Identifying Depressed and Suicidal Adolescents in a Teen Health Clinic

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Purpose: This study examined the 6-month prevalence of depression and suicidal probability among new referrals to an adolescent health clinic.

Methods: All subjects (n = 104) completed the Beck Depression Inventory (BDI) and the Suicide Probability Scale (SPS) prior to being seen by a physician and were categorized according to presenting problem (physical complaints only, psychological complaints only, and physical and psychological complaints combined).

Results: Fifty-nine percent of the sample was depressed with 21% falling in the moderate range and 21% falling within the severe range of depression. Almost 23% of the sample demonstrated significant suicidal probability. The BDI and SPS were highly correlated (r = .73, p < .001) and 22% of the sample met criteria for both moderate to severe depression and suicidal probability. A significantly greater proportion of patients presenting with physical and psychological complaints combined (60%) met BDI criteria for depression than was found for the other two groups. Suicidal probability was most prevalent in patients presenting with psychological complaints only (26%) and moderate to severe depression and significant suicidal probability also coexisted to a greater extent within this group (26%).

Conclusions: Results suggest that depression and suicidal probability represent significant mental health problems within the adolescent clinic and the identification of high-risk individuals can be achieved through comprehensive screening practices.

KEY WORDS: Depression Suicide Adolescents Prevalence Screening health clinic

Adolescent health clinics serve as an important resource for adolescents seeking medical care. Although adolescents with mental health problems are more likely than those without to present to medical clinics (1), their complaints are primarily somatic in nature (2,3). As a result, mental health problems are frequently not recognized, and many adolescents may therefore not receive needed psychological services (1,4,5). This is particularly true for depression, which despite its high prevalence in primary care (6,7), is often missed in medical outpatients (8-10). Although sparse, the literature on active screening for depression within adolescent health clinics reports notably higher prevalence rates than in the general population (2,11,12).

Because increased risk of suicide is clearly associated with depression (13-19) the problem of underrecognition of suicidal risk is also of special concern. With the rate of suicide steadily increasing among adolescents (20), developing strategies to identify high-risk individuals has become the focus of a growing body of research. For the most part, either broad community-based (21,22) or restricted
psychiatric population, (16-23) approaches have been utilized to screen for suicidal ideation and behavior. The broad approach lacks efficiency and, thus, is generally not feasible, while assessment of only those individuals in specialist care excludes those not referred for mental health care. Since physicians in primary care and outpatient medical clinics are important health care resources for people with mental disorders, enhancing the recognition of psychosocial distress in these settings may be a more efficacious method of ensuring appropriate attention to mental health care needs.

The present study seeks to improve the identification of adolescents at high risk by studying the use of self-report measures for the assessment of depressive symptomatology and suicidal probability in an adolescent medical outpatient population. While recent research has established the value of screening for depression via self-report measures within the general clinic population, (8,9,24), only a few studies, (2,11,12) have focused specifically on the adolescent health clinic population. Furthermore, the assessment of suicidal probability within the context of an adolescent health clinic setting has not been investigated. The objectives of this study are to: 1) examine the prevalence of depression in new patients referred to the adolescent health clinic during a 6-month period, and 2) assess suicidal probability within the same population.

**Methods**

**Subjects**

Subjects were 104 patients, aged 13 to 18 years, newly referred to the Adolescent Health Clinic at the Children's Hospital of Eastern Ontario (CHEO) during a 6-month period. The mean age of the sample was 15.3 years (SD = 1.2). Fifty-seven subjects were between the ages of 15 and 16 years comprising 54% of the normally distributed sample. Females represented 80% of the total sample. Physician referrals accounted for 46% of patient visits while school and parent referrals (27%), self referrals (26%), and emergency room referrals (2%) comprised the remainder. Approximately one-quarter of adolescents presented with exclusively physical complaints, while those referred for psychological problems (47%) and physical/psychological complaints combined (25%) comprised the remainder of the sample. Analysis of variance revealed no significant differences across the three groups with respect to age or school grade and 98% of the sample reported currently being in school.

Adolescents referred to the clinic who were unable to read at the fifth grade level (n = 2) had been excluded from the study as the instruments required at least this level for their completion. Of the 115 adolescents referred to the clinic for first time visits, 104 agreed to take part in the study, yielding a participation rate of 90.4%. No significant differences were found between participants and refusal group with respect to age, sex, school enrollment, or presenting complaints.

**Procedure**

Prior to initiation of the study, approval was obtained through the Ethics Committee at the Children’s Hospital of Eastern Ontario. Upon arrival to clinic, patients were approached by a research assistant, informed of the purpose of the study, and invited to participate. Informed written consent was obtained from each adolescent and a Background Information Sheet, the Beck Depression Inventory (BDI) (25), and the Suicide Probability Scale (SPS) (26) were completed either immediately prior to or following their appointment. Patients were provided a quiet room in the clinic to fill out the questionnaires and generally required 15-25 minutes to complete the package.

Based on the initial presenting problem, adolescents were categorized into one of three groups: 1) physical complaints only, 2) psychological complaints only, and 3) physical and psychological complaints combined. Presenting problems as provided by referral source were obtained from physician notes to patient charts. Possible problems to be included in each category were established prior to the sorting of patients. Group 1 included any adolescents presenting for somatic reasons without a psychological component, including asthma, diabetes, contraception, menstrual problems, and general physical assessments. Group 2 included adolescents referred for counseling for psychosocial problems associated with school and family conflicts. This group also contained adolescents referred for depression, suicidal thoughts, stress, and anger management. Group 3 included all adolescents coming to the clinic with concurrent physiological and psychological complaints and was largely comprised of adolescents with eating disorders. Adolescents referred for poor compliance with diabetes regimes and depression with somatic complaints (e.g., headaches, fatigue) were also included in this group. Patients who scored in the moderate to severe range for item #9 on the BDI (a
rating of 2 or 3) concerning suicidal ideation and intent, or item #32 (a rating of 3 or 4) on the SPS concerning suicidal ideation, were brought to the attention of the clinic physician who assessed and managed the risk, consulting with mental health professionals where appropriate.

**Instruments**

The BDI consists of a 21-item self-report scale designed to assess depressive symptomatology (27). For each item, individuals use a Likert scale of 0; (no problem) to 4; (severe problem) to indicate how they have been feeling during the past week. Summation of the subject's most extreme ratings yields a BDI score ranging from 0 to 63. Cutoff scores for varying levels of depression are as follows: nondepressed, 0 to 9; mildly depressed, 10 to 15; moderately depressed, 16-23; and severely depressed, 24 and over. The BDI has been used with adolescents (28-33) and its psychometric properties have been examined (25,27,28,34-36). The inventory has been shown to differentiate among nondepressed and severely depressed adolescents in an outpatient depression clinic setting (37) and test-retest reliability has been demonstrated (30,35). Internal consistency reliabilities for the BDI range from 0.8 to 0.9 (38,39). Using the BDI and the Diagnostic Interview for Children and Adolescents (DICA) to assess a mixed psychiatric inpatient and outpatient adolescent sample, Marton and colleagues determined the predictive value of the BDI to be approximately 60% for a general clinic population (based on a true positive rate of 30%) when a cutoff of 16 is used. In other words, almost two-thirds of adolescents scoring above this threshold will meet DSM-III criteria for depression upon clinical assessment (28). Accordingly, the BDI is generally considered a good screening instrument for this disorder among adolescent populations and a reasonably good indicator of severity. Nevertheless, it should be supplemented, whenever possible, with a clinical diagnostic interview.

The Suicide Probability Scale (SPS) is a 36-item 4-point Likert scale self-report inventory designed to measure suicidal risk in adults and adolescents (26). Internal consistency for the scale was estimated to be .93 and excellent test-retest reliability was demonstrated with correlations of .92 and .94 being reported (26). Acceptable estimates of criterion and construct validity of the SPS have also been established (26). The SPS is generally considered a useful tool for assessing the various dimensions of behavior and attitudes that influence suicidal probability. It is intended only for use as a screening instrument, however, and clinicians are cautioned against using it alone in the evaluation of suicide potential.

**Results**

**Prevalence of Depression and Suicidal Probability**

The mean BDI score for the entire sample was 15.0 (SD = 1.4). Mean BDI scores for the physical complaints only, psychological complaints only, and combined complaints groups were 11.3 (SD = 12.5), 15.2 (SD = 10.6), and 19.5 (SD = 10.1), respectively. The mean BDI score for the entire sample as well as the three subgroup mean scores fall above Beck's suggested cut-off for mild depression and were above means obtained on the BDI for community and other non-depressed samples (27,30). One-way ANOVA further indicated that, as a group, patients with combined complaints scored higher on the BDI than patients referred with psychological complaints only and had significantly higher scores than those presenting with physical complaints only (F = 3.65, p < .05). According to the cutoffs developed by Beck, 59% of the sample was depressed with at least 18% (2 males, 16 females) falling within the mild range, 21% (2 males, 19 females) within the moderate range, and 21% (2 males, 19 females) within the severe range for this disorder (Table 1).

The mean SPS T-score for the entire sample was 61.7 (SD = 11.1). Consistent with existing literature,
the BDI and SPS were highly correlated \( r = .73, p < .001 \). Mean SPS T-scores for the physical complaints only, psychological complaints only, and combined complaints groups were 57.9 (SD = 12.07), 63.7 (SD = 10.7), and 61.7 (SD = 10.5), respectively. The mean SPS T-scores for the entire sample, the psychological complaints only group, and the combined complaints group fell above a level \( T = 60 \) at which Cull and Gill advise serious clinical evaluation of suicidal risk. They further consider T-scores \( \geq 70 \) to be highly significant. Using this criterion, 22% (2 males, 20 females) of the sample demonstrated significant suicidal probability; 22% (2 males, 19 females) of the sample met criteria for both moderate to severe depression and suicidal probability (Table 1).

### Discussion

This study reports prevalence rates for depression and suicidal probability within an adolescent medical clinical population housed within a children's hospital.

### Depression

Overall depression prevalence was 41% when a cutoff on the BDI of \( \geq 16 \) was used as the criterion for moderate to severe depression. When compared to other research, these rates exceed epidemiologic prevalence reports for community studies of adolescents as well as rates found for other adolescent medical clinic populations. It was expected that the prevalence rate for depression in the clinic would exceed rates for the general adolescent population as evidence suggests that adolescents suffering from psychosocial distress are more likely to visit medical clinics (1). That our prevalence rate is greater than rates observed by other investigators within adolescent clinics may be related to distinctions between the clinic populations and the use of different instruments in the evaluation of depression.

Wortman and colleagues reported moderate to severe depression in 28% of an inner city adolescent medical clinic sample using the Short Beck Depression Inventory (2). Bartlett and others, using the Diagnostic Interview for Children and Adolescents also in an inner city sample, reported a more conservative rate (incidence) of 13% for major depression (12). The degree to which these studies are representative of all adolescents seeking medical care is limited by the ethnic and economic specificity of their samples. In addition, Bartlett's sample was comprised entirely of physically healthy individuals primarily seeking routine medical examination.
tions. Using the Children's Depression Inventory, Smith and colleagues reported a prevalence rate of 23% among patients attending an adolescent medical clinic located within a Children's Hospital and Medical Center. Although, demographically, this sample most resembles our own, our prevalence rate far exceeds that observed by Smith et al. When only those subjects in our sample who scored in the severe range for depression (21%) are considered, however, prevalence rates for the two studies become more compatible.

As both Bartlett and Wortman's samples consisted primarily of healthy individuals, it is not surprising that each observed lower prevalence rates for depression. Moreover, the use of a structured interview schedule for the clinical evaluation of depression in Bartlett's study likely contributed to a more conservative rate being ascertained than was reported by Wortman, Smith, and the present study, wherein self-report measures of depression were employed.

The substantially higher prevalence rate found for depression in our clinic as compared to other adolescent clinic samples may also be due to the utilization of the clinic at CHEO by a particularly psychosocially distressed group. Nearly three-quarters of adolescents presented to our clinic with psychological complaints—a disproportionate number for an outpatient medical clinic. In light of extensive waiting lists in hospital-based psychology and psychiatry departments in our catchment area, it is possible that the adolescent clinic serves as one of the few resources in the hospital where adolescents can receive prompt attention for psychosocial problems. In addition, because many patients at the adolescent health clinic are referred from primary care physicians (46%), it is possible that we are dealing with a pre-selected group of psychosocially distressed adolescents. Treatment of patients with psychological components to their presentation requires more time than those with strictly physical complaints, thus limiting the number of patients a physician can see in his or her practice. As a result, physicians in primary care may be inclined to refer such patients to a clinic where they can be seen by an adolescent-medicine specialist for whom time constraints may present less of a problem.

It is also possible that gender differences in the incidence of depression can account for the elevated rate of this disorder within our predominantly female sample. While epidemiological community studies have reported that, at any one time, approximately 2.5% of male adolescents are experiencing a clinical depressive disorder (e.g., MDD, dysthymia), incidence rates for female adolescents are demonstrably higher, at approximately 10% (40-42). Accordingly, it is likely that the disproportionate number of females in our sample contributed to the observation of a substantially higher rate of depression among adolescents visiting our clinic. A more balanced sample with respect to gender would have precluded the possibility of associated bias in our sample and would likely have led to the observation of an overall lower rate of depression.

To the extent that superordinate psychiatric diagnoses and physical distress may have confounded the evaluation of depression, the significance of a high percentage of eating disorders within our sample (16% based on referral, 23% based on physician diagnosis) must also be considered. Since there is substantial evidence for the co-morbidity of depression with anorexia nervosa, bulimia, and obesity (43-46), it is conceivable that the inclusion of adolescents suffering from some form of disordered eating contributed, in part, to the observation of increased depression in our sample. Nevertheless, it should be noted that our sample was comprised of adolescents attending a public health clinic and we must assume that these patients constitute a representative sample of adolescents seeking treatment. Since a purpose of this study was to establish the rate of depression in such a sample, it is important that prevalence be reported irrespective of superordinate psychiatric diagnosis.

Although comprehensive assessment represents the best method for rendering a clinically based diagnosis of depression, time constraints and limited resources precluded such evaluation of adolescents in the present study. However, using a predictive value for the BDI of 60% based on Marton's calculations, we were able to estimate an actual rate of depression within the clinic of 25%. This rate was calculated using the predictive value of the BDI within a general clinic population where the base rate for depression is approximately 30% (28). The base rate of depression in specialized mental health facilities is approximately 50% (28). Given that almost three-quarters of adolescents presented to our clinic with psychological complaints, the base rate for our sample likely falls somewhere between 30% and 50%, suggesting that the adjusted rate of 25% may be a conservative estimate.

Depression and Suicidal Probability

Approximately half of all adolescents in our sample who reported moderate to severe depression also
reported significant suicidal potential. This finding is compatible with several studies identifying the relationship between suicidality and depression to be clearly significant. Crumley reports that 33 of 40 outpatient suicide attempters had affective disorders according to DSM III criteria (14). Robbins and Alessi investigated depressive symptoms and suicidal behavior in adolescents and reported that depressed affect and associated symptoms were all significantly associated with suicide, accounting for 25% to 35% of the variance on three of four dimensions of suicide, namely suicidal tendencies, seriousness of intent, and medical lethality (18). In the clinical investigation of 100 cases of suicide, Barraclough et al. concluded that 1/3-2/3 of all suicides occur in clinically depressed patients, making affective disorders one of the most important risk factors for suicidal behaviour (19). That 22% of our sample demonstrated comorbidity for depression and significant suicidal potential further demonstrates the strength of association between these two variables.

Depression and Suicidal Probability Related to Presenting Problems

Although a large proportion of adolescents referred for psychological problems only reported depressive symptoms, when adolescents were referred for co-existing physical and psychological complaints they appeared to be at an even greater risk for depression. A possible explanation for the increased prevalence within the combined complaints group is that these patients experience multiple sources of vulnerability which place them at greater risk for psychosocial distress. That is, given both psychological and physical problems, these patients are more likely to be susceptible to the development of depression than those patients with only physical or psychological complaints. On the other hand, it may be that because the BDI taps both physical and psychological dimensions, a person having physical complaints may endorse more items on this measure independent of mood state. Another explanation could also be that somatization of symptoms in these patients deflects attention away from dealing with depression.

Limitations notwithstanding, the rates of depression and suicidal probability ascertained within our adolescent clinic population denote a considerable mental health problem which warrants additional investigation. It has been found that over 50% of patients suffering from a mental disorder are seen only in the context of primary care or outpatient medical setting while just 6% receive additional specialist mental health care (47). As a result, physicians in these clinics are often the only providers of care to people with mental disorders. In order to provide such care, however, the presence of psychosocial distress must first be detected. Our results suggest that the administration of screening measures within the clinic can help to identify adolescents at high risk. The BDI and SPS are relatively easy instruments to administer and are well-suited to the time constraints of the clinic environment.

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