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Life stress, social support and psychological distress in late adolescence

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Abstract Psychological distress in high-school students was examined in relation to negative life events, long-lasting adversities and perceived social support from the family, friends and the school class. Academic problems increased the symptom levels of psychological distress, and social support from family and social support from friends reduced the symptoms among males and females. For females, social support from school class-mates and problems with parents and friends also had direct independent effects on symptom levels. An effect of the total number of long-lasting adversities was significantly stronger for females than males. The buffer hypothesis was supported: both an increase in social support from parents and social support from peers reduced the effect of negative life events.

Introduction

Studies of adolescence addressing the life stress–dysfunction link (Compas et al. 1986; Aro 1987) are consistent with the extensive adult literature that shows a weak but significant association between cumulative negative life events and various adaptive measures. However, because cumulative negative events only explain a small part of the variance in dysfunction scores, researchers have followed different pathways to gain a better understanding of the complexity of the association between life stress and mental disorders.

One concern relates to the *different types* and *sources of stresses*. Most previous research has focused exclusively on major life events, while other important sources of stress have not been given adequate attention. Some findings indicate that cumulative levels of ongoing, everyday problems or hassles may be strongly related to adjustment outcome in adults (Kanner et al. 1981; DeLongis et al. 1988) and in children or youth (Rowlison and Felner 1988; Lu 1991; DuBois et al. 1992). In some studies everyday problems have been found to be a stronger predictor of mental health than acute events (Burks and Martin 1985; Compas et al. 1989). Distinction between stressors may be of special importance in studies of adolescence. As part of growing up, developmental issues may cause age-related stressors in addition to the negative events and adversities common to all age groups.

Another line of exploration has been to see how various *supportive social relationships* may contribute to adaptive outcome. It is well documented in the adult literature that the quality and amount of support from the social network affect adjustment and well-being. Two hypotheses have been extensively tested, linking social support to mental health. These hypotheses are the main effect hypothesis, suggesting that social support has a direct impact on well-being independent of exposure to stressors, and the indirect (buffer) hypothesis, suggesting that the effect of social support increases with increasing life stress. The conclusion from the adult literature, so far, seems to be that social support is important irrespective of life stress, but support is of special importance under stressful circumstances (See Cohen and Wills 1985; Kessler and McCloud 1985, for a review).

As part of the separation-individuation process in adolescence there is a major reorganisation of intimate interpersonal relationships, with decreasing dependence on family and increasing closeness to peers. In order to explore the impact of social support on mental health in adolescence it is important to distinguish between support from different sources (e.g. family, friends and school; DuBois et al. 1992). The few studies that have distinguished between sources of support have mostly focused on the contribution from family

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members and friends. This work indicates that both parents and friends have an independent impact on adaptation (Walker and Green 1987; Aro et al. 1989; DuBois et al. 1992). Less attention has been paid to other important factors such as the social network in school. Preliminary findings indicate that social support from teachers also relates positively to socio-emotional adjustment (Rowlison and Felner 1988; DuBois et al. 1992).

The few studies that have tested the buffer hypothesis in adolescent populations report inconsistent findings. While Gad and Johnson (1980) and Compas et al. (1986) did not find support for a buffer effect, Hotaling et al. (1978) and Ge et al. (1994) have found such an interaction effect. Also, studies that differentiate between sources of support in testing the buffer hypothesis provide inconclusive findings. Examining the effect of support from family and friends separately, Rowlison and Felner (1988), DuBois et al. (1992) and Windle (1992) have found no evidence of a buffer effect from either of the support systems. Other studies indicate that support from both parents and friends softens the impact of negative life events in early adolescence (Aro et al. 1989; Petersen et al. 1991) and late adolescence (Rubin et al. 1992), while Walker and Green (1987) have found a buffer effect for friends but not for family in university freshmen. Possible *gender differences* are also an important issue in understanding the impact of stressors and social support on mental health. Findings indicate that types and amount of social support (Slavin and Rainer 1990), as well as stressors (Kessler and McCloud 1984; Compas et al. 1986), may play different roles for males and females.

To our knowledge, no previous study has examined the effect of special features of social support, negative life events and various daily stressors in combination in late adolescence. More specific knowledge about the effect of various sources of social support and stressors could have important implications for the design of prevention programmes for adolescents in this age group. Some types of stressors may be unequally important for different groups of adolescents (e.g. students reading academic versus vocational subjects or those who for various reasons are not attending high school). In the present study, we chose a relatively homogeneous group, namely those attending high-school courses with a mainly theoretical curriculum. This increased the possibility of finding effects that are specific to these adolescents, but it reduced the chances of identifying stressors that might be of special importance to other groups of young people. Within this defined population of high-school students, the purpose of the present study was to investigate: (1) the effect of negative life events and various long-lasting adversities on psychological distress in late adolescence, (2) the main and buffering effect of social support from family, close friends and the school class and (3) the differential influences of various types of life stress and social support on psychological distress in girls and boys.

Method

Sample

The study included all students in the 11th grade in a senior high school in Oslo in 1990 and 1991 (six and five parallel classes, respectively). There was no reason to believe that the successive birth cohorts should differ systematically, and no significant differences in any respect relevant for the present study have emerged. Thus, in this study, data from the 1990 and 1991 cohorts were combined.

The participants completed a questionnaire during a period of 1.5 h. They were instructed by a researcher. The overall response rate was 94%. Drop-outs were evenly distributed between the school classes, and corresponded to everyday absences due to sickness and other valid reasons. Two students answered frivolously and their data were removed from the analyses. Thus, the subjects consisted of 122 girls and 141 boys, the majority being between 16 and 17 years of age (mean 16.9). In general, the questionnaires were answered conscientiously, with only a few single blank items. The high school used in the study has a mainly theoretical curriculum. Most students in theoretical courses have parents with an above average educational attainment. It is therefore likely that the sample was biased towards higher socio-economic levels. In Oslo, nearly 90% of the adolescents in this age group attend high school. Approximately 70% of the high-school students attend theoretical courses.

Measures

Psychological distress

Psychological distress was measured with the 25-item version of the Hopkins Symptoms Checklist (HSCL-25; Hesbacher et al. 1980; Winokur et al. 1984), an abbreviated version of the 90-item Symptom Checklist (SCL-90; Derogatis et al. 1974). One item about sexual functioning was removed from the checklist at the request of the school authorities. This checklist has been used in several studies on adolescents (Burks and Martin 1985; Compas et al. 1986; Ge et al. 1994). Because the distribution of the scores on the HSCL-25 was skewed with a tail upwards, they were logarithm-transformed [ln (sum score − 15)] in order to approximate a normal distribution.

Negative life events

Negative life events during the previous 12 months were measured by a checklist constructed on the basis of an established life event lists for young people (Coddington 1972; Newcomb et al. 1981; Swearingen and Cohen 1985). Compared to usual practice, different items of events where combined into wider categories (e.g. "the death of someone close"), and at the end of the list there was an open-ended question included to cover rare events. The students were asked to indicate how they experienced the events they reported on a 5-point Likert scale (very good, good, ambivalent, difficult and very difficult). "Very good" was scored as 1 and "very difficult" as 5. Since earlier studies show that negative events have a greater impact upon subsequent psychological distress than desirable events (Hotaling et al. 1978; Swearingen and Cohen 1985), only the ten life event items that had mean scores higher than 3 were included in the analyses. A total negative event score was constructed by summing weighted scores. As weights, we used the mean deviations in the sample from the neutral point of the scale (3) for the various types of events. For instance, the average score of "broken up with boyfriend/girlfriend" was 0.67 (a little closer to "difficult" than "ambivalent"), and this value was used as a weight for that item. The weights

are given in Table 2. This procedure reduces the danger of confounding with the dependent variable compared to summing individual severity scores.

Long-lasting adversities

Long-lasting adversities during the previous 12 months were measured by a checklist with 11 fairly broad categories, as shown in Table 2, including developmental issues, and one open-ended question. The students were asked to indicate the severity of the adversities they had been exposed to on a 3-point scale (0–2), with 2 indicating greatest severity. A total long-lasting adversity score was constructed by summing weighted scores of the adversities. The same weighting procedure was applied as for the negative life events: as weights, we used the average score for those reporting the problem.

Social support

Social support was rated by questions about the students perception of their relationship with friends (eight items), with family (eight items) and within the classroom (four items). In accordance with corresponding studies of adults (Cohen and Wills 1985; Kessler and McLeod 1985; Dalgard et al. 1995), the questions that measured social support were about attachment, respect, mutual care and availability of support. Based on the answers on a 3-point Likert scale, summative scores for "family support" (alpha reliability 0.84), "friend support" (alpha reliability 0.77) and "the supportive climate within the classroom" (alpha reliability 0.77) were constructed. Low scores indicated strong support.

Demographic factors

Demographic factors included parental marital status, father's occupational status, school class and gender.

Analyses

To explore the main effects of the various stressors and support variables on psychological distress, multiple regression analyses were carried out with ln-transformed HSCL-25 scores as dependent variable and the following independent variables: social support from the family, support from friends and support from the school class, weighted sum of negative life events, long-lasting adversities, parents' marital status, family socio-economic status and school class. In the event of missing data, mean substitution was used. Long-lasting adversities were entered as ten single items in order to obtain optimal information of which types of long-lasting adversities were of special importance during this developmental period. Each of 10 school classes were specified as a dummy variable, with the 11th class as the reference group. Since none of the school classes were known to have any relevant points of difference from each other, a class was chosen at random as a reference group. Whenever the data revealed relevant gender-specific effects, gender-specific analyses were carried out.

Next, to provide an overall test of interaction effects between the explanatory variables, an ANOVA was carried out. Due to limitations inherent in the method, some variables had to be either combined or excluded from this analysis. Theoretical considerations and previous research imply that support from peers and support from adults should be distinguished, whereas support from friends and from class-mates was combined, and was referred to as "peer support". There was no main effect of school class and these variables were excluded from the analyses. Thus, the ANOVA included the following independent variables: gender, weighted sum of long-lasting adversities, weighted sum of negative life events, social support from family and social support from peers. Parents' marital status and socio-economic status were entered as covariates. Social support from family and social support from peers were dichotomised with the median score as cut-off. Scores of weighted negative life events and weighted long-lasting adversities were classified into three groups of approximately equal size.

Results

Table 1 shows the mean, standard deviation and intercorrelations between the main dimensions in the study. Consistent with other studies of adolescent populations, girls reported a significantly higher mean level of psychological distress (ln-transformed HSCL-25, $t = 4.35$, $P = 0.000$). There was no significant mean sex difference in social support from family or the summative score of weighted long-lasting adversities. Boys reported stronger support from the school class ($t = 1.9$, $P = 0.049$) and girls reported stronger support from friends ($t = -3.15$, $P = 0.002$) and higher summative score of weighted negative life events ($t = 2.40$, $P = 0.017$).

All the explanatory variables were significantly correlated with the outcome variable. Except from negative life events, the correlations were relatively strong. Focusing on the correlations between the predictors,

Table 1 Mean, standard deviation and intercorrelation of main dimensions in the study

	Girls						Girls		Boys	
	1	2	3	5	6	7	Mean	SD	Mean	SD
Psycological distress, raw scores							1.64***	0.43	1.44	0.37
1 Psychological distress, ln-transformed		0.18	0.60	0.40	0.30	0.36	3.11***	0.41	2.89	0.41
2 Weighted negative life events	0.27		0.26	0.09	−0.10	−0.01	1.47*	1.34	1.06	1.40
3 Weighted long-lasting adversities	0.45	0.32		0.22	0.14	0.12	2.04	1.48	1.96	1.52
5 Social support from family	0.48	0.12	0.30		0.03	0.20	11.27	3.36	10.76	2.87
6 Social support from friends	0.39	−0.10	0.19	0.43		0.34	10.23	2.39	11.22**	2.68
7 Social support from school class	0.37	−0.05	0.14	0.34	0.47		6.45*	2.35	5.92	1.95
	Boys									

*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$

there was a highly significant gender difference for the correlation between social support from family and from friends. While there was literally no correlation between these dimensions for girls, the corresponding correlation for boys was 0.43. There were no other significant gender differences in the correlations between the predictors.

The frequencies and weights of the various stressors are shown in Table 2. Academic problems were the most widespread problems for both girls and boys. Girls reported significantly more "illness of someone close to you", "problems concerning parents" and "problems concerning friends" than boys.

Because the raw correlations showed gender differences, the multiple regression analyses were conducted separately for boys and girls, as shown in Table 3. Notably, academic problems was the only stressor with a significant independent contribution to the variance of the In-transformed HSCL-25 scores in boys. In girls, three additional stressors – "studying pressure", "problems concerning parents" and "problems concerning friends" – also contributed significantly. Weighted negative life events did not contribute significantly to the variance for either of the sexes. Of the support systems, family support contributed strongest for both sexes. However, all three support systems contributed to the variance, although for boys, social support from the school class only reached borderline significance ($P = 0.09$). There was no effect of school class.

As expected, the patterns of the main effects from the ANOVA analyses were very similar to those from the regression analyses. The ANOVA analyses showed three interaction effects. There was evidence in favour of the buffer hypothesis for both social support from the family and social support from peers. As shown in Figs. 1 and 2, psychological distress increased with increasing negative life events in the weak support group. The same pattern was present, but significantly weaker, in the strong support group ($F = 3.11$, $df = 2$, $P = 0.047$ and $F = 3.64$, $df = 2$, $P = 0.028$ for Fig. 1 and Fig. 2, respectively). We found a third significant interaction effect ($F = 4.84$, $df = 2$, $P = 0.009$) between gender and long-lasting adversities. The increase in In-transformed HSCL-25 scores from the lowest to the highest scores in long-lasting adversities was 0.59 in girls and 0.38 in boys.

Discussion

A major limitation of this study is that the subjects provided data on their own functioning, as well as on their social environments. It is well known that depressed persons often exaggerate the problems of their lives and disregard the support given by their network. The relationship between perceived social support, recent life stress and own symptomatology may therefore be confounded by reporting bias. We attempted to reduce such a confounding problem by omitting life

Table 2 Frequency (in percentages for boys and girls) and weight of different problems

Items	Frequency in percentages		Weight total material
	Girls	Boys	
Negative life events			
Broken up with boyfriend/girlfriend	28.7	27.0	0.67
Something happened that I do not want to talk about	8.2	6.4	0.68
Parent(s) lost their job	9.0	9.9	0.80
Separation or divorce of parents	1.6	6.4	1.09
Serious illness, yourself	11.5	12.1	1.13
Serious illness, someone close to you	28.7**	13.5	1.37
Pregnancy, abortion	3.3	1.4	1.50
Abuse	4.9	1.4	1.50
Someone close to you died	23.0	17.0	1.54
Other negative events	7.4	3.5	1.79
Long-lasting adversities			
Academic problems	41.8	50.4	0.66
Studying pressure	35.2	33.3	0.88
Achievement pressure	33.6	40.4	0.81
Economic problems	28.7	36.2	0.71
Problems concerning parents	37.7**	22.7	0.77
Worries concerning sexuality	26.2	21.3	0.54
Problems concerning friends	29.5*	17.0	0.68
Problems concerning teachers	18.9	18.4	0.51
Mental health problems, parents	8.2	6.4	1.21
Alcohol problems, parents	5.7	7.1	1.00
Other problems	7.4	7.1	1.32

*$P < 0.05$; **$P < 0.01$

Table 3 Multiple regression of psychological distress on various stressors and sources of social support, and parents' marital and socio-economic status in boys and girls

	Girls		Boys	
	Beta	*t*	Beta	*t*
Negative life events	0.08	1.11	0.12	1.50
Long-lasting adversities				
Academic problems	0.25	3.42***	0.29	3.84***
Studying pressure	0.15	2.01*	0.01	0.11
Achievement pressure	0.06	0.83	0.12	1.58
Economic problems	0.08	1.10	0.03	0.34
Problems concerning parents	0.23	3.20**	0.01	0.12
Worries concerning sexuality	0.07	1.08	0.10	1.34
Problems concerning friends	0.15	2.13*	0.03	0.36
Problems concerning teachers	0.09	1.32	0.00	0.01
Mental health problems, parents	0.05	0.65	0.16	1.94
Alcohol problems, parents	0.05	0.73	0.09	1.17
Other problems	0.07	0.97		
Social support				
Social support from family	0.34	4.41***	0.28	3.25**
Social support from friends	0.16	2.16*	0.19	2.10*
Social support from school class	0.17	2.34*	0.14	1.64
Demographic variables				
Parents' socio-economic status	0.18*	2.47	0.03	0.35
Parents' marital status (divorced = 1)	− 0.04	− 0.60	− 0.05	− 0.65
R^2	0.55		0.41	

*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$

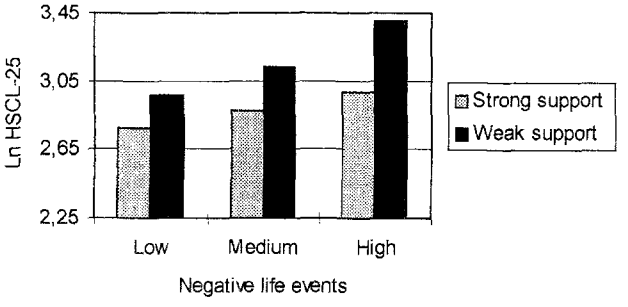

Fig. 1 Psychological distress (ln-transformed HSCL-25) by weighted negative life events in the previous 12 months and perceived social support from peers

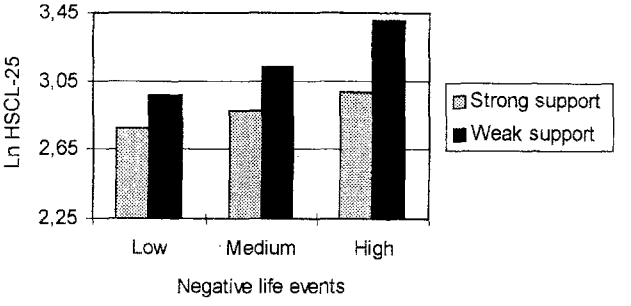

Fig. 2 Psychological distress (In-transformed HSCL-25) by weighted negative life events in the previous 12 months and perceived social support from the family

problems that could be construed as symptoms of depression, and by weighing the various stressors as objectively as possible. Still, we cannot disregard the possibility of biases associated with self-reported measures. However, adolescents' reports about their own affective states correspond better with independent psychiatric assessment than do parent's or teacher's reports (Rutter 1986). Moreover, studies addressing this confounding issue show that although there is some conceptual overlap in such self-report research, confounding alone is not sufficient to account for many of the strong associations documented in the literature (Lazarus et al. 1985; Rowlison and Felner 1988; Cutrona 1989). In any case, it is quite unlikely that biased perceptions of the environment due to mental problems could account for the interaction found between negative life events and social support.

Another concern in drawing conclusions from our data was that the sample size of this study was relatively small considering the number of predictive variables included in the analyses. The stability of statistical results also depends on the presence of correlations between the predictive variables. Moreover, the small sample size prevented a demonstration of effects of very specific or rare risk factors. For instance, it was unlikely that the single effects of most of the negative events,

each of which was very rare, would reach a significant value. Therefore, we combined the negative event items into one variable.

Further, some uncertainty is attached to our results because our sample was not based on a general population. Adolescents who for one reason or another had dropped out of school were not included. It is likely that school drop-outs may experience stressors specific to their life situation that are different from those experienced by students in high school. However, Norwegian society is homogeneous, both economically and educationally. Of the high-school students in Oslo, 70% choose academically oriented courses, often because entry to the vocational courses requires higher grades than entry to the theoretically oriented courses. The special characteristics of our sample may have affected the results concerning the academic stressors. It is less likely that they influenced the results concerning social support.

Regarding the stressors, an interesting finding in this study was that academic problems seemed to be of high importance. It was the most common and also the only stressor that contributed significantly to the variation in psychological distress for both boys and girls, controlling for the other dependent variables. This result suggests that academic problems are of specific significance at this developmental stage. One of the main developmental issues in this age group is the preparation for higher education. When the study was undertaken, the students had another year and a half to go before leaving high school. High unemployment, particularly among young and unskilled people, seems to have amplified the competition to enter universities and colleges during the last decade. A high discrepancy between expectations (higher education) and reality (restricted entry into universities or schools) may play a part in this strong association between academic problems and psychological distress. To our knowledge, only one other study, by Rubin et al. (1992), has addressed the question of effects of various life stressors in high-school students. They have reported that "stress around achievement" is the only stressor that contributes significantly to higher levels of depressive affect for both boys and girls. These results highlight the importance of paying attention to age-related stressors, such as educational problems, when studying the association between stressors and mental health in adolescence.

It is also of interest to note that our results showed gender differences in exposure and vulnerability to some of the life stressors. First, regarding *the long-lasting adversities*, we found that girls reported more relational problems, especially problems with their parents and with their friends, than did boys. This is consistent with several other studies among adolescents (Aro 1987; Gore et al. 1993). Moreover, girls were significantly more vulnerable to long-lasting adversities than boys, and the results from the multiple regression analyses for boys and girls specifically suggested that problems with parents and, to some extent, with friends accounted for most of the gender difference in vulnerability to long-lasting adversities. Thus, it seems that girls are doubly disadvantaged by problem in their social relationships. They report more of it and are more emotionally responsive to it. With respect to *negative life events*, only illness of someone they considered close or important was significantly more common among girls than boys. This is in agreement with Kessler and McCloud's (1984) findings among adults. They have shown that females report significantly greater exposure to death and other negative events that occur to people who are important to them. Second, they have shown that women are considerably more affected by such events than men. They have concluded that this female vulnerability to "network events" is due to a stronger involvement in the lives of people around them, and that this emotional cost of caring accounts for a substantial part of the difference in psychological distress scores between the sexes. Kessler and McCloud's conclusions are based on analyses of categories of negative life events, while our findings indicated a higher vulnerability to ongoing, more chronic relational problems. The results from both studies highlight the importance of exploring further the contribution of network life stressors to the gender differences in psychological functioning.

Regarding social support, our findings gave evidence for both the main effect and the buffer hypotheses. The various domains of support, namely family, close friends and the school class, contributed independently to the variance for symptom scores, and both the effect of support from the family and from peers increased with increasing negative events. The largest contribution was from the family. This is in line with the commonly accepted view that attachment, acceptance and trust within the family are main sources of healthy development. The fact that classroom support contributed in the same direction as support from the more intimate spheres of family and friends indicated that integration and acceptance in the school class are important for adolescents' mental health. This effect only reached a significant value among females, however, and replication is needed to draw safe conclusions about the social support from the school class.

In discussing the importance of the domains of social support, it is necessary to take into account the correlations between the support indices, which may suggest that an underlying personality factor affects the three different domains of social support. Another possibility is that the experience of social support in one support area affects the experience in another. The correlation between school class and friends may of course also reflect the fact that the respondent and his/her friends are in the same school class. Most of the correlation between social support from family and support from peers was relatively strong. The lower correlations in

girls than in boys, especially between support from family and from friends, may suggest that the effect of such a personality factor is weaker and/or that the different sources of social support are less interwoven in girls than in boys. Alternatively, girls may to a larger extent than boys displace their needs for support from one social area to another.

Although we identified significant relationships between life stress, social support and mental health, it is not possible, on the basis of this cross-sectional design, to draw safe conclusions about causality. It may be that people with an initial high symptom score are likely to be more exposed to life stressors than others, rather than life stressors leading to high symptom scores. It may also be that mental distress influences social support in a negative way, rather than low social support leading to high symptom scores. To disentangle these questions, longitudinal studies are necessary. In the present case, a follow-up was carried out after 18 months. The result of this longitudinal study will be presented later.

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