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Title of manuscript: Validation of the ultra-short scale for measuring work engagement among social workers in Chinese contexts

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Author's contributions

Xuebing Su: designed and co-supervised the study, conducted data collection and data analysis, drafted the article, and revised the article according to the reviewers' comments.

Victor Wong: co-supervised the study, conducted data collection, and revised the article according to the reviewers' comments.

Charlie Yip: conducted data analysis and co-drafted the article.

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The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

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Ethics approval statement & consent form

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Research Ethics Committee of Hong Kong Baptist University and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. All participants were well informed about the objectives of the research and signed a consent form before joining the research.

Data availability statement

The dataset used for this manuscript belongs to the first and the second authors and they can provide access to the dataset upon reasonable request.

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Validation of the ultra-short scale for measuring work engagement among social workers in Chinese contexts

Abstract

Based on 683 valid questionnaires collected among a convenience sample of social workers from Hong Kong, Macau, and three other cities in mainland China, this study investigated the psychometric properties of the Chinese version of the 3-item ultra-short Utrecht Work Engagement Scale (C-UWES-3). The results of confirmatory factor analyses supported the discriminant validity of C-UWES-3 by differentiating its three items from other five items measuring emotional exhaustion and role ambiguity. The concurrent validity of C-UWES-3 was supported by its superior explanatory power to the original 9-item version of the scale (C-UWES-9) in relation to explaining social workers' turnover intention. The convergent validity of C-UWES-3 was supported by its correlations vis-à-vis factors in the job demands-resources model such as job demands, job resources, turnover intention, and collective psychological ownership. The C-UWES-3 showed good internal consistency (Cronbach's alpha = .81). Overall, the C-UWES-3 demonstrates excellent psychometric properties for informing future research. (149 words)

Keywords: work engagement; collective psychological ownership; job demands; job resources; turnover intention; social workers

Work engagement, defined as a positive, fulfilling work-related state of mind consisting of three dimensions, namely, vigor, dedication, and absorption, has become an important topic for studying workplace wellbeing and human resources management (Schaufeli, 2017; Schaufeli et al., 2002; Su & Ng, 2019). Specifically, vigor describes the state of being energetic and mentally resilient at work; dedication refers to the ability to get deeply involved in one's work; and absorption denotes the state of being fully focused and joyfully engrossed in the tasks (Bakker et al., 2008). As the most widely used scale for measuring work engagement, the Utrecht Work Engagement Scale (UWES) which was originally developed in western societies (Bakker et al., 2008; Schaufeli et al., 2002) has been adapted in nonwestern societies such as China, Korea, and Japan (Fong & Ng, 2012; Kim et al., 2017; Shimazu et al., 2008) for application among a wide spectrum of participant groups, including knowledge workers (Whitten, 2016), industry workers (Pittenger et al., 2012), and social service workers (Lizano, 2021; Park et al., 2019). There exist two versions of the UWES: the longer one is of 17 items (UWES-17) (Schaufeli et al., 2002) and the shorter one is of nine items (UWES-9) (Schaufeli et al., 2006). Items in both the UWES-17 and UWES-9 are of three dimensions for measuring vigor, dedication and absorptions respectively.

In view of the growing prevalence of studying work engagement within the framework of the job demands-resources (JD-R) model, an urgent need exists to further shorten the UWES-9 for saving the time of research participants and minimizing their frustration caused by filling in a lengthy questionnaire so as to increase the response rate (Choi et al., 2020; Schaufeli et al., 2019). The research team led by Schaufeli, the original developer of UWES-17, developed an ultra-short version of UWES of just three items, named UWES-3, and validated it in various languages such as Finnish, Japanese, Dutch, and Spanish (Schaufeli et al., 2019). Recently, based

on the original UWES-17, Choi et al. (2020) validated a Korean version of 3-item work engagement scale, named WES-3. Although the chosen three items in UWES-3 validated by Schaufeli et al. (2019) and those three in WES-3 by Choi et al. (2020) were not completely identical, a trend has emerged to use a UWES-3 for its excellent psychometric properties and ultra-parsimoniousness.

Over the past few years, informed by the JD-R model, work engagement has become an emerging topic in Chinese contexts and among human helping professions in particular (Brough et al., 2013; Li & Mao, 2014; Park et al., 2019; Ng & Su, 2018; Su & Ng, 2018b; Su & Ng, 2019). Against this backdrop, a research question is proposed as follows: Can an ultra-short version of UWES of three items be adapted to the Chinese contexts? This study aimed to validate the Chinese version of UWES-3 (i.e. C-UWES-3) among social workers whose work engagement is a pronounced yet under-examined topic.

Work Engagement Distinguished from Other Concepts Related to Workplace Wellbeing

Although once being viewed as the positive antithesis of burnout at the early stage of conceptual development (Maslach & Leiter, 1997), work engagement has been perceived by most existing literature as a distinctive concept that is discriminant from burnout and its three embodied components, i.e. emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach et al., 2001). For example, emotional exhaustion defined as the feeling of being depleted of one's emotional resources at work is perceived to negatively associate with vigor, but high exhaustion and low vigor do not necessarily appear together (Demerouti et al., 2010; Mäkikangas et al., 2012). Similarly, work engagement can also be differentiated from role stress such as role ambiguity as a negative state at work that employees suffer from the missing of clear and predictable work demands (Curran & Prottas, 2017). In this connection, based on the

presumption that work engagement can be theoretically differentiated from these concepts, we expected that work engagement measured by a 3-item Chinese version of UWES, i.e. C-UWES-3 would be discriminated from items measuring emotional exhaustion and role ambiguity.

The JD-R Model and Work Engagement

The importance of the notion of work engagement is amplified by its embedment in the JD-R model (Bakker & Demerouti, 2007; Schaufeli & Taris, 2014), a widely used conceptual framework for mapping out the research horizon of work engagement in relation to explaining organizational behaviours and workplace wellbeing and for linking up both antecedents and outcomes of work engagement in organizational contexts. First, the JD-R model emphasizes a motivational process characterized by abundant job resources, which may enhance employees' personal growth at work, buffer the negative influences of job demands, and foster work productivity. As motivational job conditions, job resources are conceptually assumed to foster employees' work engagement. Bakker et al. (2014) has revealed that work engagement is caused by the availability of job resources. Salmela-Aro and Upadyaya (2018) have also found that work engagement is associated with job resources in all stages of career development. Second, studies informed by the JD-R model have revealed that job demands consisting of both challenge and hindrance job demands may be negatively associated with work engagement (Crawford, et al., 2010; Ng & Su, 2018). Furthermore, a considerable amount of existing studies informed by the JD-R model have supported that work engagement plays a mediating role in relation to the impact of job demands and job resources on workplace outcomes, including employees' turnover intention, burnout, state of health, and organizational commitment, etc. (Ahmad et al., 2020; Chen & Chen, 2012; Hakanen et al., 2006; Juliana et al., 2021; Korunka, et al., 2009; Llorens et al., 2006; Patience et al., 2020; Schaufeli & Taris, 2014). Finally, some recent studies have also

expanded the power of JD-R model by incorporating psychological resources into the model such as self-efficacy (Xanthopoulou et al., 2013) and collective psychological ownership (Su & Ng, 2019) and revealed the positive influences of these psychosocial resources on work engagement. This trend to examine the potential psychosocial mechanisms for enhancing work engagement is expediting the research agenda about this concept.

Nevertheless, research studies using the JD-R model as a dominant conceptual framework for studying work engagement often end up designing a lengthy questionnaire, as job demands and job resources are conceptualized as two overarching concepts comprising all their interlocking psychological, social, and physical dimensions (Crawford et al., 2010; Schaufeli, 2017). It requests a more user-friendly instrument to strengthen the sustainability of relevant research. Using a validated UWES-3 may help further trim down the questionnaire and thus motivate more participants to complete the survey.

Work Engagement of Social Workers

Workplace wellbeing of social workers is an important aspect of the profession particularly in view that they are working with a wide spectrum of disadvantaged and marginalized groups. Daily work and encounters with clients with various vulnerabilities can be emotionally demanding and unfavorable for maintaining or enhancing the occupational wellbeing of social workers. Social workers need to accommodate diverse requests from their clients as well as from their organizations (Hamama, 2012; Winstanley & Hales, 2015). Although research on social workers' wellbeing has lasted for more than half a century, most of the relevant studies on social workers' wellbeing were informed by the symptom-oriented approach, which opted to focus on the negative side of wellbeing, such as stress, burnout, and turnover intention (Schaufeli et al., 2009; Maslach & Leiter, 2016). In the last decade, informed

by positive psychology (Seligman & Csikszentmihalyi, 2000) and its application in vocational development (Bakker et al., 2008; Maslach & Leiter, 2016; Sweetman & Luthans, 2010), more studies criticized the overuse of symptom-oriented approach and denoted that solely focusing on the dark side of wellbeing does not necessarily lead to positive changes in the profession (Ng et al., 2011; Su & Ng, 2019). As social work is a service-oriented profession, and social workers are driven by some shared values and beliefs such as the pursuit of social justice for those in need (Alvarez, 2008; Hepworth et al., 2006), social workers' work engagement may have its own characteristics. To examine social workers' work engagement and its correlates informed by a 'positive-oriented approach' or by a 'balanced approach' (i.e. concerning both the positive and negative wellbeing) may bring new insights for improving the organizational wellbeing of social workers and the organizational practice of social service organizations (Su & Ng, 2019). Moreover, some pioneering studies have revealed that social workers who are highly engaged at work report better wellbeing and lower burnout (Ng & Su, 2018; Tesi et al., 2019).

Empirical studies on work engagement of social workers in Chinese contexts are still very rare. In mainland China in particular, most of relevant studies still opted to examine factors leading to social workers' negative wellbeing, such as turnover intention and burnout (Mo et al., 2022; Su, 2021; Su et al., 2020; Tang et al., 2017), which may relate to the fact that the social work profession in mainland China is still at its preliminary stage and there remain many factors harming the wellbeing of social workers, such as immature regulation systems imposed by local authorities, and low level of income and social recognition enjoyed by social workers, etc. (An & Chapman, 2014; Wu et al., 2021; Zeng et al., 2015). When surfing Google Scholar in May 2021, the number of publications examining work engagement whilst citing the C-UWES-9 validated by Fong and Ng (2012) is 169. Recently, there has also been a rise of articles (Lee et al., 2018;

Ng, 2014; Ng & Su, 2018; Su & Ng, 2018b; Su & Ng, 2019) studying work engagement of human helping professions in Chinese contexts.

Against the backdrop of conducting a nation-wide study on the different domains of social work in the China Social Work Longitudinal Study in 2019 (CSWLS 2019), Su et al. (2020) discovered the negative association between psychosocial resources (i.e. personal, organizational and professional resources) and the three dimensions of work burnout (i.e. emotional exhaustion, reduced personal accomplishment and depersonalization) of social workers in China. The first wave of CSWLS had a sample size more than 5,800 participants. To develop a deeper understanding of the positive work-related state of social workers, the scale of work engagement was suggested to be included in the next wave of this nation-wide longitudinal study (Su et al., 2020). In this connection, the introduction and validation of the Chinese version of the UWES-3 is a prominent idea for informing future research in the field.

Purpose of the Study and Hypotheses

The purpose of this study was to validate the Chinese version of UWES-3 (i.e. C-UWES-3) by collecting data from a number of cities and special administrative regions in China with respect to: (1) internal consistency; (2) discriminant validity examined by confirmatory factor analysis to differentiate from items measuring emotional exhaustion and role ambiguity; (3) concurrent validity examined by comparing its explanatory power with that of C-UWES-9 in relation to turnover intention, and (4) convergent validity examined by its correlations vis-à-vis variables in the JD-R model such as job demands and job resources, turnover intention, and collective psychological ownership. The following hypotheses were formulated:

H1: The internal consistency of C-UWES-3 is excellent with Cronbach's alpha of 0.90 or above.

H2: C-UWES-3 is measuring a distinctive concept that is discriminated from emotional exhaustion.

H3: C-UWES-3 is measuring a distinctive concept that is discriminated from role ambiguity.

H4: The concurrent validity of C-UWES-3 is supported by its superior explanatory power to the C-UWES-9 to explain turnover intention of social workers.

H5: Work engagement measured by C-UWES-3 is positively correlated with job resources and collective psychological ownership.

H6: Work engagement measured by C-UWES-3 is inversely correlated with job demands and turnover intention.

Method

Procedures

This study was conducted in three southern coastal cities in mainland China, namely, Shenzhen, Guangzhou, and Shunde, and two special administration regions of China, namely, Hong Kong and Macau. Social work profession in mainland China is still a relatively new one since the government did not start implementing policies to initiate the provision of social work profession until 2004 (Ge,2015), whereas the development of social work in Hong Kong and Macau has a much longer history dating back to the 1960s (Lai & Chan, 2009; Tsang et al., 2008). Shenzhen, Guangzhou, and Shunde are all located in the Guangdong province of China, where the social work profession has been developing fast since the past decade. Yet, compared with Hong Kong and Macau, the social work profession in these three mainland cities are still lagging behind. We selected these three cities from mainland China for the sake of easier

collection of data, as they are geographically close to Hong Kong where the authors stay. Moreover, these five places accommodate social workers whose mother tongue are largely Cantonese and/or Putonghua. This diverse Chinese-speaking context is considered favorable for justifying the application of the Chinese version of the scale among social workers using Chinese literacy as the medium of communication. Our sample engaged participants working in a wide spectrum of social service fields, including child and youth services, rehabilitation, elderly service, correctional services, community development, and family services, and addiction services, etc. Traditional Chinese characters were adopted in the survey questionnaires conducted in Hong Kong and Macau, whereas simplified Chinese characters were used in Shenzhen, Guangzhou, and Shunde.

This study was a cross-sectional study on organizational behaviours and workplace wellbeing of social workers conducted from August to December 2018. Prior ethical approval for the study was granted by the research ethics committee of Hong Kong Baptist University where the second and corresponding author is affiliated with. All procedures performed in this study were in accordance with the ethical standards of the Research Ethics Committee of Hong Kong Baptist University and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. We used two approaches for data collection in this study: In the three cities of mainland China and Hong Kong, questionnaires were distributed by the first and corresponding authors to the participants onsite prior to the start of a workshop package of 3-hour session of professional development training conducted in these different cities. These training workshops aimed to enhance social workers' professional knowledge about delivering career support service to young people. Participants of these workshops were social workers working at different social service organizations in the three cities. All participants were invited

to attend the workshops by the Social Work Associations in these cities. The workshop trainer was the corresponding author who was also an expert in designing and evaluating career interventions. All participants were invited to join the study at the beginning of the workshops in the form of an onsite briefing by the corresponding author. Participants were informed about the aims, objectives and framework of the survey and assured that their responses would be kept strictly anonymous and confidential. Voluntary participation was ensured throughout the study and written informed consent was collected from each participant in a confidential manner. We collected 144 questionnaires from Guangzhou, 54 from Shenzhen, 44 from Shunde, and 166 from Hong Kong. The response rate was 80% as the total number of participants for these workshops were 510. We excluded one questionnaire for missing data in items measuring work engagement.

In Macau, a different method was adopted for data collection as no aforementioned training workshops were conducted there. Instead, invitation letters were sent in September 2019 to all 130 social service organizations in Macau and to the Social Welfare Bureau (SWB) of the Macao Special Administrative Region Government. It turned out that 104 social service organizations and the SWB agreed to help invite their employees to join the study as participants on a voluntary basis. A research assistant delivered the hard copies of questionnaires in person to each of the organizations together with notification letters, return envelopes and consent forms. Participants who were employees of these organizations were informed about the purpose and basic information of the study by internal email communications and instructed to start filling in the questionnaires by the notification letter only after signing a consent form. After completing the questionnaire, each participant returned the completed questionnaire and his/her signed consent form in a sealed envelope, which was collected by the research assistant. All the data

collected was treated confidential and accessible to the research team only. We collected 279 questionnaires from Macau and 276 questionnaires with valid data for items measuring work engagement, which were used for this study. The response rate for the Macau sample was 21% as all registered social workers in Macao (i.e. 1,343) (SWB, 2021) were invited.

Sample

The participants (N = 683) in this study were either frontline social workers or social workers with a management/supervisory role delivering professional social service in different cities and special administrative regions of China, i.e. Shenzhen, Guangzhou, Shunde, Hong Kong and Macau. Table 1 shows the demographic information of the sample of which 76.3% were women and 23.7% men. About three-quarters of the sample had age below 35 (76.8%). Nearly half (48.6%) of the sample worked in large NGOs, and 40.3% and 40% of the social workers reported themselves as junior level and senior associate level staff within the organization respectively. Like most of the studies involving young social workers, a majority (61.5%) of the sample participants completed their undergraduate degree, whereas 18.4% and 16.3% received an associated degree and a master's degree respectively. Table 2 shows the economic status (i.e. monthly income specified in US$ and percentage of monthly income for savings) of the participants. Unlike Hong Kong and Macau, the monthly income and savings ratios of the social workers working in mainland China tilted towards the low-end.

[Insert Table 1 about here]

[Insert Table 2 about here]

Instruments

This study adopted the Chinese version of 9-item Utrecht Work Engagement Scale, i.e. C-UWES-9 validated by Fong and Ng (2012), which is a shortened form derived from the Chinese version of the UWES-17 translated and validated by Zhang and Gan (2005). The C-UWES-9 consists of nine items: Items 1, 3 and 4 for measuring vigor; items 2, 5 and 6 for dedication; and items 7, 8 and 9 for absorption. Participants were asked to make a response in a 7-point Likert-type scale ranging from 0 (never) to 6 (every day). The final score of work engagement of a participant is calculated by the sum of all item scores. The Cronbach's alpha for UWES-9 in this study was .90.

Turnover intention is measured by a shorter Chinese version of the Turnover Intention scale (TIS-6), which was developed and validated by Su (2021) based on the original TIS-15 of 15 items. The TIS-6 contains six question items that concern the social worker's frequency to consider resigning from the current job position, the frequency to consider an alternative job, and their satisfaction level regarding the current job. The answers are measured by a 5-point Likert-type scale and the final score is calculated as the average score amongst the 6 items. The scale is treated as a single factor model and the Cronbach's alpha for the scale was .74.

The Chinese version of the collective psychological ownership scale measures the collective sense of ownership of the participants towards their organizations (Su & Ng, 2018a). It is a 6-item self-report scale consisting of two dimensions, namely, shared decision-making, a sense of shared involvement in the decision-making process in the organization, and shared hardship endurance, a willingness to go through hard times for the organization. The CPO scale adopts a 4-point Likert-type scale ranging from 1 = I hardly feel this way to 4 = I strongly feel this way. The Cronbach's alpha coefficient for shared decision-making and shared hardship endurance was .83 and .79 respectively, and the alpha for the whole scale was .83.

Job demands were measured by a 19-item scale developed by the first author in Chinese contexts, which indicates the nature of six demands such as workload and cognitive demands, emotional demands, physical demands, work injustice and role conflict, job insecurity, and role ambiguity. The responses are structured in a 6-point Likert-type scale, ranging from 1 (strongly degree) to 6 (strongly agree). The total score of the 19 items is used as the composite score of overall Job Demands. The Cronbach's alpha coefficient for the 19 items was .87.

Job resources were measured by a 17-item scale developed by the first author in Chinese contexts, measuring across five dimensions encompassing job autonomy, supervisor's support, support from colleagues, learning opportunities, and job welfare. The responses are structured in a 6-point Likert-type scale, ranging from 1 (strongly degree) to 6 (strongly agree). The total score of the 17 items is used as the composite score of job resources. The Cronbach's alpha coefficient for the 17 items for the sample was .90.

Emotional exhaustion and role ambiguity were respectively measured by two items and three items derived from Notelaers et al. (2007), and these five items were used in prior studies in Chinese contexts (Su et al., 2020).

Data Analysis

The size of valid questionnaires included for this study was 683. In order to mitigate the distortions brought by the cultural differences, the dataset was randomly split into two halves. The first half of the data ($N = 336$) was used for an exploratory factor analysis (EFA) and the other half ($N = 347$) for a confirmatory factor analysis (CFA). The goal of the EFA was to extract the three items that sufficiently represent the three dimensions of work engagement (i.e. vigor, dedication, and absorption) from the C-UWES-9. With the use of SPSS 26, EFA was conducted by using the method of principal axis factoring and the items with the highest factor

loadings in the engagement general factor would be chosen. T-tests were performed to assure no statistically significant differences in gender, age, job position, and education level existed between the two randomly divided samples. No significant difference in the aforementioned variables was found between the two groups.

Next, CFA was performed to explore the discriminant validity of the three items extracted from the EFA. The second half of the randomly selected sample ($N = 347$) was used in CFA. As the C-UWES-3 contains only three items, the single-factor model was built upon the theoretical relationship between work engagement and emotional exhaustion and role ambiguity. Four models displayed in Figure 1 were tested by CFA for exploring the discriminant validity. Model 1 included three items for work engagement and two items for emotional exhaustions in a single factor. Model 2 included three items for work engagement and three items for role ambiguity in a single factor. In model 3, three items measuring work engagement and two items for emotional exhaustion were separated into two correlated factors. In model 4, three items measuring work engagement and three items for role ambiguity were separated into two correlated factors. Another two models of Model 5 and Model 6 in Figure 2 were also tested by CFA to test the convergent validity of C-UWES-3 by comparing its explanatory power in relation to turnover intention with that of C-UWES-9. Model 5 and Model 6 respectively links up C-UWES-3 and C-UEWS-9 with the turnover intention scale. Models 1- 5 were tested using the software of Stata 14 (Zimmer & Odum Institute, 2019) whereas Model 6 was tested using Amos 26. The results of model testing in CFA with respect to Models 3, 4, and 5 were considered acceptable based on these criteria on goodness-of-fit indices: comparative fit index (CFI) > .90, Tucker–Lewis index (TLI) > .90, root mean square error of approximation (RMSEA) < .08, and standardized root mean square residual (SRMR) < .06 (Hu & Bentler, 1998; Schermelleh-Engel et al., 2003). In

addition, a Chi-square value divided by degrees of freedom $\chi^2/df < 3$ is considered acceptable fit (Schermelleh-Engel et al., 2003).

Pearson correlations were then conducted by using SPSS 26 to test the correlation between work engagement measured by C-UWES-3 and work engagement measured by C-UWES-9, and the correlations of work engagement measured by C-UWES-3 with the following variables in the JD-R model: job resources, job demands, turnover intention, and collective psychological ownership. Finally, this study adopted the Cronbach's alpha coefficient as the measure of internal consistency, which can be interpreted as how closely a group of items is interrelated. An alpha coefficient > .7 is generally deemed as acceptable; >.8 as good internal consistency; and > .9 as excellent reliability (Cortina, 1993).

[Insert Figure 1 about here]

[Insert Figure 2 about here]

Results

The correlations amongst the nine items in the C-UWES-9 showed that the item-correlations were all at 1% significance level in a two-tailed test, and the correlation coefficients were between 0.39 and 0.78. Due to the satisfying level of correlations amongst items, the Chinese version of UWES-9 was proved to be a good candidate for the EFA: Items 2, 3 and 8 presented the highest factor loadings on factor 1, which were presumably the general factor for work engagement. The result was then examined by an EFA with the oblimin rotation. The rotated factor loadings demonstrated a similar result with one that was unrotated. These results

imply that Items 2, 3 and 8 are the most suitable candidates for incorporation into the 3-item work engagement scale, although the validated English version of UWES-3 included embraced Items 1, 3 and 8 (Schaufeli et al., 2019).

[Insert Table 3 about here]

The results of the CFA are shown in Table 4 and the model fit indices suggested that Models 3, 4 and 5 were excellent. On the one hand, the results of Models 1-4 supported that the three items in C-UWES-3 were discriminated from the items measuring emotional exhaustion and from the two items measuring role ambiguity. On the other hand, the more satisfactory results of Models 5 than 6 revealed that C-UWES-3 was superior to the C-UWES-9 with regard to their relationships with turnover intention and thus the concurrent validity of C-UWES-3 was supported.

[Insert Table 4 about here]

Table 5 illustrates the correlation coefficients between C-UWES-3 and C-UWES-9 and the validation variables derived from the JD-R model. The high correlation between C-UWES-3 and UWES-9 (r= .94) also supported the concurrent validity of C-UWES-3. The correlations among the three engagement factors in C-UWES-3 ranged between .53 and .73, and correlations between the three factors and the total score reaching a range between .83 and .87. The three items in C-UWES-3 showed significant correlations with the validation variables, which thus supported its concurrent validity. Overall speaking, the correlation coefficients of UWES-9 and

UWES-3 with the validation variables were mostly identical: work engagement measured by C-UWES-3 was positively correlated with job resources and collective psychological ownership, and negatively correlated with job demands and turnover intention.

Regarding the internal consistency, the original Chinese version of UWES-9 displayed a Cronbach's alpha coefficient of .90, which represented excellent test-retest scale reliability. Nevertheless, the UWES-3 with items 2, 3 and 8 demonstrated a Cronbach's alpha coefficient of .81, which could be interpreted as a reliable scale with good internal consistency.

[Insert Table 5 about here]

Discussion

Using a cross-sectional sample of social workers collected from three cities and two special administrative regions in China, this is the first ever study that validated convincingly the Chinese version of the ultra-short version of UWES abbreviated as C-UWES-3 as being ready for use in diverse Chinese contexts, where Putonghua or Cantonese is used as a medium of communication, and simplified or traditional Chinese characters are used in written format. This result was substantiated by successfully supporting the hypotheses with regard to internal consistency, discriminant validity, concurrent validity, and construct validity of C-UWES-3.

In EFA, the three items (Items 2, 3 and 8) in the C-UWES-3 were extracted from the UWES-9 using the items with the highest factor loadings on the general factor of work engagement. These three chosen items for measuring vigor, dedications and absorption are not completely aligned with the English version of UWES-3 developed and validated by Schaufeli et al. (2019) containing Items 1, 3 and 8, and also different from the Korean version of WES-3

(Choi et al., 2020) containing Items 1 and 3 from UWES-9 and another item of 'Time flies when I am working' drawn from the original English version of UWES-17. It seems that items in UWES-3 vary across different cultural backgrounds. One possible explanation for this inconsistency of items in different versions may relate to the fact that the face validity of the items deviates from the original version during the process of translation. The wording and sentence structure also vary across languages and thus result in variability in the outputs of the EFA. Moreover, the three items in C-UWES-3 were developed in this study by shortening the validated C-UWES-9, and C-UWES-9 was translated and trimmed down by Fong and Ng (2012) based on the C-UWES-17. Should this study have adopted a different translation process and conducted the survey using the C-UWES-17 rather than C-UWES-9, there might be a possible variation in the items and goodness-of-fit indices in the C-UWES-3.

Secondly, using CFA, this study revealed that C-UWES-3 is a distinctive concept as compared with emotional exhaustion and role ambiguity and thus hypotheses 2 and 3 were supported. The concurrent validity of the C-UWES-3 was supported by its superior explanatory power in relation to social workers' turnover intention. This was verified by a general improvement in the fit indices from the confirmatory factor analysis. The strong correlation ($r > .90$) between C-UWES-3 and C-UWES-9 also supported the concurrent validity of C-UWES-3 and hypothesis 4 was supported.

Third, the convergent validity of C-UWE-3 was supported by its relationship with regard to validation variables derived from the JD-R model: work engagement measured by C-UWES-3 was positively associated with job resources and collective psychological ownership, and negatively associated with job demands and turnover intention. Therefore, hypotheses 5 and 6 were supported. The correlation coefficients between C-UWES-3 and the validation variables

were close to those between C-UWES-9 and the validation variables. Nevertheless, the magnitude of the correlations between work engagement and other variables reduced marginally after trimming down the C-UWES from nine to three items. These smaller correlation coefficients imply a possible consequence of weaker explanatory power of C-UWES-3 in the entire JD-R model as compared with the C-UWES-9, which, however, is still subject to further investigation.

Finally, despite a reduction in the Cronbach's alpha coefficient, the C-UWES-3 displayed an excellent level of scale reliability (Cronbach's alpha = .81). This result shows that the C-UWES-3 is a reliable measure of work engagement in the Chinese context and hypothesis 1 was supported.

The validation of the C-UWES-3 in this study has its limitations. First, the findings of this study are confined to the convenience sample of social workers selected from a few southern places of China and non-random sampling procedures were adopted. Therefore, future studies are suggested to validate the scale in other parts of China. The first author of this article has made a recommendation to the expert panel of the China Social Work Longitudinal Study (CSWLS) to use the C-UWES-3 in their next wave of data collection, which will be able to help further test the scale with a nationally representative sample. Second, participants from three cities in mainland China and Hong Kong were attendees of a package of professional training workshops, whereas the participants from Macau did not attend these workshops. The two different approaches applied for data collection may lead to unknown bias of the findings although the attendees of workshops filled in their questionnaires before the start of the training. Third, as most of the participants were below 35 years old, the older group of social workers may be under-represented in this study. Fourth, although social work is one kind of helping

professionals, we cannot assume the generalizability of the findings of this study across other helping professionals such as teachers, counselors, nurses, or career practitioners. Future studies are suggested to validate the C-UWES-3 among these helping professionals. Fifth, the discriminant validity of C-UWES-3 was only compared with one factor, which is also the major factor of work burnout, i.e. emotional exhaustion. Future studies will still be needed to verify the discriminant validity of C-UWES-3 with regard to the entire burnout scale. Finally, predictive validity of C-UWES-3 was not examined in this study and the correlation between work engagement and turnover intention can be endogenously contributed by the sampling method specifically in this study (i.e. engaged social workers with lower turnover intensions are more likely to attend a professional development training). Future studies may investigate the predictive validity C-UWES-3 in relation to predicting turnover intention of employees.

Conclusion

In conclusion, this study revealed that C-UWES-3, the Chinese version of the ultra-short scale for measuring work engagement, which consists of items 2, 3, and 8 drawn from the original UWES-9, has good internal consistency, satisfactory concurrent validity and convergent validity, which can help justify its future use in diverse Chinese contexts. The superior explanatory power of the ultra-short scale of engagement of C-UWES-3 can help save the time of research participants and increase the response rate. This can help stimulate further academic interest in using this scale for studying the work engagement of social workers. Moreover, given that work engagement is an important concept in the JD-R model, the C-UWES-3 may foster future research and practical interest in applying the JD-R model in Chinese contexts. Finally, future related research studies of the applicability of C-UWES-3 are worth conducting not only

in the field of social work but also in other professions particularly in different Chinese contexts where Chinese is used as the medium of communication.

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Table 1

Sociodemographic Information of the Participants (N = 683)

Variables	N (%)
City	
Cities in mainland China	
Guangzhou	144 (21%)
Shenzhen	54 (7.9%)
Shunde	43 (6.3%)
Hong Kong	166 (24.3%)
Macau	276 (40.4%)
Gender	
Male	162 (23.7%)
Female	521 (76.3%)
Age	
24 or below	102 (14.9%)
25-29	229 (33.5%)
30-34	194 (28.4%)
35-39	66 (9.7%)
40-44	41 (6%)
45-49	17 (2.5%)
50-54	18 (2.6%)
55-59	13 (1.9%)
60 or above	3 (.4%)
Educational attainment	
High school	2 (.3%)
Associate degree	126 (18.4%)
Undergraduate	420 (61.5%)
Master's degree graduate	111 (16.3%)
PhD graduate	2 (.3%)
Missing data	22 (3.2%)
Organizational size	
Less than 20 employees	136 (19.9%)
20-49 employees	101 (14.8%)
50-99 employees	114 (16.7%)
100 or above employees	332 (48.6%)
Job position in the organization	
Junior level	275 (40.3%)
Senior-associate level	273 (40%)
Senior level	107 (15.7%)
Missing data	28 (4%)

Table 2

Economic Status of the Participants (N = 683)

	Cities in mainland China ***n*** **= 241**	**Hong Kong** ***n*** **= 166**	**Macau** ***n*** **= 276**
Monthly income levels among the participants (specified in US$)			
Bottom-third	596 or below	2,548 – 3,184	1,865 – 3,109
Middle-third	597 – 1,192	3,185 – 5,095	3,110 – 3,731
Top-third	1,193 – 2,235	5,096 – 9,555	3,732 – 7,463
Level of savings as a percentage of monthly income			
0%	45 (18.8%)	7 (4.2%)	16 (5.8%)
1-10%	67 (28%)	38 (22.9%)	47 (17%)
11-20%	42 (17.6%)	25 (15.1%)	70 (25.4%)
21-30%	33 (13.8%)	28 (16.9%)	41 (14.9%)
31-40%	13 (5.4%)	27 (16.3%)	42 (15.2%)
41-50%	14 (5.9%)	20 (12.0%)	21 (7.6%)
Missing data	27 (11.1%)	21(12.7%)	39 (14.1%)

Figure 1

Models Tested by CFA for Examining Discriminant Validity of C-UWES-3

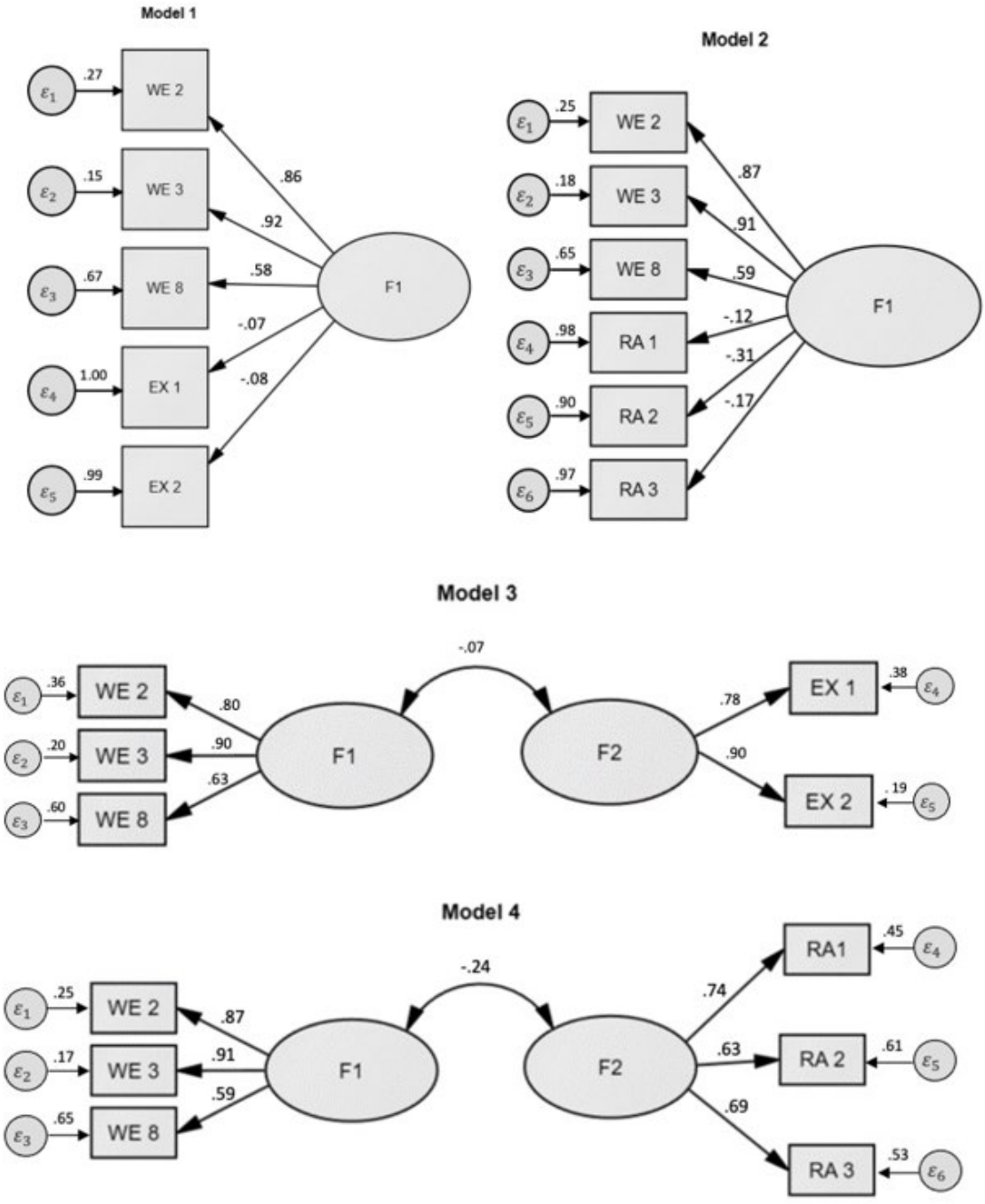

Figure 2

Models Tested by CFA for Testing the Concurrent Validity of C-UWES-3

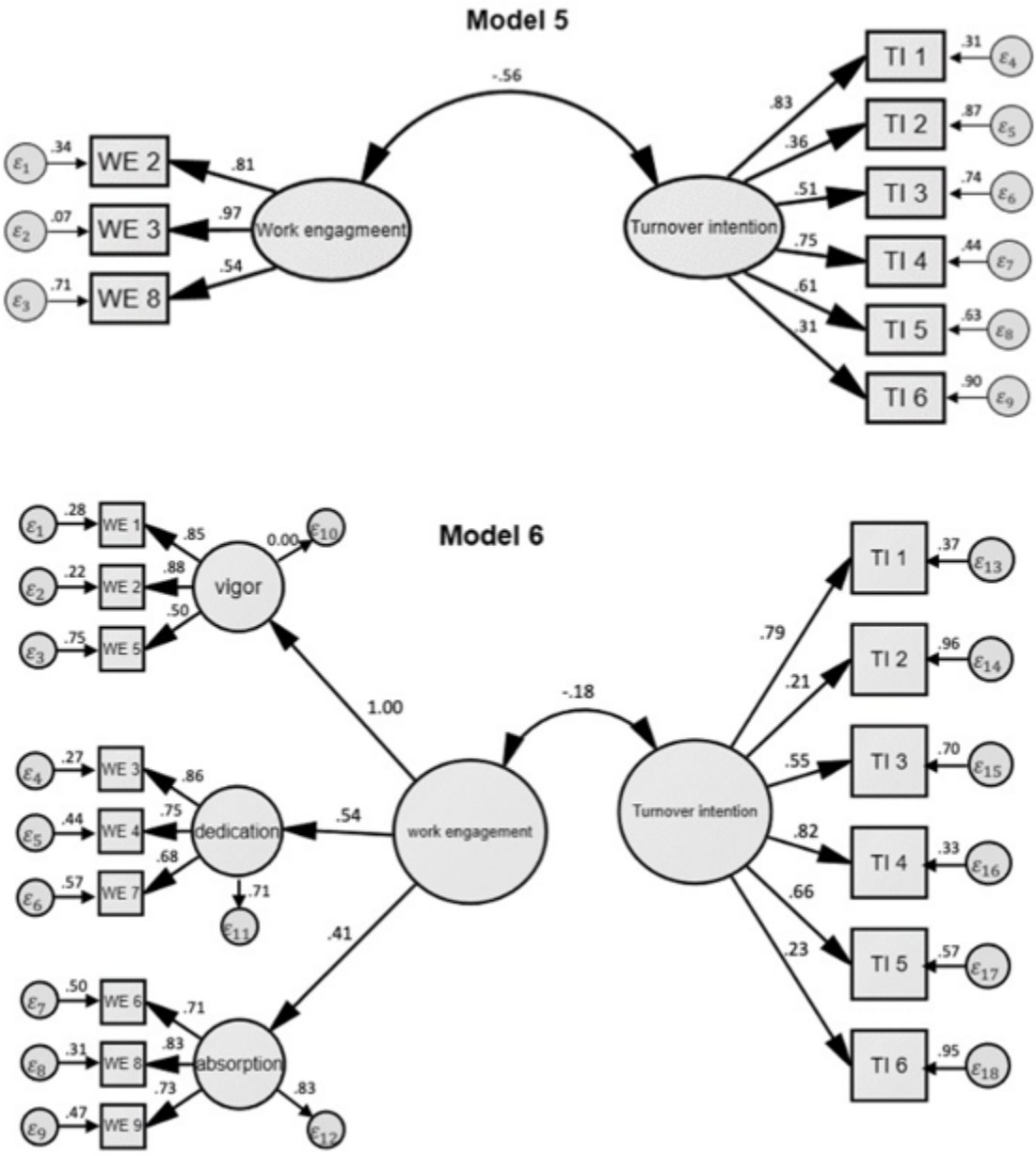

Table 3

Factor Loadings (Pattern Matrix) and Unique Variances (N= 336)

	Items	Factor 1	Factor 2	Factor 3	Factor 4	Uniqueness
Vigor	1. At my work, I feel bursting with energy.	0.75	-0.31	0.00	-0.21	0.30
	2 [a]. At my job, I feel strong and vigorous.	0.84	-0.27	-0.03	-0.14	0.21
	5. When I get up in the morning, I feel like going to work.	0.70	0.14	0.27	0.05	0.42
Dedication	3[b]. I am enthusiastic about my job.	0.81	-0.22	-0.10	0.13	0.27
	4. My job inspires me.	0.74	-0.23	0.00	0.15	0.38
	7. I am proud of the work that I do.	0.70	0.10	-0.13	0.21	0.43
Absorption	6. I feel happy when I am working intensely.	0.60	0.13	0.31	0.00	0.53
	8[c]. I am immersed in my work.	0.76	0.37	-0.16	-0.07	0.27
	9. I get carried away when I'm working.	0.69	0.40	-0.09	-0.11	0.34

Note. a. Item 2 showed the highest factor loading within the vigor dimension; b. Item 3 displayed the highest factor loading within the dedication dimension; c. Item 8 presented the highest factor loading within the absorption dimension.

Table 4

Fit Indices of the UWES-3 in Confirmatory Factor Analysis (N = 347)

Model	χ^2	df	χ^2/df	CFI	TLI	RMSEA	SRMR
Model 1	136.54	5	27.30	.75	.50	.28	.16
Model 2	124.38	9	13.82	.78	.64	.19	.15
Model 3	4.65	4	1.16	.99	.99	.03	.02
Model 4	19.06	8	2.38	.98	.96	.06	.05
Model 5	46.68	26	1.80	.98	.96	.05	.04
Model 6	341.96	86	3.98	.90	.85	.09	.08

Table 5

Correlation Coefficients of the C-UWES-3 with Regard to C-UWES-9 and Measures for Validation Variables (N = 683)

	1	1.1.	1.2.	1.3.	2	2.1	2.2	2.3	3	4	5	6
1. C-UWES-3	1											
1.1. Vigor (Item 2)	.86***	1										
1.2. Dedication (Item 3)	.87***	.73***	1									
1.3. Absorption (Item 8)	.83***	.53***	.55***	1								
2. C-UWES-9	.94***	.80***	.80***	.80***	1							
2.1. Vigor	.87***	.87***	.75***	.63***	.91***	1						
2.2. Dedication	.87***	.73***	.88***	.64***	.90***	.78***	1					
2.3. Absorption	.80***	.58***	.57***	.86***	.90***	.71***	.68***	1				
3. Job demands	-.18***	-.15**	-.19***	-.12*	-.18***	-.16**	-.21***	-.13*	1			
4. Job resources	.38***	.35***	.36***	.27***	.37***	.33***	.39***	.30***	-.24***	1		
5. CPO	.40***	.32***	.36***	.36***	.44***	.40***	.42***	.37***	-.21***	.36***	1	
6. Turnover intention	-.37***	-.33***	-.37***	-.26***	-.40***	-.38***	-.39***	-.31***	.45***	-.37***	-.34***	1

*Note. * p<.05; ** p<.01; *** p<.001; CPO refers to collective psychological ownership.*