Attempted suicide and repeated attempts from adolescence to early adulthood: depression and stressful events

Av Latha Nrugham, Are Holen og Anne Mari Sund
**Introduction**

In adolescence, a past suicide attempt has been documented to be the most powerful predictor of a later attempt or completed suicide even when adjusting for psychiatric disorders (Nurhugham, Larsson & Sund, 2008; Bridge, Goldstein & Brent, 2006; Lewinsohn, Rhode, Seeley & Baldwin, 2001). Among female adolescents, a prior suicide attempt has been found to be a stronger predictor of completed suicide (Greholt, Ekeberg, Wichstrøm & Haldorsen, 1999). Prospective studies focussing on repeated suicide attempts have tended to use clinical samples (Sheikholeslami, Kani, Kani & Ghafelebashi, 2009; Hulten et al, 2001). Their findings about repeaters report higher levels of depression, hopelessness, higher levels of intent and impulsivity, but also the use of more violent suicide methods such as hanging and jumping from high places; in addition, they report more negative life events as well as limited social support. Adult clinical samples have also revealed differences between single-attempters and repeaters. The adult repeaters reported more stressful events (Joiner et al, 2007), they used poorer social problem solving skills and demonstrated increased levels of psychopathy, of depression in particular (Forman, Berk, Henriques, Brown & Beck, 2004; Rudd, Joiner & Rajab, 1996).

The relationship between stressful events and suicide attempts across the lifespan has been reported in retrospective clinical studies (Gladstone et al. 2004; Forman et al. 2004), in prospective longitudinal community-based studies (Johnson et al. 2002), in prospective cross-sectional studies (Joiner et al. 2007), in reviews (Bridge et al. 2006; Gould, Greenberg, Velting, Shaffer, 2003; King et al. 2001; Paykel, 2001), and in psychological autopsies of adolescent suicides (Portzky, Audenaert & van Heeringen, 2005; Gould, Fischer, Parides, Flory & Shaffer, 1996). Among Norwegian adolescents, the non-intact biological parental unit has been found to be an associate of attempted or comple-

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attempted suicide (Nrugham, Larsson & Sund, 2008; Wichstrøm, 2000; Grøholt, Ekeberg, Wichstrøm & Haldorsen, 1998; Grøholt, Ekeberg, Wichstrøm & Haldorsen, 1997). However, stressful life events alone did not predict suicidality among patients with MDD in the last 12 months; in a sample aged between 7 to 17 years (Myers et al. 1991); the same was the case for outpatients aged 14 to 72 years (Mann, Waternaux, Haas & Malone, 1999).

An additional matter to be considered is that clinical and non-clinical samples may not have similar risk factors (Agerbo, 2007). Apart from these gaps in our knowledge, it is not known whether specific domains of stressful life events, such as self and friends, school, or family, tend to be associated with suicidal behaviour. Such knowledge can aid clinicians mould their interventions to reduce suicidal behaviour among adolescents and young adults.

The present study compared the severity of depression symptom scores in relation to three domains of stressful life events between three groups: ‘non-attempters’, ‘attempters’ and ‘repeaters’. We sought answers to the following questions: Did repeaters differ from single attempters and non-attempters on the severity of depression symptom scores and in the exposure to the domain of stressful events as they grew up? Did repeaters differ from single attempters and non-attempters on the severity of depression symptom scores and in the exposure to the domain of stressful events as they grew up? Did repeaters report persistent and more depressive symptoms than the other two? Did repeaters consistently report more stressful events than single attempters and non-attempters? If yes, was this increase of events located in the family or at school or the domain of self and friends?

Method
Design and participants
A prospective design was used with a sample of predominantly depressed high school students followed up into early adulthood. This was done in two ways: longitudinally, within the groups, to cover the developmental aspect, and also, cross-sectionally between the three groups. The participants of this research project on depression titled “Youth and Mental Health”, were derived from a non-clinical sample of adolescents of 8th and 9th classes (13 to 14 year olds) from two counties in Central Norway. The total population numbered 9292 in 1998. A clustered sampling technique resulted in a representative sample of 2792 students from 22 schools. Larsson & Sund (2008) have provided a detailed description of the procedure and sample. All assessments were approved by the Regional Committee for Medical Research Ethics, Central Norway. Informed consent, based on standards prescribed by The Norwegian Data Inspectorate, was obtained from the participants. Local school authorities, including the school boards, approved the study at T1 and T2.

Assessment time-points
T1: A questionnaire with an embedded screening segment for depression, the Mood and Feelings Questionnaire (MFQ, described below), was completed at school. N = 2464, mean age = 13.7 (SD = 0.5) years, 88.3% participation, 50.8% female.

T2: The questionnaire was again completed at school by the same sample a year later. N = 2432, mean age = 14.9 (SD = 0.5) years, 86.7% participation, 50.3% female.

Subset. Those with MFQ scores above 25 were defined as high scorers. One adolescent was selected at random from the low (0–6) or middle scorers (7–24) and matched for age and gender with every two high-scorers. Of the 364 adolescents thus selected, 345 were diagnostically interviewed face-to-face at school by one of six trained interviewers. The high-scorers numbered 225, and the comparison group, 120. The participation rate was 94.7% with 72.5% females.

T3: Adolescents who had been interviewed and had consented to be invited again at T2 were contacted at T3 about 5 years later (n = 337). Those willing to be invited (n = 303) were sent questionnaires by mail and interviewed by telephone. The T3 questionnaire participation rate was 73%, n = 252, mean age = 20.0 (SD = 0.6) years, 77% females. The analyses of this study were limited to these 252 young adults. More details provided in Nrugham, Holen & Sund, 2010.

Measures
Interview. The Kiddie – Schedule for Affective Disorders and Schizophrenia – Present and Lifetime version (K-SADS-PL) is a well-established, semi-structured diagnostic interview (Kaufman et al. 1997). It assesses current and past episodes of Axis I psychopathology according to the DSM-III-R & IV-TR criteria in children and adolescents. Probes and objective criteria for clinical thresholds are given in the screening and supplement sections. For nearly 80% of the adolescents, at least one of their parental figures was separately interviewed face-to-face as an additional informant at T2. The interviewer’s summary scores were based on all available interview information.

Blind interviews were conducted by experienced clinicians trained both in assessing psychopathology and in the use of K-SADS. The average time between completion of the questionnaire and the interview, was 20 days at T2, and at T3, 21 days. Inter-Rater Reliability (IRR) using taped recordings, before interviewing was good with Cohen’s kappa of 0.71 at T2 for all screening symptoms and affective supplements, and with a kappa at 0.70 for all screening and supplement symptoms at T3. Interview integrity was maintained at T2 and T3 with an average kappa of 0.83 at T2, and 0.80 at T3. The IRRs were obtained with co-author AMS, an experienced, practising and academic psychiatrist (see Nrugham,
Figure 1 Flow of participants in the Youth and Mental Health Study over the three timeframes from T1 to T3.
Holen & Sund, 2010, for further details). The interview was used to extract a single variable: attempted suicide (described below).

**Questionnaire.** The questionnaire was a compilation of several versions. Not living with both biological parents by T2 was derived from the information about the civil status of the parents and the adolescent's residence by T2.

Depression was explored by the 34 items of the MFQ – Mood and Feelings Questionnaire covering the DSM-III-R criteria for major depression (Angold et al. 1989). This instrument has been used to identify respondents in a diagnostic interview; it was found age sensitive among girls both in a non-clinical sample (Goodyer & Cooper, 1993) and in several clinical samples (Kent, Vostanis & Feehan, 1997; Wood, Kroll, Moore & Harrington, 1995). The MFQ consists of descriptive phrases about the participant’s feelings or behaviour in the last two weeks. Each item was rated on a 0–2 scale. The total score ranges from 0 to 68. The mean MFQ score of the original sample was 10.6 (SD = 9.5) at T1 (Sund et al., 2001). Psychometric properties of the MFQ were excellent with the original sample (Sund et al. 2001).

Stressful Events were assessed by a list of 33 items at T1 and T2, with 47 items at T3. The list drew on existing instruments: Coddington’s (1972) Life Event Scale, Cottton’s (1985) Children’s Own Perceptions and Experiences of Stressors (COPES), Swearingen & Cohen’s (1985) Junior High School Life Events. It also included some additional self-made items based on stressors regarded as salient in early adolescence (see Sund et al. 2003, for details).

Furthermore, the stressful events were grouped into three domains: school, family, self and friends. Examples: school event: ‘teacher has ridiculed you in front of the class’; family event: ‘family member seriously ill or injured’; self & friends’ event: ‘I have been a victim of sexual harassment’ or ‘I have been a victim of a criminal act’ and ‘A friend has serious problems’. The response options were ‘yes’ and ‘no’. The time span covered the past 12 months. The total score ranged between 0–33 at T2 and 0–47 at T3. The number of endorsed stressful events in each domain was summed up for the analyses. The language of the questionnaire was made age-appropriate at T3 for the added fourteen items covering such as romantic relationships, pregnancy and abortion.

The non-participants (n = 93) at T3 were more often males [ (1) = 5.7, p < 0.01] and victims of criminal acts [ (1) = 6.9, p < 0.008] by T2, and the females were more likely to have experienced sexual harassment [ (1) = 4.64, p < 0.03] by age 15. At T2, a significant difference between the mean depression scores of the participants and the non-participants was not observed.

**Attempted suicide status.** This variable with three groups as described below was constructed by using positive responses, either from the interview or the questionnaire. Acts of self-harm, as differentiated from suicidal acts by either the interviewer or the respondent, were excluded. Only those suicidal acts were included that reached a clinical thres-
Table 1 Suicide attempt status, depression and stressful life events at ages 14 (T1), 15(T2) and 20(T3).
Comparing non-attempters, suicide attempters and repeaters with regard to their levels of depression and their number of reported stressful life events within three domains (School, Family, and Self & friends) in a school sample (n = 252) assessed at T1 (age 14), at T2 (age 15), and from which a subset of mainly high scorers on depression (measured by the Mood and Feelings Questionnaire) was followed up at T3 (age 20). ANOVA results presented in F-values.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Non-attempters (n = 177)</th>
<th>Attempters (n = 52)</th>
<th>Repeaters (n = 23)</th>
<th>F value</th>
<th>df2</th>
<th>t-statistic (df)</th>
<th>Cohen’s d</th>
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<td>Depression scores</td>
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<td>T1</td>
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<td>Depression T1</td>
<td>15.2 (10.8)</td>
<td>22.3 (13.3)</td>
<td>26.8 (11.6)</td>
<td>15.4***</td>
<td>249</td>
<td>3.8 (249)***</td>
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<td>4.5 (249)***</td>
<td>1.0</td>
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<td>T2</td>
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<tr>
<td>Depression T2</td>
<td>23.0 (13.9)</td>
<td>34.0 (12.5)</td>
<td>35.1 (12.2)</td>
<td>20.4***</td>
<td>55.4</td>
<td>5.4 (91.5)***</td>
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<td></td>
<td>4.3 (29.9)***</td>
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<td>Stressful Life Events (SLE) in School, Family, Self &amp; friends</td>
<td></td>
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<tr>
<td>SLEs – School</td>
<td>8.7 (1.5)</td>
<td>8.9 (1.4)</td>
<td>9.0 (1.4)</td>
<td>0.9</td>
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<tr>
<td>SLEs – Family</td>
<td>21.6 (2.1)</td>
<td>22.5 (2.5)</td>
<td>23.1 (1.9)</td>
<td>6.9***</td>
<td>249</td>
<td>3.5 (249)***</td>
<td>0.3</td>
</tr>
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<td>SLEs – Self &amp; friends</td>
<td>7.6 (0.8)</td>
<td>7.9 (1.1)</td>
<td>8.1 (0.8)</td>
<td>4.4*</td>
<td>249</td>
<td>2.3 (249)*</td>
<td>0.3</td>
</tr>
<tr>
<td>T2</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>SLEs – School</td>
<td>1.9 (1.5)</td>
<td>3.1 (1.6)</td>
<td>3.4 (1.1)</td>
<td>18.3***</td>
<td>249</td>
<td>4.7 (249)***</td>
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<tr>
<td>SLEs – Family§</td>
<td>2.8 (2.3)</td>
<td>4.6 (3.3)</td>
<td>4.6 (2.4)</td>
<td>10.8***</td>
<td>50.6</td>
<td>3.4 (27.7)**</td>
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<td>0.9 (1.1)</td>
<td>1.5 (1.2)</td>
<td>1.7 (1.3)</td>
<td>7.8***</td>
<td>249</td>
<td>3.1 (249)***</td>
<td>0.5</td>
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<tr>
<td>SLEs – School</td>
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<td>6.0 (1.0)</td>
<td>5.9 (1.2)</td>
<td>1.8</td>
<td>249</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLEs – Family§</td>
<td>24.2 (2.0)</td>
<td>24.8 (2.0)</td>
<td>24.8 (2.1)</td>
<td>2.6</td>
<td>249</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLEs – Self &amp; friends§</td>
<td>22.1 (1.9)</td>
<td>23.0 (2.7)</td>
<td>24.0 (2.7)</td>
<td>7.4***</td>
<td>47.6</td>
<td>2.3 (66.8)*</td>
<td>0.3</td>
</tr>
</tbody>
</table>
| § = Welch's F statistic reported due to violation of homogeneity of variances. Degrees of freedom (1) = 2, unless otherwise specified. * = p < 0.05, ** = p < 0.01, *** = p < 0.001. a = between non-attempters and attempters; b = between non-attempters and repeaters.

Results

Non-attempters, attempters and repeaters - longitudinal overview

Significant differences were seen within each of the three groups: between ages 14, 15 and 20, in the domain of stressful events at school [F (3.9, 494.9) = 5.8, p < 0.0005, η² = 0.04] and in the domain of stressful events related to self and friends [F (2.9, 367.2) = 3.4, p < 0.05, η² = 0.02]. Post hoc tests with Bonferroni corrections revealed significant differences for all variables between non-attempters as compared to single attempters and repeaters.

The repeaters (n = 19, 82.6%) were significantly more likely to be not living with both biological parents at age 15 than the attempters (n = 22, 42.3%) and the non-attempters (n = 51, 28.8%), = 10.9, p < 0.01. Age differences between these three groups were not statistically significant. Table 1 displays the temporal comparisons of the depression scores and stressful life events among the non-attempters, attempters and repeaters. All three groups had higher mean depression scores at age 15 than at age 14. The attempters and repeaters reported scores indicating major depression. The actual number of stressful events decreased at age 15 for all three groups in the three stress domains. However, significant differences between the groups were seen in all domains, with attempters and repeaters reporting more events than non-attempters. At age 20, when the number of stressful events within the family and, with self and friends were at the highest for all three groups, family-related events remained at the same level in all the groups, as seen in Table 1.
Differences between non-attempters, attempters and repeaters

Contrasts were set up to detect the source of the group differences revealed above. The last two columns in Table 1 provide an overview of the significant findings with Cohen’s d values of effect size. The post hoc tests confirmed all the differences.

Discussion

The main new findings of the present study were two: (a) repeaters of suicide attempts reported more stressful events and were consistently more depressed, (b) stressful events within the family, and within the domain of self and friends peaked at age 20. The stressful events at school were highest at 14 years, across all three groups.

Wilson et al. (1995) suggested that suicidal adolescents may have difficulties in seeing their personal contributions to stressful situations which in turn could lead to a reduction in the use of healthy coping. Their suggestion may be useful in the interpretation of our findings as applied to attempters and repeaters. Difficulties emerging in suicidal adolescents may be amplified and stabilised among repeaters.

Severity of depression symptoms and domain of stressful events

Non-attempters, attempters and repeaters had higher mean depression scores at age 15 than at age 14, which is in line with earlier reports about high school adolescents (Lewinsohn et al. 2001; 1993). Repeaters were least likely to be living with both biological parents by the age of 15; they were followed by attempters, both findings are in line with earlier reports (Wagner, Cole & Schwartzman, 1995; Wichstrøm, 2000). The stressful events of repeaters originated mostly in their families by age 14, spread into their schools by age 15, and moved into the domain of self and friends by age 20. The level of depression symptom scores reported by repeaters was higher and more consistent than the others, with the exception of attempters at age 15. Our findings profiled the repeaters as not only consistently reporting more stressful events in all areas, but also, they had less internal and external supports than the other two groups; the same was found for adults (Forman et al. 2004; Rudd et al. 1996). Attempters and repeaters appeared to be more similar than dissimilar. Together, they differed sharply from the non-attempters.

Suicidal adolescents may have difficulties in seeing their personal contributions to stressful situations which in turn could lead to a reduction in the use of healthy coping

Among these vulnerable adolescents, stressful life events begin in school and then move on to the domains of family, self and friends. Our findings provide specific indicators for practical preventive interventions: the provision of timely and appropriate help to families grappling with multiple crises, especially families with adolescents. Clinical interventions especially in schools focusing on the development and mastery of healthy coping may be more effective before age 15.

REFERENCES


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LATHA NRUGHAM worked on the research project: ‘Youth and Depression’ led by Prof. Anne Mari Sund, for her doctoral work at the Faculty of Medicine, NTNU, with Prof. Are Holen as her guide and successfully defended it in 2010 when she was also Senior Researcher at the National Centre for Suicide Research and Prevention. She resigned from this position in 2014 and is currently living with her husband in the Himalaya. Foto: Mugdha Sukhramani

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