Research Article

Determinants of Stress Coping in Young Girls with Major Depression

Reinhold Laessle*

University of Trier, Frauenstr 7, 54290 Trier, Germany

***Corresponding author:** Reinhold Laessle, University of Trier, Frauenstr 7, 54290 Trier, Germany

Abstract

Based on former empirical studies and theoretical considerations the present study investigated differences in stress load and stress coping between adolescent girls with major depression and controls. In addition a biological indicator of chronic stress (the cortisol awakening response) was measured. 148 girls with a mean age of 15 years were studied and assessed twice with a time interval of six months in between. 74 fulfilled DSM IV criteria for major depression at first assessment. Stress symptoms and stress coping was measured with SSKJ 3-8 and SVFKJ, which are validated German questionnaires. Linear multiple regression was used to identify the variables which influence stress coping. Depressed girls reported a significantly higher stress load and significantly more destructive stress coping. The best prediction was found for a resignative coping strategy with initial degree of depression as best predictor. When using a lack of positive self instruction as dependent variable the cortisol awakening response also contributed significantly to the amount of explained variance. Because initial degree of depression seemed to determine the later inadequate coping strategies prevention programs for depression in adolescents are recommended.

Keywords: Depression; Stress; Stress Coping; Adolescents; Cortisol

Introduction

Depression in children and adolescents is frequent.

In a representative sample from Germany a lifetime prevalence for depression in youth of 21% was found [1].

In Middle East countries 57% of youth have been observed to be depressed [2].

A unique and consistent model for etiology and maintenance of depression in adolescents is not available at present.

Therefore, reviewed are empirically supported factors, that have been proposed by [3] as a basis for explaining depression in adolescents.

Social factors

The risk to develop a psychiatric disorder in general is heightened for children from families with a low socioeconomic status. This has been already shown in a large epidemiological study by [4]

Children from families with a low income had a threefold greater probability to develop a depressive disorder. This has been confirmed in a study by [5].

Factors related to the failies of depressed children

The families are characterized by the lack of positive supporting interactions with parents. These may be extremely focusing on conflicts and therefore provoke anger and aggression in children. Such conditions are especially present, when a high degree of parental psychopathology could be identified [6].

The significance of stress for the depressive disorder

A controlled study of [7] showed that psychosocial stressors reinforce the depression and are also more frequent as a consequence of depression.

This has been supported in a study of [8] by a longitudinal analysis.

Inadequate stress coping

Destructive stress coping in adolescents diagnosed as depressed has been found in [9].

Neuroendocrine findings

The severity of depressive symptoms is significantly correlated with cortisol levels during a laboratory stressor [10].

A long duration of depression leads to stress related hyperactivity of HPA axis [11].

A dysregulated feedback of cortisol secretion after stress is reported by [8]. Cortisol does not recover.

A lack of social support results in a hyperactivity of HPA axis. Not seeking social support then is responsible for the maintenance of depression as well as for hyperactivity of the HPA axis [9].

A controlled study of [10] showed that psychosocial stressors reinforce the depression and are also more frequent as a consequence of depression.

This has been supported by a further study of [12] by a longitudinal analysis.

Inadequate stress coping

Destructive stress coping in adolescents diagnosed as depressed has been found in [13,14].

The empirical data seem to suggest that stress load and stress coping may be related to the development and maintenance of depression in adolescents.

The present study is an attempt to replicate the former results and in addition tries to identify psychological and biological predictors for stress coping in depressed adolescents.

Methods

All Patients were recruited from the Department of child and adolescent psychiatry in a general hospital in Trier and fulfilled DSM IV criteria for major depression which was proved by a structured clinical interview.

A control group was recruited by advertisements in the local newspaper.

The study was approved by the ethical committee of the University of Trier (17.2.2010).

All participants were paid for participation.

Patients and controls were assessed twice with a time interval of 6 months between the two measurement points.

There were no significant differences between patients and controls with respect to these characteristics.

Questionnaires

The severity of depression was assessed by the Depression Inventory for children and adolescents (DIKJ) [21].

Coping strategies

Reactions to stressful situations were obtained by the coping questionnaire for children and adolescents (SVF-KJ) [22]. The questionnaire measures reactions to stress, when a stress situation is imaged. It comprises strategies which reduce stress as well as strategies that enhance stress. 9 subscales are provided.

Stress load

Stress load was assessed by the questionnaire for stress and stress coping for children and adolescents (SSKJ) [23].

The subscales comprise 1.vulnerability to stress, 2.physical symptoms of stress such as headache, stomach ache or exhaustion. 3. psychological symptoms of stress such as depressed mood and anxiety.

All participants collected saliva samples after awakening to determine cortisol.

Results

The depressed girls had a mean value of 19.3 ± 7.5, the controls of 9.7 ± 6.4 on the Depression Scale.

As expected the mean for the depressed girls was significantly higher and indicates clinically significant depression according to norm-tables for this questionnaire.

Table 1: Description of the sample.

	Major Depression (n=74)	Controls (n=74)
Age (years)	15.7 ± 2.1	15.1 ± 2.4
High school (%)	66	81
Parents academic education (%)	4	10

Table 2: Mean values for stress load in patients and controls. (M ± SD).

Scale of SSKJ	Controls	Major Depression
Stress vulnerability	15.5 ± 3.0	17.7 ± 2.8
Physical stress symptoms	10.1 ± 2.7	11.8 ± 3.0
Psychol. stress symptoms	21.9 ± 5.5	27.6 ± 5.1

Table 3: Mean values for stress coping strategies in patients and controls (M ± SD).

Scales of SVFKJ	Controls	Major Depression
Down playing	17.2 ± 5.4	14.9 ± 5.4
Distraction	11.2 ± 5.5	9.6 ± 5.0
Control of stress	23.2 ± 4.3	19.9 ± 5.9
Positive self instruction	22.5 ± 5.0	18.0 ± 6.7
Social suport	20.4 ± 4.9	18.1 ± 5.9
Passive avoidance	13.8 ± 6.3	19.0 ± 7.1
Rumination	17.9 ± 6.1	21.5 ± 7.0
Resignation	8.5 ± 5.8	13.7 ± 7.5
Aggression	11.7 ± 6.4	15.6 ± 6.9

Table 4: Mean cortisol after awakening for the comparison groups (Mean ± SD) in nmol/ml.

Time of cortisol sample	Controls	Major Depression
Awakening	7,2 ± 3,8	6,7 ± 3,5
+ 30 minutes	10,4 ± 3,9	10,8 ± 4,4
+ 45 minutes	9,9 ± 3,9	11,3 ± 4,2
+ 60 minutes	8,9 ± 4,0	10,7 ± 4,3

The statistical analysis for comparison between depressed patients and controls with MANOVA for all three scales simultaneously was significant with F (3, 144) = 16.2, p<.001.

The depressed girls had significantly higher mean values on all three scales.

They felt more stress load physically as well as psychologically and were more vulnerable to the perception of stress situations.

The comparison of the means with a MANOVA for all 9 scales simultaneously yields F (9, 138) = 4.4, p<.001.

The coping strategies of the girls with depression were significantly more inadequate than those of the controls.

They avoid stress situations passively. If a stress situation was present, they ruminate extensively over the situation. Resignation and aggression are also possible, whereas a lack of constructive reactions such as the search for social support can be observed.

Mean cortisol over time was analyzed by MANOVA for repeated measurement. A significant interaction effect between cortisol over time and comparison group was found.), F (3,132) = 3.01, p < .04.

Excluding awakening all means were higher for girls with major depression.

Multiple regression analyses were conducted to predict the degree of stress coping after a time interval of 6 months.

Each analysis included the physiological and the psychological stress load. Mean cortisol 60 minutes after awakening was also used as a predictor as well as severity of depression at assessment I.

Regression analysis 1

Dependent variable was the coping strategy passive avoidance.

The regression equation was significant with $F_{(4,137)} = 9,1 p < .001$ and explained variance of 19%. Significant predictors were degree of initial depression and psychological stress load.

Regression analysis 2

Dependent variable was the coping strategy lack of positive self instruction.

The regression equation was significant with $F_{(4,137)} = 20,9$ $p < .001$ and explained variance of 36%. significant predictors were degree of initial depression and physiological stress load.

Regression analysis 3

Dependent variable was the coping strategy resignation.

The regression equation was significant with $F_{(4,137)} = 25,2$ $p < .001$ and explained variance of 41%. A significant predictor was the degree of initial depression.

Discussion

A high stress load has also been found in college students during examination [15]. Further support comes from a study with daily diaries [16]. Similar results for coping have been presented in a controlled study of [17] Interpersonal stress in particular influences HPA activity as has been found here also [18].

A special focus related to anxiety symptoms in adolescent depression can be concluded from [19].

The results of this study for adolescents can be integrated into the cognitive model of Beck et al. [20] which has been proposed for adult depression.

A high stress load physically as well as psychologically leads to inadequate coping strategies such as passive avoidance, rumination, resignation, or aggression which prevent short term stress coping but promote the maintenance of depression in the long term.

A meaningful extension to previous results can be concluded from regression analyses that clearly show the important role of initial depression and therefore would strongly support an early prevention in adolescents as has been demonstrated for example in [24].

Acknowledgment

References

1. Ravens-Sieberer U et al. (2007) Psychological health in children and adolescents in Germany Results from a nationwide survey. (KiGGS) .

2. Omar Al Omari, Sulaiman Al Sabei, Omar Al Rawajfah, Loai Abu Sharour, Khalid Aljohani, et al. Prevalence and Predictors of Depression, Anxiety, and Stress among Youth at the Time of COVID-19: An Online Cross-Sectional Multicountry Study. Depression Research and Treatment Article ID 8887727. 9 pages https://doi.org/10.1155/2020/8887727.

3. Rao U, Chen L. Characteristics, correlates, and outcomes of childhood and adolescent depressive disorders. Dialogues in Clinical Neuroscience. 2009, 11(1): 45-62.

4. E J Costello, A Angold, B J Burns, D K Stangl, D L Tweed, et al. The Great Smoky Mountains Study of Youth. Goals, design, methods, and the prevalence of DSM-III-R disorders. Archives of General Psychiatry. 1996; 53(12): 1129-1136.

5. Elizabeth Goodman 1, Bin Huang, Terrance J Wade, Robert S Kahn. A multilevel analysis of the relation of socioeconomic status on adolescent depressive symptoms: does school context matter?. Journal of Pediatrics. 2003; 143(4): 451-456.

6. Monique Séguin, Ian Manion, Paula Cloutier, Lisa McEvoy, Mario Cappelli. Adolescent depression, family psychopathology and parent/child relations: a case control study. Canadian Child and Adolescent Psychiatry Review. 2003; 12(1): 2-9.

7. Krackow E, Rudolph K. life stress and the accuracy of cognitive appraisals in depressed youth. Journal of Clinical Child and Adolescent Psychology. 2008; 37(2): 376-385.

8. Cole, D et al. Stress exposure and stress generation in child and adolescent depression: a latent trait-state- error approach to longitudinal analyses. Journal of Abnormal Psychology. 2006; 115: 40-51.

9. Bruce E Compas, Margaret C Boyer, Catherine Stanger, Richard B Colletti, Alexandra H Thomsen, et al. Latent variable analysis of coping, anxiety/ depression, and somatic symtoms in adolescents with chronic pain. Journal of Consulting and Clinical Psychology. 2006; 74(6): 1132-1142.

10. Matthew C Morris, Chrystyna D Kouros, Alyssa S Mielock, Uma Rao. Depressive symptom composites associated with cortisol stress reactivity in adolescents. Journal of Affective Disorders. 2017; 210 181-188.

11. Sanne H Booij, Esther M C Bouma, Peter de Jonge, Johan Ormel, Albertine J Oldehinkel. Chronicity of depressive problems and the cortisol response to psychosocial stress in adolescents: the TRAILS study. Psychoneuroendocrinology. 2013; 38(5): 659-66.

12. Nestor L Lopez-Duran, Ellen McGinnis, Kate Kuhlman, Elisa Geiss, Ivan Vargas, et al. HPA-axis stress reactivity in youth depression: evidence of impaired regulatory processes in depressed boys. Stress. 2015; 18(5): 545-553.

13. J R Asarnow, G A Carlson, D Guthrie. Coping strategies, self perceptions, hopelessness, and perceived family environments in depressed and suicidal children. Journal of Consulting and Clinical Psychology. 1987; 55(3): 361-366.

14. Catherine B Stroud, Suzanne Vrshek-Shallhorn, Emily M Norkett, Leah D Doane. The cortisol awakening response (CAR) interacts with acute interpersonal stress to prospectively predict depressive symptoms among early adolescent girls. Psychoneuroendocrinology. 2019; 107: 9-18.

15. P Jayanthi, M Thirunavukarasu, Rajamanickam Rajkumar. Academic stress and depression among adolescents: a cross-sectional study. Indian Pediatrics. 2015; 52(3): 217-219.

16. Joanna Herres, E. Stephanie Krauthamer Ewing. Emotional Reactivity to Negative Adult and Peer Events and the Maintenance of Adolescent Depressive Symptoms: a Daily Diary Design. Journal of Abnormal Child Psychology. 2017; 44(3): 471-481.

17. Adam G. Horwitz, Ryan M. Hill, Cheryl A King. Specific coping behaviors in relation to adolescent depression and suicidal ideation. Journal of Adolescence. 2011; 34(5): 1077-1085.

18. Sarah A. Owens, Sarah W. Helms, Karen D. Rudolph, Paul D. Hastings, Matthew K. Nock, et al. Interpersonal Stress Severity Longitudinally Predicts Adolescent Girls' Depressive Symptoms: The Moderating Role of Subjective and HPA Axis Stress Responses. Journal of Abnormal Child Psychology.

2019; 47(5): 895-905.

19. Karl-Andrew Woltin, Kai Sassenberg, Nihan Albayrak. Regulatory focus, coping strategies and symptoms of anxiety and depression: A comparison between Syrian refugees in Turkey and Germany. PLOS ONE. 2018; 13(10): e0206522. https://doi.org/10.1371/journal.pone.0206522 October 25.

20. Beck A et al. Cognitive Therapy of Depression. The Guilford Press, New York. 1979.

21. Stiensmeier-Pelster J et al. Depression Inventory for children and adolescents DIKJ Göttingen Hogrefe. 2000.

22. Hampel, P et al. Coping questionnaire for children and adolescents (SVF-KJ). Göttingen: Hogrefe. 2000.

23. Lohaus A et al. Questionnaire to measure stress load in children and adolescents (SSKJ). Göttingen: Hogrefe. 2006.

24. Patrick Pössel, Andrea B Horn, Gunter Groen, Martin Hautzinger. School-Based Prevention of Depressive Symptoms in Adolescents: A 6-Month Follow-up. Journal of the American Academy of Child and Adolescent Psychiatry. 2004; 43(8): 1003-1010.