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Risk factors for suicidal behavior in adolescence

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Adolescent suicide is today a public health problem among the leading cause of mortality among adolescents and young adults. There seems to be many reasons for this increase (which has different trends in different populations), but associations have been found with increased substance abuse, television and video violence, socio-economic status and easy access to firearms. Gender differences have also been observed with crime, suicide and substance abuse higher among males, while eating disorder, depression and suicidal behavior more prevalent among females. This paper will review prevalence and incidence of adolescent suicidal behavior, socio-demographic and psychological risk factors, associated cognitive factors and socio-economic factors. Risk factors include previous suicide attempts, a history of others in the family who have been suicidal, mental illness, alcohol and drug use, and other self-destructive behaviors as well as consideration being given to hopelessness, hostility, negative self-concept and isolation. At the individual difference level, factors such as trait depression, anger and hostility, perfectionism and social sensitivity would seem critical variables, as would age, gender and intellectual functioning. Sociological and family-related factors may also be implicated including dysfunctional family organizations, a history of physical or psychological abuse (sexual abuse) and limited extent of social support networks. A frequently reported precipitating event of suicidal behavior is family adversity including rejection, separation and interpersonal conflict. At a socio-economic level it would seem essential to provide comprehensive document about the social and economic conditions from which the adolescent comes.

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Young people have increasingly become implicated in the statistics of suicide attempts and also accomplished suicide, which must be seen together with escalating rates of psychosocial disorders, suicidal behavior, depression, alcohol and substance abuse.[1, 2] Today suicide as a cause of death exceeds

both homicide and war related mortality.[1] This is a complex public health problem, where even some explanatory factors include influence of the mass media,[3, 4] discrepancies in socio-economic status (rich and poor communities), disintegration of family structure [5] and earlier onset of puberty. Associations have been found with gender in the form of crime, suicide and substance abuse being much higher among males, whereas eating disorders, depression and suicidal behavior were higher among females. Age has also been implicated in differential suicide rates.[1-5]

There seems to be different trends in different countries. The US Surgeon General [6] reported age-specific mortality rates for suicide 6 times higher among the older adolescents (15-19 year-old) compared to 10-14 year olds with males being 4 times more likely to commit suicide than females, whereas attempted suicide was twice as high among females. Since the 1960's there has been a three-fold increase in the number of older male adolescents, who committed suicide, although the incidence rate for female adolescence remained stable. The increase in teenage suicidal behavior among US males has been attributed to the increase in availability of firearms and to the observed increment in substance related abuse. However, in several Western countries, a decline in the adolescent suicide rate has been reported. It seems plausible that attempts to diminish the rates of adolescent suicidal behavior would be improved if more details were available of the specific causal factors identifying those adolescents, who are at an increased risk for lethal attempts or completed suicide.[7]

Prevalence and incidence of adolescent suicidal behavior

In a Canadian study, the community prevalence of about 15% for significant symptom distress and social impairment was found in a sample of young people.[8] The most frequent diagnoses were anxiety disorders (6.5%), conduct disorders (3.3%), attention deficit/hyperactive disorder (3.3%), depressive disorders (2.1%) and substance abuse (0.8%).

In a German study,[9] with a representative non-clinical sample of adolescents (14-18 years), it was reported that suicidal ideation was more prevalent among females (19.3%) than males (8.9%). Suicidal intent was reported about 3 times more frequently among girls (17.7%) than amongst boys (5.9%). In contrast, death fantasy (passive death wish) was much more commonplace for both sexes (54.3% and 28% for females and males, respectively), findings consistent with others, who also found that passive death wish was more common than suicide ideation with a specific plan.[10] The common major determinant of suicidal intent was anxiety-depression. For boys, inferior self-image and maternal rejection were significant factors although the latter demonstrated a counter intuitive relationship, *i.e.* low rates of maternal rejection was associated with a greater likelihood of self-harming behavior. Greater suicidal ideation was expressed by female adolescents, who displayed fewer social problems and low maternal rejection.

Self-injurious behavior has been argued to be clinically quite distinct from suicidal intent.[11] Favazza [12] asserted that self-mutilative behavior represents a morbid form of self-help antithetical to suicide. Others have reported that among child and adolescents in psychiatric clinical care, over 1/4 of those with self-injurious behavior will have had a history of attempted suicide compared to 11% of other clinical groups.[13] Simeon *et al.*[14] suggested that impulsive self-injurious behaviors do frequently reflect an almost compulsive preoccupation with harming oneself physically and are related to a complex pattern of multiple determinants, motivations and precipitants. Milligan *et al.*[15] argued that the function of self-harming was to permit individuals to reduce or block intolerable negative emotions.

Connor [16] demonstrated the high rate of maladaptive aggressive and suicidal behavior in significant numbers of children and adolescents. The prevalence of conduct disorders varied between 1.5% and 20% (de-

pending on the time frame of the study) of non-referred 4-18 year olds as assessed in different communities in Europe and North America. In the United States, rates of delinquency and aggravated assault have been rising for adolescents aged 14 and older. Conduct disorders in psychiatric settings were between 25-90%, prevalence rates being 10-100 times higher than for the general population. Finally, in child and adolescent psychiatric clinics suicidal behavior (ideation, threats and attempts) were between 17-61% of the sample.[16]

While adolescents account for only 12% of the US population conduct behavioral problems of adolescents aged 13-18 years accounted for approximately 39% of arrests for offences of homicide, rape, aggravated assault, robbery, burglary, motor vehicle theft, larceny and arson.[17] In the 25 years from 1960-1985, the rate of violent and aggressive crimes among juveniles had increased by 233%. In addition to the problems of crime and delinquency among adolescents are problems associated with substance abuse and drinking as well as antisocial behavior. Moreover, suicide had become the 4th cause of death among the 15-19 year-old, superceded only by accident, homicide and cancer.[17]

Socio-demographic and psychological risk factors

In a longitudinal study, 496 young people aged between 10-21 years, who had committed suicide during 1981-97 in Denmark, were compared with a matched control of over 20 000 in terms of family and individual psychiatric and socio-economic factors.[18] Factors associated with an increased risk of children's suicide were parental suicide or premature death, admission to hospital for a mental disorder, lack of employment, inferior education/schooling, low income and divorce, as well as mental illness in siblings and mental illness and short period of schooling among the young people themselves. The strongest determining risk factor was mental illness in the young people. The effect of parents' socio-economic factors decreased after adjustment for a family history of mental illness and a family history of suicide.[18]

Brent *et al.*[19] examined gender and age-related determinants of adolescent suicide, and found that suicidal risk was associated with lifetime history of substance abuse, mood disorders, past suicide attempt, parental psychopathology and accessibility to a gun. Males were inclined to choose more irreversible methods of self-destruction, and also displayed a higher incidence of conduct disorders.

Depression and hopelessness are two well-documented characteristics associated with suicide.[20] Rutter *et al.*[21] explored the adolescent suicide risk among a group of 100 late adolescents, and found evidence that individual psychosocial factors of hopelessness, hostility, negative self-concept (including self-loathing) and isolation (low social support) were correlated with suicidal risk. Hopelessness has been claimed to be a significant indicator of adolescent and childhood depression and if coupled with impulsivity may constitute a volatile combination. Rutter *et al.*[21] argued that adolescents reporting strong social support (presumably associated with low isolation) displayed higher levels of resilience and lower levels of suicide risk. Such individuals would be less likely to be suicidal as their immediate family, friends, and peers were perceived to be more accepting.[22] Conversely, research suggested that adolescents who report an absence of social support and experienced isolation exhibited an increased likelihood of behaving in self-injurious ways.[23]

Some researchers [24] have asserted that anger can exert a major role in depression and suicide risk among adolescents. They examined internalized and externalized anger in 92 adolescent psychiatric inpatients. Adolescents who internalized their anger were more likely to be depressed and displayed feelings of hopelessness. Furthermore, those adolescents who internalized their anger were more likely to make more serious suicide attempts than those who externalized their anger. Individuals who external-

ized their anger were more likely to have alcohol-related problems.[24] Some have argued that it may be the combination of behavioral tendencies associated with suicidal behavior, for instance the lack of reflection and inhibition coupled with impulsivity, which may lead to higher rates of impulsive attempts made by younger patients, characterized by shorter periods of contemplation.[25]

Levy *et al*.[26] suggested that no single predictor of suicide has been identified, rather suicidal-ideation, intent and behavior seem associated with diverse factors encompassing individual (hopelessness), family (divorce, family history of suicide, physical and sexual abuse, family discord), and sociocultural domains. Among suicidal adolescents (12-18 years) admitted to emergency room and pediatric wards due to consecutive suicidal attempts, it was found that hopelessness emerged as the strongest predictor with females more common (80%) than males (20%). Family discord was also associated with suicidal intent (conflict within the family, poor communication and lack of cohesion).[26]

Perfectionism is another central personality trait which has been shown to be related to suicidal behavior. Perfectionism has been defined as a setting and maintenance of unrealistically high standards/expectations and a high sensitivity to critical evaluation.[27] A group of adolescents attending psychiatric inpatient care in Manitoba, Canada, showed that female adolescents displayed higher scores on hopelessness and suicidal ideation than males. The determinants of suicidal behavior included gender, socially prescribed perfectionism (concern adolescents have over social acceptance, social integration and an excessive fear of public failure) and hopelessness.[27] Some researchers [28] failed to show evidence that perfectionism was related to suicidal behavior. Proneness to negative emotions such as shame has been found predictive of self-harming and suicidal behaviors in adolescents.[29] Milligan *et al*.[15] suggested that childhood sexual or physical abuse may be implicated in suicidal behavior in community studies of women showing event specific shame act as mediators for girls and women suffering depression or post-traumatic stress.

Associated cognitive factors

Other researchers have focused on cognitive and intellectual factors, which may play a role in suicidal behavior.[20] Gunnell *et al*. examined the military records of almost one million Swedish males 5-26 years after their service.[30] There were 2 811 cases of suicide, and the rates were 2 or 3 times higher among those who had lower intelligence quotient scores, particularly on the scale logical ability. The association was attenuated when socioeconomic status was considered. The greatest risk was observed among poorly performing male offspring of well-educated parents. The finding that more intelligent individuals were less inclined to commit suicide may be evidence that cognitive ability may exert a role in the etiology of mental disorders or individual ability to resolve problems superior, when going through acute life crisis or when suffering from psychological disorders.[30]

Meichenbaum [31] claimed that among the factors associated with suicidal behavior were (maladaptive) thought processes, *e.g.* preoccupation with self (high self-awareness), more concrete and rigid dichotomous thinking; creative problem-solving capabilities become curtailed, and thought processes become inflexible, one-sided and cognitively rigid.

Zarb [32] reported several risk factors associated with suicide among adolescents, including social isolation (loners with deficiencies in social skills and poor communication aptitudes), victims of sexual abuse, acting out adolescents often with chemical substance dependency (*e.g.* drug and alcohol usage), males who have been forced to adopt a specific role and forced beyond their endurance (over-achievers), rigid and compulsive persons and psychotics (prevailing delusions and hallucinations). Overall, caution in interpretation of general research findings must be exercised making distinctions between those empirical studies exploring sui-

cide attempts [10, 33] and those for completed suicide.[34]

Socio-economic factors

Boyle *et al.*[35] looked at data for 1980-1982 and 1999-2001 in Scotland and found the suicide rate declined significantly among older adults from 22.99 to 16.73/100 000 during the twenty-year period, but increased significantly from 22.13 to 38.65 per 100 000 inhabitants for young men (15-44 years). The rate also increased among young women (8.62 to 10.55) but this increase was not significant. The suicide gap between the least and most deprived areas widened more for young women: there were 6 times as many deaths in the most compared to least deprived fifth of the population in the period 1999-2001 (152 vs 24). For young men, rates rose in every fifth with a pronounced rise in the most deprived fifth. They suggested that this growing social polarization may be the result of increased drug abuse, divorce, and unemployment which are often much higher in the more deprived section of society.[35] Similarly, Mortensen *et al.*[36] analysed the data registry of the Danish population aged between 16-78 years in the fifteen-year period from 1980-1994. There were 811 suicides and these were matched with 79 871 controls. Suicide rate was higher among urban as opposed to non-urban residents, and other risk factors included unemployment, single status, low income and having being admitted to a psychiatric hospital.

In a review of the literature, Meichenbaum [31] found suicidal rates were higher among the divorced, single or widowed and lowest among the married. Higher incidences were further observed among individuals with inferior social networks and the unemployed and increased rates in periods of high unemployment, particularly for the long-term unemployed males. Higher social class may be a risk factor for African American males, while rural locale a risk factor for suicide among Chinese females; low social class is a risk factor for attempted suicide, but generally not for completed suicide.

Discussion

Manor *et al.*[37] suggested that the topic of death was a significant mental preoccupation among adolescents and concluded that adolescents give considerable thought to the idea of the end of life, even in adolescents having no psychopathology or suicide wish. Connor [16] has shown that for clinical settings suicidal intent was reported in 17-61% of cases (and conduct disorders with overt aggression between 25-90% of cases). Hawton *et al.*[38] reported prevalence figures of deliberate self-harm of 8.6% over the last year and 13.2% lifetime prevalence rates.

Previous research has shown that female adolescents display much greater rates of self-injurious and mutilating behavior as well as suicidal behavior than male adolescents.[39, 40] Female and male adolescents have some global determinants of covert aggression including age and family disharmony, but some gender-specific predictors exist, e.g. disability among siblings, number of siblings as well as intellectual functioning (IQ), these may exert a significant role among boys but not girls.[40] Gunnell *et al.*[30] found that for (older, Swedish) males actual suicide had been related to lower intelligence. On the contrary, higher IQ may be a risk factor for suicide among younger adolescents for whom intellectual precocity emerges as a risk factor for suicide. Conversely, impaired intellectual capacity may serve as a buffer to suicidality among adolescents with intellectual disability, associated with a lack of cognitive sophistication to conceptualize, plan or carry out a suicide.[41] Sexual abuse (self-reported) has been related to suicidal behavior and significantly related to self-inflicted injury rates for female adolescents,[15, 42] but in some studies this relationship lacked maybe due to the self-reported nature of the data, where also hospitalized adolescents were too young and/or reluctant to disclose details of sexual abuse. Alternatively, it may that that physical abuse, especially sexual abuse, is more prevalent among all groups of psychologically distressed adolescents.

Inadequate parental directives has also emerged as one of the gender-specific factors

determining both self-injurious and suicidal behavior among females but not males. Excessive conflicts with peers, parental underinvolvement and subjectively experienced rejection were the factors which unique as predictors of suicidal behavior for female adolescents, affording credence to the hypothesis that females may be more sensitive to social criticism. Males were likely to display more frequent self-injurious behavior if they had large families, that is, more siblings, had felt adverse effects of new family members, and/or were in institutional care.[43]

Conclusions

Rutter *et al*.[21] formulated some implications suggesting a need to design dual-approach interventions that work with both the individual and within society and suicide reduction strategies might usefully combat anomie by encouraging small group participation for marginalized individuals. Other risk factors should not be ignored in assessing adolescent suicide risk, including previous suicide attempts, a history of others in the family who have been suicidal, mental illness, alcohol and drug use, and other self-destructive behaviors as well as consideration being given to hopelessness, hostility, negative self-concept and isolation.

At the individual difference level, factors such as trait depression, anger and hostility, perfectionism and social sensitivity would seem critical variables, as would age, gender and intellectual functioning. An array of sociological and family-related factors may also be implicated including dysfunctional family organizations, a history of physical or psychological abuse (sexual abuse) and limited extent of social support networks.

A frequently reported precipitating event of suicidal behavior is family adversity including rejection, separation and interpersonal conflict. At a socio-economic level it would seem essential to provide comprehensive document about the social and economic conditions from which the adolescent comes.[5]

There is apparently a need to have school-based programs aiding educators and counselors to screen/identify health risk factors enabling promotion of psychological health as early as possible. There would appear to be a need to pay particular attention to females and the older adolescent groups with respect to self-injury and suicidal ideation among adolescents. Moreover, details of family life and interfamily relationships are important, and here teachers may need to add these insights to adolescent social relationships with peer groups. Educating youth about expected developmental changes and the problems likely to be associated with adolescence is valuable, indicating when thoughts of death are normal and when they are not. Dialogue between adolescents and mental health professionals should assist in promoting health seeking behaviors and optimizing that help when it is sought.[44]

Lessons for practitioners

For clinicians increasing awareness about the relevance of anger and its diverse modes of anger expression would seem paramount.[24] Externalized anger may be overt and dramatic, but internalized anger is more complex. Certainly the relationship frequently observed between negative affect (anxiety and depression) and suicidal behavior is complex because of the involvement of such individual difference variables as anger and hostility. Overt (external) anger is likely to be associated with assaulting or physical aggression and verbal threatening behavior in contrast to covert (internalized) anger which may be related with inwardly directed self-debilitating actions.

Good screening and treatment program must be supplemented with effective follow-up for psychiatric illnesses, particularly among physicians and teachers, since identification does not necessarily translate into follow-up.

The rate of suicidal and parasuicidal behavior is substantially higher than expected by parents or indeed by medical practitioners, including pediatricians. As a result it is frequently overlooked in medical assessment. There are a wide range of behavioral deviancies and symptoms, which may be asso-

ciated with likely suicidal or self-injurious behavior. Among these are the individual and family factors as well as the accumulation of risk factors. In instances where the psychological assessment focuses on the more obvious asocial, (chemical) dependent or other pronounced externalized behavior, the tendency to neglect suicidal behavior is increased.

Both the individual adolescent and his or her immediate family are likely to deny suicidal tendencies and the need for professional assistance. Hence, parents and their children must be convinced of the dire need during the diagnosis to pursue intensive psychotherapy programs. Pediatricians as well as other members of the medical professional should be sensitive to whether such suggestions are actually carried out by their clients.

Riassunto

Fattori di rischio per le pulsioni suicide negli adolescenti

Il suicidio degli adolescenti è diventato attualmente un problema di salute pubblica e rappresenta una delle principali cause di morte in questa fascia di età e tra i giovani adulti. Sembrano esserci molte ragioni per il continuo aumento di suicidi (che comunque ha un andamento diverso in popolazioni diverse), ma di sicuro è stata provata l'associazione con l'aumentato uso e abuso di sostanze stupefacenti, con i programmi televisivi e i videogiochi violenti, con la condizione socio-economica e con il facile accesso alle armi da fuoco. Sono anche state osservate delle differenze tra i sessi riguardanti il crimine, il suicidio e l'abuso di sostanze stupefacenti (maggiori nei maschi) e i disturbi dell'alimentazione, la depressione e i comportamenti suicidi (maggiori nelle femmine). Questo lavoro rivede la prevalenza e l'incidenza del comportamento suicida adolescenziale, i fattori di rischio socio-demografici e psicologici, i fattori cognitivi associati e i fattori socio-economici. I fattori di rischio comprendono precedenti tentativi anticonservativi, la presenza di casi di suicidio in famiglia, la malattia mentale, l'abuso di alcool e di droghe e altri comportamenti auto-distruttivi, così come la perdita di speranza, l'ostilità, l'autosvalutazione e l'isolamento. A livello individuale, fattori quali un tratto depressivo, la rabbia e l'ostilità, il perfezionismo e la sensibilità sociale sembrerebbero essere delle variabili critiche, così come l'età, il sesso e il livello intellettuale. Possono anche essere implicati fattori sociologici e familiari, quali la disorganizzazione familiare, precedenti episodi di abusi fisici o psicologici (abusi sessuali) e una limitata rete di supporto sociale. Un aspetto che frequentemente porta a un comportamento suicida è rappresentato dalle avversità familiari quali il rifiuto, la separazione e il conflitto interpersonale. Da un punto di vista socio-economico sembrerebbe essenziale avere a disposizione una documentazione esauriente sulle condizioni sociali ed economiche dalle quali provengono questi adolescenti.

Parole chiave: Fattori di rischio - Suicidio - Adolescenza.

References

1. Krug EG, Dahlberg LL, Mercy JA, Zwi AB, Lozano R. World report on violence and health. Geneva: World Health Org.; 2002.
2. Court C. Psychosocial disorders rise among the young. BMJ 1995;310:1429.
3. Phillips DP. The influence of suggestion on suicide: substantive and theoretical implications of the Werther effect. Am Sociol Rev 1974;39:340-54.
4. Stack S. The effect of the media on suicide: evidence from Japan 1955-1985. Suicide Life Threat Behav 1996;26:132-42.
5. Marttunen MJ, Henriksson MM, Isometsa ET, Heikkinen ME, Aro HM, Lonnqvist JK. Completed suicide among adolescents with no diagnosable psychiatric disorder. Adolescence 1998;33:669-81.
6. US Surgeon General. Mental health report: children's mental health, a report of the Surgeon General. Washington, DC: US Dept Health Human Serv.; 2000.
7. Mann JJ. Foreword. In: Merrick J, Zalsman G, editors. Suicidal behavior in adolescence: an international perspective. London/Tel Aviv: Freund; 2005.p.1-2.
8. Waddell C, Shepherd C. Prevalence of mental disorders in children and youth: a research update for the British Columbia Ministry of Children and Family Development. Vancouver, Canada: MHECCU, UBC; 2002.
9. Kirkcaldy BD, Eysenck M, Siefen GR. Psychological and social predictors of suicidal ideation among young adolescents. School Psychol Int 2004;25:301-16.
10. Lewinsohn PM, Rohde P, Seeley JR. Adolescent suicidal ideation and attempts: prevalence risk factors and clinical implications. Clin Psychol Sci Pract 1996;3:25-46.
11. Pattison EM, Kahan J. The deliberate self-harm syndrome. Am J Psychiatry 1983;140:867-72.
12. Favazza AR. The coming of age of self-mutilation. J Nerv Ment Dis 1998;186:259-68.
13. Wewetzer G, Friese HJ, Warnke A. [Open self-injury behavior with special reference to child and adolescent psychiatry. A review of the literature and first study findings]. Z Kinder Jugendpsychiatr Psychother 1997;25:95-105.
14. Simeon D, Favazza AR. Self-injurious behaviours. In: Simeon D, Hollander E, editors. Self injurious behaviours: assessment and treatment. Washington, DC: Am Psychiatr Press; 2001.p.1-28.
15. Milligan R, Andrews B. Suicidal and other self-harming behaviour in offender women: the role of shame, anger and childhood abuse. Leg Criminol Psychol 2005;10:13-25.
16. Connor DF. Prevalence of aggression and antisocial behaviour and suicide. In: Connor DF, editor. Aggression and antisocial behaviour in children and adolescents. New York: Guildford; 2002.p.28-45.

17. Feindler EL, Ecton RB. Adolescent anger control: cognitive behavioural techniques. New York: Pergamon; 1986.
18. Agerbo E, Nordentoft M, Mortensen PB. Familial, psychiatric, and socioeconomic risk factors for suicide in young people: nested case-control study. BMJ 2002;325:74.
19. Brent DA, Baugher M, Bridge J, Chen T, Chiappetta L. Age- and sex-related risk factors for adolescent suicide. J Am Acad Child Adolesc Psychiatry 1999;38:1497-505.
20. Mills JJ, Kroner DG. Screening for suicide risk factors in prison inmates: evaluating the efficiency of the depression, hopelessness, and suicide screening form. Legal Criminol Psychol 2005;10:1-12.
21. Rutter PA, Behrendt AE. Adolescent suicide risk: four psychosocial factors. Adolescence 2004;39:295-302.
22. Harter S, Marold C, Whitesell N, Cobbs G. A model of the effects of perceived parent and peer support on adolescent false self behavior. Child Dev 1996;67:360-74.
23. Spruijt E, de Goede M. Transitions in family structure and adolescent well-being. Adolescence 1997;32:897-911.
24. Cautin RC, Overholser JC, Goetz P. Assessment of mode of anger expression in adolescent psychiatric inpatients. Adolescence 2001;36:163-71.
25. Gorlyn M. Impulsivity in the prediction of suicidal behaviour in adolescent population. Int J Adolesc Med Health 2005;17:205-10.
26. Levy S, Jurkovic GL, Spirito A. A multisystems analysis of adolescent suicide attempters. J Abnorm Child Psychol 1995;23:221-34.
27. Hewitt PL, Newton J, Flett GL, Callander L. Perfectionism and suicide ideation in adolescent psychiatric patients: perfectionism and hopelessness. J Abnorm Child Psychol 1997;25:95-101.
28. Gould MS, King R, Greenwald S, Fisher P, Schwab-Stone M, Kramer R *et al*. Psychopathology associated with suicidal ideation and attempts among children and adolescents. J Am Acad Child Adolesc Psychiatry 1998;37:915-23.
29. Tangney JP, Dearing RL. Shame and guilt. New York: Guilford Press; 2002.
30. Gunnell D, Magnusson PKE, Rasmussen F. Low intelligence test scores in 18 year old men and risk of suicide: cohort study. BMJ 2005;330:167.
31. Meichenbaum D. Treating post-traumatic stress disorders: a handbook and practice manual for therapy. New York: Wiley; 1994.
32. Zarb J. Cognitive behavioural assessment and therapy with adolescents. Bristol, PA: Brunner-Mazel; 1992.
33. Kienhorst CWM., DeWilde EJ, Van den Bout J, Dietstra RFW, Wolters WHG. Characteristics of suicide attempters in a population-based sample of Dutch adolescents. Br J Psychiatry 1990;156:243-8.
34. Pritchard C, Hansen L. Child, adolescent and youth suicide or undetermined deaths in England and Wales compared with Australia, Canada, France and Germany, Italy, Japan and the USA. In: Merrick J, Zalsman G, editors. Suicidal behavior in adolescence. London/Tel Aviv: Freund; 2005.p.201-17.
35. Boyle P, Exeter D, Feng Z, Flowerdew R. Suicide gap among young adults in Scotland: population study. BMJ 2005;330:175-6.
36. Mortensen PB, Agerbo E, Erikson T, Qin P, Westergaard-Nielsen N. Psychiatric illness and risk factors for suicide in Denmark. Lancet 2000;355:9-12.
37. Manor I, Vincent M, Tanyo S. The wish to die and the wish to commit suicide in the adolescent: two different matters. Adolescence 2004;39:279-93.
38. Hawton K, Rodham K, Evans E, Weatherall R. Deliberate self-harm in adolescents: self report survey in schools in England. BMJ 2002;325:1207-11.
39. James D, Lawlor M. Psychological problems of early school leavers. Ir J Psychol Med 2001;18:61-5.
40. Merrick J, Zalsman G. Suicidal behavior in adolescence. London/Tel Aviv: Freund; 2005.
41. Merrick J, Merrick E, Kandel I, Morad M. Intellectual disability and adolescent suicide. In: Merrick J, Zalsman G, editors. Suicidal behavior in adolescence. London/Tel Aviv: Freund; 2005.p.303-7.
42. Sher L, Zalsmann G. Alcohol as a risk factor in adolescent suicide. In: Merrick J, Zalsman G, editors. Suicidal behavior in adolescence. London/ Tel Aviv: Freund; 2005.p.65-72.
43. Kirkcaldy BD, Eysenck MW, Brown J, Siefen GR. Determinants of suicidal ideation and gender differences among a normative sample of adolescents. In: Merrick J, Zalsman G, editors. Suicidal behavior in adolescence. London/ Tel Aviv: Freund; 2005.p.51-63.
44. Culp AM. Adolescent depressed mood, reports of suicide attempts, and asking for help. Adolescence 1995;30:827-37.