

The Scope of Macedonian Research on Cognitive Vulnerability to Depression in the Developmental Period of Adolescence

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In recent years, Macedonian psychologists and psychiatrists at Goce Delcev University, in the city of Stip, have initiated several innovative research projects. With the support of colleagues from the University of Belgrade and University Clinic of Psychiatry and Psychotherapy, Paracelsus Medical University in Nuremberg, we opened the Department of Psychiatry and Clinical Psychology in Stip (including the Psychological Laboratory), focused on research in mental health.

Diathesis Stress Models of Cognitive Vulnerability

Developmental psychopathology, especially in clinical settings, provides a leading paradigm for research and treatment of depression in adolescence. The theoretical and empirical research discussed in this paper was led by the author under the supervision of Prof. Dr. Tatjana Vukosavljevic-Gvozden, University of Belgrade, and has been successfully implemented during recent years. It is important to emphasize that cognitive models are basically diathesis-stress models. The basic thesis is that depression arises from the interaction between the cognitive vulnerability of the person (diathesis) and specific conditions of the environment (stress) that serve as a trigger for activating this diathesis.

The rate of occurrence of depression in children and adolescents worldwide is not fully known. What is known is that in recent years, the prevalence of depression, one of the many common mental disorders in adolescence, has begun to grow rapidly. Early and middle adolescence, especially from 13 to 17 years of age, is a critical period for exploring the risk of depression, because this is a developmental period in which symptoms of depression often appear for the first time (Cicchetti & Rogosch, 2002). In adolescence, prerequisites for cognitive vulnerability are often present and may become manifest (Alloy, Abramson, Walshaw, Keyser, & Gerstein, 2006).

Recent research on developmental psychopathology forms part of a larger research perspective focused on clinical and subclinical depression during adolescence. The research was conducted in accordance with the World

Medical Association Declaration of Helsinki, 2001. These guidelines are followed in clinics and schools in the three main population centers of the Republic of Macedonia (Stip, Eastern Region; Skopje, Central Region; Bitola, Western Region). We aimed to explain the risk factors for the development of symptoms of depression in a sample of adolescents aged 13-17. Screening for depression is an important step in the implementation of a modern mental health system aimed at preventing the occurrence of clinical depression during adolescence.

Research Conducted in Recent Years

The sampling procedure in this project was carried out in two phases. Over a three-year period, the main research was conducted in psychiatric wards and Centers for Mental Health for children and adolescents, in three clinics and in primary and secondary schools in the three main towns of Macedonia (Skopje, Stip, Bitola). In the first phase (pilot study) for the purpose of checking the instruments' reliability (Cronbach alpha coefficient) on the non-clinical sample of adolescents between the ages of 13-17 years, a sample of 300 youth of both sexes in primary school and high school in Skopje was undertaken. The instruments showed good psychometric properties, with Cronbach alpha coefficients ranging between 0.79 and 0.89.

In the second phase, three groups were formed: a clinical group, a subclinical group and a control group. The criterion for inclusion in the clinical sample was the fulfillment of the diagnostic criteria of DSM-IV-TR/DSM-V (APA, 2000,2013) for unipolar depression without psychotic features (Major Depression, MDD). The data for 139 adolescents were taken into account in the final *clinical sample*. The data for *subclinical* and *control sample* were collected in primary and secondary schools from three socio-demographic regions, Stip, Skopje and Bitola. There was a total of 720 adolescents, of which 240 were divided by their socio-demographic region. The respondents from the subclinical sample have the cut-off score for subclinical depression on the CES-D, over 16, and do not fulfill the criteria of the M.I.N.I. kid interview for Major Depression. The remaining adolescents who have low scores on the CES-D (below the cut-off score for subclinical depression), were screened through interviews, and formed a control sample of adolescents. The sample consisted of: the clinical group, 139 (33.7%) respondents; the subclinical group, 133 (32.3%)



respondents, and 140 (34.0%) respondents in the control group, or a total of 412 respondents.

Cognitive vulnerability factors for depression (dysfunctional attitudes, negative inferential style, ruminative response style), and psychosocial risk factors (negative life events and perceived social support) were measured by a set of instruments. We employed a data sheet for each respondent; M.I.N.I. Interview (MINI kid Screen/DSM-IV-TR/Sheehan & Lecrubier, 2001/2006); Dysfunctional Attitude Scale (DAS, Weissman & Beck, 1978); Adolescent's Cognitive Style Questionnaire (ASCQ, Hankin & Abramson, 2002); Ruminative Response Style Questionnaire (RSQ, Nolen-Hoeksema & Morrow, 1993); Adolescent Life Events Questionnaire (ALEQ, Hankin & Abramson, 2002); Multidimensional Scale of Perceived Social Support (MPSS, Zimet, Dahlem, Zimet & Farley, 1988) and Centre for Epidemiological Depression Scale (CES-D, NIMH, Radloff, 1977).

Cognitive Vulnerability-Transactional Stress Model (CV-TSM, Hankin and Abramson, 2001)

Within the Transactional stress model of cognitive vulnerability to depression in adolescence, (CV-TSM, Hankin and Abramson, 2001) we have confirmed the hypothesis that there is a significant correlation between the risk factors of cognitive vulnerability (dysfunctional attitudes, negative inferential style and ruminating response style), psychosocial factors (negative life events, perceived social support), socio-demographic factors (average grade at school, gender and age), on the one hand, and the level of symptoms of depression on the other. All risk factors included in the model are highly interconnected and have a high intercorrelation. The highest correlation (negative connection) with the level of symptoms of depression is shown by the perceived social support, and the lowest correlation (positive connection) with the level of symptoms of depression is shown by negative life events in the area of romantic relationships. Only gender and age are not statistically significantly associated with the level of symptoms of depression.

Developmental Psychopathological Perspective

The survey results provide initial support for the thesis that cognitive vulnerability is stabilized into relatively firm individual dispositions, during the transition from middle and late childhood into early adolescence, and they increasingly consolidate and stabilize in the period of early adolescence. Different factors of cognitive vulnerability can be relatively independent of each other during pre-adolescent years, but during the transition from childhood into early adolescence, they can become very interconnected. When multiple risk factors are consolidated, the degree of vulnerability to depression among adolescents increases (Abela & Hankin, 2008).

Cognitive-psychosocial Predictive Models

We have also confirmed that risk factors that were the subject of our interest are significant *predictors* of the level of

symptoms of depression (see Hankin & Abramson, 2001; Calloway, 2010; Brissette, Scheier, & Carver, 2002; Uchino, 2009; Nolen-Hoeksema & Hilt, 2013; Bliese & Britt, 2001; Cankaya, 2002; Hankin & Abramson, 2002; Hankin, Fraley, & Abela, 2005; Sawyer, Pfeiffer, & Spence, 2009; Spasojevic & Alloy, 2001; Feldner, Leen-Feldner, Zvolensky, & Lejuez, 2006; Kaslow, Adamson, & Collins, 2000; Sheeber, Hops, & Davis, 2001; Takakura & Sakihara, 2001; Kaltiala-Heino, Rimpela, Rantanen, & Laippala, 2001).

Hierarchical multiple regression analysis shows that socio-demographic factors (gender, age and school grade average) predict a 6.9% level of symptoms of depression in the clinical group, 58.9% in the subclinical group, and 43.1% in the control group. Analysis of the three predictive models for each group respectively showed that the model of the clinical group has the greatest predictive power, i.e. that the predictors of ruminating response style, dysfunctional attitudes, negative inferential style, negative life events and perceived social support can predict 90.4% of the level of symptoms of clinical depression, which is a very high effect. For the subclinical group these predictors together can predict 89.5% of the overall level of symptoms of subclinical depression, and 86.8% of the low level of symptoms of depression in the control group.

Interestingly, in cognitive-psychosocial predictive models, in the clinical and the subclinical group, the strongest predictor appears to be perceived social support. The results obtained are consistent with our expectations that the perceived social support moderates the relationship between negative life events and the level of symptoms of depression, and that it is consistent with the determination of social support as a "stress buffer," but only for the subclinical group. The change of prediction between two steps, which is significant only in the subclinical group, is 1.9%, which supports the view that interaction between negative life events and perceived social support helps in predicting the level of symptoms of depression, but only in the subclinical group. This means that the high interaction between negative life events and perceived social support leads to lower levels of symptoms of depression. Furthermore, our results suggest that the inclusion of perceived social support as a psychosocial risk factor in cognitive-behavioral etiological models of depression is justified.

The group of adolescents with clinical depression, the group with subclinical depression and the control group, are significantly different in terms of risk factors of cognitive vulnerability (dysfunctional attitudes, negative inferential style and ruminating response style) and psychosocial factors (negative life events and perceived social support). We expected that the group of adolescents with clinical and subclinical depression would differ from the control group in terms of the variables gender and age. The results obtained have not confirmed our expectations.

Instead of a Conclusion: Guidelines for Future Research

Here are a few suggestions for future research: First, it is of particular importance to promote research on the developmental aspects of cognitive theories concerning vulnerability to depression, emphasizing studies that focus on the emergence and consolidation of risk factors for cognitive

vulnerability. Besides transactional studies, longitudinal studies are also necessary to understand and explain the developmental processes leading to risk factors. Studies which focus on how to alter the factors of cognitive vulnerability during development are also needed. Second, it is important to integrate the factors of cognitive vulnerability with other theoretically and empirically supported risk factors, especially social /interpersonal, neural, genetic and emotional influences. We have demonstrated statistically the value of a transactional stress model of cognitive vulnerability to integration, through the inclusion of psychosocial variables as risk factors (e.g., perceived social support). Third, theories of cognitive vulnerability should address the “great arguments of depression” such as a dramatic increase in symptoms and states of depression, variations in the pattern of depression in early adolescence, and continuity versus recurrence of depression.

Fourth, we believe that the methodological criticisms relating to the research so far can generally be overcome by the inclusion of modern neuroimaging methods. Fifth, the phenomenon of comorbidity of depression with other emotional and behavioral disorders in adolescence is well known. Consequently, future research should explore which cognitive factors are specific to depression or are general factors of mental disorders. The following focus of future enquiries is proposed: a) integration towards more models, b) necessary inclusion of developmental psychopathological aspects and c) methodological and statistical enhancement, including the most advanced neuroimaging techniques.

We believe that the current study, among the first from the Republic of Macedonia, adds to the knowledge base regarding the cognitive vulnerability of adolescents. It enhances the developmental psychopathological perspective by elucidating the phenomenon of subclinical depression in adolescence. Prevention of depression in adolescence increasingly requires a shift of the paradigm from traditional models of disease in which symptoms are treated when they occur, to a proactive focus on mental health and to maximizing protective factors and reducing risk factors for mental diseases (National Research Council and Institute of Medicine, 2009).

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