Transcultural validation of the Return-to-Work Self-Efficacy Scale in Korean patients with work-related injuries

CURRENT STATUS: UNDER REVISION

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DOI:
10.21203/rs.2.16684/v1

SUBJECT AREAS
Health Policy

KEYWORDS
return to work, self-efficacy, work-related injuries, rehabilitation, factor analysis
Abstract

Background: This study aimed to develop a Korean-language version of the RTWSE-19 through a forward and backward translation process and to investigate the validity of the Return-to-Work Self-Efficacy Scale specifically for Asian workers with work-related injuries.

Methods: Participants were 202 injured workers who had filed a claim accepted by the workers' compensation system following a work-related musculoskeletal injury. Among participants, 88.1% were male, 54.5% were over 45 years, 45.5% had an occupation in manufacturing, and 54.5% were craft or machine operator and assemblers.

Results: Using exploratory factor analysis, three factors with 17 items were identified: (i) meeting job demands, (ii) modifying job tasks, and (iii) communicating needs to others. Removal of two item in modifying job tasks domain resulted in an increased reliability. The Korean version of the RTWSE-17 showed reasonable model fit (CFI = .963; TLI = .943; RMSEA = .068; SRMR = 0.029), satisfactory reliability (r = 0.925), no floor and ceiling effect, and construct validity.

Conclusions: The scale was found to possess good psychometric properties and could address different injury types ranging from fractures to amputations involved in sub-acute and rehabilitation phases in a Korean context. The results from this study provide practitioners and researchers with insight into return to work after rehabilitation in Asian clinical and workplace setting.

Introduction

The return-to-work (RTW) process after experiencing a work-related injury is complex and is affected by various factors other than physical ability. In a systematic literature review, approximately 100 different determinants were identified as influencing factors on RTW outcomes. While injury- or disability-related factors, such as pain and functional status, are important determinants of successful work reintegration, evidence increasingly suggests that psychosocial factors are strong predictors of RTW outcomes. A major psychosocial factor in the RTW process is a worker’s expectation of recovery, or return-to-work self-efficacy (RTWSE). Higher levels of RTWSE have consistently been associated with better RTW outcomes for workers with all-cause sickness absences.

RTWSE is based on the Readiness for Return to Work Model, proposed by Franche and Krause, which
combine the Phase Model of Occupational Disability and the Readiness for Change Model. The former addresses the influence of physical and psychological factors in specific phases of disability—acute, sub-acute, and chronic; the latter concerns the motivational factors that instigate and maintain behavioral changes. In the Readiness for Return to Work Model, which regards RTW as a health-related behavior, RTWSE is defined “the personal judgment of one’s ability to do whatever is necessary to return to work” 9. This concept is useful in understanding the motivation and pain-management aspects of RTW. Shaw and Huang9 emphasize clinical intervention focused on self-efficacy for functional recovery and pain control are needed for an early RTW.

In initial studies on RTW, measurements of general self-efficacy or self-efficacy for managing pain were generally used, and there were conflicting findings on the impact of self-efficacy in RTW, as no self-efficacy measurement specific to RTW existed 10. Since 2010, RTWSE scales specific to resuming work after the onset of a work-related injury have been developed and validated for injured workers with musculoskeletal injuries10-14, mental illness15,16, and psychological or musculoskeletal injuries17, 18.

RTWSE-19, based on qualitative research findings by Shaw and colleagues9, 14, is a self-report questionnaire assessing workers’ confidence in their own abilities to RTW. This validated scale consists of 19 items and three subscales—meeting job demands, modifying job tasks, and communicating needs to others. While self-efficacy is generally conceptualized as an individual-level factor, this scale reflects both workers’ personal motivation and workplace barriers14. Shaw and colleagues14 suggested that the RTWSE-19 could be useful in evaluating the effectiveness of clinical and workplace interventions and in exploring mediating RTW mechanisms. Most empirical studies on RTWSE scale development have focused on the acute disability phase and low-back pain (LBP)10, 12, 14. Studies have reported that the RTWSE-19 scale had acceptable validity and reliability11 and that RTWSE was directly related to RTW outcomes in workers suffering from LBP5.

This study aimed to develop a Korean-language version of the RTWSE-19 through a forward and
backward translation process and to examine the scale’s psychometric properties using a Korean sample of workers with occupational injuries. Specifically, we evaluated the scale’s factor structure, internal consistency, floor and ceiling effects, and the construct validity.

Methods

Participants and procedures

Participants were injured workers who had filed accepted workers’ compensation claims following work-related musculoskeletal injuries in Korea. They were recruited at six Korea Worker’s Compensation & Welfare Service (KCOMWEL) hospital rehabilitation centers. Claimants were eligible if they were: (i) absent from work due to a musculoskeletal injury ranging from a fracture to an amputation sustained at work; (ii) in treatment, such as a sub-acute intensive rehabilitation program, tailored-exercise program, or work hardening program at a KCMWEL hospital; (iii) aged 18–65 at the time of the survey; (iv) without central nervous complications; (v) able to understand and speak Korean.

A face-to-face survey was conducted by the authors and trained social work graduate students between September 2016 and September 2017. Participants were informed about the research study and were asked to consent to participate. Then, they were asked questions regarding demographic information, RTWSE, and other variables. Participants were compensated about $45 for completing the survey. Ultimately, 254 injured workers participated: 202 were under treatment (79.5%); 52 had returned to work after treatment (20.5%).

Translation procedure

A forward-backward procedure was applied to translate the RTWSE-19 from English into Korean. After receiving permission from the corresponding author of the RTWSE-19 scale\textsuperscript{14} via email, a forward translation was made of the original English-language version of the scale into Korean. Two Korean versions were made separately by a professional translator and a rehabilitative medicine doctor who were bilingual in Korean and English, and the authors of this study unified the two Korean translations after discussion of conceptual equivalence and cultural differences. The Korean scale was reviewed by
a PhD candidate in Korean language and literature, and then translated back into English by a professional translator unfamiliar with the original English version. The corresponding author reviewed discrepancies between the back-translated scale and the original English-language scale and confirmed the back-translation version, pointing out minor errors in items 5 and 17. One was that the word “job performance” in the original item 5 (“Could meet expectations for job performance”) was back-translated into “job duties.” The authors intended job performance as a formal written evaluation of employees’ work, and the Korean word for job performance was corrected after discussion. The other was that the back-translated version of the original item 17 (“Could discuss openly with your supervisor things that may contribute to your discomfort”) lacked the word “supervisor”; it was corrected.

**Measures**

*RTWSE* was measured using the RTWSE-19, a self-report measure intended to assess workers’ confidence about resuming work after the onset of low-back pain. The scale consists of 19 items and three subscales: meeting job demands (7 items), modifying job tasks (7 items), and communicating needs to others (5 items). The response range is from 1 (not at all confident) to 10 (totally confident). The scale was validated through exploratory factor analysis and had high internal consistency for the overall scale and the three sub-scales. Average scores of the items were computed, and higher scores indicated more confidence about returning to work.

*Pain intensity* was assessed using one item from the intensity subscale of the Von Korff Pain Scale\(^{19}\). Participants were asked to rate their pain intensity on an 11-point numeric rating scale from 0 (“no pain at all”) to 10 (“worst pain possible”) for current pain and the average amount of pain experienced during the past month, respectively.

*Fear-avoidance beliefs* were assessed using the Fear-Avoidance Beliefs Questionnaire (FABQ)\(^{20}\), an 11-item scale designed to measure a person’s beliefs about how physical activity and work influence his/her back pain. The scale consists of two sub-scales, the FABQ-P and FAB-W. Each item was
answered on a 7-point Likert scale ranging from “strongly disagree” to “strongly agree.” This scale was adapted to evaluate health-related beliefs in patients and workers with upper limb and neck pain in several studies.\textsuperscript{21, 22}

*General health* was assessed using the Short Form-12 (SF-12), a 12-item version of the SF-36\textsuperscript{23} to measure physical and mental health. Scores range from 0 to 100, with higher scores indicating better health. Scores were computed using the Quality Metric Health Outcomes Scoring Software.

*Depression* was measured with the Patient Health Questionnaire (PHQ-9)\textsuperscript{24} which assesses depressive symptoms and consists of nine items on a 4-point Likert scale.

*General self-efficacy* was assessed using the General Self-efficacy Scale (GSE)\textsuperscript{25}. The GSE is a 10-item scale measuring an individual’s stable sense of personal competence to deal effectively with a variety of stressful situations. Each item was rated from 1 (“not at all true”) to 4 (“exactly true”), yielding total scores between 10 and 40.

**Statistical analysis**

An exploratory factor analysis (EFA) was conducted to examine the factor structure of the RTWSE-19 scale for the work-related injured worker sample in Korea. EFA was applied because the RTWSE scale had not previously been developed and administered to a Korean sample and because such an analysis was necessary to explore the subscale structure. To determine the number of factors, factor structures were examined for 1–4 factors, and the appropriate factor structure was initially determined by model fit indices and simple loading patterns. If the largest factor loading was below 0.4 or if items were loaded above 0.4 with more than one factor (cross-loaded), items were removed. Goodness-of-fit measures, including the comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR), were used to assess fit. Minimal requirements for adequate model fit were: CFI and TLI values greater than .90 (>0.90: reasonable model fit, >0.95: good model fit), and RMSEA and SRMR values less than .08 (< 0.08: reasonable model fit, < 0.05: good model fit)\textsuperscript{26}. EFA was conducted using maximum
likelihood estimation and Quart min oblique rotation to allow for correlation between factors. Missing data were not present in the sample.

Additionally, possible floor and ceiling effects were identified. A floor or ceiling effect is usually defined as more than 15% of respondents achieving the lowest or highest score level, respectively.\textsuperscript{27} The presence of floor or ceiling effects indicates that extreme items are missing in the lower or upper end of the scale, indicating limited content validity. Reliability was analyzed using Cronbach’s alpha to test internal consistency. Pearson’s correlation coefficient was used to evaluate the construct validity of the overall RTWSE scale and its subscales with several validating measures: pain intensity, fear-avoidance beliefs, general health, depression, and general self-efficacy.

MPLUS Version 5.21 (Muthén & Muthén, Los Angeles, CA) was used for the EFA and IBM SPSS Statistics for Windows, Version 21.0 was used for the descriptive statistics.

Results

Sample characteristics

Among the participants, 88.1% were male, 54.5% were over 45 years old, 84.2% had more than a high-school education, 45.5% worked in manufacturing, 54.5% were craft or machine operator and assemblers, 65.3% were regular workers, and 70.3% worked in small- or medium-sized organizations. Fractures represented the largest portion (61.4%) of primary injuries, followed by cartilage or tendon rupture (23.8%). More than half of the participants had injured their lower extremities (47.5%), spine (45.0%), or upper extremities (30.7%) (table 1).

As shown in Table 2, the mean scores of each item of the RTWSE-19 ranged from $4.72 \pm 3.38$ to $8.09 \pm 2.39$. The two items with the highest mean scores were item 16 (“Could you describe to your supervisor the nature of your injury and your medical treatment”) and item 17 (“Could you discuss openly with your supervisor things that may contribute to your discomfort”) with mean scores of $8.09 \pm 2.39$ and $7.97 \pm 2.48$, respectively. The two items with the lowest mean scores were item 3 (“Could you change the type of work activities you do to reduce discomfort”) and item 14 (“Could you
reduce your physical workload”) with mean scores of 4.72±3.38 and 4.81±3.13, respectively. Items related to the “communicating needs to others” subscale showed relatively higher mean scores, while items related to the “modifying job tasks” subscale featured relatively lower mean scores.

**Evaluation of psychometric properties**

**Exploratory Factor Analysis.** EFA models of 1–4 factors revealed that a 3-factor model was the best fit for the 19-item scale ( = 228.834, p < .000; CFI = .953; TLI = .931; RMSEA = .069; SRMR = 0.032), but low factor loading (below 0.4) was indicated for item 1 (“Could you suggest to your supervisor ways to change your work to reduce discomfort?”) and item 7 (“Could you avoid re-injury?”).

After removing two items from the item pool, EFA was conducted for 1–4 factor models. The 3-factor model of the 17 item-scale demonstrated reasonable model fit, with marginal improvement of fit-index values (= 169.401, p < .000; CFI = .963; TLI = .943; RMSEA = .068; SRMR = 0.029) compared to 3-factor model of the 19-item scale. The resulting screen test also suggested a 3-factor solution. The final model revealed three distinct concepts: meeting job demands (7 items), modifying job tasks (5 items), and communicating needs to others (5 items). Two items from the original 19-item scale which concerned modifying job tasks were excluded from the final model. The factor loadings for each item are presented in Table 2.

**Intercorrelations of subscales.** Subscales were significantly and moderately correlated: meeting job demands and modifying job tasks (r = 0.612, p < .001); meeting job demands and communicating needs (r=0.494, p<.001); and modifying job tasks and communicating needs (r = 0.501, p < .001) (table 3).

**Floor and ceiling effect.** No floor or ceiling effects were found for total RTWSE and subscale scores using the criteria of 15%. Regarding communicating needs RTWSE, 12.4% achieved the highest score (10), below the 15% cutoff (table 3).
Reliability. All Cronbach’s alphas for the overall scale and subscales were satisfactory. The Cronbach’s alpha for the overall RTWSE-17 was 0.925 and was 0.842 for communicating needs, 0.851 for modifying job tasks, and 0.926 for meeting job demands (table 3).

Construct validity

Significant correlations were found between fear-avoidance beliefs about physical activity ($r = -0.231$, $p < 0.001$) and work ($r = -0.441$, $p < 0.001$), SF-12 mental health ($r = 0.324$, $p < 0.001$), depression ($r = -0.301$, $p < 0.001$), and general self-efficacy ($r = 0.502$, $p < 0.001$) and RTWSE-17 scores. Current pain intensity ($r = -0.028$, $p = .692$) and SF-12 physical health ($r=0.061$, $p=.386$) showed no correlation, and the monthly average pain intensity ($r= -0.150$, $p=0.033$) showed low correlation with RTWSE-17 scores. These patterns did not differ in significance or direction when applied to the subscales of the RTWSE-17, except that physical fear-avoidance showed no correlation with modifying job tasks and communicating needs (table 4).

Discussion

To validate the RTWSE-19 for individuals with work-related injuries in Korea, the scale was forward-and back-translated and its psychometric properties were evaluated. The Korean version of the RTWSE scale revealed good psychometric properties, reliability, and construct validity.

The three factors with 17 items were identified: (i) meeting job demands, (ii) modifying job tasks, and (iii) communicating needs to others, and all items (except two items which were removed) were classified into the same constructs as in the original RTWSE-19. The two items (suggesting changes to supervisor and avoiding re-injury) were removed due to low factor loading and were originally included in the modifying job tasks subscale. These results may reflect workers’ relative lack of decision-making authority or control over their work in the Korean corporate culture. Providing work accommodations or taking steps to prevent accidents and returning to pre-injury jobs seems to be beyond the control of workers and entirely subject to employers’ will and discretion. Further, injured
workers were reluctant to present needs for work accommodations to return to pre-injury jobs to employers or supervisors because it might lead to penalties or problems in the workplace, and workers recognized their lack of control over many aspects of the RTW process\(^9,28,29\).

Regarding floor and ceiling effects, all RTWSE total and subscale scores remained below the 15% threshold, indicating adequate content validity. Regarding the communicating needs subscale, 12.4% of respondents achieved the highest score, but no ceiling effect was identified, unlike for the Danish version of the RTWSE-19\(^12\).

The RTWSE-17 demonstrated good internal consistency reliability with a Cronbach’s alpha coefficient of 0.925, similar to the original scale’s 0.955\(^14\). The meeting job demands subscale had the highest Cronbach's alpha coefficient at 0.926; the communicating needs subscale had the lowest at 0.842. A similar pattern was reported for the Danish version, with meeting job demands having the highest Cronbach’s alpha at 0.97 and communicating needs having the lowest at 0.93.

Finally, the strongest correlation was found between general self-efficacy and total RTWSE-17 score in a construct validity test. The general sense of self-efficacy, core self-evaluation, is a relevant construct concerning RTWSE in broad contexts\(^15,30\) and is a significant factor in returning to work\(^7,31-33\). The similar correlation strengths between RTWSE and general self-efficacy found in the RTWSE validity study\(^15\) also supports our result.

Total RTWSE-17 scores showed very weak correlation with pain intensity and SF-12 physical health; in particular, current pain intensity and SF-12 physical heath failed to display statistical significance. The lack of correlation reflects the findings of the original study\(^14\), which showed no or little relationship between pain constructs and functional limitations, but is in contrast to Brouwer and colleague’s\(^10\) findings. They found that high levels of current pain and more impaired levels of SF-12 physical health were associated with lower pain RTWSE scores. Pain RTWSE refers to the belief in one’s ability to manage persistent pain. The conflicting findings suggest two related explanations regarding our study results: one is that perceived levels of pain intensity and functional limitations themselves did not
directly impact workers’ beliefs concerning their current ability to perform their job responsibilities, but that these beliefs were mediated by pain management and coping abilities; the other is that the two items removed from modifying job tasks subscale were more likely to be associated with the construct of pain RTWSE. The latter can be supported by a biopsychosocial RTW model, where pain does not directly predict disability outcomes, but psychosocial factors mediate individuals’ reactions to injuries⁵. Our study found inconstant correlation between perceived current and average (during the past month) pain intensity and RTWSE. Although the measurement of subjective pain intensity was confirmed to yield similar results³⁴, it can be understood that asking about the average pain intensity experienced during the past month produces meaningful results for severely injured patients with chronic pain on long-term sick leave, unlike for workers with acute low-back pain as in previous studies¹⁰,¹⁴. Further analysis of the relationship between pain and RTWSE that accounts for measurement and population issues is needed.

**Strengths And Limitations**

In this study, the participants were mostly patients with musculoskeletal injuries ranging from fractures to amputations with sub-acute and rehabilitation phase, while the original scale was developed using a sample of patients experiencing acute, work-related low-back pain. This study confirmed that the RTWSE scale is applicable to the expanded sample, in different socioeconomic and cultural environments, and with a broad spectrum of work injuries, severity levels, and disability phases. Black and colleagues¹⁷ examined the RTWSE scale for both upper-body musculoskeletal and psychological work-related injuries and found no difference between these injury types in the work completion beliefs subscale, which is related to meeting job demands.

This study has some limitations. First, the sample in this study had a wide variety of injuries and severity ranged from sprains and strains to amputations, and they experienced relatively long-term sickness absences (mean = 12 months, SD = 22.3). Differences in RTWSE according to these characteristics (injury type, severity, and duration of work disability) must be examined. Second, a retest was not conducted to determine the scale’s responsiveness in detecting changes over time as
shown by test-retest reliability. Third, no follow-up was conducted after the initial investigation, so this study did not address the scale’s predictive validity regarding RTWSE’s predictiveness of actual RTW. Because actual RTW is an important outcome measure, follow-up investigations and a predictive validity analysis of RTWSE should be conducted in future studies to understand the underlying mechanisms for RTW and implications for RTW interventions.

Conclusions
The Korean version of RTWSE, consisting of three subscales and 17 items, resulted from a Korean translation of the RTWSE-19. The RTWSE-17 showed acceptable psychometric properties, satisfactory reliability, and construct validity in a sample of Korean workers with work-related musculoskeletal injuries ranging from fractures to amputations in sub-acute and rehabilitation phase. This study suggested that the instrument can address different injury types and different disability phases in clinical settings. Future studies should confirm the validity of the scale and evaluate the effectiveness of RTW interventions.

Abbreviations
return-to-work (RTW); return-to-work self-efficacy (RTWSE); low-back pain (LBP); Korea Worker’s Compensation & Welfare Service (KCOMWEL); Fear-Avoidance Beliefs Questionnaire (FABQ); Short Form-12 (SF-12); Patient Health Questionnaire (PHQ-9); General Self-efficacy Scale (GSE); exploratory factor analysis (EFA); comparative fit index (CFI); Tucker-Lewis index (TLI); root mean square error of approximation (RMSEA); standardized root mean square residual (SRMR)

Declarations

Ethics approval and consent to participate
All procedures performed in studies involving human participants were in accordance with the ethical standards of Institutional Review Board in Seoul National University Hospital (IRB No. 1607-044-744).

Consent for publication
All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000(5). Informed consent was obtained from all patients for being included in the study.

Availability of data and materials
The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

**Competing interests**

Jeong-Eun Lee, Su Bin Yoo, and Ja-Ho Leigh declares that he has no conflict of interest now.

**Funding**

This work was funded by Korea Workers’ Compensation and Welfare Service (KCOMWEL; grant number 0720185002).

**Authors’ contributions**

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Jeong-Eun Lee, Su Bin Yoo, and Ja-Ho Lee. The first draft of the manuscript was written by Jeong-Eun Lee and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

**Acknowledgments**

Not Applicable.

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Tables

Table 1. Demographic and work-related characteristics of study participants
| Variable                                      | N  |
|----------------------------------------------|----|
| Gender                                       |    |
| Male                                         | 178|
| Female                                       | 24 |
| Age (years)                                  |    |
| 18-35                                        | 40 |
| 36-45                                        | 52 |
| 46-55                                        | 62 |
| 56-65                                        | 48 |
| Education                                    |    |
| < High school                                | 32 |
| High school                                  | 97 |
| ≥ College/University                         | 73 |
| Occupational categories                      |    |
| Manufacturing                                | 92 |
| Wholesale/retail/Accommodation/food          | 34 |
| Construction                                 | 53 |
| Others                                       | 23 |
| Job categories                               |    |
| Manager/professionals/Clerks                 | 34 |
| Craft workers/Plant, Machine Operators/Assemblers | 110|
| Elementary Workers                           | 44 |
| Others                                       | 14 |
| Employment type                              |    |
| Regular worker                               | 132|
| Temporary worker                             | 25 |
| Day worker                                   | 43 |
| Self-employed/employer                       | 2 |
| Organization size                            |    |
| Small                                        | 49 |
| Medium                                       | 93 |
| Large                                        | 57 |
| Don’t know                                   | 3 |
| Hospital service use type                    |    |
| Inpatient                                    | 59 |
| Outpatient                                   | 143|
| Types of main injury                         |    |
| Sprain and strain                            | 13 |
| Peripheral nerve injury only                 | 5 |
| Rupture of cartilage or tendon               | 48 |
| Fracture                                     | 124|
| Amputation                                   | 10 |
| N/A                                          | 2 |
| Injured area of the body (more than one)     |    |
| Spine                                        | 91 |
| Upper extremities                            | 62 |
| Lower extremities                            | 96 |

Table 2. Items summary data and final solution of an exploratory factor analysis for the RTWSE scale
| RTWSE scale Item | Mean | SD  | Factor loadings (S.E) a |
|------------------|------|-----|------------------------|
|                  |      |     | Factor1                | Factor2                |
| **Meeting Job Demands** |      |     |                        |                        |
| 2 Fulfill all of your duties and responsibilities? | 6.28 | 3.09 | 0.65(0.07) | 0.08(0.08) |
| 5 Meet expectations for job performance? | 5.96 | 2.78 | 0.50(0.07) | 0.22(0.08) |
| 6 Perform most of your daily activities at work? | 5.55 | 2.97 | 0.70(0.06) | -0.04(0.08) |
| 9 Keep up with the pace at work? | 5.37 | 2.80 | 0.94(0.04) | -0.08(0.08) |
| 13 Meet your production requirements? | 5.52 | 3.11 | 0.86(0.04) | 0.07(0.07) |
| 15 Do everything you’re trained to do? | 5.79 | 3.16 | 0.82(0.04) | 0.10(0.07) |
| 18 Do your work without slowing others down? | 5.59 | 2.91 | 0.93(0.03) | -0.00(0.03) |
| **Modifying Job Tasks** |      |     |                        |                        |
| 1 Suggest to your supervisor ways to change your work to reduce discomfort? | 5.50 | 3.14 |             |             |
| 3 Change the type of work activities you do to reduce discomfort? | 4.72 | 3.38 | -0.06(0.11) | 0.72(0.07) |
| 7 Avoid re-injury? | 6.83 | 3.04 |             |             |
| 10 Modify the way you work to reduce discomfort? | 5.88 | 3.17 | 0.22(0.10) | 0.69(0.07) |
| 12 Avoid activities that are likely to increase pain? | 5.85 | 3.15 | 0.10(0.10) | 0.51(0.08) |
| 14 Reduce your physical workload? | 4.81 | 3.13 | 0.25(0.09) | 0.58(0.07) |
| 19 Request changes in your workstation or work area to reduce discomfort? | 5.68 | 3.28 | -0.01(0.02) | 0.67(0.05) |
| **Communicating Needs to Others** |      |     |                        |                        |
| 4 Explain any physical limitations you may have to your co-workers? | 7.77 | 2.67 | -0.08(0.08) | 0.02(0.07) |
| 8 Get co-workers to help you with activities that might cause discomfort? | 7.26 | 2.84 | 0.19(0.08) | 0.30(0.08) |
| 11 Get emotional support from coworkers (such as listening or talking about your problem)? | 7.31 | 2.66 | 0.07(0.08) | 0.15(0.08) |
| 16 Describe to your supervisor the nature of your injury and your medical treatment? | 8.09 | 2.39 | -0.12(0.07) | -0.01(0.02) |
| 17 Discuss openly with your supervisor things that may contribute to your discomfort? | 7.97 | 2.48 | 0.00(0.01) | -0.06(0.07) |

Table 3. Descriptive statistics, floor and ceiling effects and reliability of the Korean
### Version of RTWSE

| Scale                          | Mean | SD  | N (%) at floor | N (%) at ceiling | Cronbach's alpha | Intercorrelations |
|-------------------------------|------|-----|----------------|------------------|------------------|------------------|
| Total RTWSE-17 score          | 6.20 | 1.99| 0 (0.0)        | 3 (1.5)          | 0.925            | .893 (p < .001)  |
| (1) Meeting job demand        | 5.72 | 2.48| 5 (2.5)        | 8 (4.0)          | 0.926            | 1                |
| (2) Modifying job task        | 5.39 | 2.55| 10 (5.0)       | 7 (3.5)          | 0.851            | .612 (p < .001)  |
| (3) Communicating needs       | 7.68 | 2.05| 0 (0.0)        | 25 (12.4)        | 0.842            | 1                |