The prevention of youth suicide: research and services

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In parallel with the escalating concern about youth suicides in the 1970s in the West, came an increase in suicide prevention efforts. The production of research data in the past 20 years enables us to evaluate the rationale and effectiveness of these suicide prevention programmes. Effective prevention programmes for youth suicide depend on our knowledge of the scope of the problem, factors associated with its occurrence, and an evaluation of the existing prevention strategies. The aim of this article is to review the main body of knowledge on the prevalence of and risk factors for youth suicide (both completed and attempted suicides) and use these to assess various prevention programmes.

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Introduction

The prevention of youth suicide has often been guided by assumptions and beliefs rather than what we know about the problem. This article attempts to review the currently available youth suicide prevention strategies and their efficacy.

Prevalence of youth suicidal behaviours

According to official statistics, there has been an increase in the number of completed youth suicides, especially among males in the United States, the United Kingdom, Australia, New Zealand, Europe, and other developed nations.[1-5] For example, in the United States, the incidences of suicide for white males aged between 15 and 19 years were 4 and 17 per 100 000 in the 1950s and in 1985, respectively; the figures for white females were 4 and 1.5 per 100 000, respectively. Epidemiological studies of attempted youth suicide are difficult to interpret because of the variations in the definitions of cases, ascertainment bias, time span covered, and the amount of information gathered. Nevertheless, a World Heath Organization multicentre project on parasuicide (acts that mimic suicide) using standardised definition and data collection estimated that the average parasuicide rates in 12 European cities for youths aged 15 to 24 years were 168 and 283 per 100 000 for males and females, respectively.[6] While there are wide regional differences in the prevalence of suicide attempts, it is obvious that suicide attempts outnumber completed suicide by more than 10-fold.

A number of studies examining data from Census and Departmental reports document that youth-completed suicide rates in Hong Kong were about 0.5 (aged 10 to 14 years) and 3 to 4 (aged 15 to 19 years) per 100 000 between 1960 and 1990.[7,8] Although it is too early to state there is a rising trend, the corresponding official figures in 1994 were 1.9 and 8.11 per 100 000, respectively. There is a lack of epidemiological data on the prevalence of suicide attempts in Hong Kong. Based on a referred sample, Pan and Lieh-Mak[9] reported that the youth parasuicide rate (aged 10 to 19 years) were 20 and 60 per 100 000 for males and females, respectively.

In terms of prevention, several points need to be highlighted. Firstly, the prevalence of youth suicide in Hong Kong may not be as high as that reported in the West but there is some suggestion that it may be increasing. Secondly, the sex ratio of youth suicides in Hong Kong is about 1:1 and this is a departure from the male predominance found in western countries. Thirdly, the lack of local epidemiological data on youth suicide attempts is a significant deficit and hampers the planning of systematic preventive measures.

Risk factors for youth suicide

Psychiatric disturbance

There is a general consensus that more than 90% of

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Table 1. Prevalence (%) of psychiatric disorders in youth completed suicides

	Rich[10] (1986)	Shaffer[11] (1988)	Runeson[12] (1989)	Martunnen[13] (1991)	Brent[14] (1993)
Any disorder	96	—	—	94	90
Affective disorder	35	21-50	43	52	49
Substance abuse	66	5-37	47	26	27
Conduct disorder	9	30-67	—	17	28
Schizophrenia	5-17	—	14-17	6	0
No disorder	4	—	—	6	10

Table 2. Odds ratios of various psychiatric disorders associated with youth attempted suicides

	Joffe[16] (1988)		Andrews[17] (1992)		Lewinsohn[18] (1994)	Fergusson[19] (1995)
	male	female	male	female		
Emotional disorder	8.1	10.1	1.9	1.9	3.0	4.9
Depression	—	—	17.3	4.6	4.0	16.8
Conduct disorder	5.6	8.4	17.3	3.5	2.3	13.2
Substance abuse	—	—	6.6	2.9	—	11.5

Table 3. Family disturbances in youth attempted suicides: findings from epidemiological studies

	Joffe[16] (1988)	Kienhorst[20] (1990)	Andrews[17] (1992)	Lewinsohn[18] (1994)	Fergusson[19] (1995)
Parent					
arrested	+				+
alcoholic	+				+
unemployed		+			
low education			+	+	
young mother				+	
Family					
low income	+				+
conflict/low support	+			+	+
low socio-economic status					+
single parent		+	+		

youths who complete suicide suffer from at least one type of major psychiatric disorder (Table 1). The most common psychiatric disturbances found are depression, substance abuse, and conduct disorder. The comorbidity of depression and substance abuse in personality disorder seem to impose a significant risk.[15]

Table 2 lists the findings of some major epidemiological studies of youth suicide attempts. It is clear that depression, antisocial behaviour, and substance abuse increase the risk of suicide attempts. Overall, about 80% of young attempters have one type of psychiatric disorder.[16,19] Studies consistently report that suicidal youngsters have a high prevalence of psychiatric disturbance but they do not represent a coherent diagnostic entity.

Family dysfunction

Family dysfunction as one possible aetiological factor in youth suicide has been consistently reported by a number of studies. Table 3 summarises some of the risk factors from recent epidemiological studies. One of the most prominent characteristics is overt parent-child conflict and poor communication.[21,22] An extreme feature of this conflictual relationship is child abuse, which is associated with both completed and attempted suicides.[23,24] While many suicidal youths come from broken families, the rate does not differ from non-suicidal psychiatric controls.[25] Although parental separation can be a strong determinant for emotional distress in adolescents, it is not a specific risk factor for suicidal behaviour.

The other well-recognised forms of familial dysfunction associated with youth suicide are suicidal behaviour and mental illness among family members. Approximately 25% of the first-degree relatives of completed suicide victims and 8% to 25% of suicide attempters' parents have suicidal behaviours.[26,27] Up to 50% of attempters have a positive family history of mental illness.[28] The types of psychiatric disturbance reported include parental depression, alcoholism, criminality, and a history of psychiatric treatment.[28,29] It has to be noted that few studies conduct standardised

interviews with parents and the parental mental disturbance could be the consequence of rather than the cause of the children's suicides.

Other personal variables

Low self-esteem has been found to predict both youth suicidal ideation and attempts.[18,20] In a hierarchical regression analysis, low self-esteem was found to predict suicidal ideation, even after controlling for levels of depression and hopelessness. Hence, self-esteem has a direct impact on suicidal ideation beyond what can be accounted for by depression and hopelessness. However, similar results were not confirmed among the suicide attempters in the same study.[30]

When compared with normal or psychiatric controls, cognitive problems can be identified in a subgroup of youth suicide attempters.[25] These problems include impulsivity and rigid adherence to problematic cognitive styles. It is not sure if these problems are state or trait problems, or if they are part of the psychiatric disturbances these suicidal youths suffer from.

Exposure to peer suicides

There is a growing body of evidence that youths exposed to a peer's suicide are at high risk for copying suicidal behaviours. Supportive evidence includes anecdotal reports of outbreaks of suicide and suicidal behaviours, time-space clustering of completed suicides in adolescents, and reports of increased suicide rates after media publicity of suicide stories.[31-33] It is not known if the mechanism is imitation, assortive friendship, or otherwise. In a follow-up study of youths exposed to peer suicide, Brent et al[34] reported that they were suffering from major depression, not simple bereavement. Thus, it seems some vulnerable youths will be adversely affected by any exposure to peer suicide.

Role of stressors

A wide range of stressful life events occurs prior to suicidal behaviours. These include humiliation, change in living circumstances, interpersonal loss and conflict, disciplinary crisis, and physical illness.[35] Rich et al[36] found that the type of precipitating stressors varied with the age of the subject. It suggests that suicide subjects, similar to non-suicidal ones, have to negotiate certain age-normative developmental tasks but somehow they succumb to the demand. Moreover, certain types of stressors occur at a high frequency in specific subgroups of suicidal youths (eg interpersonal loss among substance abusers).[37,38] The findings could be explained by suicidal behaviours being the consequence of interpersonal loss among substance abusers and/or the fact that substance abusers, because of their wayward lifestyles, are prone to interpersonal loss, and the latter may not specifically relate to suicide. The interplay between stressful life events (many of which are age-normative ones) and vulnerability (psychiatric disorders) appears to be an important determinant of suicidal behaviour. To portray suicide as the consequence of the precipitating event without regard to the underlying individual's vulnerability may be inaccurate.

Risk factors—how predictive are they?

Despite the extensive literature on the topic, several problems exist. Firstly, it is difficult to predict a rare event (eg youth-completed suicide) from a common risk factor (eg family breakdown) without generating many false positive cases. The small number of at-risk subjects in a large pool of false positives necessarily limits the cost-effectiveness of any preventive efforts. Secondly, a number of 'risk factors' do not stand out in comparison with matched psychiatric controls. This raises the argument that risk factors may increase the risk for psychiatric disturbances, but they are not specific for suicidal behaviours. Thirdly, many of these risk factors are identified through a univariate approach but it is obvious that categories overlap and are inter-related. Lewinsohn et al[18] reported that as many as half of the psychosocial variables associated with youth suicide attempts were eliminated after controlling for the presence of depression. There is clearly a need for a multivariate approach. Fourthly, little is known about the factors that may protect youths from suicide. Finally, if one accepts that there is a socio-cultural component to suicide, it will be interesting to see how the risk factors identified in the West apply to the local setting.

The local scene

Most local studies of suicide are descriptive works based on official statistics. Few studies focus specifically on youths. In a review of 303 coroner's cases of youth suicide (age less than 25 years) in Hong Kong between 1986 and 1992, we found that one third of suicide victims had been seen by psychiatrists.[39] More than two thirds of victims had some type of psychiatric disturbance. The most common disturbance was depression. Given that the coroner and police investigations are not psychologically oriented, we believe our figures underestimate the true prevalence of mental disturbance among those who commit suicide. It is noteworthy that only about 10% of our sample had illicitly used drugs—a figure far below that reported in the West (Table 1). The figure is, however,

higher than that reported in community surveys. Hong Kong youths have a lower rate for this risk factor, but it seems to operate in the same direction as in the West. Given that substance abuse is far more common among males than females, that Hong Kong youths have a lower prevalence of drug use, and that drug use is a risk factor for youth suicide, young Hong Kong males may have a low risk in this aspect and this may explain the low male to female ratio in youth suicide seen here when compared with the West.

The incidence of adult suicide in Hong Kong reaches a peak in the summer but there is no clear seasonal pattern among youth suicides. In particular, the number of youth suicides does not increase remarkably in the examination months (ie January and July). This argues against academic pressure being the major cause of youth suicide. The high level of family dysfunction is partially reflected in the finding that parent-child conflict is the single most common factor precipitating youth-attempted suicide in Hong Kong.[40] As with other research, our study finds a similar rate of age-normative stressors prior to suicidal deaths with an age-related distribution.

Based on the limited data available, we believe some of the specific features of youth suicide in Hong Kong are due to a differential distribution of risk factors. There are also many similarities and the escalating rate of divorce, diminishing support from the extended family network, increase in child abuse cases and youth substance abuse may mean that Hong Kong youngsters have to face an increased number of risk factors. Unless ameliorative changes are made, it is possible that youth suicides will continue to increase in the future.

Prevention efforts

School-based prevention programmes

The common goals of school-based prevention programmes are to raise awareness of suicide problems; to train participants to identify at-risk youngsters; to provide information about health resources, and to provide problem-solving training and/or stress reduction exercises.[11] It is noteworthy that virtually all school-based prevention programmes, in their attempts to destigmatise suicide, portray suicide as some type of reaction to normative stresses. Because of this orientation, these programmes heavily emphasise stress-coping and management techniques. This approach runs the risk of misrepresenting the facts, normalising suicidal behaviours, and possibly reducing potentially protective taboos.[41] Garland and Zigler[41] warn that familiarising adolescents with suicide may mimic exposure to peer suicides and lead to the paradoxical effect of identification. Unfortunately, in the student suicide package developed by the Education Depart-ment in Hong Kong, a similar stress model has been adopted.

Although school-based prevention programmes are popular, there is growing concern about their effectiveness. Controlled studies with pre- and post-attendance assessments indicate that the programme is not effective in imparting knowledge about suicide, does not change students' attitudes to suicide, and does not decrease subsequent suicidal behaviours.[42,43] Finally, the most at-risk students are likely to be absent from school and will not benefit from the programme. Overall, there is little to support having school-based suicide prevention programmes in their present form.

Restriction of access to suicidal means

Natural experiments have suggested that the elimination of carbon monoxide from domestic gas and the enactment of gun control laws are followed by a decrease in suicide rates by those particular means, but suicide by other means does not change appreciably.[44,45] Restriction of a lethal and popular suicide method may reduce suicide rates but unfortunately, this prevention strategy is not applicable in Hong Kong because jumping from a height has become the most popular method of suicide in the past 30 years and there is little one can do to restrict access to heights.[8]

Hotline service

Knowing that suicides are often precipitated by stressful events, some attempters are ambivalent about death, and many adolescents prefer making an anonymous call to attending a clinic, suicide hotlines should be a promising prevention strategy. However, the effectiveness of hotline services in reducing suicide rates remains controversial. Studies usually compare suicide rates before and after the establishment of a hotline service, or different localities with and without such a hotline service. Both positive and negative results have been obtained.[46-48] However, most of these studies have serious methodological problems. A decrease in the suicide rate, if any, cannot be linked directly to the use of a hotline service and there is a general reservation as to whether a hotline service can reach the most at-risk subjects. While there is no doubt that many emotionally disturbed youths use hotline services who otherwise may not receive care from any other setting and many have had a good experience in using the hotline service, the acid test is whether it can reduce suicidal behaviours in the young. At present, one can conclude that the decrease in the suicide rate is, at best, a limited one. Shaffer et al[11] proposed that

hotline services should adopt standardised screening procedures coupled with active case management to address the multiple problems that the at-risk group face. If the proposal is acceptable to the various hotline service agencies in Hong Kong, one of the challenges will be to build up referral networks between mental health and local hotline services.

Treatment for attempted suicide

Given the strong prediction of past suicidal behaviours on future attempts, the treatment of suicide attempters is an important secondary prevention strategy.[17] A review of this topic is beyond the scope of this article, but it is worthwhile highlighting several consensual findings. The majority of youths who attempt or complete suicides do not receive medical attention.[39] To meet their needs, a psychiatric service has to be easily accessible, community-oriented, and be closely tied to the resources available in the community. Both research and clinical experience consistently show that more than half of suicidal youths do not comply with treatment and this non-compliance is not a random process.[49] Consequently, strategies that improve the follow-up rate need to be considered. Possible strategies include having the same clinician performing the initial assessment and follow-up treatment, fostering therapeutic alliance, and therapists being sensitive to their own emotional responses to suicide, as well as to any family reactions to intervention. Given the huge and rapid attrition rate during follow-up, a brief, crisis-oriented treatment approach seems to be appropriate for the majority of patients, and intensive treatment should be reserved for those with severe psychopathology.

Randomised treatment studies of adult suicide attempters suggest that treated subjects do improve in terms of psychiatric disturbance and social adjustment compared with controls, but their suicidal behaviours do not decrease.[50-52] Some studies offer treatment at patients' homes, which means a more vigorous approach beyond clinic-based treatment. There is a paucity of good treatment studies on youth suicide attempters. Recent cognitive behavioural treatment alternatives for young suicide attempters remain unevaluated.[53,54] Despite the enthusiasm, Rudd et al[55] warn that pretreatment scores of attempters obtained just after the suicide acts are likely to be poor and any return to premorbid functioning reflects a significant improvement, regardless of treatment modality. Lerner and Clum[56] compared social problem-solving therapy with supportive therapy among young suicidal ideators recruited by advertisement. The experimental group showed improvement in mood symptoms but not in suicidal ideations. It is not apparent if the results can be generalised to clinic subjects.

Given that those who attempt suicide are a heterogeneous group in terms of their psychiatric disturbances, no unimodal therapy is likely to address this group's multiple needs. The improvements reported in these studies are found only in those non-psychotic repeat attempters without substance abuse problems. Hence, the challenge is to develop effective therapies for different subgroups of patients. The multiple familial problems as well as the psychiatric disorders found in many young suicide attempters must be addressed.[19]

Influence of the media

Knowing the possible association between publicity and youth suicide clusters, it is prudent to enlist the help of the media in prevention efforts. Instead of asking for censorship of suicide coverage, Garland and Zigler[41] argue that workers in the media should be informed of the social imitation effect of youth suicides. Such an approach was adopted locally some years ago when there was extensive coverage of some dramatic cases of youth suicide. The Hong Kong Journalists' Association has issued some general guidelines. A further step would be to establish jointly with media professionals guidelines for the reporting of suicides that the media agrees to follow.

Postvention

Postvention refers to intervention work with surviving relatives and friends after an individual has committed suicide. Besides managing the emotional repercussions, post-vention may minimise the adverse effects of exposure to peer suicide and thereby prevent the appearance of a suicide cluster. Unfortunately, the implementation of school-based postvention programmes in Hong Kong depends very much on the willingness of each individual school. Despite the availability of such programmes and support from the Education Department, some schools refuse postvention work. Many share the belief that talking about suicide may have a detrimental effect. Educational efforts targeted at adults working with adolescents are required. Because of resource limitations, it is important to identify which groups of youths or students are particularly vulnerable to a peer's suicide. The successful identification of at-risk youths will make postvention programmes more cost-effective. Despite the promising potential, no systematic evaluation of postvention is currently available.

Recommendations

This brief review highlights the discrepancies between

the knowledge about risk factors and the currently available prevention strategies for youth suicides. Many of the current prevention strategies were established before the research work quoted above. To gain a better understanding of youth suicide and hopefully, to develop more effective preventive measures, we believe it is relevant to address the following:

(1) The historical tendency to explain suicide by theories such as Freudian analysis have not guided us to a better strategy in the prevention of youth suicide and there is insufficient evidence to support such theories. An appreciable amount of empirical research on youth suicide has been compiled in the past two decades. Yet the lack of local data is a hindrance to understanding such a heterogeneous problem. To enrich and broaden the database with regards to youth suicide, we believe some form of central registry is required. The registry should coordinate the activities of different Government departments and organisations to help obtain standardised data collection, regular monitoring of trends, and speedy recommendations.

(2) To counterbalance the deleterious effects of exposure to peer suicide and to reduce the normalising effect whereby a suicide is seen as an adjustment to stress, the message that suicide is not the answer should be emphasised. Given the strong association between suicide and mental illness, it should be emphasised that many youths who complete or attempt suicide are psychiatrically disturbed. Public health education about youth suicides should depict suicide as the tragic outcome of multiple vulnerabilities and not simply as a reaction to stress. Similarly, intervention efforts should target the treatment of these vulnerable factors rather than stress management.

(3) The school-based prevention programme in its present form has a limited impact and is unable to reach target students. Knowing that youths prefer to seek help among themselves and that they tend to know their peer's suicidal ideas and witness their peer's suicidal behaviours more often than do parents or teachers, it is logical to focus attention on mobilising peers as allies. A student assistant programme piloted by the Education Department and the Department of Psychology, The University of Hong Kong, may be worth pursuing. This scheme mobilises a group of students under the supervision of teachers as the 'front-line workers'. These students are given a period of training and taught how to assess and give preliminary management in instances of drug abuse and suicide. However, no evaluation data on the effectiveness of the programme have been reported yet.

(4) Studies consistently agree which groups of youngsters are at risk for suicidal behaviours. Hence, early detection, despite false positives, becomes a possible and feasible task. An important step would be to equip front-line workers, including teachers, guidance officers, youth workers, and family doctors with the knowledge and skill required to identify and perform a preliminary assessment of these at-risk youths. Coupled with this screening, a mental health service that can provide specialist advice and support to front-line workers and a service to youths deemed to be at serious risk should be developed.

(5) Family dysfunction, in one way or another, is a consistent risk factor for youth suicide as well as providing the context in which many psychiatric problems arise (eg substance abuse, antisocial behaviour, etc). In terms of prevention, many services for at-risk families should be considered. These may include providing appropriate childcare, marital counselling, parental education, family services, strengthening the family support network, empowering families to cope with their problems, improving the parent-child relationship, and enhancing healthy family functioning; such steps should help to reduce youth suicidal behaviours. This would require a concerted effort from the various institutions that serve children and adolescents in Hong Kong.

(6) The effective treatment of those who have attempted suicide should be an integral component of any preventive measure. Given the heterogeneity of youth suicides, no single therapeutic approach is likely to be effective for all cases. To meet the service needs of this group, the psychiatric service has to be accessible, capable of responding quickly to a crisis, ensure continuity of care, and tap into community resources.

(7) Consistent with the scarcity of relevant data for the appraisal of prevention efforts, we believe it is necessary to build in an evaluation of any advocated preventive method.

The premature loss of a young life touches everyone, attracts media attention, and often draws a knee-jerk response from policy makers. The challenge is to find a way to translate and distil the limited knowledge currently available into coherent, empirically-based prevention models and treatment programmes.

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