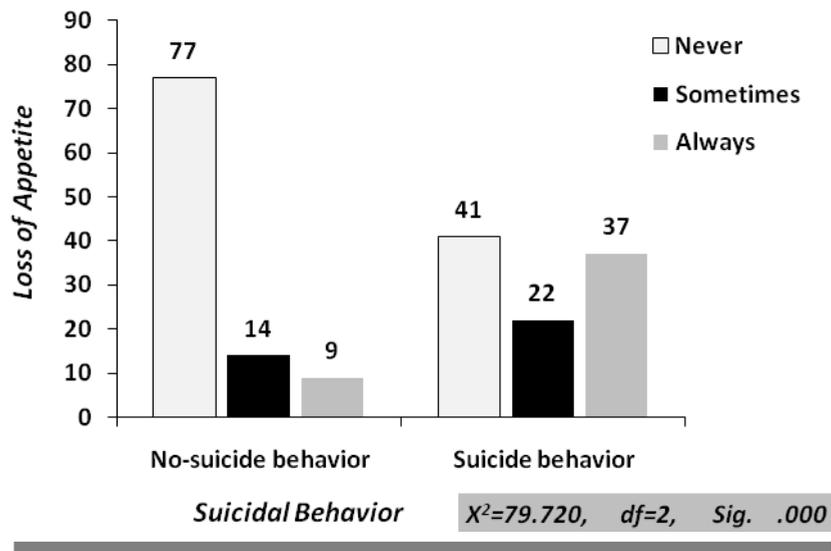
**Figure 1:** Association of suicidal behavior with feeling of loneliness



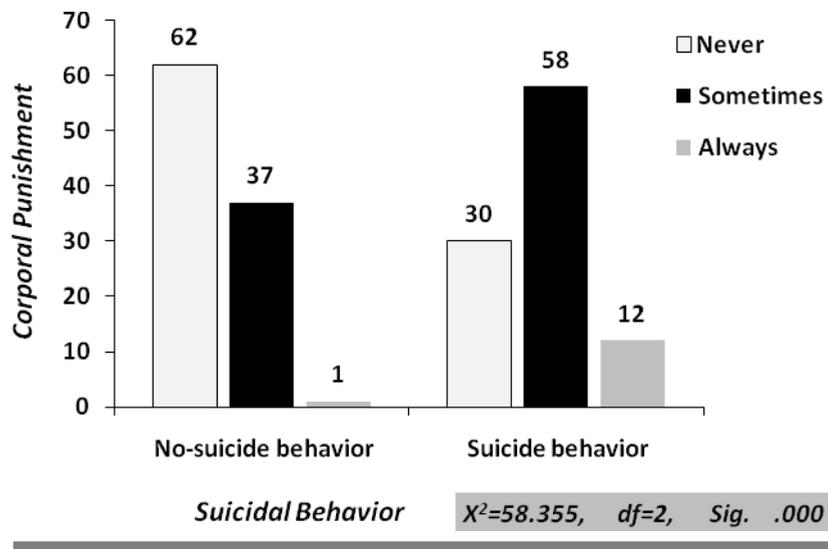
**Figure 2:** Association of suicidal behavior with feeling of sadness and hopelessness



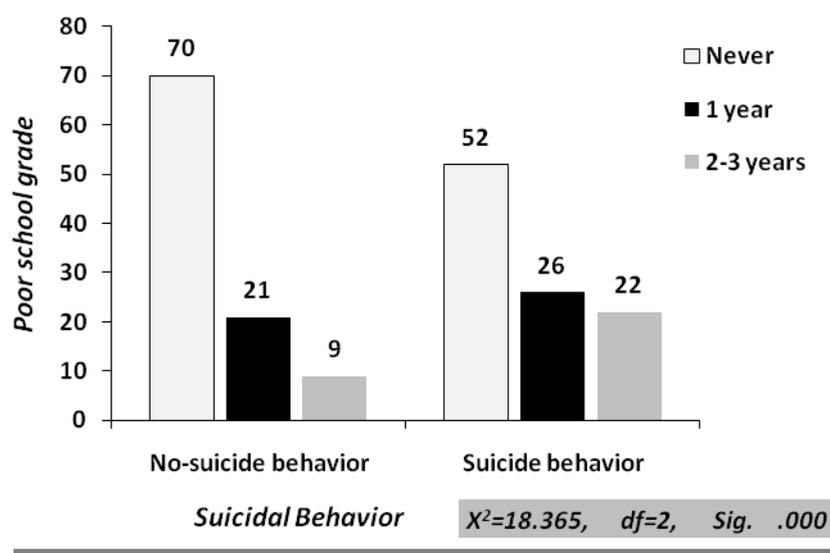
**Figure 3:** Association of suicidal behavior with loss of sleep due to worry



**Figure 4:** Association of suicidal behavior with loss of appetite due to worry



**Figure 5:** Association of suicidal behavior with subjecting to corporal punishment at home



**Figure 6:** Association of suicidal behavior with poor school grade (repeat year)

## Discussion

Our study found that overall 1 out of 12 of school adolescents had suicidal behavior in the last 12 months. Our estimates are much lower than the prevalence of suicidal ideation and attempt among school adolescents in previous studies <sup>[5-6, 11-12]</sup>, but similar to percentage of suicidal attempt in China <sup>[10]</sup>. Furthermore, percentage of attempt suicide in our sample was more likely than percentage of it in Lebanon <sup>[8]</sup>, and Malaysia <sup>[6]</sup>. However, brief comparison shown in Table 2.

**Table 2 :** Comparison of the prevalence of suicidal ideation and attempt among secondary school students

Year	Country	Study sample	Reference	Suicidal behavior	
				Ideation	Attempt
				%	%
2003	<b>Uganda</b>	1506	12	<b>21.6</b>	---
2004	<b>Guyana</b>	1197	11	<b>18.4</b>	---
2005	<b>USA</b>	13917	5	<b>16.9</b>	<b>13</b>
2005	<b>Lebanon</b>	5115	8	<b>16</b>	<b>11.1</b>
1997	<b>Lebanon</b>	---	8	<b>15.2</b>	<b>4.8</b>
2005	<b>China</b>	1362	10	<b>19</b>	<b>7</b>

2005	<b>Malaysia</b>	4500	6	<b>7</b>	<b>4.6</b>
2007	<b>Iraq</b>	1067	---	<b>5</b>	<b>7.6</b>

In consistency with previous studies, analysis of our data suggested a positive association between suicidal behavior and depression the same results reported by David Shaffer et al <sup>[4]</sup>, Allison et al <sup>[9]</sup>, Liu X et al <sup>[10]</sup> and Emmanuel et al <sup>[11-12]</sup>. Correlation of suicidal behavior and anxiety documented by David Shaffer et al <sup>[4]</sup>, and Emmanuel et al <sup>[12]</sup>. Previous works suggested the association of suicidal behavior with poor academic performance <sup>[10]</sup>, and physical abuse <sup>[1,3]</sup>. Unfortunately, our findings suggests that the suicidal attempts were reported more than suicidal ideas in contrast to David Shaffer et al, who said that suicide attempts are considerably less common than suicidal ideas <sup>[4]</sup>, also conversely with other studies <sup>[5-6, 8, 10]</sup>, this may be due to devastating socio-economic, political conditions that made those adolescents end their life by suicide. However, interpretation of these findings is out of our knowledge, hence; large-scale, and long term studies are needed to explain this variation.

Our study has several limitations. Firstly, due to the cross sectional nature of the design, the factors that have been identified as associated with suicidal behavior cannot be described in causative terms. Secondly, the findings of the study may also be limited by not controlling for unmeasured confounders and effect measure modifiers. Thirdly, the study recruited only school going adolescents in the study area, the findings may therefore be representative of the in-school adolescents in Kut but not those out of school adolescents. Finally, our study was based on self report and therefore subject to respondent recall and deliberate misreporting. However the use of standardized terms and classifications will help ensure that the data collected are both valid and reliable.

## Conclusion

Considerable number of students have suicidal behavior (suicidal ideation and attempt) in our study sample. Suicide attempts are considerably more common than suicidal ideas. Factors associated with the outcome were including : depression, anxiety, poor school grade and subjection to physical punishment at home. The clustering of multiple unhealthy lifestyles and co-morbid conditions such as poor mental health, low achievement at school and maltreatment are of public health concern. Public health intervention aimed to reduce

adolescent suicidal behaviors should factor in the psycho-social correlates of suicidal behavior.

### **Acknowledgements**

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