



Personality Traits Characterizing a New Type of Depression Lead to Stress Generation in Japanese University Students

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Abstract

Japanese psychiatrists have proposed a new type of depression characterized by passing blame and irritability, which worsens on working days. This new type of depression is assumed to be closely associated with two personality traits: Interpersonal sensitivity, which reflects the tendency to be excessively concerned about or overreact to others' negative evaluations, and privileged self, which reflects the tendency to pursue own pleasures at the expense of maintaining harmony with others. Although a previous longitudinal study showed that these traits can lead to interpersonal stress generation among university students, it did not control for the influence of baseline negative events, nor use a scale that separately assessed negative dependent events caused by the participants' behaviors and negative independent events occurring outside the participants' control. The current study addressed these limitations and investigated whether interpersonal sensitivity and privileged self led to stress generation and increased depressive symptoms. Undergraduate and graduate students in Japan ($N = 265$) responded to self-report measures twice at an interval of four weeks. The results indicated that privileged self was related to an increase in subsequent experiences of negative dependent and independent events after controlling for either category of events experienced at the baseline. These findings suggest that privileged self can lead to stress generation or the perception that surrounding circumstances are worse than they are. Furthermore, privileged self was associated with an increase in subsequent depressive symptoms via experiences of negative interpersonal dependent events.

Keywords Depression · New-type Depression · Modern-type Depression · Stress Generation · Vulnerability

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Since the 1970s, Japanese psychiatrists have proposed a variation of the traditional type of depression with melancholic features (Kato et al., 2016; Sakamoto et al., 2014). The new type of depression is usually reported among office workers, worsens on working days, and improves on holidays. It is characterized by passing blame, irritability, and pharmacotherapy resistance (Muranaka et al., 2017; Sakamoto et al., 2014, 2021). This type of depression was coined the “new-type depression” or “modern-type depression” in the Japanese mass media and Internet-related media and has been widely used by the Japanese public approximately since 2000 (Kato et al., 2016; Sakamoto et al., 2014). The “new-type depression” was also reported in other countries having different sociocultural and historical backgrounds to Japan (Kato et al., 2011).

Empirical research on the new type of depression was conducted during the past decade. One interesting topic of research was personality traits assumed to be closely associated with the new type of depression. Muranaka et al. (2015) identified two personality traits based on descriptions in 14

books on the new type of depression and the judgments of Japanese psychiatrists and clinical psychologists. Muranaka et al. (2015) named the traits assumed to characterize the new type of depression, *interpersonal sensitivity* and *privileged self*; the former reflects the tendency to be excessively concerned or overreact to others' negative evaluations, and the latter reflects the tendency to pursue own pleasures at the expense of maintaining harmony with others (Muranaka et al., 2015, 2017; Yamakawa et al., 2015).

Muranaka et al. (2017) developed a scale for these traits. The two-factor model of this scale was validated by confirmatory factor analysis of responses by Japanese undergraduate students and office workers (Muranaka et al., 2017, 2021)¹. Moreover, Sakamoto and Yamakawa (2022) demonstrated that Japanese office workers with high interpersonal sensitivity and privileged self tend to be more distressed during working hours than free time, which supported Sakamoto and colleagues' assumption (Muranaka et al., 2017; Sakamoto et al., 2014) that interpersonal sensitivity and privileged self are closely associated with the new type of depression.

Interpersonal sensitivity and privileged self have a negative impact on university students. Muranaka et al. (2019) conducted a longitudinal study of Japanese undergraduates, which demonstrated that baseline interpersonal sensitivity and privileged self were indirectly associated with increased depressive symptoms one month later via increased negative interpersonal events experienced during the follow-up period after controlling for the influence of baseline depressive symptoms. These findings suggest that interpersonal sensitivity and privileged self in undergraduate students in Japan are vulnerabilities to depression and not depressive symptoms. In addition, interpersonal sensitivity and privileged self are related to subsequent negative interpersonal events even after controlling for baseline depressive symptoms, indicating that these traits can predict stress generation, distinct from depressive symptoms.

Additional evidence from studies on Japanese university students supported the contention that interpersonal sensitivity and privileged self can lead to stress generation. For example, these two traits are positively correlated with the frequency of persecutory ideations (Sakamoto et al., 2022). In addition, interpersonal sensitivity is significantly associated with decreased anger control, and privileged self is significantly associated with increased anger expression after controlling for the influence of either privileged self or interpersonal sensitivity (Sakamoto et al., 2022).

Furthermore, interpersonal sensitivity is correlated with decreased problem-solving coping and privileged self is correlated with increased expression of negative emotion and decreased perspective-taking ability, a dimension of empathetic traits (Suzuki et al., 2022, 2023). These findings suggest that university students with high interpersonal sensitivity and privileged self might exhibit behaviors that exacerbate interpersonal relationships.

Muranaka et al. (2019) described critical aspects of the premorbid personality of people with the new type of depression and indicated factors leading to stress generation, which is an important topic in psychopathological research (for reviews, Bahji et al., 2021; Hammen, 2020; Liu & Alloy, 2010). However, the study by Muranaka et al. had specific limitations. Firstly, they did not control for the influence of negative interpersonal events experienced at the baseline. Therefore, it is uncertain whether students with high interpersonal sensitivity and privileged self had *increased* experiences of negative interpersonal events during the follow-up period or simply experienced negative events more frequently *both* at the baseline and the subsequent four weeks. As a result, it is necessary to examine the influences of initial interpersonal sensitivity and privileged self on subsequent experiences of negative events after controlling for the negative event experiences at the baseline. Moreover, whether the Interpersonal Stress Event Scale (Hashimoto, 1997) that Muranaka et al. (2019) used accurately assessed the participants' exposure to negative interpersonal events is uncertain. Some items of this scale do reflect exposure to negative interpersonal events (e.g., "I quarreled with my acquaintance" and "I was insulted by others"). However, other items reflect different experiences, including the respondents' cognitions and emotions (e.g., "I wondered what my acquaintances thought of me" and "I felt inferior to my acquaintances"). Therefore, Muranaka et al. did not exclude the possibility that undergraduate students with high interpersonal sensitivity and privileged self might incorrectly remember experiencing negative interpersonal events that did not happen or appraise minor events as more stressful.

The second limitation of Muranaka et al. (2019) can be overcome using a scale that more accurately assesses negative event experiences. In addition, a scale specifically designed to investigate the stress generation hypothesis is useful for examining the influences of interpersonal sensitivity and privileged self on stress generation. In stress generation studies, negative events have often been classified as dependent events occurring under the influence of an individual's control (e.g., interpersonal conflicts) and as independent events occurring outside an individual's control (e.g., the death of a relative or friend). Negative events have also been classified as interpersonal and non-interpersonal,

¹ Muranaka et al. (2017, 2021) suggested that the interpersonal sensitivity and privileged self subscales can be further subdivided into three subscales. However, this study calculated and analyzed the interpersonal sensitivity subscale and privileged self subscale scores for brevity.

the latter including work-related and academic stressors (Hammen, 2020; Liu & Alloy, 2010). It is suggested that interpersonal sensitivity and privileged self can lead to stress generation if these two traits were associated with subsequent increases in negative dependent but not negative independent events.

The primary purpose of the present four-week longitudinal study was to examine the stress generation effects of interpersonal sensitivity and privileged self by using more sophisticated methods to overcome the limitations of Muranaka et al. (2019). The authors examined whether interpersonal sensitivity and privileged self at the baseline were associated with an increase in experiencing negative interpersonal and non-interpersonal dependent events during the follow-up period but not with experiences of negative independent events after controlling for each category of negative event experiences at the baseline. This study also examined the indirect associations of initial interpersonal sensitivity and privileged self with depressive symptoms four weeks later via each category of negative event experiences. In line with Muranaka et al. (2019), Japanese university students participated in this study. The measure assessing the new type of depression was not suitable for this study because this type of depression is usually reported among office workers and not university students (Sakamoto et al., 2014, 2021). Therefore, this study used a standard self-report measure of depressive symptoms (i.e., the Beck Depression Inventory-Second Edition; Beck et al., 1996) rather than measures assessing the new type of depression.

This study tested the hypotheses described below. It has been suggested that undergraduate students with high interpersonal sensitivity and privileged self are likely to exhibit dysfunctional interpersonal behaviors (Muranaka et al., 2019; Sakamoto et al., 2022; Suzuki et al., 2022, 2023). Therefore, interpersonal sensitivity and privileged self at the baseline would be significantly associated with increased experiences of negative interpersonal dependent events during the follow-up period after controlling for the influence of negative interpersonal dependent events experienced at the baseline (Hypothesis 1). It is also plausible that university students who experience interpersonal conflicts with their acquaintances are less likely to get social support from them and, as a result, more likely to encounter difficulties in academic performance and part-time jobs. Therefore, interpersonal sensitivity and privileged self at the baseline would be significantly associated with increased experiences of negative non-interpersonal dependent events during the follow-up period (Hypothesis 2). In contrast, according to the stress generation hypotheses (Hammen, 2020; Liu & Alloy, 2010), interpersonal sensitivity and privileged self at the baseline would not be significantly associated with experiences of negative independent events during the follow-up

period (Hypothesis 3). Finally, previous studies have suggested that negative dependent events generated by the self can predict future increases in depressive symptoms (Flynn et al., 2010; Flynn & Rudolph, 2011; Hankin et al., 2010; Snyder & Hankin, 2016). Therefore, interpersonal sensitivity and privileged self at the baseline would be significantly associated with increased depressive symptoms via negative interpersonal and non-interpersonal dependent events experienced during the follow-up period, even after controlling for baseline depressive symptoms (Hypothesis 4)².

Method

Participants

Participants were recruited in their classes at Akita University of Nursing and Welfare, Hirosaki Gakuin University, Hirosaki University, International University of Health and Welfare, and Tokai Gakuin University in Japan. Undergraduate and graduate students ($N = 395$) who agreed to participate in the study responded to a packet of questionnaires after their classes (Time 1). The participants ($N = 371$) again responded to the questionnaires four weeks later (Time 2) after the same classes in which they were recruited at Time 1.

The data of participants who did not participate at both time points, those with missing data on any questionnaire at either time point, or those with inappropriate responses, including identical responses to any of the items in either questionnaire at either time, were excluded from the analyses. The final sample comprised 265 students (84 men, 181 women). The mean age of the final sample was 20.23 ($SD = 2.00$, age range 18–32 years) at Time 1. All participants were Japanese, except for 6 Chinese and 2 Korean.

Each scale score of the final sample at Time 1 was compared with those of responding appropriately at Time 1 but not participating in the Time 2 survey ($n = 112$). *T*-test showed that participants of the final sample scored higher than those who dropped out on the interpersonal sensitivity subscale ($t(185.30) = 2.21, p = .029, d = 0.26$) and scored lower on the negative interpersonal dependent events subscale ($t(154.87) = 2.69, p = .008, d = -0.35$; See the Measures for details on each measure). These significant differences suggest that the results in this study should be interpreted with caution due to the attrition of the participants, although these effect sizes were small.

² These hypotheses, methods, and analytical plans were pre-registered (<https://osf.io/fawym>)

Measures

Interpersonal Sensitivity/Privileged Self Scale-Second Edition (Muranaka et al., 2021). This scale is a self-report measure assessing the traits related to the new type of depression. The scale has 11 items in the interpersonal sensitivity subscale (e.g., “I worry that I may be criticized for my words and actions,” and “When I am criticized by those around me, I am stuck in my head about it for a long time.”) and 11 items in the privileged self subscale (e.g., “I can’t stand those who don’t accept my ideas” and, “I think I’m constantly being blamed for no reason”). Most items of this scale were included in the first edition (Muranaka et al., 2017; Yamakawa et al., 2015). The scale showed good construct validity and reliability in studies of Japanese university students (Muranaka et al., 2017, 2021; Sakamoto et al., 2022; Yamakawa et al., 2015). Participants were asked to respond on the extent to which they agree with the statements using anchors ranging between 1 (not at all true of me) and 5 (extremely true of me). The alpha coefficients of this sample for the interpersonal sensitivity subscale at Times 1 and 2 were 0.87 and 0.89, and those for the privileged self subscale were 0.77 and 0.84, respectively.

Negative Independent/Dependent Events Scale (Hasegawa et al., 2023a). This scale is a self-report measure assessing experiences of negative events experienced by Japanese university students, designed to test the stress generation hypothesis. The scale contains 25 items in the negative interpersonal dependent events subscale (e.g., “I had a terrible relationship with my friend”), 14 items in the negative non-interpersonal dependent events subscale (e.g., “My report was badly graded”), and 20 items in the negative independent events subscale (e.g., “I faced a disaster such as heavy rain or snow”). The scale showed acceptable construct validity in a Japanese university student sample (Hasegawa et al., 2023a, b). Participants were asked to respond by indicating how often they had experienced the events described in the items in the last four weeks using a rating scale ranging from 1 (never) to 4 (often). The alpha coefficients of the subscales at Times 1 and 2 were identical: 0.91 for the negative interpersonal dependent events subscale, 0.83 for the negative non-interpersonal dependent events subscale, and 0.81 for the negative independent events subscale.

Beck Depression Inventory-Second Edition (Beck et al., 1996). This scale is a well-validated questionnaire assessing the severity of depressive symptoms experienced in the past two weeks. Participants respond to 21 items using a scale ranging from 0 to 3, with higher scores indicating severe depression. The Japanese translation by Kojima and Furu-kawa (2003) was used in this study. The study showed the

excellent internal consistency of the scale at Times 1 and 2 (α s = 0.92 and 0.94, respectively).

Procedure

Data collection at Time 1 was conducted from September to November 2022, and that at Time 2 was conducted four weeks after Time 1. Data collections at Time 2 started at each university after all the Time 1 data were collected at those universities. COVID-19 started spreading in Japan after February 2020, and university students wore masks since then. Depending on the spread of COVID-19, university classes were conducted online or face-to-face at different times before the study period. However, all the classes were held face-to-face during the period of this study.

Students were explained about the study before their participation. Only students who agreed to participate in the study responded to the questionnaires. Participants responded to all the scales described above at Times 1 and 2. They wrote their birthday and the last four digits of their mobile phone numbers in the spaces provided in the questionnaire packet, which were used to match the data from the surveys at the two time points. The Ethics Committees of the International University of Health and Welfare and Tokai Gakuin University approved this study.

Statistical Analysis

The raw data were analyzed after allowing for missing values. Descriptive statistics were analyzed using SPSS ver. 28 (IBM Corporation), and other analyses were conducted using Mplus 8.1 (Muthén & Muthén, 1998–2017). Zero-order Pearson’s correlations were computed between the measures. Interpersonal sensitivity and privileged self at Time 2 were not used as variables of path analysis. However, descriptive statistics of these subscales and correlations between them and the other variables are displayed in the tables as a reference for future research. Path analyses were conducted to examine whether interpersonal sensitivity and privileged self at the baseline were related to an increase in both negative dependent events but unrelated to negative independent events and whether these traits had indirect associations with depressive symptoms via both negative dependent events. The comparative fit index (CFI) and root-mean-square error of approximation were used as the goodness of fit indicators, as the authors described in the pre-registration. In addition, the authors also reported the χ^2 test statistic and the Tucker-Lewis index (TLI). The CFI, $TLI \geq 0.95$, and $RMSEA \leq 0.06$ were used as the goodness of fit indicators (Hu & Bentler, 1998). Although absolute

Table 1 Descriptive statistics of study measures

	<i>n</i>	<i>M</i>	<i>SD</i>	Range	Skewness	Kurtosis
<i>Time 1</i>						
Interpersonal sensitivity	262	37.16	9.40	11–55	–0.65	–0.01
Privileged self	265	26.30	6.67	11–48	0.20	–0.17
Negative interpersonal dependent events	262	36.53	10.43	25–72	1.18	1.32
Negative non-interpersonal dependent events	262	22.48	6.90	14–43	0.97	0.38
Negative independent events	264	28.19	7.13	20–56	1.39	2.05
Depressive symptoms	258	13.44	10.19	0–57	1.34	2.65
<i>Time 2</i>						
Interpersonal sensitivity	263	36.47	9.82	11–55	–0.48	–0.36
Privileged self	264	26.75	7.70	11–53	0.41	0.32
Negative interpersonal dependent events	261	36.36	10.62	25–76	1.03	0.48
Negative non-interpersonal dependent events	261	21.94	6.40	14–47	0.94	0.60
Negative independent events	260	27.03	6.45	20–51	1.20	1.20
Depressive symptoms	256	13.76	11.59	0–59	1.24	1.69

Table 2 Correlations between variables (*N* = 265)

	1	2	3	4	5	6	7	8	9	10	11
<i>Time 1</i>											
1. Interpersonal sensitivity	–										
2. Privileged self	0.58	–									
3. Negative interpersonal dependent events	0.30	0.33	–								
4. Negative non-interpersonal dependent events	0.33	0.31	0.67	–							
5. Negative independent events	0.19	0.19	0.72	0.68	–						
6. Depressive symptoms	0.51	0.48	0.44	0.46	0.31	–					
<i>Time 2</i>											
7. Interpersonal sensitivity	0.83	0.54	0.33	0.36	0.23	0.46	–				
8. Privileged self	0.47	0.74	0.32	0.32	0.22	0.39	0.62	–			
9. Negative interpersonal dependent events	0.24	0.36	0.63	0.49	0.46	0.43	0.33	0.44	–		
10. Negative non-interpersonal dependent events	0.33	0.38	0.52	0.73	0.49	0.50	0.40	0.42	0.65	–	
11. Negative independent events	0.20	0.31	0.52	0.58	0.63	0.39	0.26	0.37	0.66	0.71	–
12. Depressive symptoms	0.43	0.46	0.44	0.43	0.31	0.78	0.45	0.44	0.57	0.50	0.39

Note: All correlations are significant at $p < .002$

standards of the χ^2 statistic do not exist, a small and ideally nonsignificant value indicates a good fit.

The correlation and path analyses were conducted with the maximum likelihood estimation method. The distribution of specific variables was slightly skewed (see Table 1). Therefore, the bootstrapped standard errors were computed using 10,000 bootstrap re-samples to determine the significance of each coefficient in the correlation and the path analyses, which is the only adjustment that differed from the pre-registered method of analysis.

Missing data patterns were examined using all the variables that were described in Table 1. Little's (1988) MCAR test yielded a nonsignificant chi-square value ($\chi^2(159) = 139.85, p = .861$), indicating that missing values were random. Missing data were handled with multiple imputations using Bayesian analysis when conducting correlation and path analyses. Imputation was conducted using the participants' age, gender, and all the items of study variables. Twenty data sets were generated and used in the analyses.

Results

Tables 1 and 2 show the descriptive statistics and correlations between the variables, respectively. Separate path analyses were conducted for the models using either the negative interpersonal dependent events subscale, the negative non-interpersonal dependent events subscale, or the negative independent events subscale to examine whether interpersonal sensitivity and privileged self at Time 1 were related to each category of negative events at Time 2 after controlling for the influence of the same event categories at Time 1. We also examined the indirect effects of these two traits at Time 1 on depressive symptoms at Time 2 via each category of negative events after controlling for the influence of depressive symptoms at Time 1. We assumed a correlation between all the variables at Time 1 in each model (i.e., all correlations among interpersonal sensitivity, privileged self, either subscale of negative events, and depressive symptoms at Time 1).

The fit indices of all the models had inadequate fit indices: The model using the negative interpersonal dependent events subscale was $\chi^2(2) = 9.805, p = .008, CFI = 0.98, TLI = 0.92, RMSEA = 0.12$, that using the negative non-interpersonal dependent events subscale was $\chi^2(2) = 10.68, p = .005, CFI = 0.98, TLI = 0.92, RMSEA = 0.13$, and that using the negative independent events subscale were $\chi^2(2) = 11.16, p = .004, CFI = 0.98, TLI = 0.90, RMSEA = 0.13$. Therefore, we attempted to improve all the models. The fit indices of all the models were excellent after assuming the influence of depressive symptoms at Time 1 on negative event categories at Time 2: The model using the negative interpersonal dependent events subscale were $\chi^2(1) = 1.24, p = .267, CFI = 1.00, TLI = 1.00, RMSEA = 0.03$, that

using the negative non-interpersonal dependent events subscale were $\chi^2(1) = 0.05, p = .827, CFI = 1.00, TLI = 1.02, RMSEA = 0.00$, and that using the negative independent events subscale were $\chi^2(1) = 0.30, p = .583, CFI = 1.00, TLI = 1.02, RMSEA = 0.00$. The standardized estimates and R^2 of the models are shown in Table 3.

Privileged self and depressive symptoms at Time 1 were significantly associated with increases in negative interpersonal dependent events, negative non-interpersonal dependent events, and negative independent events at Time 2. In contrast, interpersonal sensitivity was not significantly associated with any category of negative event at Time 2. In addition, negative interpersonal and non-interpersonal dependent events at Time 2 were significantly associated

Table 3 Results of separate path analyses with depressive symptoms at Time 2 as a dependent variable and each category of negative event as mediators

	Negative events T2	Depressive symptoms T2
Model 1: Negative interpersonal dependent events as a stressor measure.		
Interpersonal sensitivity T1	-0.10 [-0.21, 0.01]	0.01 [-0.07, 0.09]
Privileged self T1	0.16** [0.05, 0.28]	0.04 [-0.08, 0.17]
Negative interpersonal dependent events T1	0.53*** [0.41, 0.66]	-
Negative interpersonal dependent events T2	-	0.28*** [0.19, 0.37]
Depressive symptoms T1	0.17** [0.05, 0.30]	0.63*** [0.51, 0.75]
R^2	0.45***	0.68***
Model 2: Negative non-interpersonal dependent events as a stressor measure.		
Interpersonal sensitivity T1	-0.04 [-0.14, 0.06]	-0.02 [-0.10, 0.07]
Privileged self T1	0.12* [0.02, 0.23]	0.09 [-0.04, 0.21]
Negative non-interpersonal dependent events T1	0.63*** [0.54, 0.72]	-
Negative non-interpersonal dependent events T2	-	0.13** [0.04, 0.23]
Depressive symptoms T1	0.17** [0.04, 0.30]	0.68*** [0.57, 0.79]
R^2	0.58***	0.63***
Model 3: Negative independent events as a stressor measure.		
Interpersonal sensitivity T1	-0.10 [-0.23, 0.03]	-0.01 [-0.09, 0.08]
Privileged self T1	0.17** [0.06, 0.27]	0.09 [-0.03, 0.22]
Negative independent events T1	0.56*** [0.44, 0.67]	-
Negative independent events T2	-	0.09 [-0.00, 0.17]
Depressive symptoms T1	0.19** [0.05, 0.33]	0.71*** [0.59, 0.82]
R^2	0.46***	0.62***

Note. T1 means variable measured at Time 1, and T2 means variable measured at Time 2. All numbers not in parentheses are standardized partial regression coefficients, except R^2 . Numbers in parentheses indicate 95% confidence intervals. * $p < .05$, ** $p < .01$, *** $p < .001$

with increased depressive symptoms at Time 2, which was not the case for negative independent events at Time 2. Interpersonal sensitivity and privileged self at Time 1 did not have a significant direct association with depressive symptoms at Time 2 in any of the models. Figure 1 illustrates the results of the model using negative interpersonal dependent events.

Bias-corrected bootstrap tests were conducted to determine the significance of hypothesized indirect effects. The results indicated the significant indirect effect of privileged self at Time 1 on depressive symptoms at Time 2 via negative interpersonal dependent events at Time 2 ($\beta = 0.05$, 95% CI: [0.01, 0.08]). In contrast, neither the indirect effects via negative non-interpersonal dependent events nor negative independent events were significant ($\beta = 0.02$, 95% CI: [-0.00, 0.04]; $\beta = 0.01$, 95% CI: [-0.01, 0.03])³.

Discussion

The results of path analyses showed that privileged self at the baseline was significantly associated with an increase in negative interpersonal and non-interpersonal dependent events experienced during the follow-up period, even after controlling for the influence of negative events experienced at the baseline. In contrast, the association between baseline interpersonal sensitivity and subsequent negative interpersonal and non-interpersonal dependent events was nonsignificant. These findings partially supported Hypothesis 1 and 2, indicating that privileged self might be one reason for stress generation. The methodological strengths of this study, including controlling for the influence of negative events experienced at the baseline and using a scale that specifically assessed experiences of negative dependent events to overcome the limitations of Muranaka et al.

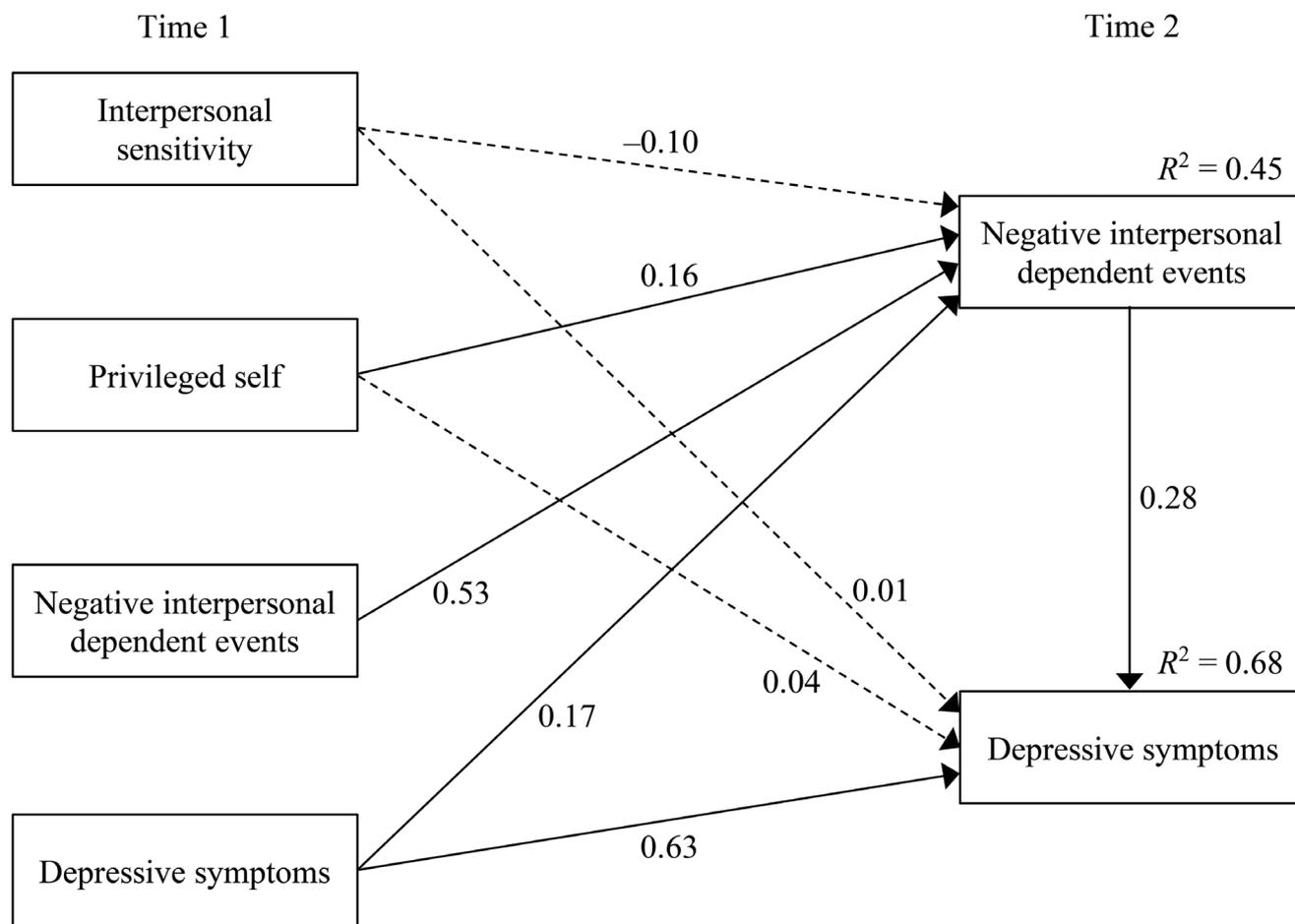


Fig. 1 The results of the path analysis using negative interpersonal dependent events as a measure of negative events (N = 265). Note. Significant standardized regression coefficients at the 5% level are

shown with solid lines, and nonsignificant coefficients are shown in dashed lines. Error variables and covariances are omitted

³ The path analyses results were nearly identical in terms of coefficients and significance levels of each path as those in the analyses that controlled for the influence of age and gender.

(2019), reinforced the idea that university students with a high privileged self generate negative events.

However, inconsistent with Hypothesis 3, baseline privileged self was also significantly associated with the increase in negative independent events. It is unlikely that university students with high privileged self generate negative independent events because negative independent events are assumed to occur outside the individual's control. Therefore, this result could be due to the inadequacy of the scales used to measure the experience of negative independent events as detailed below. The positive associations between baseline privileged self and subsequent experiences of *both* negative independent and dependent events cannot exclude the possibility that privileged self leads to stress generation. However, it is also possible that university students with high privileged self might incorrectly remember negative interpersonal events that did not actually happen or appraise minor events as more stressful.

The path analyses also showed that depressive symptoms at the baseline were related to an increase in all categories of negative events. The significant association between initial depressive symptoms and subsequent experiences of negative interpersonal and non-interpersonal dependent events was consistent with several previous studies suggesting that depressive symptoms are a stress-generating factor (for reviews, Hammen, 2020; Liu & Alloy, 2010). However, the significant association between depressive symptoms and subsequent experiences of negative independent events was not consistent with the stress generation hypothesis. It is plausible that university students with severe depressive symptoms have more negative memories of events than they experienced (See LeMoult & Gotlib, 2019, for a review of memory biases in depression) and expect to experience more frequent negative events in the future (Strunk & Adler, 2009; Strunk et al., 2006).

In contrast, interpersonal sensitivity was not significantly associated with any category of negative events experienced during the follow-up period, which is inconsistent with the findings of Muranaka et al. (2019) showing a positive association between interpersonal sensitivity and interpersonal stress generation. The difference between the present findings and those of Muranaka et al. (2019) might be caused by the methodological limitations of the latter study, such as not controlling for the influence of negative interpersonal events experienced at the baseline and using a scale that included some items that reflected the respondents' cognitions and emotions. The authors concluded that university students with high interpersonal sensitivity neither generate more negative events nor incorrectly remember negative events that did not happen nor appraise minor events as more stressful than students with low interpersonal sensitivity.

Interpersonal sensitivity reflects the tendency to be excessively concerned about or overreact to others' negative evaluations (Muranaka et al., 2015, 2017; Yamakawa et al., 2015). It is possible that students more concerned about others' negative evaluations inhibit their behaviors not to disturb others and therefore do not generate negative events. Sakamoto et al. (2022) showed negative relationship between interpersonal sensitivity and anger control. However, this result may not suggest that undergraduate students with high interpersonal sensitivity exhibit dysfunctional interpersonal behaviors. The anger control subscale in the State-Trait Anger Expression Inventory, which Sakamoto et al. (2022) used, included items such as "I control my behavior" and "I control my angry feelings" (Spielberger, 1988). Inspection of these items indicates that low scores on this subscale may not necessarily reflect the expression of aggressive behavior.

The mediation analysis showed that privileged self was indirectly associated with increased depressive symptoms via increased experiences of negative interpersonal dependent events after controlling for the influence of baseline depressive symptoms. In contrast, the direct association of privileged self with subsequent depressive symptoms was nonsignificant. These findings support those of Muranaka et al. (2019). In addition, other indirect association were nonsignificant. Therefore, the present findings partially supported Hypothesis 4. It is suggested that privileged self is a vulnerability factor for depressive symptoms in Japanese university students, and the relationship between these variables is mediated via interpersonal stress generation or negative or inaccurate cognitions of events. Privileged self could be a target of therapy for depressive symptoms in university students. In addition, stress generation research could benefit from more findings regarding the longitudinal relationship between privileged self and the experience of negative events.

The new type of depression is usually reported among office workers (Sakamoto et al., 2014). However, this study of undergraduate and graduate students provided valuable information on one mechanism of the new type of depression. It is plausible that the behavior of people with high privileged self exacerbates interpersonal relationships, or they perceive their relationships to be worse than they are, leading to increased depressive symptoms. Future studies with office workers are expected to further clarify the mechanisms of the new type of depression.

There are specific limitations to this study. Firstly, the study used the Negative Independent/Dependent Events Scale, a self-report measure to assess the participants' negative event experiences. This scale has acceptable construct validity (Hasegawa et al., 2023a, b). However, this study indicated that personality traits and depressive symptoms

predicted subsequent experiences of negative independent events, which is inconsistent with the stress generation hypothesis. Liu (2013) suggested that self-report measures are inadequate for assessing detailed contextual information about different negative events, including if events depend on a person's behaviors. Future studies are required to reexamine the present findings with structured interviews that can provide detailed information about negative events. In addition, the interval between the two surveys of this study was shorter than in previous stress generation studies. Liu and Alloy (2010) indicated that five-weeks was the shortest interval in previous longitudinal studies that did not assess negative events daily. Although the study by Muranaka et al. (2019) also had an identical interval between the two surveys to this study, the short follow-up period in this study might have precluded identifying the precise stress-generation effects of personality traits related to the new type of depression. Therefore, it is necessary to replicate this study with a longer interval between the two surveys. Finally, the present study did not use a scale specifically designed to assess the new type of depression because no scales have been developed to assess this construct in university students. A self-report measure of the new type of depression developed by Sakamoto et al. (2021) was designed for office workers. At this stage, it is unclear whether the new type of depression also occurs among Japanese university students. Future research is needed to identify whether Japanese university students show symptoms like the new type of depression and develop a scale to measure these symptoms in these students.

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Data Availability This study's dataset can be found at the Open Science Framework [<https://osf.io/stcm6/>].

Declarations

Ethics Approval All procedures performed in studies involving human participants were following the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Consent to Participate Informed consent was obtained from all the study participants before participating in the study.

Conflict of Interest The authors declared that they have no conflicts of interest with the findings of this study.

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