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Research paper

The influence of parental care and overprotection, neuroticism and adult stressful life events on depressive symptoms in the general adult population

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ABSTRACT

Background: The quality of parenting, neuroticism, and adult stressful life events are reportedly associated with depressive symptoms. However, previous studies have not examined the complex interaction between these three factors. In this study, we hypothesized that the quality of parenting (care and overprotection) acts on depressive symptoms through 'neuroticism' and the appraisal of adult stressful life events, and this hypothesis was verified by structural equation modeling.

Methods: Four hundred one participants from the general adult population were studied using the following self-administered questionnaire surveys: Patient Health Questionnaire-9 (PHQ-9), Parental Bonding Instrument (PBI), neuroticism subscale of the short version of the Eysenck Personality Questionnaire-revised (EPQ-R), and Life Experiences Survey (LES). The data were analyzed with single and multiple regression analyses and covariance structure analyses.

Results: In the covariance structure analysis, neuroticism scores and negative change scores on the LES acted on the depressive symptoms (PHQ-9 scores) directly, but care or overprotection in childhood on the PBI did not act on them directly. Low care and high overprotection of the PBI increased depressive symptoms and negative change scores on the LES through enhanced neuroticism, which is regarded as a mediator in these effects.

Limitations: The subjects of this study were nonclinical volunteers; the findings might not be generalizable to psychiatric patients.

Conclusions: This research showed that low care and high overprotection of maternal and paternal parenting in childhood influence depressive symptoms indirectly through enhanced neuroticism in general adults. These findings suggest that neuroticism mediates the long-term effect of the quality of parenting on depression in adulthood.

1. Introduction

Depression was known as melancholia in ancient Greek medicine. Kraepelin established the concept of manic-depressive illness, which included both melancholia and mania and was the starting point of modern depression studies. After that, manic-depressive illness was divided into two categories: bipolar disorder, which consists of both manic and depressive episodes, and unipolar major depression, which consists of only single or recurrent depressive episodes without manic episodes but includes broader states than melancholia (Angst and Marneros, 2001). In recent years, Parker and other psychiatric researchers proposed to discriminate the narrower disease concept "melancholia" from depression again (Parker et al., 2010). However, as Freud stated that "melancholia, whose definition fluctuated even in descriptive psychiatry, takes on various clinical forms, the grouping together of which into a single unity does not seem to be established with certainty" (Freud, 1917), the concept of depression or melancholia still remains unestablished as a single disease. Meanwhile, although psychopathology has indicated the pathogenetic role of melancholic temperament in depression (Tellenbach, 1961), its pathogenetic role for depression has not yet been clearly established. Therefore, the disease concept and pathogenesis of depression should be investigated from many directions to establish the clinical entity.

Recently, studies using structural equation modeling, a multilateral method, have elucidated that various risk factors are complicatedly connected with the onset of depression (Kendler and Gardner, 2014; Nakai et al., 2014; Toda et al., 2015, 2016). Kendler and Gardner investigated multiple risk factors of depression in detail using structur-

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al equation modeling and reported the sex difference in the onset of depression in a dizygotic twins study (Kendler and Gardner, 2014). According to their studies, five factors had a greater impact on liability to major depression in women: parental warmth, neuroticism, divorce, social support, and marital satisfaction. Six factors had a greater impact in men: childhood sexual abuse, conduct disorder, drug abuse, prior history of major depression, and distal and dependent proximal stressful life events. However, their studies examined the overall impacts of several individual risk factors together on depression using structural equation modeling, but the direct and indirect effects of most factors on depression were not clarified (Kendler and Gardner, 2014).

Regarding risk factors for depression, the relationship between depression and neuroticism particularly has been demonstrated clearly, and major depressive disorder has a much lower heritability than bipolar disorder (American Psychiatric Association, 2013; Bienvenu et al., 2011; Kendler et al., 2004). DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition) clearly describes that neuroticism (negative affectivity) is a well-established risk factor for the onset of major depressive disorder, and high levels of neuroticism appear to render individuals more likely to develop depressive episodes in response to stressful life events (American Psychiatric Association, 2013).

Regarding the quality of parenting, Parker et al. developed the Parental Bonding Instrument (PBI), a short questionnaire that retrospectively measures two parental styles: care and overprotection (Parker et al., 1979). The subscale 'care' involves one pole defined by affection, emotional warmth, empathy and closeness and the other pole defined by emotional coldness, indifference and neglect. The other subscale 'overprotection' has one pole defined by control, overprotection, intrusion, excessive contact, infantilization and prevention of independent behavior, and the other pole defined by items that suggest allowance of independence and autonomy (Parker et al., 1979). PBI scores are closely related to depression and depressive symptoms; in particular, lack of care is reportedly more closely related to depression and depressive symptoms (Parker, 1983; Sakado et al., 2000). A previous study reported that paternal overprotection in male depressive patients and lack of maternal care in female depressive patients are significantly associated with their depressive symptoms (Enns et al., 2000). In addition, lack of parental care is associated with depressive symptoms in depressed patients (Valiente et al., 2014). Accordingly, several studies indicated the relationship between the quality of parenting and depression. Furthermore, the quality of parenting is correlated with neuroticism in general adults (Reti et al., 2002). Because there is a long time interval between the quality of parenting in childhood and depressive symptoms in adulthood, there must be some mediators, e.g., neuroticism, between these two factors.

Recent studies using structural equation modeling have shown direct or mediator effects of various risk factors on depression and depressive symptoms. We reported that childhood abuse, especially neglect, substantially contributes to depressive symptoms in general adults and major depressive patients, and this effect is indirect and mediated by affective temperaments (Nakai et al., 2014; Toda et al., 2015, 2016). A previous study suggested that neuroticism acts as a mediator in the relationship between paternal overprotection and depressive symptoms in only male depressive patients (Enns et al., 2000). Moreover, in patients with depression, various scores may be affected by depression (Santor et al., 1997), and the influence of adult stressful life events on neuroticism and depressive symptoms must be taken into account. Therefore, we thought it was important to analyze the polymeric relationship between four factors: depressive symptoms, the quality of parenting, neuroticism and stressful life events in a general adult population. To the best of our knowledge, no study has yet examined the interactions among the quality of parenting, neuroticism, stressful life events and depressive symptoms and, in particular, the mediator role of neuroticism between the quality of parenting and depressive symptoms in the general adult population. We hypothesized that 'the quality of parenting (care and overprotection)' affects 'depressive symptoms' through 'neuroticism' and 'stressful life events' and verified the hypothesis using structural equation modeling in the general adult population.

2. Subjects and methods

2.1. Subjects

This study was part of a larger study conducted between January 2014 and August 2014 on 853 Japanese volunteers from the general adult population (Kanai et al., 2016). All volunteers were recruited by flyers and word of mouth. Four questionnaires, which are shown below (Section 2.2), and the questionnaire data on the demographic characteristics (age, sex, years of education, marital status, employment status, number of cohabiters, number of offspring, past history of psychiatric illness, 1st-degree relatives with psychiatric illness) were distributed. Written informed consent was obtained from all of the subjects after giving the following explanations: 1) their participation in this research is entirely voluntary, 2) if they decide not to participate, they do not receive any disadvantage, 3) the information that we collect from this research project will be kept completely confidential.

The questionnaires were returned anonymously from 455 subjects (53.3%) to the research group by mail for complete confidentiality, and 54 subjects were excluded from this study due to many missing values on their questionnaires. Finally, 401 subjects (47.0%; 183 males and 218 females: average age 42.3 ± 11.9 years) were included for the analysis of this study. This study was performed in accordance with the Declaration of Helsinki and was approved by the Institutional Review Boards of Tokyo Medical University and Hokkaido University Hospital.

2.2. Questionnaires

2.2.1. Patient Health Questionnaire-9 (PHQ-9)

The Japanese version of the PHQ-9 was self-completed by the subjects in its written form (Muramatsu et al., 2007). Major depressive episodes are diagnosed in two ways using the PHQ-9: a diagnostic algorithm and a summary score (Spitzer et al., 1999). This study employed a summary score for assessing the severity of depressive symptoms.

2.2.2. Parental Bonding Instrument (PBI)

The Parental Bonding Instrument (PBI) is a 25-item self-report questionnaire of the quality of parenting or parental attitude toward the child, which was developed by Parker et al. (1979). Respondents answer 25 questions regarding the child-rearing styles (12 items of care and 13 items of overprotection) of their parents, based on their memories of their parents during the first 16 years of their childhood. In the PBI, high scores of “care” indicate a high tendency for care by parents (i.e., a low tendency for indifference and rejection), and high scores of "overprotection" indicate a high tendency for overprotection by parents (i.e., a low tendency for encouragement of independence). The long-term stability of the PBI over the 20-year period was reported (Wilhelm et al., 2005). The Japanese version of the PBI, whose validity and reliability were confirmed (Kitamura and Suzuki, 1993), was used in this study.

2.2.3. Neuroticism subscale of the shortened Eysenck Personality Questionnaire-Revised (EPQ-R)

Neuroticism was measured using the Japanese version of the subscale (12 items) of the shortened Eysenck Personality Questionnaire-Revised (EPQ-R) (Eysenck and Eysenck, 1985) following the method of a previous study (Kendler et al., 2004). There have been several reports that neuroticism was related to depressive symptoms or major depression (Kendler et al., 2004). Our previous study confirmed the validity and reliability of the Japanese shortened version (Nakai et al., 2015).