# Effects of Self-Esteem on State and Trait Components of Interpersonal Dependency and Depression in the Workplace

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This longitudinal study was undertaken to clarify the relationships among self-esteem, interpersonal dependency, and depression, focusing on a trait and state component of interpersonal dependency and depression. In a sample of 466 working people, self-esteem, interpersonal dependency, job stressor, and depression were assessed at 2 points of time. A structural equation model (SEM) was created to differentiate the trait component of interpersonal dependency, depression and the state component of interpersonal dependency, depression. The model revealed that self-esteem influenced trait interpersonal dependency and trait depression but not state interpersonal dependency or depression. Setting a latent variable as a trait component to differentiate trait and state in interpersonal dependency and depression in SEM was found to be effective both statistically and clinically. © 2011 Wiley Periodicals, Inc. J Clin Psychol 67:918–926, 2011.

Keywords: self-esteem; interpersonal dependency; depression; structural equation modeling; state-trait model

Self-esteem is one of the most important constructs in mental health. In this area, self-esteem is a hypothetical construct that is measured by the sum of evaluations across salient attributes of one's self or personality. It is the overall affective evaluation of one's own worth. The higher an individual's self-esteem, the less necessary it will be to use material things for affirmation in their own eyes or in the eyes of others. This also means there is less likelihood they will experience distress when confronted with a stressor and they will be less vulnerable to the pathogenic accumulation of stressful life events, thereby benefiting their health (Crocker, Brook, Niiya, & Villacorta, 2006; Dolan, 2007). Theoretically, the self-esteem construct reflects one's cognitive appraisal of his or her competence and adequacy acquired as a child (Varni, Setoguchi, Rubenfeld, & Talbot, 1991). In other words, self-esteem is considered one of the personality traits.

Self-esteem is associated with depressive symptoms in a stress process (Brown, Andrews, Harris, Adler, & Bridge, 1986; Druley & Townsend, 1998; Kessler & McRae, 1982; Perlin, Liberman, Menaghan, & Mullan, 1981; Vrasti, Enasescu, Poelinca, & Apostol, 1988). If a person has a high self-esteem as a trait, then he or she generally views stressful situations positively, lessening depressive symptoms, and vice versa (Rosenberg, 1962). Having low self-esteem can be a risk factor for developing mood disorders in the long run (Scmitz, Kugler, & Rollnik, 2003). Alternatively, low self-esteem is clinically considered one of the manifestations of depression (Lynum, Wilberg, & Karterud, 2008).

Interpersonal dependency is also a verified psychological construct, which is closely related to depression (Chodoff, 1972; Nuns & Loas, 2005; Sanathara, Gardner, Prescott, & Kendler, 2003). Interpersonal dependency is defined as a thought, belief, emotion, and behavior derived from the desire to maintain close relationships with others and to seek support (Bornstein, Ng, Gallagher, Kloss, & Regier, 2005; Hirshfeld, Klerman, Chodff, Korchin, & Barrett, 1976). The

We acknowledge the 737 participants of this study, who worked as public servants and as employees at a private company in Japan.

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Published online in Wiley Online Library (wileyonlinelibrary.com/journal/jclp). DOI: 10.1002/jclp.20815

following three models have been proposed to explain the dependency-depression link. The *vulnerability model* states that high interpersonal dependency predisposes to depression (Bornstein et al.). The *scar model* hypothesizes that the experience of depression alters or scars an individual, thereby producing a long-lasting increase in the interpersonal dependency level. The *state model* suggests that interpersonal dependency levels are directly influenced by a current depressed mood (Sanathara et al.; Turner & Andrewes, 2010). Although there have been a number of reports to support each hypothetical model, consensus has not yet been reached. It remains to be studied whether interpersonal dependency is a state or trait leaving variability issues on measurement (Shahar, 2008).

Depression is another mental condition that is often measured by various scales. On personality scales, depression is considered as a trait influencing not only mental conditions but also many other diseases including somatic symptoms (Vossen, Os, Hermens, & Lousberg, 2006). There are people who have a depressive personality (Chodoff, 1972). Depression is also measured as a state (Addolorato et al., 2008). It can be easily imagined that people with a depressive personality would show a relatively higher depressive condition in a stressful situation than people without such a personality. Additionally, there are some people who become depressive temporarily and show a transiently elevated state of depression regardless of whether an innate depressive personality trait presents. Thus, it can be concluded that there exist several underlying patterns to show the seemingly same depressive states. For example, there would be individuals with a high depressive trait and a low depressive state, individuals with a low depressive trait and a high depressive state, or individuals with both mild depressive trait and depressive state.

As explained above, the fact that there is no clear-cut distinction between depressive trait and depressive state among researches explains the discrepancies in mechanisms of depression seen in the previous research. Therefore, we posit that if interpersonal dependency and depression are measured as observed variables in this study, then the scores of these variables—state depression—should be viewed as compilation of trait and surplus. Furthermore, we hypothesize that trait interpersonal dependency and depression take higher order of factors on each observed variable because they are presumably part of the personality. On that premise, we confirm the relationships among self-esteem, interpersonal dependency, and depression with the use of a structural equation model (SEM). To our knowledge, there has not been any investigation that clearly explains how self-esteem would affect interpersonal dependency and depression as a trait or whether interpersonal dependency or depression as a state would be influenced by self-esteem. For this reason, we conduct SEM analyses on both models. Thus, we attempt to differentiate between trait and state interpersonal dependency, and between trait and state depression by comparing the models. Additionally, we also examine the relationships between them and self-esteem.

## Methods

### *Participants*

The sample was drawn from employees aged 19 to 60 years in two workplaces in Japan. One group comprised local public servants and the other comprised workers at a private dairy company. The participants were not a clinic-based sample but were workers who presumably undergo a variety of daily hassles at work. Therefore, they would be expected to show clearer fluctuations in state over a 10-week period when compared with clinical samples. We set an interval of 10 weeks of survey on both workplaces. The questionnaires were distributed to the first group in January and March, 2007 (interval of 10 weeks).

Of the 645 questionnaires that were distributed in January, 577 were collected, and of 645 that were distributed in March, 526 were collected. The number of usable questionnaires that were completed and collected in the two surveys was 329 pairs in total. Those questionnaires that were completed in only one of the two surveys, and the questionnaires that were not fully completed were considered unusable responses. Similarly, the questionnaires were distributed to the second group in January and April, 2008 (interval of 10 weeks). Of 294 that were

distributed in January, 190 were collected, and of 294 distributed in April, 160 were collected. The number of usable questionnaires that were completed and collected in the two surveys was 137 pairs in total. Participants answered self-completed questionnaires at their workplace. Thus, the total number of usable questionnaires from the two groups was 466, which comprised 307 men (65.9%) and 159 women (34.1%) with a mean age of 41.5 (standard deviation [*SD*] = 10.6) years. No gender difference was found for mean age. Thirty-nine (8.5%) were supervisors, 206 (44.2%) were nonsupervisory employees, and 221 (47.4%) were unknown. Differences between job positions were not examined because there were a number of people who did not provide their job position. There were no significant differences in each variable between the local public servants and the private daily company.

This study project was approved by the Ethical Committee of the Kumamoto University Graduate School of Medical Sciences (equivalent to the institutional review board).

## *Measurements*

*Job stressor*. Steptoe, Cropley, and Joekes (1999) developed the Job Strain Questionnaire (JSQ) based on Karasek's (1979) Job Demand-Control theory using 162 teachers. The JSQ includes 15 items and each item is rated on a 4-point scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). These 15 items are divided into four subscales: three items for Job Demand (e.g., "My job is hectic"), three items for Job Control (e.g., "I have freedom to decide what I do in my job"), four items related to Skill Utilization (e.g., "My job involves me in learning new things"), and five items for Social Support (e.g., "I have a good relationship with my supervisors"). In the present study, we used only three subscales: Job Demand, Job Control, and Skill Utilization ($\alpha = .78$, 65, and 46, respectively). According to Steptoe et al., the Job Strain Index is calculated using the following equation:

$$\text{Job Strain Index} = \text{Job Demands}/[(\text{Job Control} + \text{Skill Utilization})/2] \times 10.$$

*Self-esteem*. Participants completed the Self-Esteem Scale (SES; Rosenberg, 1965), a well-validated measure of global self-regard. It comprises 10 items using a 4-point Likert scale, ranging from 4 (*strongly agree*) to 1 (*strongly disagree*). An example of the items is "I feel that I have a number of good qualities." The Japanese SES (Yamamoto, Matsui, & Yamanari, 1982) adopts a 5-point scale. Cronbach's alpha reliability coefficient was .82.

*Interpersonal dependency*. The Interpersonal Dependency Inventory (IDI; Hirshfeld et al., 1977) was used to measure each participant's degree of interpersonal dependency. This scale includes 23 items designed to quantify three aspects of dependency: emotional reliance on others, lack of social self-confidence, and difficulties asserting autonomy. The IDI total score sums these three tendencies and items are rated on a 4-point scale, ranging from 1 (*not characteristic of me*) to 4 (*very characteristic of me*). Higher scores indicate more problems in that area. The IDI was translated into Japanese by McDonald-Scott (1988). Cronbach's alpha reliability coefficient was .79.

*Depression*. The subscale of the Hopkins Symptom Checklist (HSCL; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974) was used to assess depression symptoms. This subscale comprises 13 items and is a reliable and valid instrument that captures the cognitive, behavioral, affective, and motivational components of depression. Participants rated on a scale ranging from 1 (*never*) to 5 (*very often*) how frequently they had experienced each of the symptoms during the past 7 days. This study used the Japanese version of the checklist (Nakano & Kitamura, 2001), and the internal consistency of the subscale was .86 (Cronbach's alpha).

## *Statistical Analyses*

Statistical analyses were conducted in two steps. First, the correlations of all variables in this study were examined and a path model was built based on the results of bivariate analysis (state model). Second, we considered that observed data of interpersonal dependency and

depression could comprise trait and surplus. Trait was considered as a part of the personality component that hardly changes with life events or environmental factors, and thus has a stable disposition. On the other hand, surplus was considered as varying with internal or external events. We observed that only the state comprised trait and surplus.

In the SEM, we decomposed time 1 (T1) interpersonal dependency and T1 depression into trait and surplus components (state-trait model). Because interpersonal dependency and depression are highly correlated (Chodoff, 1972; Nuns & Loas, 2005; Sanathara et al., 2003), as in this study, we posited a superordinate higher order factor, ego vulnerability, over trait interpersonal dependency, and trait depression. In this model, we also posited that self-esteem would predict ego vulnerability as well as interpersonal dependency T1, depression T1, and job stressor T1. Also posited were predictions of interpersonal dependency, depression, and job stressor at T1 of those at time 2 (T2), respectively. Job stressor at each time point was presumed to predict interpersonal dependency and depression at that time and at the following observation time (Fig. 2).

The fit of the model with the data was examined in terms of chi-squared (CMIN), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). According to conventional criteria, a good fit would be indicated by CMIN/degree of freedom [df] $< 2$, GFI $> 0.95$, AGFI $> 0.85$, CFI $> 0.95$, and RMSEA $< 0.08$ (Schermelleh-Engel, Moosbrugger, & Müller, 2003). Akaike information criterion (AIC) was used to compare different models. A model with an AIC of at least two points lower than a second model is regarded as the superior one. All statistical analyses were conducted using the Statistical Package for Social Science (SPSS) version 12.0 and AMOS 7.0.

## Results

### *Bivariate Statistic*

All variables were significantly correlated with each other (Table 1). As expected, self-esteem was highly and negatively correlated with the other variables. Additionally, there are gender differences in self-esteem, interpersonal dependency T1, depression T1, and depression T2. Males had higher self-esteem scores than females, $t$ [464] = 3.011; $p = .003$, and had lower interpersonal dependency T1, $t$ [464] = −2.178; $p = .030$, depression T1, $t$ [464] = −3.264; $p = .001$, and depression T2, $t$ [464] = −3.214; $p = .001$, scores. Because of these results of correlation analyses, the results need careful interpretation.

### *SEM*

To examine the relationship of self-esteem to other variables, a hypothetical SEM (state model) was built based on the results of the bivariate analyses: for the model, the directional paths were defined from self-esteem towards T1 and T2 interpersonal dependency, stressor,

Table 1
*Pearson Correlations, Means, and Standard Deviations of Self-Esteem, Interpersonal Dependency, Stressor, and Depression*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. Self-esteem | – | | | | | | |
| 2. Interpersonal dependency T1 | −.447*** | – | | | | | |
| 3. Interpersonal dependency T2 | −.376*** | .723*** | – | | | | |
| 4. Stressor T1 | −.200*** | .214*** | .176*** | – | | | |
| 5. Stressor T2 | −.157** | .208*** | .174*** | .637*** | – | | |
| 6. Depression T1 | −.514*** | .550*** | .483** | .317*** | .287*** | – | |
| 7. Depression T2 | −.474*** | .505*** | .570*** | .268*** | .340*** | .751*** | – |
| *Mean* | 32.4 | 43.1 | 44.1 | 7.8 | 7.9 | 21.9 | 22.1 |
| *Standard deviation* | 4.2 | 7.6 | 8.5 | 2.2 | 2.1 | 6.1 | 6.2 |

**$p < .01$; ***$p < .001$.

and depression. The directional paths from stressor to interpersonal dependency and depression were drawn. Additionally, T1 and T2 interpersonal dependency were connected by the directional path. In the same way, T1 and T2 depression were done (Fig. 1).

The results of the state model are shown in Figure 1. As expected, self-esteem strongly explained interpersonal dependency T1, depression T1, and stressor T1 ($p < .01$). Additionally, the following directional paths were significant ($p < .01$): from interpersonal dependency T1 to interpersonal dependency T2; from depression T1 to depression T2; from stressor T1 to stressor T2, interpersonal dependency T1, depression T1, depression T2, and depression T2; and from stressor T2 to depression T2. These paths are drawn in bold lines. Residual paths were not significant ($p > .05$).

The GFI, AGFI, and CFI indicated that the model fit of the present data was relatively good (Table 2). However, RMSEA was not good (.127). Furthermore, there are some inconsistent parts in the model. Although self-esteem defined one of the personality traits that explained T1 of interpersonal dependency and depression (path coefficient = −.42, and −.47 respectively), it failed to explain T2 of interpersonal dependency and depression (path coefficient = −.08, and −.09 respectively). From a theoretical point of view, the predictive capability of personality traits is stable regardless of point of time. In addition, the correlation coefficient between T1 and T2 interpersonal dependency, T1 and T2 depression were quite high. Because of these issues, we set the latent variables as trait Interpersonal dependency and trait depression on each observed variable. Additionally, we set an upper latent variable on trait interpersonal dependency and trait depression named ego vulnerability because the correlation between the two traits was quite high ($\gamma = .90$; state-trait model).

A second structural equation model showed that several significant directional paths changed. The directional paths from self-esteem to ego vulnerability and job stressor were significant ($p < .01$). Ego vulnerability explained trait interpersonal dependency and trait depression ($p < .01$). Trait interpersonal dependency explained T1 and T2 interpersonal

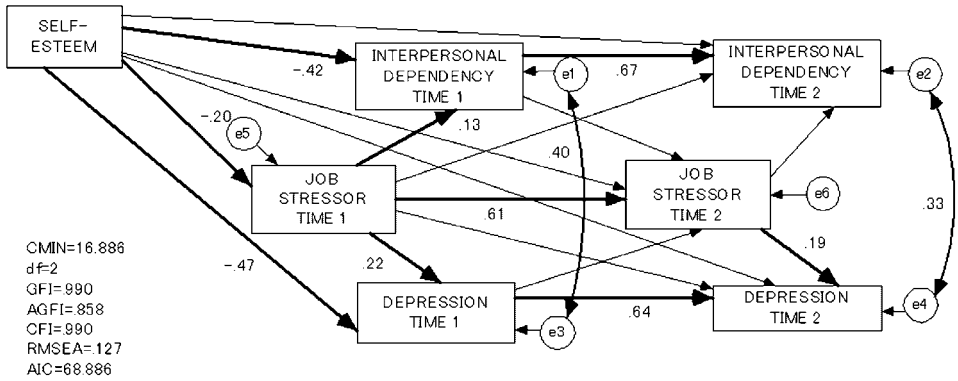


*Figure 1.* The result of the first structural equation model without trait (State model). The causal paths drawn in bold lines are significant. Nonsignificant path coefficients are not indicated.

Table 2
*Indices of Good Fit for the Two Examined Models of Relationship Among Self-Esteem, Interpersonal Dependency, and Depression*

| Model | $\chi^2$ | df | GFI | AGFI | CFI | RMSEA | AIC |
|---|---|---|---|---|---|---|---|
| State model | 16.886 | 2 | .990 | .858 | .990 | .127 | 68.886 |
| State-Trait model | .438 | 1 | 1.000 | .992 | 1.000 | .000 | 54.438 |

*Note*: df = degree of freedom; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; CFI = comparative fit index; RMSEA = root mean square error of approximation; AIC = Akaike information criterion.

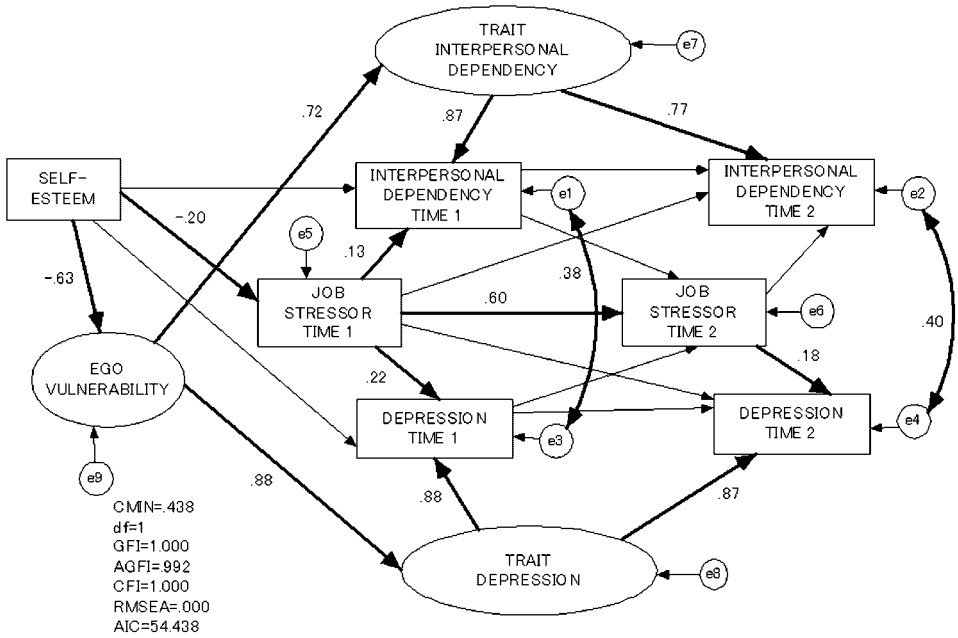


*Figure 2.* The result of the second structural equation model with trait (state-trait model). The causal paths drawn in bold lines are significant. Nonsignificant path coefficients are not indicated.

dependency. Similarly, trait depression explained T1 and T2 depression. The directional paths from job stressor T1 to interpersonal dependency T1, depression T1, and job stressor T2 were significant ($p < .01$). Job stressor T2 explained depression T2, but it failed to explain interpersonal dependency T2. Two directional paths from interpersonal dependency T1 to interpersonal dependency T2, and from depression T1 to depression T2 were no longer significant. The model fit indices of the second model were better than the first model. In addition, the second model's RMSEA also met criteria (.000; Table 2) (Fig. 2).

## Discussion

The present study investigated the relationships among self-esteem, interpersonal dependency, depression, and job stressor using a Japanese worker population. As previous research has shown, this study demonstrated that high self-esteem led to a low level of interpersonal dependency and depression, and job stressor influenced immediate depression (Druley & Townsend, 1998; Krause, 1987; Pearlin, Menaghan, Lieberman, & Mullan, 1981). However, in the state model, we observed strong prediction of T2 interpersonal dependency and depression by their T1 counterparts. Although self-esteem significantly predicted T1 interpersonal dependency and depression, it failed to predict T2 interpersonal dependency and depression. This is difficult to explain given that should personality traits such as self-esteem predict mental health sates (such as interpersonal dependency and depression) at one time point, they should do so on the other time point. These considerations led us to presume that mental health states like interpersonal dependency and depression would comprise parts that were stable over time (trait) and parts that would vary temporarily according to internal and external stimuli (surplus).

The majority of correlation of interpersonal dependency and depression between the two points of observation time may be accounted for by the effects of trait. Trait components of interpersonal dependency and depression sharing a common construct—ego vulnerability—may account for the significant association between interpersonal dependency and depression. On the other hand, we hypothesized that surplus components of interpersonal dependency and

depression would be predicted by the impacts of concurrent job stressors. These considerations were partly consistent with the results of the state-trait model.

Based on the correlation coefficient between interpersonal dependency and depression, upper latent factor ego vulnerability on interpersonal dependency and depression was posited. The state-trait model showed that self-esteem predicted surplus interpersonal dependency and depression, not directly but through its impact on ego vulnerability. The association between these two mental health variables and self-esteem found in the state model may be accounted for mainly by its impact on Ego vulnerability that in turn predicted interpersonal dependency and depression. This suggests that self-esteem plays an important role for not only improving or recovering one's mental health temporarily but also maintaining long-term mental health (Tsai, Wong, Tsai, & Ku, 2008). Ego function works in an interactive-synergetic way to influence psychological symptoms (Shahar, Gallagher, Blatt, Kuperminc, & Leadbeater, 2004).

Furthermore, it was found that self-esteem acted to mitigate the effects of stressors, meaning that people with high self-esteem felt less stressed and people with low self-esteem felt highly stressed. Thus, the results lead to two conclusions. One conclusion indicates that people with high self-esteem have a tendency to judge their experienced situations in a positive light. Another conclusion suggests that the lower one's self-esteem is, the more frequently negative life events are experienced. The items of stressor scale in this study expected to measure one's cognition for his or her working environment. Therefore, self-esteem as a trait supports the former at least, but the latter is not clear. This point requires further research.

T1 and T2 stressor predicted T1 and T2 depressions, respectively. Stressors probably explained state depression from a theoretical viewpoint, and therefore, effective stress management skills function for keeping good health for some people. However, if a stress management strategy does not work properly, trait depression may interfere with it as underlying problem.

There were gender differences in self-esteem, interpersonal dependency, and depression in this study as with previous research (Veilel, 1996). Bornstein et al. (2005) interpreted that males become more implicitly independent than females because of culturally prescribed gender roles. The participants in this study were drawn from a worker population in Japan where men are still the majority force at the workplace even though women have recently become socially active throughout society. Men are expected to act confidently, not to heavily depend on others, and to work lively, and such social expectations for men may have manifested in this study. In future studies, methods other than self-reported style should be adopted to examine these variables for evidence of social expectation. A possible alternative would be to ask some with close relationship with the participant on mental health constructs.

The results obtained in this study call attention to the importance of stress management in the working environment. There is a considerable amount of stress that exists in the workplace these days, and not only should external stressors be handled effectively, but internal aspects such as self-esteem and ego vulnerability need to be understood as well. Adjusting workers' workload to an optimal level helps maintain their overall health (Dolan, 2007), and this can lead to their sense of fulfillment at the same time. If they successfully complete what needs to be done in their work and cumulatively experience the sense of achievement, their self-esteem will eventually become higher. Once self-esteem is kept at a high level, the need for excess interpersonal dependency can be decreased (Hirshfeld, Klerman, Chodff, Korchin, & Barrett, 1976).

This study has some limitations. First, it was a longitudinal study conducted only 2 waves at intervals of 10 weeks. The effect after the second was left unquestioned and therefore further research needs to be conducted to clarify the possible effect of successive waves. Second, because stressor and depression were measured at the same point in time, we cannot rule out the possibility that the directional path from stressor to depression could be in the opposite direction. Thus, it may be that if people are depressed, then they are more likely to report job dissatisfaction, job stress, and difficulties with relationships with people—seeing relationships as unsatisfying in general. Studies with more observation times are needed to explore this possibility. Third, Cronbach's alpha reliability coefficient of Skill Utilization (one of the subscales of JSQ) was relatively low. Items of Skill Utilization were expected to measure degrees of work challenges. Therefore, the result implied that a worthwhile job varies by individual, but further researches are needed to explore this issue. Participants were drawn from a worker population and used for analyses in this study.

It should be pointed out, however, that a clinical sample also needs to be examined to generalize the results.

In conclusion, setting a latent variable as a trait component to differentiate trait and state in interpersonal dependency and depression was found to be effective both statistically and clinically.

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