Do shift-and-persist strategies predict the mental health of low-socioeconomic status individuals?

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Abstract

The present study sought to examine the effects of the shift-and-persist strategy on the psychological outcomes of individuals with a low socioeconomic status (low-SES). Although previous research has shown that this type of strategy has beneficial effects on the physiological responses and health of individuals with low-SES, its effects on psychological outcomes have not been thoroughly studied. The present study investigated the relationship between shift-and-persist tendencies, childhood SES, and depressive tendencies using two samples. We performed multiple regression analysis of the obtained data. The results of study 1 (N=99 female undergraduates) showed that an individual’s tendency towards depression was negatively related to their persisting tendency, but not their shifting tendency. This relationship was replicated in study 2 (N=662 working adults). Although the results do not correspond with previous research, our finding that persisting is connected to psychological outcomes, such as depressive tendencies, is important.

Key Words: shift-and-persist strategies, socioeconomic status, mental health, depressive tendency

Introduction

One of the important social factors to influence physical health is socioeconomic status (SES). Low-SES includes poverty or being from a family with low education, occupational status, or income relative to others in the population (Chen & Miller, 2012). Individuals in low-SES groups often face a host of problems derived from the adversities of low-SES circumstances, which is likely to become their physical health poor. Compared to members of high-SES groups, individuals in low-SES groups are 2.5 times more likely to be hospitalized or visit a hospital emergency center, and 3.5 times as likely to experience activity limitations due to a disease (Braveman, Cubbin, Egerter, Williams, & Pamuk, 2010; National Center for Health Statistics, 2010). Moreover, coronary heart disease is strongly associated with low-SES (Galobardes, Lynch, & Davey Smith, 2004). Research also shows that low-SES in childhood is related to a higher risk of major depression in adults (Gilman, Kawachi, Fitzmaurice, & Buka, 2002). Despite this relationship to health outcomes, some individuals with low-SES can maintain good physical health. This raises the question as to how only some individuals are able to enjoy good health despite experiencing severe adversities in their life.

Chen and Miller (2012) sought to explain this phenomenon by pointing to the shift-and-persist strategies for individuals who grew up and continue to live in low-SES environments. They proposed that if children in low-SES environments find positive role models who teach them that there are people whom they can depend on and trust, they are more likely to use reappraisals to change how they think about stressful situations that they encounter any in the future.
Reappraisal refers to cognitive re-evaluation of a stressful situation in a way that reduces its emotional impact (Gilman et al., 2002; Gross, 1998). Role models also teach children adaptive emotion regulation behaviors. Experiencing this positive foundation during childhood enables some disadvantaged children to develop a “shift-and-persist” approach to handling stress. This approach balances adaptation to stress and persistence in life at the same time. The former refers to accepting stress and adjusting to it through emotion regulation strategies such as reappraisals, while the latter refers to enduring adversity with strength by finding meaning and maintaining optimism. In this manner, shifting is hypothesized to involve cognitive reappraisals (i.e., reframing the stressors as less threatening and seeing the good that can come from difficult life situations) as a form of emotion regulation, and persisting is hypothesized to develop purpose in life and maintain the hope that, despite adversity, the future may be better (Chen, McLean, & Miller, 2015).

Chen and colleagues (Chen & Miller, 2012; Chen et al., 2015) argued that combinations of shift-and-persist strategies could be specifically adapted for dealing with adversity, such that they might substantially reduce physiological responses in individuals in low childhood SES. Extended to the long-term, these strategies might contribute to mitigating the progression of pathogenic processes leading to chronic diseases such as cardiovascular disease (Chen, Miller, Lachman, Gruenewald, & Seeman, 2012). It has been found that shift-and-persist strategies are especially beneficial in reducing the risk of other chronic diseases for individuals in low childhood SES. This pattern was not found in high childhood SES groups, suggesting that the shift-and-persist strategies have few or fewer benefits for those who grew up and are in high-SES environments (Chen & Miller, 2012). They also surmised that as low-SES individuals cannot change their living environment directly, they lack full control of their lives. Therefore, these strategies are thought to be particularly important for low childhood SES individuals. Further, Chen et al. (2015) demonstrated this same low-SES vs. high-SES contrast in studies investigating other physiological responses to experiences of stress.

However, Chen’s research (e.g., Chen & Miller, 2012) does not address the benefits of shift-and-persist strategies from other perspectives such as psychological outcomes because it has focused mainly on physiological responses. Considering that mental health is significantly related to academic performance (Bostani, Nadri, & Nasab, 2014) and job performance (Armandi, Aghadavood, & Davoodi, 2015), it is important to examine the possible benefits of these strategies for psychological outcomes. Toward this end, Nakashima and Lee (2016) examined the effect of shift-and-persist strategies on the mental health of individuals with low-SES. The results showed a connection between low depressive tendencies and high persisting strategy despite the level of the composite SES scores based on childhood SES and other SES-related measures.

Further, considering the relevant research including Chen and Miller (2012), we focused on childhood SES measures only, and reanalyzed Nakashima and Lee’s (2016) data. The results showed the same patterns for depressive tendencies (Lee & Nakashima, 2019). However, these findings were based on a sample of female Japanese undergraduate students and limited by the small sample size used in the study (N=66).

In order to further confirm the psychological outcomes described by Nakashima and Lee (2016) or a pattern similar to physiological outcomes described by Chen and colleagues (e.g., Chen & Miller, 2012), the present study reports the results of two investigations focusing on the effects of shift-and-persist strategies on depressive tendencies, using other female undergraduates (Study 1) and adults registered in an online survey (Study 2), while accounting for the effects of low- and high-SES groups. If the findings of Nakashima and Lee (2016) are robust, the connection between low depressive tendencies and high persisting will emerge despite participants’ childhood SES.

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1) Nakashima and Lee (2016) used and analyzed trait self-esteem as another dependent variable. The results showed that there was a three-way interactive effect on self-esteem. For individuals with low-SES and high shifting, persisting was positively related to self-esteem. This pattern did not emerge for other groups such as participants with high-SES and high shifting. These results corresponded with findings of Chen and colleagues (Chen & Miller, 2012; Chen et al., 2015) in that those with low-SES may benefit from engaging in high shifting and high persisting strategies.
Study 1

Method

Participants. Study 1 included 99 female undergraduates enrolled in a junior college in western Japan (average age = 18.48 years, SD = 1.96). Each participant was asked to fill a questionnaire, describing it only as a kind of “survey on the daily life of an undergraduate student.”

Measure (for details, please see the Measures section in the Appendix). For participants’ subjective assessment of SES, we used three items relating to early childhood living environment (up to approximately 12 years of age), measured on a seven-point scale (1 = Not at all, 7 = Very much) based on Nakashima and Lee (2016). We also added the participants’ subjective assessment of SES according to social rank and family income (Nakashima & Yanagisawa, 2015). Participants indicated their social rank on a 10-point scale (1 = High, 10 = Low) and family income on a seven-point scale (1 = Less than the average, 7 = Much more than the average). Considering the approach by Chen and colleagues (e.g., Chen & Miller, 2012), we only used SES in early childhood as the main index and results regarding other SES indices are shown in the Appendix (Table S1 to S4).

Participants responded to a series of items comprising a Japanese version (Nakashima & Lee, 2016) of the shift-and-persist measure originally developed by Chen et al. (2015). This measure consisted of four “persisting” items (including one reverse-scored item) and four “shifting” items, along with six distractors, all scored on a four-point scale (1 = Disagree, 4 = Agree). During the study by Nakashima and Lee (2016), the items were translated to Japanese and rechecked by a professor who had studied abroad. As the convergent and divergent validity of the questionnaire had previously been confirmed by Chen et al. (2015), we did not re-check this.

We used the Todai Health Index (Aoki, 1980) for assessing the depressive tendency of each respondent. The index consists of 10 items regarding the frequency with which the individual experiences depressing emotions and the individual’s emotional state, measured on a three-point scale (1 = Most of the time, 2 = Neither/some of the time, 3 = Never). We computed reversed scores so that higher scores indicated stronger depression.

Results

Factor analysis and reliability of the shift-and-persist scale. Based on Chen et al. (2015), we performed a confirmatory factor analysis. Although the model fit was acceptable (CFI = 1.000, RMSEA = .000, SRMR = .037), the factor loading for one item in the persisting factor, “I feel my life is going nowhere,” which was a reverse item, was positive (.580). Hence, it did not match the conceptual definition of persisting. Then, we conducted exploratory factor analysis for all items, excluding this reversed item. The factor analysis with Promax rotation was conducted to determine whether the items were best represented as two distinct factors. The result was acceptable according to Chen et al. (2015) and corresponded with the factor structures used by Nakashima and Lee (2016). Table 1 shows the factor pattern and correlation coefficients among factors, along with reliabilities.

Multiple regression analysis. We used multiple regression analyses to examine our predictions. In the analyses, the participant’s depressive tendency score served as the dependent variable. Persisting, shifting, and childhood SES scores were entered in Step 1; three types of two-way interaction values were entered in Step 2; and the three-way value was entered in Step 3. According to our results, Step 1 model was significant ($R^2 = .12$, $F(3, 94) = 5.25$, $p = .002$) and there was a significant main effect for persisting on depression tendency ($b = –0.20$, $t(94) = –2.36$, $p = .02$). High persisting was negatively related to depressive tendencies, supporting the findings of Nakashima and Lee (2016). Table 2 shows the results of the multiple regression analyses in Study 1.

As participation in Study 1 was limited to female college students, we conducted a second study in which we examined the same predictions using a more inclusive sample.

Study 2

Method

Participants. In this study, we used Fast-ask to assemble our sample. Fast-ask is a research company for online surveys. We recruited a sample of 662 participants (333 men, average age = 38.48, SD = 9.77), all of whom were currently working.

Measure. In assessing subjective SES in early childhood, shift-and-persist strategies, and depressive tendencies, we used the same measures as in Study 1. However, to
measure depression, we used a four-point scale. (1=Not at all, 4=Very much), although we asked the same questions.

Result
Confirmatory factor analysis. As in Study 1, we excluded one item in the persisting factor (which was assumed as the reverse item) and performed confirmatory factor analysis with the same seven items. The model fit was acceptable (CFI=.981, RMSEA=.069, SRMR=.028). The internal consistency of shifting and persisting was also good (α=.854, .822, respectively). Likewise, we used the scale score and took the same approach regarding depressive tendencies.

Multiple regression analysis. Based on the characteristics of participants who were currently working, in testing the predictions, we controlled for their age and sex. In the regression analysis, sex and age were entered in the first step as controls. In the results of Study 2, Step 2 model was significant ($R^2=.10, F(5, 656)=10.11, p<.001$) and there

**p<.01, *p<.05, †p<.10**
was only a significant main effect for persisting (\(b = -0.26\), \(t(656) = -5.52, p < .001\)). Table 3 shows the results of the multiple regression analyses in Study 2. As in Study 1, high persisting scores were negatively related to depressive tendencies. Although these findings were not consistent with Chen and Miller’s (2012) shift-and-persist model, they were consistent with the findings of Nakashima and Lee (2016) and Study 1.

| Independent variable (b)                      | Step 1  | Step 2  | Step 3  | Step 4  |
|-----------------------------------------------|---------|---------|---------|---------|
| SEX                                           | 0.014   | 0.036   | 0.037   | 0.028   |
| AGE                                           | -0.003  | -0.003  | -0.003  | -0.003  |
| shifting                                      | -0.061  | -0.060  | -0.096  |         |
| persisting                                    | -0.264**| -0.266**| -0.276**|         |
| early childhood SES                          | 0.012   | 0.013   | -0.010  |         |
| shifting×persisting                           | 0.026   | 0.035   |         |         |
| shifting×early childhood SES                  | -0.008  | -0.006  |         |         |
| persisting×early childhood SES                | 0.013   | 0.004   |         |         |
| shifting×persisting×early childhood SES       |         |         |         | 0.061   |

\(R^2\) .002 .101** .102** .110**
\(\Delta R^2\) .002 .099 .001 .008
**p < .01, †p < .10

General Discussion

Previous research on shift-and-persist effects has focused primarily on physiological responses, while psychological outcomes have been largely ignored. The present study aimed to examine whether the findings for depressive tendency would be consistent with those of Nakashima and Lee (2016) or the theory presented in previous studies (Chen & Miller, 2012; Chen et al., 2012; Chen et al., 2015). In the present study, the patterns of the main effect indicate that a higher persisting level reduces depressive tendencies, replicating the findings of Nakashima and Lee (2016). In other words, no three-way interaction was found. These results are inconsistent with prior work for low-SES individuals that the shift-and-persist strategies were generally associated with good physical health (Chen et al., 2012).

These findings suggest that persisting—but not shifting—has a positive impact on psychological outcomes such as depressive tendencies. It raises two questions regarding shift-and-persist strategy: why a three-way interaction including subjective childhood SES was not found and why persisting had a stronger impact on depressive tendencies.

Regarding the first question, recent research on shift-and-persist effects showed a slightly complex pattern. For instance, Kallem et al. (2013) conducted a survey of 1,523 children aged 9 to 15 years, and the results were also consistent with the theory for shift-and-persist strategy. Specifically, it showed that children with a low level of childhood SES and a low overall score of shift-and-persist had high BMI scores. In contrast, when focusing on children with a higher overall score of shift-and-persist, there was no association between SES and BMI scores. Considering that the BMI scores could be regarded as a reflection of people’s health, this lack of association between SES and BMI scores was consistent with Chen’s theory (e.g., Chen et al., 2012). Furthermore, Lam et al. (2018) examined some indicators of asthma control and quality of life with asthma for a sample of 308 youths, which supported this theory. However, Lewis (2016) reported that the correlation between the overall score of shift-and-persist strategies and depressive tendencies were not significant between 259 African Americans and Latin Americans. This result is not consistent with the findings of Chen and these current studies (Kallem et al., 2013; Lam et al., 2018).

Considering the findings of recent relevant studies, shift-and-persist strategies are considered to be effective for individuals with some physical health risks, especially regarding indicators which are directly related to physical health such as physical and physiological responses, physical symptoms, and illnesses. In addition, regarding the fact...
that most relevant studies were conducted in the US and that there are common features in that they had a fewer sample of Asians, it seems to be that the shift-and-persist theory does not have a trans-cultural feature and all health-related indicators are not applied to this theory. In future research, it is necessary to introduce methodologically more desirable methods including meta-analysis and elaborate on this theory carefully. In addition, it is necessary to examine whether culture-related indicators could be used as buffer factors.

Regarding the second question, we need to discuss the lack of relationship between shifting and depressive tendencies. In previous research on mental health and shifting-related indicators (e.g., cognitive reappraisal and positive reappraisal), such positive associations were found. For example, Nakano (1991) reported that the individuals who were using positive cognitive coping frequently, showed lower levels of anxiety. Additionally, Ebata and Moos (1991) and Nushi (1993) showed that cognitive reappraisal or positive reappraisal led to better mental health.

In contrast, other studies have reported the opposite pattern regarding shifting-related indicators and mental health (for review, see Kato, 2005). For example, Kawanishi (1995) has reported that those who use positive reappraisal more frequently show higher psychological stress responses. Further, Takamoto (2015) demonstrated that when individuals used positive reappraisal, their depressive mood was higher the next day. Additionally, Uchida and Yamazaki (2008) analyzed causal relationships among problem-focused coping, cognitive reappraisal, and depressive tendencies, and reported a variety of results. One of the results showed that the relationship between cognitive reappraisal and depressive tendencies was not significant. Although the results of the present study are consistent with those of Uchida and Yamazaki (2008), it is difficult to say why similar results were obtained with our data. Therefore, further research is needed to carefully clarify why—and to what degree—shifting and persisting are effective for individuals, using the diary method used by Takamoto (2015) or with longitudinal surveys.

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