Hope mediates the effects of maternal care in childhood, neuroticism, educational level, and subjective social status on depression in adult volunteers

Kentaro MUTOH[1], Miki ONO[1], Jiro MASUYA[1], Mina HONYASHIKI[1],

Yoshio IWATA[1], Yu TAMADA[2], Yota FUJIMURA[2], Shinji HIGASHI[3],

Ichiro KUSUMI[4], Takeshi INOUE[1]*

[1]Department of Psychiatry, Tokyo Medical University
[2]Department of Psychiatry, Tokyo Medical University Hachioji Medical Center
[3]Department of Psychiatry, Ibaraki Medical Center, Tokyo Medical University
[4]Department of Psychiatry, Hokkaido University Graduate School of Medicine

Abstract

Background : Depressive symptoms have a negative impact on the economy, and hence the elucidation and prevention of depression is a crucial issue in modern society. Hope plays a key role in positive psychology, and its effect on depression has been noted. We hypothesized that several predisposing factors influence depressive symptoms, and that this association is mediated by hope. Therefore, in this study we investigated the mediating role of hope on the effects of several predisposing factors on depressive symptoms in adult volunteers.

Subjects and methods : A paper-based questionnaire study was conducted in 404 adult volunteers. Data of demographic characteristics, hope evaluated by the Snyder Hope Scale, depressive symptoms by Patient Health Questionnaire-9, neuroticism by the short version of the Eysenck Personality Questionnaire-Revised, and the quality of parenting in childhood by Parental Bonding Instrument were collected. Covariance structure analysis in a path model of the hypothesis was conducted using factors that were indicated to be associated with hope in stepwise multiple regression analysis.

Results : In the path analysis, educational level, subjective social status, neuroticism, and maternal care in childhood had statistically significant direct effects on hope in adult volunteers. The indirect effects of these variables on depressive symptoms were also significant, and were mediated by hope. This model explained 32.5% of the variance of depressive symptoms ($R^2 = 0.325$).

Conclusions : This study suggests that hope is a key mediator between predisposing factors of depression and depressive symptoms. Interventions to increase hope may improve depressive symptoms and facilitate the prevention of depression by interfering with the effects of predisposing factors from childhood.

Introduction

Depression is a psychiatric disorder with a high lifetime prevalence (5%-17%), and is a major burden on society worldwide[1,2]. The lifetime prevalence of depression in Japan is 5.7%[3], which is considerably lower than in Western countries, but there is still a substantial economic impact on the society[4]. The urgent

need for implementing strategies that prevent and manage depression has been pointed out[3-6]. It is necessary to clarify the cause of depression for the prevention of depression, and for the amelioration of the absenteeism and presenteeism that are caused by depression[4)5]. However, the pathogenesis of depression has not been fully elucidated to date.

Both genetic and environmental factors contribute to depression[7]. Childhood abuse, parenting quality, stressful life events, harassment experienced in adulthood, neuroticism, subjective social status (SSS), etc., have been reported to be associated with the development of depression[8-19]. Educational level, which is an indicator of objective social status, has also been suggested to be associated with depression[11)20)21]. These previous findings indicate that the onset and development of depression involve multiple factors, resulting in a highly complex pathogenetic mechanism.

Hopelessness is a core characteristic of depression, which is also associated with suicide, and has been extensively studied[1)22]. Beck devised the Beck Hopelessness Scale (BHS), which enables the evaluation of hopelessness in depression. BHS is a scale that evaluates pessimism, and consists of the following three factors ; affective feelings about the future, motivations involving decisions to give up, and cognitions involving anticipations of a generally dark future[22)23]. On the other hand, hope is considered to exist on a continuum with hopelessness as the opposite pole, but hope and hopelessness may exist at the same time, and the correlation coefficient of the two scales of hope and hopelessness is -0.56 to -0.71, indicating only a moderate correlation[24]. Therefore, in the conceptual model, hope is not only the opposite of hopelessness but also has characteristics that hopelessness does not have.

In recent years, positive psychology has been considered to be crucial for enhancing happiness and well-being, and for promoting mental health. Hope plays a key role in positive psychology[25]. Snyder defined hope as a cognitive set of a mutually derived sense of successful (a) agency (goal-oriented decisions) and (b) pathways (planning how to achieve goals)[23]. With this definition, Snyder et al. have developed the Snyder Hope Scale and hope therapy[23)26]. Hope is inversely correlated with depression[23)27]. Depression is induced by negative outcomes of life events that are particularly important to that person, thus making them feel helpless or hopeless[27]. Depression has been shown not to influence future levels of hope, suggesting that hope may be a trait variable that is unaffected by the occurrence of major depressive episodes[27-29]. Hope therapy, which increases hopeful thinking and optimal psychological functioning, clinically improves symptoms of depression[26)30)31]. Hope has been proposed as an effective factor for remediating depressive symptoms[27]. Because hope is an amendable characteristic of depressed patients and theoretical models of several other personality traits as mediators between predisposing factors and depression or depressive symptoms have been proposed[14)32-34], hope is expected to mediate the association of the aforementioned predisposing factors of depression with depression or depressive symptoms.

Based on the theoretical backgrounds mentioned above, we hypothesized that several predisposing factors influence depressive symptoms, and that these associations are mediated by hope. To test this hypothesis, we conducted a paper-based questionnaire survey on Japanese adult volunteers, and analyzed this mediation by path analysis (covariance structure analysis).

Subjects and methods

Subjects

This study was part of a large study, carried out in 2014[32)35)36]. Volunteers were recruited by flyers in Sapporo, Japan. The self-report questionnaires described below were distributed to 853 recruited adult volunteers. A total of 455 subjects (53.3%) participated in this survey and responded to the questionnaires. However, 51 responses were incomplete and hence invalid. A total of 404 participants (47.4% ; 220 men, 184 women ; age 42.3 ± 11.9 years) responded to the questionnaires completely and anonymously. Subjects provided written informed consent after receiving the following explanations : 1) participation in this research is at their free will ; 2) there is no disadvantage in disagreeing to participate in this research ; 3) the data from this research will be processed so that individuals cannot be identified ; 4) all information will be kept strictly confidential. This study was performed in accordance with the Declaration of Helsinki (amended in Fortaleza in 2013) and was approved by the ethics committees of both Tokyo Medical University and Hokkaido University Hospital (study approval numbers SH3308 and 010-0041, respectively).

Questionnaires

The questionnaires included questions on demographic data (age, sex, education, employment, marriage, family, and comorbid physical and mental illness) and the following self-rating scales.

Snyder Hope Scale (SHS)

The SHS was developed by Snyder and his group[23]. Snyder defined hope as a cognitive set of a mutually derived sense of successful (a) agency (goal-oriented decisions) and (b) pathways (planning how to achieve goals). The questionnaire consists of 4 agency items, 4 pathway items, and 4 filters. Respondents evaluate them on a 4-point Likert scale (1 = definitely false to 4 = definitely true). The Japanese version was developed

and verified for reliability and validity by Shinohara and Katsumata (2001)[37].　In this study, the total score (8-32 points) of pathway and agency items were used for evaluating hope.　Higher scores indicate higher levels of hope.

Patient Health Questionnaire-9 (PHQ-9)

The PHQ-9 was developed by Spitzer et al. as a self-report questionnaire to screen for current major depressive episodes and to assess the degree of depressive symptoms[38].　The Japanese version was developed and verified for reliability and validity by Muramatsu et al[39]. In this study, the summary score (0-27 points) was used to assess the degree of depressive symptoms, with 27 points being the most severe.

Neuroticism score on the short version of the Eysenck Personality Questionnaire-Revised (EPQ-R)

We used the neuroticism subscale of the short version of the EPQ-R[40], as Kendler et al. did to investigate the influence of neuroticism on depression[9].　The validity and reliability of the Japanese version were verified by Nakai et al[41].　A high score indicates high neuroticism, with a maximum of 12 points.

Parental Bonding Instrument (PBI)

The Parental Bonding Instrument (PBI) was developed by Parker et al[42].　It is a self-report questionnaire for assessing the quality of parenting that a respondent received until the age of 16.　Respondents answer questions about the parenting style they experienced, based on their memories up to 16 years of age.　The questions are scaled into 2 dimensions, namely, 'care' and 'overprotection'.　A high 'care' score indicates a high tendency of parental care and a low tendency of indifference or rejection.　A high score for 'overprotection' indicates that the parents are more likely to be overprotective and less likely to encourage independence. Long-term stability of the PBI score over a 20-year period was reported : the influences of mood state and life experience appear to have little effect on the stability of the perception of parenting as measured by the PBI[43]. The Japanese version of the PBI validated by Kitamura and Suzuki was used in this study[44].

SSS

A subjective self-assessment scale was used to determine which hierarchical social level the subjects considered themselves to belong to[18].　The highest subjective social level was defined as 1 and the lowest as 10.

Data analysis

The Pearson correlation and the Student t-test was used to calculate the association between each of the variables and the SHS scores (SPSS Statistics 28.0J, IBM, Armonk, USA).　Stepwise multiple regression analysis was performed using the SHS score as the dependent variable.　Age, sex, years of education, employment status, marital status, number of offspring,

number of people living together, current physical illness, current mental illness, past history of mental illness, first-degree relative with mental illness, SSS, neuroticism score (EPQ-R), and PBI paternal/maternal care/overprotection scores were used as independent variables.　The statistical significance level was set at a p-value of less than 0.05.

A path model was designed using SHS total score, maternal care in childhood, neuroticism, SSS, years of education, and depressive symptoms based on the results of stepwise multiple regression analysis.　In this model, maternal care in childhood, neuroticism, SSS, and years of education were assumed to directly affect depressive symptoms in adulthood.　Furthermore, these 4 factors were assumed to indirectly influence depressive symptoms in adulthood through hope as a potential mediating factor.　Covariance structure analysis with the robust maximum likelihood estimation method was conducted by Mplus 8.5 software (Muthén & Muthén, USA), to analyze the complex associations and mediation effects. The Comparative Fit Index (CFI) and Root Mean Square Error Approximation (RMSEA) were used as goodness-of-fit indices in this study.　A CFI greater than 0.95 and a RMSEA less than 0.08 indicate an acceptable model fit, and a CFI greater than 0.97 and RMSEA less than 0.05 indicate a good model fit[45].

Results

Influence of demographic and clinical characteristics of the subjects and questionnaire data on PHQ-9 scores

Demographic, clinical, and questionnaire data and their associations with SHS total scores are shown in Table 1.　Years of education, current marital status, SSS, neuroticism score of EPQ-R, PBI paternal and maternal care scores, and PBI paternal and maternal overprotection scores were significantly associated with SHS total scores.　Age, sex, current employment status, number of offspring, number of people living together, current physical illness, current mental illness, past history of mental illness, and presence of a first-degree relative with mental illness were not associated with SHS total scores.

Stepwise multiple regression analysis of SHS total scores

Table 2 shows the results of stepwise multiple regression analysis using SHS total scores as the dependent variable.　Only 4 out of the 17 independent variables included in the analysis had a statistically significant association with SHS total scores, and hence the other variables were excluded.　The 4 independent variables included were maternal care in childhood, neuroticism, SSS, and years of education（adjusted $R^2 = 0.236$）.

Stepwise multiple regression analysis of PHQ-9 scores as a dependent variable showed that current mental ill-

Table 1. Characteristics, SSS, PHQ-9, and PBI, and their correlation with SHS total scores or effects on SHS total scores in 404 adult volunteers

Characteristic or measure	Value (mean ± SD or number of subjects)	Correlation with SHS score(r) or effect on SHS score (mean ± SD of SHS, t-test)	p-value
Age (years)	42.1 ± 11.7	$r = -0.062$	0.118
Sex (male : female)	220 : 184	Male 24.0 ± 3.3 vs female 22.9 ± 3.2 (t-test)	0.716
Years of education	15.2 ± 2.0	$r = 0.291$	< 0.001
Current employment status (unemployed : employed)	56 : 341	unemployed 22.6 ± 3.7 vs employed 23.7 ± 3.3 (t-test)	0.192
Current marital status (single : married)	114 : 287	Single 23.3 ± 3.7 vs married 23.6 ± 3.2 (t-test)	0.042
Number of offspring	1.3 ± 1.2	$r = 0.040$	0.223
Number of people living together	1.8 ± 1.5	$r = -0.047$	0.183
Current physical illness (no : yes)	319 : 81	no 23.6 ± 3.3 vs yes 23.3 ± 3.5 (t-test)	0.327
Current psychiatric illness (no : yes)	398 : 2	no 23.6 ± 3.3 vs yes 17.0 ± 1.4 (t-test)	0.298
Past history of psychiatric illness (no : yes)	386 : 18	no 23.6 ± 3.3 vs yes 22.8 ± 3.7 (t-test)	0.317
First-degree relative with psychiatric illness (no : yes)	362 : 40	no 23.6 ± 3.3 vs yes 23.1 ± 3.3 (t-test)	0.582
Subjective social status (1 : highest, 10 : lowest)	4.9 ± 1.5	$r = -0.336$	< 0.001
PHQ-9 score	3.3 ± 3.8	$r = -0.343$	< 0.001
Neuroticism score (EPQ-R)	3.6 ± 3.2	$r = -0.339$	< 0.001
PBI paternal care	23.9 ± 7.3	$r = 0.198$	< 0.001
PBI paternal overprotection	9.5 ± 6.1	$r = -0.089$	0.043
PBI maternal care	27.7 ± 6.6	$r = 0.207$	< 0.001
PBI maternal overprotection	10.2 ± 6.8	$r = -0.119$	0.011

SHS, Snyder Hope Scale, PBI, Parental Bonding Instrument ; PHQ-9, Patient Health Questionnaire-9
SHS total score = 23.5 ± 3.3
Data are presented as means ± SD or number of subjects.
r = Pearson correlation coefficient

Table 2. Results of stepwise multiple regression analysis of SHS total scores

Independent variable	Standardized partial regression coefficient (Beta)	p-value	VIF
Neuroticism score (EPQ-R)	− 0.268	<0.001	1.056
Subjective social status	− 0.224	<0.001	1.113
Years of education	0.194	<0.001	1.097
PBI maternal care	0.105	0.024	1.054

VIF, variance inflation factor ; SHS, Snyder Hope Scale ; PBI, Parental Bonding Instrument ; EPQ-R, the shortened Eysenck Personality Questionnaire-Revised
Dependent variable : SHS total score
The following 17 independent variables were added to this analysis : age, sex (male = 0, female = 1), years of education, current employment status (unemployed = 0, employed = 1), current marital status (single = 0, married = 1), number of offspring, number of people living together, current physical illness (no = 0, yes = 1), current mental illness (no = 0, yes = 1), past history of mental illness (no = 0, yes = 1), first-degree relative with mental illness (no = 0, yes = 1), subjective social status, neuroticism score (EPQ-R), PBI paternal care, PBI paternal overprotection, PBI maternal care and PBI maternal overprotection

ness, neuroticism, and SHS total scores were statistically significant independent variables (adjusted R^2 = 0.352 ; data not shown). In this stepwise multiple regression analysis, 17 independent variables were used in the stepwise multiple regression analysis of SHS total scores.

Analysis of the path model of hope and depressive symptoms (Fig. 1)

Direct effects of education, SSS, neuroticism, maternal care, and hope on depressive symptoms

Because the results of stepwise multiple regression analysis showed that only maternal care among the PBI subscores was significantly associated with SHS total score, only maternal care and not the other subscores of the PBI was analyzed using a path model. Fig. 1A shows that education years, SSS, neuroticism, and maternal care in childhood all had statistically significant direct effects on hope (SHS total score). These results indicate that a high education level, high SSS, low neuroticism, and high maternal care in childhood increases hope in adulthood. Neuroticism and hope had significant direct effects on depressive symptoms. Education years, SSS, and maternal care in childhood had no significant direct
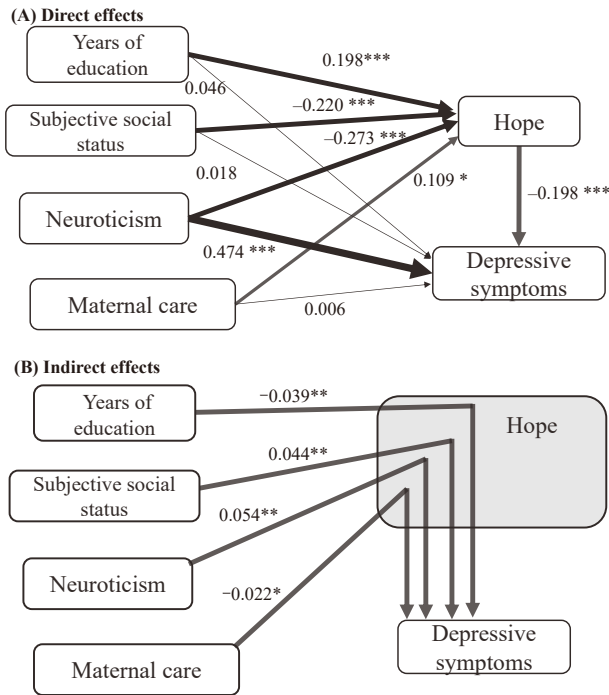
Fig. 1. Results of covariance structure analysis of the path model analyzing the effects of years of education, SSS, neuroticism, and maternal care in childhood on depressive symptoms in adulthood through the effect of hope in 404 Japanese adult volunteers. The direct effects (A) and indirect effects (B) are shown. The numbers show the standardized path coefficients ($-1 \leq \beta \leq 1$). Thick arrows represent statistically significant paths, and thin arrows represent the nonsignificant paths. $*p < 0.05$; $**p < 0.01$; $***p < 0.001$

effect on depressive symptoms. The goodness of fit of the model was CFI = 1.000 and RMSEA = 0.000, which indicates a good fit. The R^2 was 0.325, indicating that this model explains 32.5% of the variability of depressive symptoms.

Indirect effects of education, SSS, neuroticism, and maternal care on depressive symptoms

Fig. 1B shows that education years, SSS, neuroticism, and maternal care in childhood all indirectly influenced depressive symptoms via the effects on hope ($\beta = -0.039$, $p = 0.006$; $\beta = 0.044$, $p = 0.008$; $\beta = 0.054$, $p = 0.003$; $\beta = -0.022$, $p = 0.048$, respectively). These results indicate that a high education level, high SSS, low neuroti-

cism, and high maternal care in childhood decreases depressive symptoms in adulthood via promoting effects on hope.

Table 3 shows the total effects, direct effects, and indirect effects via hope of maternal care in childhood, neuroticism, years of education, and SSS on depressive symptoms. All four variables showed significant indirect effects on depressive symptoms, but only neuroticism showed significant total and direct effects.

The agency and pathway subscores showed a similar tendency to the total scores of the SHS. Notably, the agency score significantly mediated the effect of years of education, SSS, neuroticism, and maternal care in childhood on depressive symptoms (data not shown). However, the mediating effect of the pathway score was significant only for the effect of neuroticism on depressive symptoms.

Discussion

The main finding of this study is that hopeful thinking mediates the effects of education, SSS, neuroticism, and maternal care in childhood on depressive symptoms in adult volunteers. These 4 factors have been repeatedly indicated to be associated with depression or depressive symptoms in adult volunteers to date[10)11)15)18–21)32)]. Among the 4 factors, the mediation effects of hopeful thinking on education, SSS, and maternal care, but not neuroticism were complete, suggesting that hopeful thinking plays an essential role in the effects of these 3 factors on depressive symptoms, at least in adult volunteers of this study. On the other hand, neuroticism influences depressive symptoms through the pathway of hopeful thinking and other factors. Although hope has been noted to influence depression and depressive symptoms from the standpoint of positive psychology[25)27-29)46)], the mechanism of the effects of hope on depression and depressive symptoms remains unclear. The present study contributes towards the elucidation of how hope influences depression and depressive symptoms.

Unexpectedly, to date, the association between hope or hopeful thinking and educational level and SSS has not been reported. Educational level is regarded as an objective indicator of social status[15)]. Therefore, the finding that both SSS and objective social status are asso-

Table 3. Standardized path coefficients of total effects, direct effects, and indirect effects via hope of maternal care in childhood, neuroticism, years of education, and subjective social status on depressive symptoms

Effect on depressive symptoms	Maternal care	Neuroticism	Years of education	Subjective social status
Total effect	− 0.015	0.528***	0.007	0.061
Direct effect	0.006	0.474***	0.046	0.018
Indirect effect via hope	− 0.022*	0.054**	− 0.039**	0.044**

$**p < 0.01$, $***p < 0.001$

ciated with hopeful thinking in this study adds new knowledge to our understanding of hope. Lower subjective and objective social status are associated with not only mental illness and depressive symptoms, but also worse general health, mental health, and the well-being of adults[15)18)47]. A higher objective social status, such as a stable financial situation and higher education, is associated with a higher level of well-being[48]. Hope also increases well-being, i.e., positive affect[49)50]. High-hope individuals pursue their goals with positive thinking (i.e., a focus on success rather than failure), positive emotions, and a sense of invigoration and challenge[50]. Hope also enables individuals to effectively manage their life obstacles by acting as a reserve that supports cognitive flexibility in goal-setting and the pursuit of those goals[51]. The effects of educational level, SSS, and hopeful thinking on well-being may explain the mechanism by which hopeful thinking hampers depressive symptoms. Because social status is determined by an individual's parental/family situation from birth, either subjective or objective social status is expected to precede hopeful thinking. Hence, the mediation effect of hope between education, SSS, and depressive symptoms is plausible.

Regarding the association between hope and neuroticism, there is a report that neuroticism and hopelessness are positively correlated and independently associated with depressive symptoms[52]. However, the overall effects of neuroticism and hopeful thinking on depressive symptoms has not been investigated. The present study clarified the significant inverse association between neuroticism and hope, and showed that these variables significantly influence depressive symptoms. Although the psychological mechanism of the effect of neuroticism on hope is not clear, the results of this study suggest that hopeful thinking plays a significant role on the effect of neuroticism on depressive symptoms in adults ; namely, neuroticism worsens depressive symptoms partly by reducing hopeful thinking. High neuroticism indicates that subjects often have feelings of anxiety, worry, and irritation[40]. These emotional or affective tendencies may disrupt hopeful thinking. Although the pathogenetic effects of neuroticism on depression have been clarified by large-scale prospective studies[9)19], the mechanism of the pathogenetic effects of neuroticism on depression remains unclear. The decreasing effect of neuroticism on hopeful thinking as a mediator is a promising candidate for the psychological mechanism of neuroticism on depression. However, there may be the possibility of an alternative association in which hope influences depressive symptoms through its effect on neuroticism. Therefore, prospective studies will be needed in the future to conclude which model is appropriate.

Shorey et al. reported in their study of 267 college students that adult attachment mediated the association between hope and parenting evaluated by the PBI and another questionnaire on parental authority[53]. In their study, hope partially mediated the association between adult attachment and mental health. Their results are in accordance with the results of our present study. Another study reported that hope partially mediated the association between parental attachment and global life satisfaction in middle-school students in grades 6 through 8[54]. In these previous studies, factors of parenting, such as attachment, authority, rejection, and permission, were significantly associated with hope in study participants. Their results have a similar trend to our findings, except for the different objective variable (mental health and life satisfaction vs depressive symptoms in our study). Regarding the development of hopeful thinking, pathway thinking((OK?)) develops in infancy via 3 processes, namely, the sensing and perceiving of external stimuli, learning of the temporal linkage between events, and the forming of goals, and in later infancy, agency thinking is made up of 3 processes, namely, the perception of oneself as originating actions, self-recognition, and the forming of goals[55]. Therefore, pathways and agency thinking are influenced by an individual's parents, and this idea was extended to the further effects of hopeful thinking on depressive symptoms, as shown by this study.

Clinical implications of the results of this study are as follows. First, when we evaluate patients with depression, it is important to clarify not only their level of hopelessness but also their level of hope or hopeful thinking, which mediates the effects of some predisposing factors on depression, as shown by this study. Second, interventions increasing hope or hopeful thinking may improve depressive symptoms and facilitate the prevention of depression by acting as a resilience or resilience-enhancing factor[27)56]. Ameliorating hope or hopeful thinking is usually incorporated in the clinical practice of psychiatry to promote empowerment. However, the mechanism of the effects of hope or hopeful thinking on psychotherapy have not been studied in detail. The present study may provide a new understanding of hope or hopeful thinking in clinical psychiatric practice.

There are several limitations to this study. First, owing to the nature of the cross-sectional study design, this study cannot conclude the causal association among predisposing factors such as maternal care and neuroticism, hope, and depressive symptoms. A large-scale prospective study will be needed in the future to clarify the causality. Second, as the participants of this study were adult volunteers recruited through our acquaintances, the findings may not be applicable to patients

with depression or mood disorders.　Third, as the data were collected by questionnaires and the history of parents' divorce in childhood was not asked, the effect of family structure, e.g., influence of the divorce of parents in childhood, could not be further analyzed.　Finally, significant total effects on depressive symptoms were observed for neuroticism, but not for the other three variables (i.e., maternal care in childhood, years of education, and SSS) in the path analysis.　The effect of neuroticism mediated by hope on depressive symptoms was robust, but the total effects of the other three variables on depressive symptoms may be influenced by other unknown factors.

Conclusions

The results of this study suggest that maternal care in childhood, neuroticism, educational level, and SSS are associated with hope or hopeful thinking in adult volunteers.　Hope or hopeful thinking mediated the association between these 4 predisposing factors of depression and depressive symptoms.　The mediating effect of hope and hopeful thinking may provide new ideas towards a deep understanding of the psychopathology of patients with depression, and towards the development of innovations for the improvement and prevention of depressive symptoms.

References

1) Sadock BJ, Sadock VA, Ruiz P.　Kaplan & Sadock's Synopsis of Psychiatry : Behavioral Sciences/Clinical Psychiatry.　11th ed.　Philadelphia : Lippincott Williams & Wilkins, 2014.

2) Global Burden of Disease Study 2013 Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990-2013 : a systematic analysis for the Global Burden of Disease Study 2013.　Lancet **386**(9995) : 743-800, 2015

3) Ishikawa H, Tachimori H, Takeshima T, Umeda M, Miyamoto K, Shimoda H, Baba T, Kawakami N. Prevalence, treatment, and the correlates of common mental disorders in the mid 2010's in Japan : The results of the world mental health Japan 2nd survey. J Affect Disord **241** : 554-562, 2018

4) Okumura Y, Higuchi T.　Cost of depression among adults in Japan.　Prim Care Companion CNS Disord **13** : 10m01082, 2011

5) Nagata T, Mori K, Ohtani M, Nagata M, Kajiki S, Fujino Y, Matsuda S, Loeppke R.　Total health-related costs due to absenteeism, presenteeism, and medical and pharmaceutical expenses in Japanese employers. J Occup Environ Med **60** : e273-e280, 2018

6) Yamabe K, Liebert R, Flores N, Pashos CL.　Health-related quality of life outcomes, economic burden, and associated costs among diagnosed and undiagnosed depression patients in Japan.　Clinicoecon Outcomes Res **11** : 233-243, 2019

7) Bienvenu OJ, Davydow DS, Kendler KS.　Psychiatric 'diseases' versus behavioral disorders and degree of genetic influence.　Psychol Med **41** : 33-40, 2011

8) Caspi A, Sugden K, Moffitt TE, Taylor A, Craig IW, Harrington H, McClay J, Mill J, Martin J, Braithwaite A, Poulton R.　Influence of life stress on depression : moderation by a polymorphism in the 5-HTT gene.　Science **301** : 386-389, 2003

9) Kendler KS, Kuhn J, Prescott CA.　The interrelationship of neuroticism, sex, and stressful life events in the prediction of episodes of major depression.　Am J Psychiatry **161** : 631-636, 2004

10) Alloy LB, Abramson LY, Walshaw PD, Keyser J, Gerstein RK.　A cognitive vulnerability-stress perspective on bipolar spectrum disorders in a normative adolescent brain, cognitive, and emotional development context.　Dev Psychopathol **18** : 1055-1103, 2006

11) Toda H, Inoue T, Tsunoda T, Nakai Y, Tanichi M, Tanaka T, Hashimoto N, Nakato Y, Nakagawa S, Kitaichi Y, Mitsui N, Boku S, Tanabe H, Nibuya M, Yoshino A, Kusumi I.　The structural equation analysis of childhood abuse, adult stressful life events, and temperaments in major depressive disorders and their influence on refractoriness.　Neuropsychiatr Dis Treat **11** : 2079-2090, 2015

12) Kessler RC, Magee WJ.　Childhood adversities and adult depression : basic patterns of association in a US national survey.　Psychol Med **23** : 679-690, 1993

13) Wise LA, Zierler S, Krieger N, Harlow BL.　Adult onset of major depressive disorder in relation to early life violent victimisation : a case-control study.　Lancet **358** : 881-887, 2001

14) Nakai Y, Inoue T, Toda H, Toyomaki A, Nakato Y, Nakagawa S, Kitaichi Y, Kameyama R, Hayashishita Y, Wakatsuki Y, Oba K, Tanabe H, Kusumi I The influence of childhood abuse, adult stressful life events and temperaments on depressive symptoms in the nonclinical general adult population.　J Affect Disord **158** : 101-107, 2014

15) Scott KM, Al-Hamzawi AO, Andrade LH, Borges G, Caldas-de-Almeida JM, Fiestas F, Gureje O, Hu C, Karam EG, Kawakami N, Lee S, Levinson D, Lim CC, Navarro-Mateu F, Okoliyski M, Posada-Villa J, Torres Y, Williams DR, Zakhozha V, Kessler RC.　Associations between subjective social status and DSM-IV mental disorders : results from the World Mental Health surveys.　JAMA Psychiatry **71** : 1400-1408, 2014

16) Rugulies R, Sørensen K, Aldrich PT, Folker AP, Friborg MK, Kjær S, Nielsen MBD, Sørensen JK, Madsen IEH.Onset of workplace sexual harassment and subsequent depressive symptoms and incident depressive disorder in the Danish workforce.　J Affect Disord **277** : 21-29, 2020

17) Higashiyama M, Hayashida T, Sakuta K, Fujimura Y, Masuya J, Ichiki M, Tanabe H, Kusumi I, Inoue T.　Complex effects of childhood abuse, affective temperament, and subjective social status on depressive symptoms of adult volunteers from the community.　Neuropsychiatr Dis Treat **15** : 2477-2485, 2019

18) Hayashida T, Higashiyama M, Sakuta K, Masuya J, Ichiki M, Kusumi I, Inoue T.　Subjective social status via mediation of childhood parenting is associated with adulthood depression in non-clinical adult volunteers.　Psychiatry Res **274** : 352-357, 2019

19) Kendler KS, Gardner CO.　Sex differences in the pathways to major depression : A study of opposite-sex twin pairs.　Am J Psychiatry **171** : 426-435, 2014

20) Bjelland I, Krokstad S, Mykletun A, Dahl AA, Tell GS, Tambs K.　Does a higher educational level protect against anxiety and depression?　The HUNT study.　Soc Sci Med **66** : 1334-1345, 2008

21) Ishii Y, Masuya J, Morishita C, Higashiyama M, Inoue T, Ichiki M.　Victimization in childhood mediates the association between parenting quality, stressful life events, and depression in adulthood.　Neuropsychiatr Dis Treat **17** : 3171-3182, 2021

22) Beck AT, Weissman A, Lester D, Trexler L.　The measurement of pessimism : the hopelessness scale.　J Consult Clin Psychol **42**(6) : 861-865, 1974

23) Snyder CR, Harris C, Anderson JR, Holleran SA, Irving LM, Sigmon ST, Yoshinobu L, Gibb J, Langelle C, Harney P.　The will and the ways : development and validation of an individual-differences measure of hope.　J Pers Soc Psychol **60**(4) : 570-585, 1991

24) Carretta CM, Ridner SH, Dietrich MS.　Hope, hopelessness, and anxiety : a pilot instrument comparison study.　Arch Psychiatr Nurs **28**(4) : 230-234, 2014

25) Rand KL, Touza KK.　Hope theory.　In : Snyder CR, Lopez SJ, Edwards LM, Marques SC. editors.　The Oxford Handbook of Positive Psychology, third edition.　New York : Oxford University Press, 425-442, 2021

26) Cheavens JS, Gutter MM.　Hope therapy.　In : Gallagher MW, Lopez SJ, editors.　The Oxford Handbook of Hope.　New York : Oxford University Press, 133-142, 2018

27) Ritschel LA, Sheppard CS.　Hope and depression.　In : Gallagher MW, Lopez SJ, editors.　The Oxford Handbook of Hope.　New York : Oxford University Press, 209-219, 2018

28) Thimm JC, Holte A, Brennen T, Wang CEA.　Hope and expectancies for future events in depression.　Front Psychol **4** : 1-6, 2013

29) Arnau RC, Rosen DH, Finch JF, Rhudy JL, Fortunato VJ.　Longitudinal effects of hope on depression and anxiety : a latent variable analysis.　J Pers **75** : 43-

64, 2007

30) Cheavens JS, Feldman DB, Gum A, Michael ST, Snyder CR. Hope therapy in a community sample : A pilot investigation. Soc Indic Res **77** : 61-78, 2006

31) Klausner EJ, Clarkin JF, Spielman L, Pupo C, Abrams R, Alexopoulos GS. Late-life depression and functional disability : the role of goal-focused group psychotherapy. Int J Geriatr Psychiatry **13** : 707-716, 1998

32) Ono Y, Takaesu Y, Nakai Y, Ichiki M, Masuya J, Kusumi I, Inoue T. The influence of parental care and overprotection, neuroticism and adult stressful life events on depressive symptoms in the general adult population. J Affect Disord **217** : 66-72, 2017

33) Tachi S, Asamizu M, Uchida Y, Katayama S, Naruse M, Masuya J, Ichiki M, Inoue T. Victimization in childhood affects depression in adulthood via neuroticism : a path analysis study. Neuropsychiatric Dis Treat **15** : 2835-2841, 2019

34) Masuya J, Ichiki M, Morishita C, Higashiyama M, Ono M, Honyashiki M, Iwata Y, Tanabe H, Inoue T. Childhood victimization and neuroticism mediate the effects of childhood abuse on adulthood depressive symptoms in volunteers. Neuropsychiatric Dis Treat **18** : 253-263, 2022

35) Ono K, Takaesu Y, Nakai Y, Shimura A, Ono Y, Murakoshi A, Matsumoto Y, Tanabe H, Kusumi I, Inoue T. Associations among depressive symptoms, childhood abuse, neuroticism, and adult stressful life events in the general adult population. Neuropsychiatr Dis Treat **13** : 477-482, 2017

36) Shimura A, Takaesu Y, Nakai Y, Murakoshi A, Ono Y, Matsumoto Y, Kusumi I, Inoue T. Childhood parental bonding affects adulthood trait anxiety through self-esteem. Compr Psychiatry **74** : 15-20, 2017

37) Shinohara H, Katsumata T. Development and validation of the KU Competence Scale : in relation to the Feeling-Attitude Scale and the Hope Scale in junior high school children. Memoirs of the Faculty of Education, Kumamoto University, The Humanities, **50** : 203-217, 2001.

38) Spitzer RL, Kroenke K, Williams JB. Validation and utility of a self-report version of PRIME-MD : the PHQ primary care study. JAMA **282** : 1737-1744, 1999

39) Muramatsu K, Miyaoka H, Kamijima K, Muramatsu Y, Yoshida M, Otsubo T, Gejyo F. The patient health questionnaire, Japanese version : validity according to the mini-international neuropsychiatric interview-plus. Psychol Rep **101**(3 Pt 1) : 952-960, 2007

40) Eysenck SBG, Eysenck HJ, Barrett P. A revised version of the psychoticism scale. Pers Individ Dif **6**(1) : 21-29, 1985

41) Nakai Y, Inoue T, Toyomaki A, Wakatsuki Y, Mitsui N, Kitaichi Y, Nakagawa S, Nakato Y, Kameyama R, Omiya T, Kitagawa K, Kusumi I. A study of validation of the Japanese version of the shortened Eysenck

Personality Questionnaire Revised. The 35th Congress of Japanese Society for Psychiatric Diagnosis ; 2015 August 7 ; Sapporo, Japan

42) Parker G, Tupling H, Brown L. A parental bonding instrument. Med Psychol **52** : 1-10, 1979

43) Wilhelm K, Niven H, Parker G, Hadzi-Pavlovic D. The stability of the Parental Bonding Instrument over a 20-year period. Psychol Med **35**(3) : 387-393, 2005

44) Kitamura T, Suzuki T. A validation study of the parental bonding instrument in a Japanese population. Psychiatry Clin Neurosci **47** : 29-36, 1993

45) Schermelleh-Engel K, Moosbrugger H, Müller H. Evaluating the fit of structural equation models : tests of significance and descriptive goodness-of-fit measures. MPR online **8** : 23-74, 2003

46) Chang EC, Yu EA, Hirsch JK. On the confluence of optimism and hope on depressive symptoms in primary care patients : Does doubling up on bonum futurum proffer any added benefits? J Positive Psychology **8** : 404-411, 2013

47) Sheikh MA, Abelsen B, Olsen JA. Differential recall bias, intermediate confounding, and mediation analysis in life course epidemiology : an analytic framework with empirical example. Front Psychol **7** : 1828, 2016

48) Hansson A, Hillerås P, Forsell Y. Well-being in an adult Swedish population. Soc Indic Res **74** : 313-325, 2005

49) Alarcon G, Bowling NA, Khazon, S. Great expectations : A meta-analytic examination of optimism and hope. Pers Individ Differ **54** : 821-827, 2013

50) Lee JY, Gallagher MW. Hope and well-being. In : Gallagher MW, Lopez SJ, editors. The Oxford Handbook of Hope. New York : Oxford University Press, 287-298, 2018

51) Folkman S. Stress, coping, and hope. Psycho-Oncol **19** : 901-908, 2010

52) Kim BJ, Linton K, Cho S, Ha JH. The relationship between neuroticism, hopelessness, and depression in older Korean immigrants. PLoS One **11**(1) : e0145520, 2016

53) Shorey HS, Snyder CR, Yang X, Lewin MR. The role of hope as a mediator in recollected parenting, adult attachment, and mental health. J Soc Clin Psychol **22** : 685-715, 2003

54) Jiang X, Huebner ES, Hills KJ. Parent attachment and early adolescents' life satisfaction : The mediating effect of hope. Psychol Sch **50** : 340-352, 2013

55) Snyder CR. Genesis : the birth and growth of hope. In : Snyder CR, editor. Handbook of Hope. London : Academic Press, 25-38, 2000

56) Ong AD, Standiford T, Deshpande S. Hope and Stress Resilience. In : Gallagher MW, Lopez SJ, editors. The Oxford Handbook of Hope. New York : Oxford University Press, 255-284, 2018

一般成人における小児期の母による養護と神経症傾向、教育年数、主観的社会的地位の成人期抑うつ症状への影響を希望は媒介する

武　藤　健太郎[1)]　　　　小　野　美　樹[1)]　　　　桝　屋　二　郎[1)]
本屋敷　美　奈[1)]　　　　岩　田　愛　雄[1)]　　　　玉　田　　　有[2)]
藤　村　洋　太[2)]　　　　東　　　晋　二[3)]　　　　久　住　一　郎[4)]
井　上　　　猛[1)]

[1)]東京医科大学病院精神医学分野
[2)]東京医科大学八王子医療センター　メンタルヘルス科
[3)]東京医科大学茨城医療センター　メンタルヘルス科
[4)]北海道大学医学部　精神医学教室

【要旨】　抑うつ症状は社会経済に負の影響を与えるため、抑うつ症状の機序解明と予防は現代社会において重要な課題である。希望は positive psychology において重要な役割を果たしており、抑うつ症状への影響が注目されている。我々は、いくつかの素因が抑うつ症状に影響を及ぼし、この関連が希望によって媒介されるという仮説を立てた。人口統計学的情報、両親の養育態度、神経症傾向、主観的社会的地位、成人期の希望、うつ症状を成人ボランティアで質問紙調査し、これらの因子間の関係を重回帰分析と共分散構造分析により検証した。2014 年 1 月から 8 月の期間において、853 人の一般成人ボランティアに対し、自記式質問紙による調査を行い、そのうち有効回答が得られた 404 人（47.4％）を対象とした。Snyder Hope Scale（希望尺度）、Patient Health Questionnaire-9（成人期のうつ症状）、Eysenck Personality Questionnaire-Revised 短縮版（神経症傾向）、Parental Bonding Instrument（両親の養育態度）、主観的社会的地位、人口統計学的情報を調査した。それらのスコアの関連について、重回帰分析と共分散構造分析を用いて解析した。教育年数、主観的社会的地位、神経症傾向、母による養護が、希望と有意に関連していた。共分散構造分析では、これらの 4 つの因子は希望に有意な直接的効果を有し、さらにこれら 4 つの因子は希望を介してうつ症状に有意な間接効果を有していた。うつ症状発現に関連することが知られている母親の養育態度、神経症傾向、社会階層は希望と関連し、希望を媒介因子としてうつ症状に影響を与えていた。希望に対する介入がうつ症状の改善、予防につながることが示唆された。

〈キーワード〉　希望、抑うつ、養育、神経症傾向、パス解析