

# The relationship between adolescent depressive symptomology and substance abuse

LG Blore, MEd student (Specialisation: Guidance and Counselling), Faculty of Education, Unisa

S Schulze, DEd, Department of Further Teacher Education, Unisa

AC Lessing, DEd, Department of Educational Studies, Unisa

## Abstract

The research aimed to investigate the phenomena of adolescent depressive symptomology, substance abuse and the relationship between the two phenomena in a South African context. The influence of moderator variables was also examined. Another objective was to determine risk factors for the before mentioned. This was done by using a questionnaire with a sample of 1298 conveniently selected adolescents in a South African high school. It was determined that adolescents become progressively unhappier from 13 to 17 years of age. Girls are more depressed than boys. This research also revealed that adolescent depressive symptomology is significantly and positively correlated with earlier age of onset of substance abuse as well as frequency of usage. There appear to be no gender differences in substance abuse but teenagers from different ethnic and language groups differ in their use of substances. Risk factors for depression and substance abuse included a conflict relationship with parents, the experience of major stressful events, dissatisfaction with school grades and friends' use of substances.

## Opsomming

Die doel met die navorsing was om die vlak van adolessente depressiewe simptome, die gebruik van dwelmmiddels en die verband tussen die twee in 'n Suid-Afrikaanse konteks te ondersoek. Die invloed van moderator veranderlikes is ook nagevors. 'n Verdere doelwit was om risikofaktore ten opsigte van voorgenoemde aspekte te bepaal. Dit is gedoen deur middel van 'n vraelys met 'n gerieflikheidssteekproef van 1298 adolessente van 'n Suid-Afrikaanse hoërskool. Daar is gevind dat adolessente progressief ongelukkiger word vanaf 13- tot 17-jarige ouderdom. Dogters is meer depressief as seuns. Hierdie navorsing het ook getoon dat die vlak van adolessente depressiewe simptome beduidend en positief korreleer met die vroeëre aanvangsgebruik van dwelmmiddels sowel as met die frekwensie van gebruik. Geen verskil kom tussen adolessente van verskillende geslagte voor in die gebruik van dwelmmiddels nie, maar jeugdige van verskillende etniese en taalgroepe verskil in hul gebruik van dwelmmiddels. Resikofaktore behels 'n konflikverhouding met ouers, die beleving van voorvalle van hoë stres, ontevreedenheid met skoolprestasies en vriendskap met maats wat dwelmmiddels gebruik.

## Introduction

Findings from epidemiological studies have indicated that the prevalence of a number of health-compromising behaviours such as substance abuse and psychiatric disorders such as major depressive disorder (MDD) increase dramatically during adolescence (Windle & Davies 1999:823). Both depression and substance abuse among teenagers are issues of concern because of the deleterious effect of both phenomena on the adolescent. Regarding depression, suicide attempts by adolescents in different parts of the country are reported in the media (Keppler 2003:1). In addition, various South African studies have documented increasing rates of substance abuse among the youth

(Flisher, Parry, Evans, Lombard & Muller 1998:5; Oven 2001:1; Parry & Pluddemann 1999:2). Pienaar (2003:9) quotes a spokesperson from the Medical Research Council stating that the percentage of patients younger than 20 years of age who were treated for drugs from the start of 2000 until the end of 2002, has increased from 17% to 24% in Cape Town, 19% to 22% in Durban, 17% to 25% in Gauteng and 7% to 15% in Mpumalanga. Forty six children in Gauteng were in rehabilitation clinics for dagga, 27 for inhalants, 20 for alcohol and two for dagga as well as Mandrax. Given the emergence and relative high rate of dysfunctional behaviour and psychiatric disorders in adolescence, this research focusses on the relationship between substance abuse and adolescent depressive symptomology.

# Adolescent depressive symptomology

Relatively current prevalence figures for Major Depressive Disorder (MDD) puts the figure for adolescent sufferers of depression at about 5-10% (Kaplan & Sadock 1998:1245), although Lewinsohn (1999:271) believes this figure could be as high as 20%. One study by McGee, Feehan, Williams and Anderson, published in 1992 (in Windle & Davies 1999:825), reported that prior to age 12 years, boys had higher rates of depression than girls; subsequent to age 12 years, girls had higher rates of depression than boys, with the ratio estimated at about 4 : 1. In their study with over 1 000 adolescents, Windle and Davies (1999:839) found the ratio of depression for girls relative to boys, 2.5 : 1. Accordingly, Lewinsohn (1999:272) determined depression in twice as many girls than boys, beginning at age 12 to 13.

The term depression is widely used to cover both transient dysphoric loss-related emotional states and clinical depression leading to profound disturbance of mental and social functioning (Gotlief & Hammen 1996:2). According to Kaplan and Sadock (1998:553), a depressed mood and a loss of interest are the key symptoms of depression. The depressive symptoms influence and interact with sets of other symptoms in the domains of cognition, behaviour and bodily functioning and interfere with the acquisition of important developmental tasks and skills (Gotlief & Hammen 1996:3, 66). Adolescent depression is closely linked to functional impairment and disease (Lewinsohn, Seeley, Hibbard, Rohde & Sack 1998:1120), subsequent adult depression (Harrington 2001:21) and increased suicide risk (Kaplan & Sadock 1998:553).

Adolescent depression has an insidious onset; it is chronic rather than acute; it is episodic and there is a larger proportion of co-morbidity than in adult depression. Biederman and Spencer (1999:276) as well as Faraone (1999:271) indicate that adolescent depression has atypical features, particularly mood reactivity. However, the physical and cognitive changes of the adolescent period make it difficult to establish the limits of depressive disorder. Depressed adolescents tend to have multiple problems which include academic performance, substance abuse, antisocial behaviour, truancy, lost of interest, sadness, irritability, low self-esteem, hopelessness, pessimism, self-criticalness, agitation, school anxiety, loneliness, feelings of being devalued by parents, social withdrawal, somatic complaints, unusual attention to death as well as complaints of boredom, anger and aggression (Beck, Steer & Brown 1996:5; Gotlief & Hammen 1996:43; Kaplan & Sadock 1998:542, 553; Lamarine 1995:391; Santrock 2000:463; Smith, Bem & Nolen-Hoeksema 2001:427). According to the literature, adolescent depression may, amongst other factors, be increased by substance abuse (Kaplan & Sadock 1998:553).

# Adolescent substance abuse

In the literature, a distinction is made between substance

*use* and substance *abuse*. Adolescent substance *use* refers to the non-pathological use of, experimentation with or the occasional irregular use of psychoactive substances. The National Drug Master Plan (South Africa (Republic) Department of Welfare 1999:1) states that the greatest number of drug experimenters is of school-going age and the age of first experimentation has dropped. Such experimentation or occasional use is not catered for in the DSM-IV-R and is often referred to as 'recreational' use. Some researchers view adolescent use of substances as a socialisation process (although not endorsing such behaviour) and believe it is mostly self-limiting (Bukstein 1995:26; Kaminer 1994:42). Moreover, Schedler and Block (in Kaminer 1994:42) found that youngsters who had experimented with psychoactive substances were psychologically healthier than either frequent users or abstainers. Some of these adolescents, however, will go on to develop drug dependency to the detriment of their well-being.

A significant number of researchers has pointed out the negative consequences of adolescent substance abuse, including an increase in depression (Kinnier, Metha, Keim, Okey, Adler-Tabia, Berry & Mulvenon 1994a:101; Morojele 1997:214) and possible brain alterations (Knowlton 1995:2). Adolescent substance abuse can seriously disrupt the ability of adolescents to adequately handle developmental tasks (Kaminer 1994:71-72; South African Central Drug Authority 2001:1; Newcomb 1992:294), and increase the risk of suicide (Kaplan & Sadock 1998:384-385).

Rates of drug abuse show considerable variation by age (Kaplan & Sadock 1998:383), with a positive correlation between age and level of substance abuse (Rocha-Silva 1998:18; Leggett 1999:9). It should be noted that the age of onset of a particular stage of substance use and the frequency of use at an early stage are strong predictors of progression to later stages (Kandel, Yamaguchi & Chien 1992:447; Windle 1990:86). Clayton (1992:21-28) postulated the following stages in substance use: initiation, continuation, maintenance and progression, progression across drug classes leading to polysubstance abuse and dependence, and finally regression, cessation and relapse cycles. A position at one stage does not necessarily imply the user will progress to the next stage and this is especially true of adolescents (Bukstein 1995:24; Clayton 1992:26; Newcomb 1992:255). Of significance for this study is the finding that those who abuse one substance and are depressed are more likely to progress to the next stage of substance abuse than those who are not depressed (Kaplan, Landa, Weinhold & Shenker 1984:600).

Regarding male-female differences, Kaplan and Sadock (1998:378) found that abuse and dependence on substances are more common in men than in women, with the difference being more marked for non-alcoholic substances than for alcohol. This same pattern is found among adolescents (Flisher et al 1998:3-10; Kaminer 1994:35; Rocha-Silva 1998:16). Gender differences were also found by other scholars (Henry, Feehan, McGee, Stanton, Moffit & Silva 1993:469-480; Pumariega, Johnson, Sheridan & Cuffe 1996:115; King, Ghaziuddin, McGovern, Brand, Hill & Naylor

1996:743-751; Stefanis & Kokkevi 1986:127; Galaif, Chou, Sussman & Dent 1998:290; Whalen, Jammer, Henker & Delfino 2001:99). Windle (1990:86) suggested that for males, the link between depression and substance abuse were more important in earlier development. On the other hand, the dependency between depression, suicidal ideation and substance abuse were stronger for adolescent females than for males (Wagner, Cole & Schwartzman 1996:300).

## **The relationship between adolescent depressive symptomology and substance abuse**

Regarding the above mentioned relationship between adolescent depression and substance abuse, research has generally concluded a significant relationship (Bukstein 1995:73; Deykin, Buka & Zeena 1992:1341; Kaminer 1994:100-101; Kaplan et al 1984:596; Kinnier, Metha, Okey & Keim 1994b:51; Stefanis & Kokkevi 1986:129; Swanson, Linksey, Quintero-Salinas, Pumariega & Holzer 1992:669). However, not all researchers agree (Calafat, Amengual, Palmer & Saliba 1997:19; Miller-Johnson, Lochman, Coie, Terry & Hyman 1998:229). Some found no significant difference in the patterns of co-morbidity by gender, age group, affective subtype or prevalence period (Merikangas, Angst, Eaton, Canino, Rubio-Stipec, Wacker, Wittchen, Andrade, Essau, Whitaker, Kraemer, Robins & Kupfer 1996:58). Hence, the importance of revisiting the issue to determine the relationship between adolescent depressive symptomology and substance abuse is clear.

Both depression and substance abuse tend to be chronic conditions and both are associated with psychosocial morbidity. When these disorders are co-morbid, functioning is further impaired (Rao, Ryan, Dahl, Birmacher, Rao, Williamson & Perel 1999:1114). The relationship between depression and substance abuse is highly complex. Some researchers found a cause-effect relationship between the severity of dependence and depression (Coelho, Rangel, Ramos, Martins, Prata & Barros 2000:103; Patton, Hibbert, Rosier, Carlin, Caust & Bowes 1996:225; Stefanis & Kokkevi 1986:126). One study found that depression on the one hand, and cigarette, marijuana, and harder drug use on the other hand among the suburban students in their sample were positively related (Way, Staber, Nakkula & London 1994:331-357). Feelings of meaninglessness and lack of purpose were important variables in the connection between adolescent depression and substance abuse (Kinnier et al 1994a:101-111). Thus a strong mediating relationship between purpose in life with depression as precursor and substance abuse as consequence was determined. Unfulfilled needs (possibly including depression) may propel adolescents into destructive behaviour such as substance abuse (Mainous III, Martin, Oler, Richardson & Haney 1996:807).

Having depressive symptoms is associated with a higher risk of developing alcohol-related problems in adolescents (Chen, Anthony & Crum 1999:38; Windle & Davies

1999:823-844). Depression increases the probability of substance abuse but only if the peer group is tolerant of such behaviour, or the person is a member of a deviant subgroup (Simons, Whitbeck, Conger & Melby 1991:466). This indicates the presence of risk factors associated with adolescent depressive symptomology and substance abuse.

## **Risk factors associated with adolescent depressive symptomology and substance abuse**

Henry et al (1993:469-480) found the strongest predictors of substance abuse were multiple drug use and concurrent conduct problems. Lewinsohn, Gotlib and Seely (1995:1227) found external behaviour problems more predictive of substance abuse and internal behaviour problems to be more predictive of MDD. By surveying clinical and epidemiological retrospective studies, researchers have shown that there is about an even distribution of MDD prior to and following an onset of drug use (Stefanis & Stefanis 1999:30). Conduct disorder, MDD and Attention Deficit Hyperactivity Disorder (ADHD) may all be important concomitants of substance abuse in males, while in females, depression may be the primary variable related to substance abuse (Whitmore, Mikulich, Thompson, Riggs, Aarons & Crowley 1997:87).

Risk factors that occur in both MDD as well as Substance Abuse Disorder were identified as current depression, internal behaviour problems, problems with coping skills, interpersonal conflict with parents, dissatisfaction with grades and external behaviour problems (Lewinsohn et al 1995:1226). Of these, Aseltine (1998:549) found low family support to be the most distinctive factor associated with the co-occurrence of depression and substance abuse.

Windle and Davies (1999:823-844) found support for unique risks associated with specific subgroups in their study of 1000 adolescents. Particularly significant and distinguishing for their mixed group of heavy drinking and depression youths, were childhood external problems, stressful life events, high levels of current substance abuse and high levels of delinquency. By scoring the above mentioned risk factors for adolescents, clinicians may estimate the probability of their developing either disorder, or both.

Adolescence is the highest risk period for onset of both depression and substance abuse (Rao, Daley & Hammen 2000:215). Dually diagnosed adolescents are at a higher risk for lifelong dysfunction and even suicide (Rao et al 2000:221). Hence, the importance of further investigation of the issue.

## **The research question, aims and hypotheses**

The question underpinning this research is: *What is the relationship between adolescent depressive symptomology*

*and substance abuse?* The research aims to investigate empirically the phenomena of adolescent depressive symptomology, adolescent substance abuse and the relationship between the two phenomena in a South African context. Apart from aiming to determine the levels of depressive symptomology and substance abuse in the sample, it was hypothesised that:

- different groups (for example, different genders, age and language groups) would differ significantly in depressive symptomology;
- different groups would differ significantly in substance abuse;
- there would be a significant correlation between adolescent depressive symptomology and age of first use as well as current use of substances;
- there would be a significant dependency between some risk factors and (a) depressive symptomology such as suicide ideation and (b) substance (for example, alcohol) abuse. Null-hypotheses were stated in accordance with the above mentioned research hypotheses. These hypotheses were investigated by means of the following research design.

## Research design

The research employed a survey design with a sample of all the learners from grade eight to grade 12 in an urban, former 'model C' school (approximately 1300 learners), with which one of the researchers was associated. Thus the sample was a convenience, non-probability sample. Although generalisations have to be made with caution, the school is similar to many former 'model C' schools in urban areas and, to that extent, the results are relevant for that population of adolescents.

## Research instrument

A questionnaire, based on an in-depth literature review, was designed and used to collect the data. The questionnaire comprised 69 items in the following sections:

**Section A** covered biographical information of the respondents namely age, grade (and if a grade was ever repeated), gender, ethnic group and home language. It was envisaged that this information would be useful in contextualising the results.

**Section B** comprised items relevant to the levels of adolescent depressive symptomology. A five-point Likert scale was provided for this section.

**Section C** dealt with items that focussed on substance abuse and which included the following three parts:

**Part I** determined if the respondent had *ever* used a particular substance (the options provided were "never used" and "used").

**Part II** asked when a respondent had *first used* a substance (the options were "never used, before 13 years of age, 13-14 years, 15-16 years and 17 years and older").

**Part III** determined *how often* a substance had been used in the *previous 30 days* (options included "never used, 2-5 times, 6-10 times and more than 10 times this last month").

**Section D** consisted of items to determine the possible role

of common risk factors, namely stressful life events, interpersonal conflict with parents, dissatisfaction with grades, absenteeism, lateness for school, delinquency, ADHD and suicide attempts. Respondents could choose between "Yes" and "No".

## Validity and reliability of the questionnaire

Validity is concerned with whether a test measures what it is supposed to measure. Two measures of validity were considered when compiling the questionnaire, namely content validity and face validity (De Vos & Fouché 1998:82). The content validity was determined by the literature study and by the judgment of experts in adolescent depressive symptomology and substance abuse. According to Leedy (1993:41) two important questions are: Is the instrument measuring what it is supposed to measure? Is the sample being measured adequate to be representative of the phenomena? Positive confirmation in this regard was obtained by experts in the field. Face validity also relies on the judgment of an expert. Only after it was confirmed that the questionnaire seemed to measure what it was supposed to measure, was the questionnaire finalised.

Reliability refers to the degree of consistency with which an instrument measures. In this study, the reliability of the scaled items of the questionnaire was calculated by means of the Cronbach alpha coefficient. It was measured at 0.83, which is good for this type of questionnaire.

## Pilot study

A pilot study with learners at a school not included in the research was conducted. After the pilot study, a few items were reformulated before the questionnaire was edited and finalised. For example, one item requested the adolescents to indicate their use of inhalants. For clarity, 'glue' and 'thinners', were added as examples of inhalants. Likewise, the names 'speed' and 'ravers' were added as examples of stimulants.

## Administration of the questionnaires

Ethical measures were undertaken in accordance with the guidelines given in Strydom (1998:24-35). Permission for administering the questionnaire was requested from the school's Governing Body. The parents were informed of the questionnaire by the school's newsletter and given the opportunity to withdraw their children. Learners were also informed about the purpose of the study, prior to the administration of the questionnaire and they were asked to participate voluntarily. Thus informed consent was obtained. Respondents and the school remained anonymous. The questionnaires were administered in class time. After capturing of the data, the Statistical Programme for the Social Sciences (SPSS) was used to analyse the data.

# Research results

## Biographic information

The biographic information revealed the following about the sample composition.

- Age: Less than 13 (N=6); 13-14 (N=440); 15-16 (N=526); 17 years and older (N=330);
- Grade: 8 (N=317); 9 (N=303); 10 (N=216); 11 (N=262); 12 (N=201);
- Repetition of a grade: No repetition (N=1062); repetition (N=236);
- Gender: Male (N=582); female (N=716);
- Ethnic group: African (N=244); Asian (N=14); Coloured (N=56); Indian (N=60); White (N=927);
- Language group: English (N=1035); Afrikaans (N=23); African language (N=187); Other language (N=55).

Respondents' responses regarding adolescent depressive symptomology, substance abuse and the possible role of risk factors were determined and are as follows.

## Adolescent depressive symptomology

Table I illustrates the percentage of respondents in the sample who experienced different kinds of depressive symptomology.

Table I demonstrates that feelings of sadness, loneliness, feeling devalued by parents and irritability were experienced by less than 10% of the sample. Between 10% and 25% of the sample experienced worry, sleep disturbances, pessimism self-critique and somatic complaints. However, a significant level of 25% or more of the adolescents indicated, in rank order, depressive symptomology of the following: school anxiety (28.7%), fatigue (32.4%), loss of interest and boredom (40.7%), appetite fluctuations (41.4%), the inability to concentrate (44.1%), feelings of helplessness (48.3%) and low self-esteem (49.7%). More than 50% of the sample experienced feelings of aggression (58.3%), anger (63.1%), worthlessness and guilt (69.9%). The symptom with the highest frequency was suicide ideation which was reported by a staggering 75.4% of the sample. These figures are very high in comparison with those reported previously of about 5-10% (Kaplan & Sadock 1998) or 20% (Lewinsohn 1999).

From the literature review, a number of null-hypotheses were formulated which stated that no statistically significant differences existed between various groups regarding depressive symptomology. These were tested by means of t-tests and analysis of variance. Results indicated that different ethnic or home language groups did not differ

**Table I: Percentages of respondents who experience different kinds of depressive symptomology**

Item	% Disagree	% Unsure	% Agree
Sadness, loss of pleasure	77	17.4	5.5
School anxiety	50.1	21.1	28.7
Fatigue	47.3	20.3	32.4
Loneliness, social withdrawal	85.7	7.9	6.4
Anger	13.1	23.8	63.1
Agitation, worry	41.3	27.6	21.1
Devalued by parents	83.9	10.1	5.9
Loss of interest, boredom	32.8	26.4	40.7
Appetite fluctuations	39.5	19.2	41.4
Sleep disturbances	62.9	14.5	22.5
Worthlessness, guilt	13.2	17	69.9
Inability to concentrate	33.4	22.4	44.1
Suicide ideation	14.8	9.8	75.4
Irritability	88	7.7	4.3
Low self-esteem	22.1	28.2	49.7
Pessimism	60.3	26.6	13.0
Self-critical	73.1	16.9	10.1
Somatic complaints	74.6	14.6	10.8
Helplessness, pessimism	28.4	23.3	48.3
Aggression	22.8	18.9	58.3

significantly with regard to depressive symptomology. However, significant differences were found between the following groups:

- different ages (F-value=10.066,  $p<0.01$ )
- various grades (F-value=10.462,  $p<0.01$ )
- those that had or had not failed at school (t-value=0.01,  $p<0.05$ )
- different genders (t-value=2.095,  $p<0.05$ ).

The happiest group (least depressive symptomology) was the 13-14 year olds (mean=3.5583) who were significantly happier than the 17 years and older group (mean=3.5029). Accordingly, the happiest group were the grade eights (mean=3.7465), and the unhappiest, the grade 11's. (3.4848). Those who had repeated a grade reported significantly more depressive symptomology (mean=3.5112) than those who had never repeated a grade (mean=3.6109). Regarding gender, the adolescent boys in the sample were significantly happier (mean=3.6280) than the girls (mean=3.5652). This confirms previous findings (Lewinsohn 1999) that girls are more prone to depression than boys.

## Adolescent substance abuse

Table II illustrates the percentage of respondents who indicated that they had never used substances as well as those who had used them. In addition, the table illustrates how old the respondents were at the time of first use.

Table II indicates that 79% (100-21%) of the sample had used alcohol, 65.3% (100-34.6%) cigarettes and tobacco and 34.4% (100-65.6%) dagga. Inhalants had been used by 17.1% (100-82.9%) while less than 8% had used stimulants, cocaine, heroin, hallucinogens and ecstasy before. This concurs with the data by Pienaar (2003) referred to earlier in the article that mentions that children in South African clinics

### • dependency between current use of substances and age

Significant differences ( $p < 0.01$ ) were found between different age groups for all substances, except for inhalants, stimulants and heroin. The age groups differed in their use of cigarettes and tobacco ( $X^2 = 119.882$ ); alcohol ( $X^2 = 133.5$ ); dagga ( $X^2 = 48.613$ ); cocaine ( $X^2 = 31.502$ ); hallucinogens ( $X^2 = 22.064$ ) and ecstasy ( $X^2 = 92.888$ ). The pattern revealed that the 17 years and older group used the substances mentioned significantly more than the 15 to 16 years old or the 13 to 14 years old adolescents. For example, 73% of the 17 year old group, 57.4% of the 15 to 16 year olds, 36.2% of the 13 to 14 year olds and 16.7% of those younger than 13 years had used alcohol the previous 30 days. This indicates

**Table II: Age of first use of substances**

Substance	% Never	% Before 13 years	% 13-14 years	% 15-16 years	% 7+years
Cigarettes and tobacco	34.6	25.0	24.7	14.1	1.6
Alcohol	21.0	23.6	32.1	20.4	2.9
Inhalants	82.9	4.1	7.3	5.3	0.3
Dagga	65.6	4.0	13.3	15.0	2.2
Stimulants	92.6	1.3	1.8	3.5	0.7
Cocaine	97.1	0.6	0.4	1.6	0.2
Heroin	97.8	0.3	0.5	0.9	0.3
Hallucinogens	92.9	0.7	1.7	3.5	1.2
Ecstasy	92.3	0.9	1.3	4.0	1.4

are especially treated for dagga, alcohol and inhalants. The next table, Table III, indicates current use of substances as indicated by use in the 30 days preceding questionnaire completion.

Regarding current substance use, the pattern was similar to that revealed by Table II, except that Table III indicates *significantly lower* current use of substances. For example, 41% (100-59%) in comparison to 79% of the adolescents had used cigarettes and tobacco; 54% (100-46%) in comparison to 65.3% had used alcohol; and 15% (100-85%) in comparison to 34.4% had used dagga in the previous 30 days. Four percent and less of the adolescents indicated current use of stimulants, cocaine, heroin, hallucinogens and ecstasy. This confirms reports in the literature that some adolescents experiment with drugs but do not continue using them on a regular basis.

Null-hypotheses that stated that there was no statistically significant dependency between membership of various groups and current use of substances were formulated and tested. *Chi-square* analyses revealed the following:

that adolescents use more substances as they grow older. This confirms previous research, for example that of Rocha-Silva (1998) and Legget (1999), as mentioned.

### • dependency between current use of substances and grade

Significant dependencies were found between grade level and learners' use of cigarettes and tobacco ( $X^2 = 147.118$ ,  $p < 0.01$ ), alcohol ( $X^2 = 170$ ,  $p < 0.01$ ), dagga ( $X^2 = 74.095$ ,  $p < 0.01$ ) and ecstasy ( $X^2 = 26.108$ ,  $p < 0.05$ ). As learners progress to higher grades, they increase their use of these substances significantly, in accordance with the above findings for age. Alcohol shows an increase by grade until grade 11 where it peaks with a marginal drop in use in grade 12.

### • dependency between current use of substances and repetition of grade

Significant dependencies were determined between failure (or not) at school and use of alcohol ( $X^2 = 13.379$ ,  $p < 0.05$ ), stimulants ( $X^2 = 8.211$ ,  $p < 0.05$ ), hallucinogens ( $X^2 = 9.466$ ,  $p < 0.05$ ), dagga ( $X^2 = 18.044$ ,  $p < 0.01$ ), cocaine ( $X^2 = 21.299$ ,  $p < 0.01$ ) and heroin ( $X^2 = 14.063$ ,  $p < 0.01$ ). Adolescents who

**Table III: Substance use in the last 30 days**

Substance	% Never used	% 1-5 times	% 6-10 times	% More than 10 times
Cigarettes & tobacco	59	14	4	23
Alcohol	46	37	8	9
Inhalants	96	3	1	1
Dagga	85	11	2	2
Stimulants	97	2	0	1
Cocaine	98	1	0	0
Heroin	99	1	0	1
Hallucinogens	97	2	0	1
Ecstasy	96	3	1	0

had repeated a grade were significantly more inclined to substance abuse.

- **dependency between current use of substances and gender**

In contrast to what was expected from the literature that more males abuse substances, no significant gender differences were found in current use of substances.

- **dependency between current use of substances and ethnic group**

Significant differences between ethnic groups were found in the current use of cigarettes and tobacco ( $X^2 = 36.434$ ,  $p < 0.01$ ) and alcohol ( $X^2 = 47.385$ ,  $p < 0.01$ ) in the following way: 53.6% of the Coloureds; 42.8% of the Whites; 33.8% of the Africans; 28.9% of the Indians and only 15% of the Asians had used cigarettes and tobacco in the 30 days preceding the questionnaire completion. Thus, there is a significant dependency between ethnic group and use of tobacco. Regarding alcohol, current use revealed a similar pattern: 64.3% of the Coloureds; 58.5% of the Whites; 41.7% Africans; 37.3% Indians and 23.1% Asians had used alcohol in the 30 days preceding questionnaire completion. Hence tobacco and alcohol are used, from most to least, by Coloureds, Whites, Africans, Indians and lastly Asians.

- **dependency between current use of substances and language group**

In addition to the above, significant dependencies were determined between language group and substance use for cigarettes and tobacco ( $X^2 = 23.389$ ,  $p < 0.05$ ) and for alcohol ( $X^2 = 26.427$ ,  $p < 0.01$ ) as follows. In the 30 days preceding questionnaire completion, significantly more Afrikaans (43,4%) and English (42,8%) speaking learners had smoked than learners speaking an African language (32,2%), or a foreign language (23,6%). Significantly more English (57,1%) and Afrikaans (56,5%) speaking learners had also used alcohol in the previous 30 days than learners speak-

ing a foreign language (43,7%) or an African language (40,9%). This indicates that the English and Afrikaans-speaking learners smoked and drank more than the other language groups in the sample.

## The relationship between adolescent depressive symptomology and substance abuse

### and substance abuse

Two null-hypotheses were stated, focussing on the correlation between adolescent depressive symptomology and age of first use or current use of substances. When these were tested, the correlations were significant ( $p < 0.01$ ) and positive, although low (0.22 and 0.27 respectively). This implies that as learners become more depressed, they tend to be (a) younger when starting with drugs and (b) have a higher incidence of current drug use. This confirms previous findings as indicated.

## Risk factors for depression and substance abuse

In the literature review, various risk factors were identified for depression as well as substance abuse. The extent to which the subjects in the sample experienced these risk factors, is illustrated in Table IV.

Table IV illustrates that the risk factors with the highest frequencies were dissatisfaction with marks (58%), having experienced major stressful events (52%), friends' use of substances (49%) and fighting with parents (30%). According to Table I, suicide ideation was the symptom of depression with the highest frequency in the sample. According to Table II and III, alcohol was the substance most often used by the subjects. To determine the dependency between the abovementioned four risk factors and (a) suicide ideation and (b) alcohol use, null-hypotheses were stated. *Chi-square* analysis was used to test the hypotheses.

The analysis revealed significant dependencies between *suicide ideation* and friend's use of substances ( $X^2 = 10.503$ ,  $p < 0.05$ ); dissatisfaction with marks ( $X^2 = 28.592$ ,  $p < 0.01$ ); experiencing major stressful events ( $X^2 = 47.176$ ,  $p < 0.01$ ) and fighting with parents ( $X^2 = 79.753$ ,  $p < 0.01$ ). In addition, sig-

nificant dependencies were found between *alcohol use* and friend's use of substances ( $X^2=90.404, p<0.01$ ); dissatisfaction with marks ( $X^2=10.694, p<0.05$ ); major stressful event ( $X^2=42.726, p<0.01$ ) and fighting with parents ( $X^2=18.349, p<0.01$ ). Thus, there are significant relationships between various risk factors on the one hand and depressive symptoms (e.g. suicide ideation) as well as use of substances (such as alcohol) on the other hand. Of the risk factors, *friend's use of substances* and *dissatisfaction with marks* were found to be particularly important. This finding differs from that of Asletine (1998) that found low family support to be the most important risk factor for depression and substance abuse.

## Conclusions

Adolescents experience many depressive symptoms. The level in this study is significantly higher than those reported by previous studies using adolescents in other contexts. Feelings of aggression, anger, worthlessness and guilt were experienced by more than half of the sample, while suicide ideation was reported by 75%. In addition, adolescents become progressively sadder from 13 to 17 years of age. Learners who fail grades are unhappier than the others and females are more depressed than males.

The prevalence rates of substance abuse found in this study are similar to those reported in the literature. Some adolescents experiment with substances, but do not continue using them. However, current use as found in this study is of concern, especially of tobacco, alcohol and dagga.

Learners increase their consumption of cigarettes and tobacco, alcohol, dagga and ecstasy as they grow older and move up the grades. Learners who fail at school are particularly at risk. Alcohol use levelled off in grade 12 and this is possibly the result of maturation. More Coloured and White, and more English and Afrikaans learners smoke and drink than other ethnic and language groups. However, no gender differences were found for current use of substances. If more females than males are depressed, this has not translated into substance abuse and this implies that depression has different consequences according to gender.

As expected from the literature study, there was a significant and positive correlation between the number of depressive symptoms experienced by the adolescents and substance use. As the learners have more and more symp-

**Table IV: Frequencies and percentages of adolescents who experienced various risk factors**

Risk factor	Yes: Frequency Percentage	No: Frequency Percentage
Parents' use	121 (9.4%)	1164 (90.4%)
Friends' use	626 (48.6%)	659 (51.2%)
Strong craving	254 (19.8%)	1030 (80.2%)
Physical fighting/vandalism	219 (17%)	1065 (82.9%)
School disciplinary hearings	105 (8.2%)	1179 (91.8%)
Police involvement	151 (11.8%)	1132 (88.2%)
Depression diagnosed by a professional	103 (8%)	1178 (91.9%)
Prior suicide attempt	201 (15.7%)	1077 (84.2%)
Fighting with parents	389 (30.4%)	887 (69.4%)
Major stressful event	667 (52.2%)	612 (47.8%)
Dissatisfaction with marks	741 (58%)	535 (41.9%)
Absenteeism	118 (9.2%)	1156 (90.6%)
Lateness	185 (14.8%)	1065 (85.1%)

toms of depression, they tend to be younger when starting with drugs and to have more current drug use.

Of the risk factors identified in the literature, the following seems to be most significant for depression (suicide ideation) and alcohol use or abuse: a conflict relationship with parents, experiencing major stressful events and most importantly, dissatisfaction with school grades and friends' use of substances.

Further research needs to be done on the rise of depressive symptomology in late adolescence, the longitudinal paths of adolescent substance users and abusers and on the interactions between depression and substance abuse. Quick, accessible, screening instruments for depression in learners should be developed by researchers for South African high school learners so that those learners at risk, can be identified. These learners could then be referred to professionals and be monitored within the school system.

## Bibliography

ASELTINE, R 1998: The co-occurrence of depression and substance abuse in late adolescence. *Development and Psychopathology*. 10:549-570.

BECK, A; STEER, R; BROWN, G 1996: BDI-11, Beck depression inventory, 2nd edition. The Psychological Corporation, San Antonio: Harcourt Brace & Company.

BIEDERMAN, J; SPENCER, T 1999: The 'atypicality' of depression in youth. (In: Maj, M & Sartorius, N Eds. 1999: Depressive disorders, Volume 1. Chichester: John Wiley &



Sons, pp.276-278).

**BUKSTEIN, O 1995:** Adolescent substance abuse: assessment, prevention and treatment. New York: John Wiley & Sons (Wiley Series on Personality Processes).

**CALAFAT, A; AMENGUAL, M; PALMER, A; SALIBA, C 1997:** Drug use and its relationship to other behavioral disorders and maladjustment signs among adolescents. Substance Abuse and Misuse, 32(1):1-24.

**CHEN, L; ANTHONY, J; CRUM, R 1999:** Perceived cognitive competence, depressive symptoms and the incidence of alcohol-related problems in urban school children. Journal of Child and Adolescent Substance Abuse, 8(4):35-53.

**CLAYTON, R 1992:** Transitions in drug use: risk and protective factors. (In: Glantz, M & Pickens, R Eds. 1992: Vulnerability to Drug Abuse. Washington DC: American Psychological Association, pp. 21-28).

**COELHO, R; RANGEL, R; RAMOS, E; MARTINS, A; PRATA, J; BARROS, H 2000:** Depression and the severity of substance abuse. Psychopathology, 33(3): 103-109.

**DE VOS, AS; FOUCHE, CB 1998:** General introduction to research design, data collection methods and data analysis. (In: De, Vos, AS Ed. 1998: Research at grass roots. A Primer for the caring professions. Pretoria: Van Schaik Academic, pp. 76-94).

**DEYKIN, E; BUKA, S; ZEENA, B 1992:** Depressive illness among chemically dependent adolescents. American Journal of Psychiatry, 149(10):1341-1347.

**FARAONE, S 1999:** Depression in youth: trends in diagnosis. (In: Maj, M & Sartorius, N. Chichester Eds. 1999: Depressive disorders, Volume 1. Chichester: John Wiley & Sons, pp. 269-271).

**FLISHER, A; PARRY, C; EVANS, J; LOMBARD, C; MULLER, M 1998:** Prevalence rates of alcohol, tobacco, and other drug use among Cape-Town students in grades 8 and 11. Paper presented at the 4th annual congress of the Psychological Society of South Africa. Cape-Town: 11 September, 1998.

**GALAIF, E; CHOU, C; SUSSMAN, S; DENT, C 1998:** Depression, suicidal ideation, and substance abuse among continuation high school students. Journal of Youth and Adolescence, 27(3):275-299.

**GOTLIEF, I; HAMMEN, C 1996:** Psychological aspects of depression. Towards a cognitive-interpersonal integration. Chichester: John Wiley & Sons. (Wiley series in clinical psychology).

**HARRINGTON, R 2001:** Adolescent depression: same or different. Archives of General Psychiatry, 58(1):21-22.

**HENRY, B; FEEHAN, M; McGEE, R; STANTON, W; MOFFITT, T; SILVA, P 1993:** The importance of conduct problems and depressive symptoms in predicting adolescent substance abuse. Journal of Abnormal Child Psychology, 21:469-480.

**KAMINER, Y 1994:** Adolescent substance abuse: a comprehensive guide to theory and practice. Critical Issues in Psychiatry. New York: Plenum.

**KANDEL, D; YAMAGUCHI, K; CHIEN, K 1992:** Stages of progression in drug involvement from adolescence to adulthood: further evidence for the gateway theory. Journal of Studies on Alcohol, 53:447-457.

**KAPLAN, S; LANDA, B; WEINHOLD, C; SHENKER 1984:** Adverse health behaviour and depressive symptomatology in adolescents. Journal of the American Academy of Child Psychiatry, 23(5):595-601.

**KAPLAN, H; SADOCK, B 1998:** Synopsis of psychiatry, 8th edition. Baltimore: Williams & Wilkins.

**KEPPLER, V 2003:** Drakies-skok: Selfmoorde en aantygings oor mishandeling ruk spog-sangskool. Rapport, Sondag, 17 Augustus.

**KING, C; GHAZIUDDIN, N; McGOVERN, L; BRAND, E; HILL, E; NAYLOR, M 1996:** Predictors of comorbid alcohol and substance abuse in depressed adolescents. Journal of American Academy of Child and Adolescent Psychiatry, 35:743-751.

**KINNIER, R; METHA, A; KEIM, J; OKEY, J; ADLER-TABIA, R; BERRY, M; MULVENON, S 1994a:** Depression, meaninglessness and substance abuse in normal and hospitalised adolescents. Journal of Alcohol and Drug Education, 39(2):101-111.

**KINNIER, R; METHA, A; OKEY, J; KEIM, J 1994b:** Adolescent substance abuse and psychological health. Journal of Alcohol and Drug Education, 40(1):51-56.

**KNOWLTON, L 1995:** Public and research views of dual-diagnosis explored. Psychiatric Times, May 1995, Vol XII(5):1-4. (online.) Available at <http://www.mhsource.com/pt/p950536.html>

**LAMARINE, R 1995:** Child and adolescent depression. Journal of School Health, 65(9):390-393.

**LEEDY, P 1993:** Practical research: planning and design, 5<sup>th</sup> edition. New York: MacMillan.

**LEGGETT, T 1999:** Youth and club drugs: the need for a national drug database. Crime and Conflict, 16:5-11.

**LEWINSOHN, P 1999:** Depressive disorders in childhood and adolescence - state of the art. (In: Maj, M & Sartorius, N Eds. 1999: Depressive disorders, Volume 1, Chichester: John Wiley & Sons, pp. 271-273).

- LEWINSOHN, P; GOTLIB, I; SEELEY, J 1995:** Adolescent psychopathology: specificity of psychosocial risk factors for depression and substance abuse in older adolescents. Journal of the American Academy of Child and Adolescent Psychiatry. 34(9):1221-1229.
- LEWINSOHN, P; SEELEY, J; HIBBARD, J; ROHDE, P; SACK, W 1998:** Cross sectional and prospective relationships between physical morbidity and depression in older adolescents. Journal of American Child and Adolescent Psychiatry. 35(9):1120-1129.
- MAINOUS III, A; MARTIN, C; OLER, M; RICHARDSON, E; HANEY, A 1996:** Substance abuse among adolescents - fulfilling a need state. Adolescence, 31(124):807-815.
- MERIKANGAS, K; ANGST, J; EATON, W; CANINO, G; RUBIO-STIPEC, M; WACKER, H; WITTCHEN, H; ANDRADE, L; ESSAU, C; WHITAKER, A; KRAEMER, H; ROBINS, L; KUPFER, D 1996:** Comorbidity and boundaries of affective disorders with anxiety disorder and substance misuse: results of an international task force. British Journal of Psychiatry. 30:58-67.
- MILLER-JOHNSON, S; LOCHMAN, J; COIE, J; TERRY, R; HYMAN C 1998:** Comorbidity of conduct and depressive problems at sixth grade: substance use outcomes across adolescence. Journal of Abnormal Child Psychology, 26(3):221-232.
- MOROJELE, N 1997:** Adolescent alcohol misuse. A South African focus. (In: De le Ray, C Duncan, N Shefer, T & van Niekerk, A Eds. 1997: Contemporary issues in human development. Johannesburg: International Thompson, pp. 207-231).
- NEWCOMB, M 1992:** Understanding the multidimensional nature of drug use and abuse: the role of consumption, risk factors, and protective factors. (In: Glantz, M & Pickens, R Eds. 1992: Vulnerability to drug abuse. Washington DC: American Psychological Association, pp. 255-298).
- OVEN, M 2001:** The UNISA substance abuse project. Research findings, Pretoria: University of South Africa.
- PARRY, C; PLUDDAMAN, A 1999:** Drug abuse in South Africa: a country profile. Pretoria: South African Medical Research Council.
- PATTON, G; HIBBERT, M; ROSIER, M; CARLIN, J; CAUST, J; BOWES, G 1996:** Is smoking associated with depression and anxiety in teenagers? American Journal of Public Health. 86:225-230.
- PIENAAR A 2003:** Al hoe meer kinders in klinieke oor verslawing. Beeld. Tuesday, 1 July.
- PUMARIEGA, M; JOHNSON, P; SHERIDAN, D; CUFFE, S 1996:** The influence of race and gender on depressive and substance abuse symptoms in high risk adolescents. Cultural Diversity and Mental Health, 2:115-123.
- RAO, U; DALEY, S; HAMMEN, C 2000:** Relationship between depression and substance abuse disorders in adolescent women during the transition to adulthood. Journal of the American Academy of Child and Adolescent Psychiatry. 39(2):215-222.
- RAO, U; RYAN, N; DAHL, R; BIRMACHER, B; RAO, R; WILLIAMSON, D; PEREL, J 1999:** Factors associated with the development of substance use disorder in depressed adolescents. Journal of the American Academy of Child and Adolescent Psychiatry. 38(9):1109-1117.
- ROCHA-SILVA, L 1998:** The nature and extent of drug use and the prevalence of related problems in South Africa: national surveillance. Pretoria: HSRC.
- SANTROCK, JW 2000:** Psychology, 6th edition. New York: McGraw Hill.
- SIMONS, R; WHITBECK, L; CONGER, R; MELBY, J 1991:** The effect of social skills, values, peers, and depression on adolescent substance abuse. Journal of Early Adolescence. 11(4) 466-481.
- SMITH, EE; BEM, DJ; NOLEN-HOEKSEMA, S 2001:** Fundamentals of Psychology. New York: Harcourt.
- SOUTH AFRICA (REPUBLIC) DEPARTMENT OF WELFARE FEBRUARY 1999:** National Drug Master Plan. Pretoria: CTP.
- SOUTH AFRICAN CENTRAL DRUG AUTHORITY 2001:** Substance use by South African adolescents. (Fact sheet 7). Johannesburg.
- STEFANIS, C; KOKKEVI, A 1986:** Depression and drug use. Psychopathology. 19(2):124-131.
- STEFANIS, C; STEFANIS, N 1999:** Diagnosis of depressive disorders: a review. Volume 1. (In: Maj, M & Sartorius, N Eds. 1999: Depressive disorders, Volume 1. Chichester: John Wiley & Sons, pp. 1-52).
- STRYDOM, H 1998:** Ethical aspects of research in the caring professions. (In: De Vos, AS Ed. 1998: Research at grass roots. A Primer for the caring professions. Pretoria: Van Schaik Academic, pp. 23-36).
- SWANSON, J; LINKSEY, A; QUINTERO-SALINAS, R; PUMARIEGA, A; HOLZER 111, C 1992:** A binational school survey of depressive symptoms, drug use, and suicidal ideation. Journal of the American Academy of Child and Adolescent Psychiatry. 31(4):669-678.
- WAGNER, B; COLE, R; SCHWARTZMAN, M 1996:** Comorbidity of symptoms among junior and senior high school suicide attempters. Suicide and Life Threatening Behavior. 26(3):300-307.

**WAY, N; STABER, H; NAKKULA, M; LONDON, P 1994:** Depression and substance use in two divergent high school cultures: a quantitative and qualitative analysis. Journal of Youth and Adolescent. 23(3):331-357.

**WHALEN, C; JAMMER, L; HENKER, B; DELFINO, R 2001:** Smoking and moods in adolescents with depressive and aggressive dispositions: evidence from surveys and electronic diaries. Health Psychology. 20(2):99-111.

**WHITMORE, EA; MIKULICH, SK; THOMPSON, LL; RIGGS, PD; AARONS, GA; CROWLEY, TJ 1997:** Influences on adolescent substance dependence: conduct disorder, depression, attention deficit disorder, and gender. Drug and Alcohol Dependence. 47:87-97.

**WINDLE, M 1990:** A longitudinal study of antisocial behaviours in early adolescence as predictors of late adolescent substance abuse: gender and ethnic group differences. Journal of Abnormal Psychology. 99:86-91.

**WINDLE, M; DAVIES, PT 1999:** Depression and heavy alcohol use among adolescents: concurrent and prospective relations. Development and Psychopathology. 11:823-844.

