

Suicide Attempts and Suicides of School Children in Hong Kong, 1991-1994

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This study examined the 155 attempted suicides and 50 fatal suicides of school children in Hong Kong for the three school years in the period September 1991 to August 1994. The annual attempted suicide rate is estimated at 2.7 and 8.4 per 100,000 for male and female schoolchildren respectively. The male to female ratio is about 1:3. The annual suicide rate of the school children is estimated at 1.5 and 2.1 per 100,000 for males and females who have a ratio about 1:1.4. The highest rate of suicide and attempted suicide were found in the group of Females aged 15 or above had the highest rate both in attempted and fatal suicides. Over 50% of the attempters used wrist slashing. Drug overdose was the second most common method in attempted suicides. Over 90% of the fatal cases were jumping from a high place. Drowning, gas, hanging, firearms were the least common methods. Fatal and attempted suicides occurred more often during weekdays and less often on Saturdays and Sundays. The times between successive suicide attempts were not independent.

這個研究報告是探討由九一年九月至九四年八月，三個學年中發生的五十宗學生自殺和一百五十五宗的企圖自殺個案。學童企圖自殺率分別是，男性是每十萬人有二點七人，女性是八點四。男女的比例是一比三。學童自殺率則是男性一點五而女性二點一，男女的比例是一比一點四，女性年齡十五歲以上是企圖自殺和自殺率最高的組別。超過一半的企圖自殺學童是用利器割脈，其次則是服用過量藥物。超過九成的自殺者是跳樓，採用其他方法如遇溺、煤氣、吊頸及鎗械則很少。企圖自殺和自殺最常發生於週日；星期六、日和暑假期間則較少，企圖自殺個案發生的時間分佈不是獨立。

Teenage suicide has become a serious social problem in Hong Kong recently. A sudden rise of the teenage suicide rate in 1992 was shown in Yip and Yu (1993). The rise of teenage suicide was not detected in an earlier study (Hau, 1993). The mean age of the suicide deaths among the age group 10-19 was 15 years in 1992 whereas the mean age was 18 years in 1982. Fatal suicides statistics can be easily obtained from the Census and Statistics Department of Hong Kong Government. However, suicide attempts are not systematically registered in Hong Kong. Accident and Emergency Departments of local hospitals have some data on attempted suicide cases treated by them (Chiu 1989). However, not all of suicide attempters will be referred to the Hospital.

It is important to note that some of the attempted cases were not serious enough for hospital treatment. The person would seek treatment from a private doctor in order to try to hide the suicide attempt as suicide is regarded as disgraceful in Hong Kong (Chung et al., 1987). Not all the attempted cases were reported. A survey showed that of the attempters sent to hospital, only 78% were hospitalized (Chiu, 1989).

The Education Department of Hong Kong Government has been systematically collecting data on attempted and fatal suicides from schools since September 1991. The data collected by the Education Department are based on figures reported by primary and secondary schools only. Since the introduction of six years of compulsory education covering primary education in 1971 and an additional three years covering lower secondary education in 1978, school attendance rates for children aged 6-11 and 12-16 have been very close to 100% in the past few years. For the age groups 17-18 and 19-24, school attendance is no longer compulsory: the attendance rates have been only

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about 58% and 15% for the two groups respectively. It is important to note that nearly 100% of the school children attending primary school and more than 90% are in Secondary School and 80% beyond F.3. In 1993 the school population (primary and secondary schools) covered a population of 918,832 which represented about 75% of the population in the age group 5-19 of 1,223,200. Hence the data set provided by the Education Department has some limitations. However, they provide an alternative data source on suicide attempts. This paper is to analyse the data collected by the Education Department on suicide attempts and suicide of school children in Hong Kong. Some of the findings are consistent with the results derived from other sources. Nevertheless it is the first time of this sort of study to make use of the data from the Department of Education.

Materials and Methods

Data on suicide attempts and suicides were made available by the Services Division of the Education Department for primary and secondary school children in the three school years between September 1991 and August 1994. The Services Division provides support services to students and schools. Suicide and attempted suicide were defined (respectively) as "a fatal and a non-fatal act in which an individual deliberately causes self-injury or ingests a substance in excess of the generally recognized therapeutic dosage" (Kreitman, 1977). Any attempted and fatal case that was not in the school system would not be recorded by the Education Department. Hence the subjects in this study were essentially school children who had committed suicide in the referenced period. The school participation rate is nearly 100% for the age group 6-11 and 12-16. The participation for the aged group 17-18 was only 58% in 1991. The results presented hereafter are based upon data collected over a 3-year period, 9/91-8/94. The rates are calculated on the basis of the school population supplied by the Education Department and are expressed in number of persons per 100,000. A χ^2 test and correlation coefficient were used to analyse the data.

Results

Subjects

Over the three-year period 50 suicides and 155 suicide attempts were made known to the Services

Division of the Education Department. The annual attempted suicide rate for the school population was estimated at 2.7 and 8.4 for males and females, respectively. The annual fatal suicide rate was about 1.5 and 2.1 for males and females school children respectively, as shown in Table 1. The estimated annual fatal suicide rate based on the teenage population of aged 10-19 in the three school years 1991-1994 was about 3.6 and 2.9 for males and females respectively. The relative lower rate in students may reflect their better social status and psychological health than dropouts from schools. The male to female ratio for attempted and fatal suicides was about 1:3.1 and 1:1.4 respectively. The attempted suicide rate for females was 3 times higher than that of males. For the fatal suicide rate the female rate was also 1.4 times more the male rate. It was estimated that the male to female ratio for suicide attempts was about 1:1.8 for the general population in Hong Kong (Pan and Lieh-Mak, 1989) but reached 1:3 for adolescents (Chung et al., 1987). The sex ratio for suicide attempts was 1:1.5 in a Belgium study (Van Casteren et al., 1993). The ratio was estimated at 1:1.5 in a similar study on attempted suicides among Oxford University students (Hawton et al., 1995). Lester (1990) gave a sex distribution of suicides by age and by nations of the world. The female suicide rate was relatively higher as compared to male suicide in Asian Countries. A similar phenomenon can also be found in some Asian countries, for example, Singapore and Taiwan. Apparently, the group of females aged 15 or above had the highest rate for attempted suicides and suicides in Hong Kong. The ratio of fatal suicide to attempted suicides differs between both sexes, with 1:1.8 and 1:4 for males and females, respectively. This might suggest that females were not as 'serious' as males in committing suicide.

Table 1

The rates and numbers of attempted and fatal suicides in 1991-1993.

Age	Attempted Suicide		Fatal Suicide	
	Male	Female	Male	Female
≤14	2.1(24)	7.2(77)	1.1(13)	1.3(14)
>14	5.1(15)	12.5(39)	2.7(8)	4.8(15)
Total	2.7(39)	8.4(116)	1.5(21)	2.1(29)

The numbers in the tables represent the number of attempted and fatal suicides per 100,000. The numbers in brackets express the actual number of cases.

Methods of Suicide

Only the information on methods of suicide for the period 9/92-8/93 was made available by the Education Department. Wrist slashing was the most frequently used method of suicide attempt both for males and females as shown in Table 2. Drug overdose and jumping from a high place were the next most common methods which accounted for 46% and 43% for males and females respectively. Most of the suicide attempts were not failed suicides. There was no sex difference in the method of suicide attempt except for jumping from a high place in which the proportion of males to females was significantly higher. Also, the most frequently used method of fatal suicide was jumping from a high place which accounted for over 90% of the total. About sixty percent of the suicides in the general population were jumping from a high place in 1994 (Yip, 1995). Teenagers prefer jumping to hanging or other means.

Table 2
Methods of attempted and fatal suicides 1992-1993

Methods	Attempted(137)		Fatal(34)	
	Male(30)	Female(107)	Male(10)	Female(24)
Wrist slashing	53%(16)	55%(59)	0	0
Drug overdose	23%(7)	28%(30)	0	4%(1)
Jump from a high place	23%(7)	15%(16)	90%(9)	92%(22)
Hanging	0	0	10%(1)	0
Gas	0	2%(2)	0	0
Drowning	0	0	0	4%(1)

The numbers in the brackets represent the actual number of cases. The percentages might not add up to 100% due to rounding problems.

Days of Week Distribution

Days of week distribution of suicide attempts and suicides is given in Table 3. The suicide attempts were not evenly distributed and had a χ^2 value of 34.8 (p-value < 0.01). The number of attempts reached a peak on Tuesdays and Thursdays. Saturdays and Sundays had the smallest number of

cases. The distribution of fatal suicides had a χ^2 value of 8.8 (p-value = 0.8) which is not statistically significant. It suggested that fatal suicides were more evenly distributed in the week. Nevertheless, Saturdays had the smallest number of suicides. A similar phenomenon was also found among the Germans as shown in Massing and Angermeyer (1985).

Table 3
Days of week distribution of attempted and fatal suicides

	Attempted suicides						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
91-92	1	5	1	4	3	4	0
92-93	4	16	22	9	19	10	6
93-94	3	7	9	12	14	5	1
Total	8	28	32	25	36	19	7

$\chi^2= 34.8, p < 0.01$

	Fatal suicides						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
91-92	0	2	5	5	2	1	1
92-93	3	2	3	3	4	7	0
93-94	4	1	1	0	4	2	0
Total	7	5	9	8	10	10	1

$\chi^2= 8.8, p=0.8$

Month distribution

The month distribution of the suicide attempts and suicides is given in Table 4. The suicides and attempted suicides were not evenly distributed. The number of attempts reached a peak in October and November. The months of June, July and August had the smallest number of cases for both attempted and fatal suicides. For the general population in Hong Kong, June and July had the highest number of fatal suicides in the period 1981-1994 as shown in Yip (1995).

Table 4
Month distribution of attempted and fatal suicides

	Attempted suicide											
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
91-92	1	0	1	0	1	0	5	3	4	2	1	0
92-93	9	14	7	6	4	17	11	8	8	2	0	0
93-94	1	6	4	4	5	1	5	2	12	2	1	0
Total	11	20	20	10	10	18	21	13	24	6	2	0

	Fatal suicide											
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
91-92	1	0	1	2	1	2	4	2	1	2	0	0
92-93	1	3	3	2	5	1	3	2	0	0	1	1
93-94	0	3	1	0	1	1	1	3	1	1	0	0
Total	2	6	5	4	7	4	8	7	2	3	1	1

A correlation test was performed to test the relationship between the number of attempted and fatal suicides on a monthly basis for the three-year period. It failed to indicate a significant positive relationship between the number of attempted and fatal suicides. However, a separate testing was done to test the clustering effect of the occurrence of attempted and fatal suicides based on the times between successive events. The time intervals between successive attempted cases for the period. Figure 1 gives the cumulative plots of the total numbers of suicide attempts and suicide that occurred for the three-year period. For each event, the plot jumps one upwards. An important property

is that the slope of the line joining any two points on the plot is the average number of events per unit time for that period. Clustering or clumping phenomenon was found in attempted suicides but not in fatal suicides as shown in Figure 1. The suicide attempts occurred in patches. The correlation coefficient, r , which measures dependence between successive events among the suicide attempts and suicides, gave the values:

fatal suicides: $r = -0.04$ (p-value = 0.6)

attempted suicides: $r = 0.30$ (p-value < 0.01)

attempted and fatal suicides:

$r = 0.301$ (p-value < 0.01)

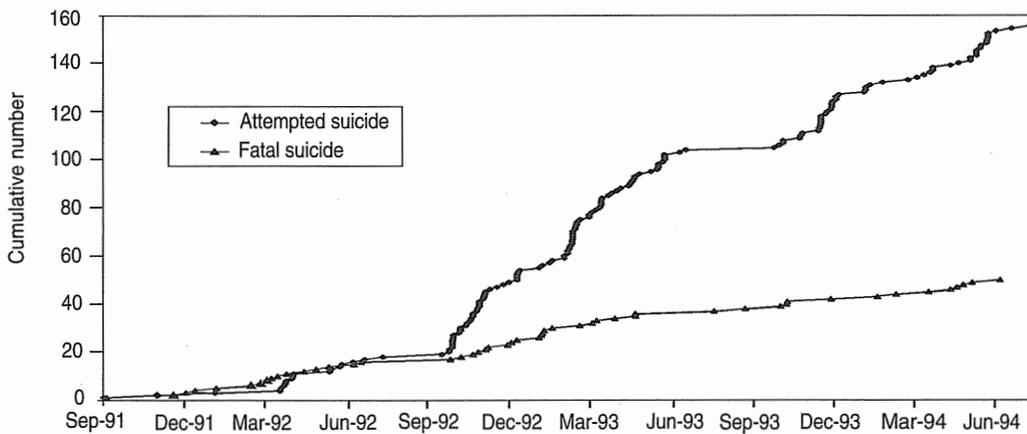


Figure 1 Distribution of the occurrence of school children attempted and fatal suicides, 9/91-8/94

Time

It implies that there is a positive relationship between the successive times for the attempted and fatal suicides but not fatal suicides alone. Insignificant results of relationship between the successive time of occurrence of the fatal suicides have also been shown in Yip (1993). Some of the attempted cases might become the fatal ones if they have not been rescued.

Discussion

Suicide attempters among Hong Kong school children were more frequently females which is consistent with the results in others countries (Platt et al., 1988; Prins, 1990; Diekstra et al., 1989; Van Casteren et al., 1993; and Hawton et al., 1995). Wrist slashing was the most frequently used method among school children in suicide attempts in Hong Kong and this was quite different from western countries. Platt et al., (1988) and Prins (1990) indicated self poisoning by overdose of medication as the most frequently used method of attempting suicide in Europe. Over 90% of the fatal suicides in Hong Kong were caused by persons jumping from a high place. Jumping is the most accessible means since about 85% of people live in high-rise buildings in Hong Kong (Hong Kong 1991 population census report). Teenagers prefer jumping to hanging or other means. Hanging, gas, firearms and drowning were seldom used by Hong Kong school children. It could have been due to the lower accessibility of these means. The crowded living conditions and tight firearms controls also discourage their use in Hong Kong.

There were more cases in the middle of the week. Students were likely to experience more stress and tension during weekdays rather than weekends. Also, family members were usually around during the weekend, making it more difficult to commit suicide without being noticed. Also the examination period, the months of May and June, was no longer the 'peak season' for suicide attempts or suicide, though for the general population there was a relatively high suicide rate in June. Pressure from sitting for public examinations has much been reduced in recent years. Students have more opportunities to receive tertiary education. The Hong Kong Examinations Authority has also made the examinations less difficult than before.

The suicide and attempted suicide rates among lower secondary school students were very high. About 65% and 54% for male and female respectively of the attempted and fatal suicides were

less than 14. Would the nine-year compulsory schooling have a negative effect on the emotional development for those who have no interest in school? Also, the amount of schoolwork prescribed to students in some schools is unbearable for students and parents as well. It not only reduces the enjoyment and pleasure of learning, parents also have less time to spend with their children on other activities. It doesn't do any good to the intellectual development of students or the parent-child relationship. It is important for parents to realize that the quality of education is not measured by quantity of homework given by a school.

Since they don't perform well in the school work and would be very distressed about their academic performance. The withdrawal and failure symptoms amongst school children would have developed especially since the emphasize of the present education system is still very much on academic achievement.

The 'clustering phenomenon' among suicide attempts was found to be statistically significant. Also, the time between successive events was not independent when we combined the data for attempted and fatal cases together. It might imply that fatal suicide of one child could trigger off another suicide attempts. Most of the attempts were not failed suicide and might be for attention-seeking only.

The belief that mass media reporting suicide event triggers off suicide resulting in the clustering phenomenon still should be viewed with caution. There could be some other factors occurring during the time period which produce similar phenomenon. The rising trend of committing suicide is greater for girls than boys. The fatal cases have similar characteristics, (Yip, 1993).

Females had the highest rates of suicide and attempted suicide. Is there any implication for gender bias in education and social expectations in Hong Kong, therefore leading more girls to commit suicide? Do girls have more relationship problems than boys or are there some other factors leading to this phenomenon? What about the pressure to look beautiful? A higher suicide rate amongst teenage girls in other countries has also been found in Lester (1990).

Also, the number of single-parent family increases significantly recently. The separation of the family due to the 1997 issue. Mother lives aboard to earn the foreign residence right and father stay behind to earn the living here. The children are 'trapped' between. Also, there are many mothers who live on the other side of the border. There are

many workers who have to commute between Hong Kong and China very frequently to do business in China. Families and society have under-gone very rapid change. There is less communication between parents and their children which has a very significant impact on the child development. The children are always confused with the rapid changes around them. They would feel helplessness when problems occur. It is distressing to see the teenagers to take their lives at such a young age. It is generally agreed that the family and school support are essential for the psychological development of our teens today. If the family and school environment were found to be helpful and friendly, certainly it would help to ease the suicide problem. It is encouraging to see that a series of educational programs on teenage suicide problem were shown in TV recently in order to help the teenagers and the parents to understand the problem.

More emphasis should be put on students' emotional and personal development in the school curriculum. Training should also be provided to teachers to assist students with emotional problems. Parents should also pay more attention to their children and not only to their homework. It is important to assist our school children to develop a proper perspective of life in order to avoid the tragic problem.

There might be over and/or under reporting problems from the school data for suicide attempts. Some schools may not report the cases especially when they do not require the support services provided by the Education Department. Cases which occur after school or during the holiday might be left unreported as parents might not report the incidents to their schools. On the other hand it seems that more schools feel obligated to report every case to the Education Department than they did before because of the possible consequence for the student and the school afterwards. It seems that there is a 'balancing' effect here. The school data provide a very useful reference to study teenage suicides and attempted suicides in Hong Kong.

The estimated suicide and suicide attempts rate in this study corresponds well with existing studies. It identifies the high risk groups among the teenagers, female and aged 15 or over. The data on fatal suicides would not have a lot of problem. The data on the attempted one might have a bit of more problem. However, the data suggests a similar result than before. It would be useful to compare the results with the data collected from Accident and Emergency Departments of the local hospitals.

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