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Development of the Singapore workplace wellbeing scale

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ABSTRACT

The present research described the development of the Singapore Workplace Wellbeing scale which identified the factors that influence employee wellbeing in the Singapore workplace context. Participants completed an online survey in two separate studies. Study 1 involved (N = 318) conducting a parallel analysis followed by exploratory factor analysis on items generated from a qualitative study in the first phase of the research in which 13 workplace wellbeing factors unique to the Singapore context were identified. A confirmation factor analysis was conducted on study 2 (N = 303) which confirmed a 13-factor scale with 99 items. These factors were support from boss, fairness, autonomy, meaningful work, co-worker relationship, role clarity, work-life balance, learning and professional growth, person-organisation fit, employee engagement, employee recognition, flexitime work, accomplishment, and organisation support. The new scale showed sound construct reliability, internal consistency, convergent validity, discriminant, and nomological validity. Importantly, the scale showed significant and positive association with job performance and flourishing, but a significant and negative association with burnout and the negative emotional state of depression, anxiety, and stress. The scale has significant potential to be used as workplace wellbeing screening tool and in research in the Singapore context. Implications, future directions, and limitations of the research are discussed.

IMPACT STATEMENT

This research introduces the Singapore Workplace Wellbeing (SWWB) Scale, a rigorously developed and validated measure designed to assess employee wellbeing within the Singapore workplace context. By integrating both qualitative and quantitative studies, the SWWS scale advances culturally informed wellbeing assessment and provides researchers and practitioners with a reliable tool to guide evidence-based interventions for healthier and more productive workplaces.

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Mental wellbeing is a critical component of mental health which is no longer seen as just the absence of mental illness but includes the extent that an individual can thrive and flourish in life. Mental wellbeing at work has been a growing concern around the world (WHO, 2022), and the need to focus on employee mental wellbeing in the workplace context has been emphasised as a crucial step towards promoting positive consequences for the individual and the organisation (Guest, 2017).

Employees' mental wellbeing has implications for both the employee as well as for the organisation. In the Singapore work context where economic success is largely determined by work performance, stress-related illness such as anxiety and depression due to excessive work remains a significant problem as compared to other countries such as the USA and the UK (Tan, 2021). On the national level, employee mental wellbeing is essential to sustainable organisational success as it positively impacts on the society thereby propelling a nation forward (Cooper, 2009; Wipfli et al., 2018). It's the employees who are the critical drivers of economic progress in Singapore due to the country's tiny land size and very limited natural resources. Thus, the emphasis on employee wellbeing is essential and necessary for the future of Singapore.

Despite the importance of wellbeing as a resource to spur commercial growth and impact positively on the society (Guest, 2017), a focus on employee wellbeing has not been adequately emphasised in

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organisations where individuals need to be nurtured and supported (Cooper, 2009). For example, Litchfield et al. (2016) pointed out that there has been little organisational participation to increase productivity through the lens of promoting employee wellbeing, given that healthy functioning workers contribute positively to the community and reduce the use of precious resources. Some of the reasons for this lack of attention and promotion of employee wellbeing by organisations may be attributed to the lack of knowledge of what constitutes a worker with better wellbeing from the employer's perspective (Pescud et al., 2015) and of the processes linking organisational factors and employee wellbeing outcomes (Kowalski & Loretto, 2017). We now turn our attention to the need for mental health to be considered as a culturally bound concept.

Mental health in Singapore as a culturally dependent concept

The notion of wellbeing differs across cultures and countries. Societies in different cultural contexts have different expectations, attitudes and behaviours that shape the notion of wellbeing (Christopher, 1999; Tov & Diener, 2009), and linguistic and cultural factors need to be considered to elucidate the processes of wellbeing (Wierzbicka, 2004). For example, Joshanloo et al. (2021) delineated four fundamental cultural differences in the conceptualisation of wellbeing. Specifically, one of these differences states that having a sense of autonomy in the pursuit of achieving goals is often balanced against preserving interpersonal harmony in many collectivistic cultures, but this is less so in individualistic cultures where the emphasis is more on the individual in having a sense of autonomy over personal choices and pursuits (Goh et al., 2012, 2025; Joshanloo et al., 2021). In contrast to the individualistic perspective, wellbeing needs to be seen in the wider social context in collectivist cultures (Rojas & García Vega, 2017).

As mental health is a culturally dependent concept, the conceptualisation and manifestation of mental wellbeing is similarly subject to cultural differences and influences (Fen et al., 2013; Vaingankar et al., 2011). More specifically, cultural differences exist in the conceptualisation and expression of wellbeing (Christopher, 1999; Taris & Schaufeli, 2015; Vaingankar et al., 2011), as they reflect what a particular cultural group perceives as healthy functioning (Camfield, 2006). Different cultural groups have their own set of expected attitudes and behaviours that help them to develop healthy functioning (Tov & Diener, 2009), yet past research on subjective wellbeing has been focused on Western countries which led to the development of measures that may be relevant only in these countries (Camfield, 2004). Thus, Tennant et al. (2007) emphasised the need to include the cultural norms of the population and develop measurements based on these norms, as any measurement of wellbeing must consider the cultural, social, and behavioural contexts for it to be valid and reliable in any given country.

Past research has supported the important role that cultural differences play in influencing wellbeing. In a study conducted by Zhang (2005) to evaluate the contribution of collective self-esteem in predicting life satisfaction, the author surveyed 1347 participants across three generations in China and found that collective self-esteem explained a significant amount of variance in predicting both general life satisfaction and life domain satisfaction even after controlling for individual self-esteem, personality traits, and demographic variables. As compared to the Western cultures where individual self-esteem is more pronounced with greater emphasis on personal attributes, collective self-esteem is therefore expected to have a stronger effect on collective cultures such as those in China where in contrast, a greater emphasis is placed on identifying and belonging to a certain social group (Zhang, 2005; Goh et al., 2025).

The cultural landscape may have altered due to the impact of rapid economic growth and western ideals over the last few decades in many countries including Southeast Asia (Hill & Lian, 1995). Accounting for differences across cultures whilst integrating western and community-based cultural notions of mental health is necessary (Gopalkrishnan & Babacan, 2015), and it is crucial to view the notion of mental health in these countries from their unique and evolving cultural position. The culture in Singapore represents the dynamic notion of culture where people in the society make sense of their daily lives collectively through common ways of living and speaking forming a national identity (Alsagoff, 2010). Existing instruments to measure wellbeing do not address the multidimensional nature of wellbeing to date, and they are mostly developed in Western countries with norms that differ in terms of their conceptualisation and definition of wellbeing as compared to their Asian counterparts (Vaingankar et al., 2011). Therefore, for the reasons cited above, the current project focused on developing the first psychometrically sound assessment of workplace wellbeing for the Singapore context which is explained further below.

Workplace wellbeing in the Singapore context

Singapore is a multi-ethnic, multi-religious and multi-lingual society in Southeast Asia and had a total population of around 5.6 million in 2018. The largest ethnic groups in Singapore are Chinese (74.3%), followed by Malays (13.4%), Indians (9%), and other ethnic groups (3.3%) (Yearbook of Statistics Singapore, 2019). Singapore was colonised by Great Britain in 1819 and gained independence from Malaysia in 1965. English is the first language and medium for education and business, but other languages including Mandarin, Malay, and Tamil are also widely spoken. Several religions such as Buddhism, Christianity, Hinduism, Islam, and Taoism are also widely practiced (Tambyah & Tan, 2013). The Singaporean identity is established over a period of at least one hundred years, and these cultural attributes coexist with values and beliefs inherited from other South and East Asian countries as well as its colonial past.

Singapore has achieved economic growth and gained substantial material wealth yet scored low in indexes of happiness and life satisfaction when compared to other countries (Vaingankar et al., 2011). In terms of workplace wellbeing, the Aon's Asia Pacific (APAC) Benefits Strategy study in 2017 reported that 72% of employers see mental issues a concern, yet only 51% have emotional and psychological wellness programmes in place. Ho (1997) conducted a study in Singapore to investigate the effectiveness of corporate wellness programmes and found that these programmes had a positive effect on employees' attitude towards their organisations, job satisfaction and satisfaction with additional benefits provided by the organisations which subsequently resulted in a reduction of stress. However, other ways to increase employee wellbeing and other specific important employee outcomes such as positive emotions and productivity were not investigated. A reduction in stress also may not necessarily result in increased outcomes for the organisation in the long run (LaMontagne et al., 2007).

Moreover, rapid modernisation and the changing nature of the workplace also mean that employees are putting in longer hours at work. In Singapore, Lim (2010) reported that the average employee clocked in a total of 46.3 hours per week in 2008, and this figure is considered in the extremely high average range as compared to Europe where the highest weekly working hours came in at only 41.7 hours per week. Fast forward to 2019, the statistics showed that the working hours of the average Singaporean employee had only fallen slightly to 44.7 hours (Manpower Research and Statistics Department, Ministry of Manpower, 2019) which is still considered very high.

Although a lot of research has supported the hypothesis that working long hours are associated with lower levels of employee wellbeing (Afonso et al., 2017; Akhtar et al., 2012; Hsu et al., 2019), long working hours alone may not account for the negative impact on employee wellbeing. For example, a study by Hughes and Parkes (2007) found that flexibility and control over work hours moderated the relationship and reduced its negative impact on employees. Tsutsumi (2019) asserted that reducing working hours alone may result in increased work intensity which is equally unhealthy and more effective ways can include creating safer psychological environment and having more defined work and family balance. This suggests that when conceptualising the factors that contribute to employee wellbeing, multiple factors should be taken into consideration rather than adopting simplistic single factor association. Thus, an investigation of what constitutes employee wellbeing in Singapore is important as it is likely to mitigate the effects of long working hours put in by employees.

Abdin et al., colleagues (2019) conducted a study in Singapore to identify workplace psychosocial risk factors amongst employees in the working population and developed a 27-item iWorkHealth instrument that delineated five key dimensions - job demand, job control, employee and management engagement, supervisor support, and colleague support. It was found that employee and management engagement was identified as a distinct dimension. Workplace psychosocial risk factors can be defined as the interaction between employees and a variety of workplace factors such as workplace environment and job demands that are detrimental to employee wellbeing (International Labor Organization, 1986). However, a more holistic approach is needed to improve employee wellbeing (LaMontagne et al., 2007) and an integrated approach consisting of three factors was proposed by LaMontagne et al. (2014); firstly, risk factors at the workplace need to be reduced; secondly, there needs to be a focus on employee strengths and the positive dimensions of work; lastly, mental health problems amongst employees need to be addressed. Reducing risk factors at the workplace alone is therefore necessary but not sufficient to improve employee wellbeing.

Employee wellbeing outcomes

From the definition of WHO regarding mental health, the ability to cope with stresses in life as well as the ability to work productively are important considerations in the work context. Cox and Cox (1992) for example, emphasised the need for practitioners and researchers to look into both employee wellbeing and outcomes including psychological health and organisational outcomes including performance within the organisational health framework. This suggests that it is important to link job performance to wellbeing taking into account the spill-over effects between individual outcomes (nonwork-related) and organisational outcomes (work-related) when examining the totality of a person's occupational health. Indeed, Hart and Cooper (2001) maintained that employees who experience high wellbeing and are happy are of little use to the organisation unless they are also productive; conversely, productive employees who experience low wellbeing and are unhappy are not going to be sustainable on the long run for the organisation. Of relevance to the current research, many organisations in Singapore push for higher productivity with little knowledge and regard to employee wellbeing in terms of positive psychological health as previously mentioned within the workplace context, it is therefore necessary to investigate both employee mental wellbeing and organisational outcomes in order for employees and organisations to thrive.

The current research

Phase one: literature search and qualitative study

The current research was conducted as the second (Study 1) and third (Study 2) phases of a larger three-phase project examining workplace wellbeing in the Singapore context, drawing on the employee wellbeing framework proposed by Danna and Griffin (1999). The initial stage of item generation was guided by both a review of the literature and a qualitative study (Phase One). To inform item development, a literature search on wellbeing conceptualizations was conducted, which was subsequently narrowed to workplace wellbeing. This search identified recurring domains of workplace wellbeing, as well as conceptual and measurement gaps across existing instruments. In particular, existing measures did not adequately reflect the sociocultural context of Singapore workplaces.

To address this, a qualitative study was carried out to explore employees' understandings and lived experiences of wellbeing at work in Singapore (Yip et al., 2024). Semi-structured interviews were conducted with 31 full-time Singaporean employees from 17 industries. Data were analysed using Braun and Clarke (2013) six-step approach to thematic analysis. This process yielded 13 factors that contributed to a holistic understanding of workplace wellbeing: accomplishment, autonomy, co-worker relationships, employee recognition, fairness, learning and professional development, meaningful work, organisational support, person–organisation fit, role clarity, support from supervisors, transparency, and work–life balance. These factors directly informed the development of the initial pool of scale items.

The authors emphasised that although these factors are consistent with workplace wellbeing literature and are also frequently reported, the expression of these factors was unique to Singapore and were strongly influenced by its sociocultural context. For example, the qualitative study revealed that employees in Singapore had the expectation that their bosses should be able to provide emotional support in addition to professional support for them at work. This reflected the collectivistic and Confucian values whereby bosses care for and support their employees in the form of a 'family culture' (Yip et al., 2024) as noted in Goh et al.,'s (2025) study of Chinese employees' support seeking behaviours which indicated collectivists' tendency to define interpersonal relations along traditional family hierarchy such that work superiors or teachers are treated as father or elder figure.

Further, the study also provided evidence that preserving interpersonal harmony within group members including colleagues and bosses was important in the Singapore workplace culture (Yip et al., 2024). This in line with a collectivistic culture whereby the notion of 'quanxi' (关系) through which an employee seeks to develop a better relationship with the boss or senior colleagues (Goh et al. 2025), in order to secure better opportunities at work, is still prevalent. In fact, this phenomenon in Singapore

has been reported by Bian and Ang (1997) and continues to persist today. Consequently, the themes of fairness and employee recognition are significant factors in ensuring fair opportunities and recognition are provided for every employee in the Singapore workplace. The current study is in line with the recommendation by Chari et al. (2018) who proposed that a new framework of worker wellbeing as a conceptualisation to include multiple domains, subdomains, and subdomain constructs is needed to better capture the multi-faceted elements of human experiences from their unique sociocultural position.

Objective of current research

The primary objective of the current study was to develop and validate a culturally appropriate Singapore Workplace Wellbeing (SWWB) scale that reflects the unique sociocultural context of Singapore. Specifically, this study sought to address two main research questions: (1) What are the key factors that constitute workplace wellbeing in Singapore, as derived from the qualitative findings of Yip et al. (2024)? and (2) Does the newly developed SWWB scale demonstrate sound psychometric properties, including construct reliability, internal consistency, convergent validity, discriminant validity, and nomological validity? More specifically, the objectives of Study 1 and 2 in the current research respectively are: to explore and identify the underlying factor structure of the SWWB scale, and evaluate its internal consistency and to confirm the factor structure identified in Study 1 and to assess the scale's construct reliability, convergent validity, discriminant validity, and nomological validity.

Method

Study design

The first data set from study 1 (N = 318) was subjected to parallel analysis (PA) followed by exploratory factor analysis (EFA) to identify the underlying factor structure of the scale. The second data set from study 2 (N = 303) was subjected to confirmatory factor analysis (CFA) to test the scale's construct, convergent, discriminant, and nomological validity by adapting the employee wellbeing framework developed by Danna and Griffin (1999) in which the core constructs of wellbeing were identified along with the nomological network that surrounds these constructs. Specifically, the scale's relationships with job satisfaction, individual outcomes including social-psychological functioning (flourishing), burnout and symptoms of depression, anxiety and stress, and organisation outcomes including work performance were examined using CFA.

With regard to the sample size required for a factor analysis, fixed rules are less relevant (Costello & Osborne, 2005), and a sample size of 200 to 300 cases are appropriate (Boateng et al., 2018). Moreover, in a study to investigate the minimum sample size required for conducting factor analyses, Mundfrom et al. (2005) concluded that sample size is not determined by the number of variables and providing a minimum sample size is not realistic; firstly, sample size is dependent on the ratio of the number of variables to the number of factors – the higher the ratio the smaller the sample size is required particularly when the ratio is more than six; secondly, a higher level of communality requires a smaller sample size. For example, a sample size of not more than 180 cases is required even when a low communality of between 0.2 to 0.4 and a variable-to-factor ratio of seven are taken into consideration. Thus, for a variable-to-factor ratio of eight with high communalities of between 0.6 to 0.8, it is recommended that only a sample size of 100 is needed (Mundfrom et al., 2005).

Item generation for the SWWB scale

An intentionally large item pool was developed to ensure comprehensive coverage of the 13 categories of workplace wellbeing identified in the qualitative phase. The number of items per construct varied depending on the richness of qualitative data underpinning each category, resulting in some domains being represented by more items than others. In line with scale development best practices, the initial

pool was deliberately overinclusive to allow empirical reduction during factor analysis. The item pool was subsequently reviewed by the research team which included two PhD supervisors with expertise in occupational psychology and psychometrics, to ensure clarity, content relevance, and alignment with the identified categories.

Participants

The current research consisted of two cross-sectional studies conducted with two groups of employees aged 18 and above who were working in Singapore. Research data were collected using a questionnaire survey from various industries operating in a variety of sectors. The full occupation listing of the participants, which was first sorted into the major group followed by the sub-group according to the International Standard Classification of Occupations 2008 (ISCO-8) is shown in Appendix A (study 1) and Appendix B (study 2) along with the other demographic details.

Procedure

Participants were recruited through professional networks, organisational contacts, and online postings. All surveys were administered electronically using an online survey platform (USQ Surveys) directed to them with a website link which included the participant information sheet requiring explicit consent in order for them to take part in the study. No monetary or material incentives were being offered. Study 1 data were collected between March 2021 and September 2021 and Study 3 data between January 2022 and June 2022. Because participation was voluntary and anonymous, refusal rates could not be determined. Although it was not possible to fully exclude the possibility that a small number of individuals might have participated in both studies, any such overlap would be minimal and unlikely to influence the results given the distinct recruitment sources, the voluntary nature of participation, and the large sample sizes.

Data collection

Ethical approval was obtained from the University of Southern Queensland Human Research Ethics Committee on the 24th of February 2021 for study 1 (Approval ID:H19REA253v1) and the 14th January 2022 for study 2 (Approval ID: H19REA253v2). Data from both studies were collected using a cross-sectional self-report questionnaire. The first part of the questionnaire asked participants to answer a series of demographic questions such as gender and age. For study 1, the SWWB questionnaire comprised of 104 items that were developed to reflect the 13 constructs developed from the qualitative component of the phase one study. For study 2, the SWWB scale along with six other sets of scales were utilised to test the conceptual SWWB model adapted from the employee wellbeing framework developed by Danna and Griffin (1999). The questionnaire measures were rated on a five-point Likert-type scale, with responses options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) with the exception of three measures as stated.

SWWB measure

Meaningful work

Meaningful work was measured with the 10-item (WAMI) developed by Steger et al. (2012). The scale was developed to measure employees' subjective experience of positive meaning in work. Specifically, the scale covers three aspects – positive meaning, meaning making through work, and greater good motivations (Steger et al., 2012).

Person-organisation fit

Person-organisation fit was measured with eight items that were constructed for this study. Four items were adopted from the person–job fit scale that were used in the study by Afsar et al., (2015) to investigate the impact of person–environment fit on employees' innovative work behaviour. These items were originally developed by Edwards (1996) and Lauver and Kristof-Brown (2001). Two items were adopted

from the Quality of Work Life (QWL) questionnaire developed by Swamy et al. (2015) to assess quality of work life among employees in nine areas such as work environment and relation and co-operation. The remaining two items were adopted from the nine-item job value scale which was found to be reliable and valid in the study by Wu et al. (2013) and Smith (2005) investigating the effects of perceived organisational support, supervisor support, and intrinsic job value.

Role clarity

Role clarity was measured using five items that were constructed for this study. Two items were adapted from the 50-item Organisational Climate Scale developed by Peña-Suárez et al. (2013) to determine employees' perceptions of organisational climate in areas such as work-life balance and autonomy. The remaining three items were adopted from the scale investigating role ambiguity provided by Rizzo et al. (1970).

Autonomy

Autonomy was measured using nine items from the autonomy scale adopted from the Work Design Questionnaire (WDQ) developed by Morgeson and Humphrey (2006). The WDQ comprised of a 21-factor model with autonomy separated into three factors of three items each - work scheduling autonomy, decision-making, and work methods autonomy.

Work-Life Balance

Work-Life Balance was measured using eight items that were constructed for this study. Six items were adapted from an eight-item work-life balance scale developed by Wu et al. (2013) through thorough literature review and was used in their study to investigate the relationships between work–life balance and job-related factors. The remaining two items were adapted from the Quality of Work Life (QWL) questionnaire developed by Swamy et al. (2015).

Learning and professional development

Learning and professional development was measured using eight items that were constructed for this study. Three items were adapted from Quality of Work Life (QWL) questionnaire was developed by Swamy et al. (2015). Three items were adapted from the Organisational Climate Scale developed by Peña-Suárez et al. (2013). The remaining two items were adapted from the nine-item job value scale in the study by Wu et al. (2013) and Smith (2005).

Employee recognition

Employee recognition was measured using eight items that were constructed for this study. These eight items were adapted from the Organisational Climate Scale developed by Peña-Suárez et al. (2013).

Support from boss

Support from boss was measured using 10 items that were constructed for this study. Seven items were adapted from the 13-item supervisor support scale which was found to be reliable and valid (Smith, 2005; Wu et al., 2013). Three items were adopted from the Organisational Climate Scale developed by Peña-Suárez et al. (2013).

Co-worker relationship

Co-worker relationship was measured using 10 items that were constructed for this study. These 10 items were adapted from the 12-item Workplace Friendship Scale developed by Nielsen et al. (2000) to measure two aspects of workplace friendship - the opportunity for friendship and the prevalence of friendship. Five items were chosen from each subscale to construct the 10 items for the current study.

Accomplishment

Accomplishment was measured using six items that were constructed for this study. Five items were adapted from a 31-item measure developed by Parker and Hyett (2011) to identify factors that contribute to employee wellbeing in areas such as work satisfaction, and employer care. The remaining one item was adapted from the nine-item job value scale (Smith, 2005; Wu et al., 2013).

Transparency

Transparency was measured using seven items that were constructed for this study. Four items were adapted from the Quality of Work Life (QWL) questionnaire was developed by Swamy et al. (2015). Three items were adapted from the Organisational Climate Scale developed by Peña-Suárez et al. (2013).

Fairness

Fairness was measured using eight items that were constructed for this study. Five items were adapted from the justice measure developed by Colquitt (2001) which has been shown to have good construct validity in assessing organisational justice such as interpersonal justice. Two items were from adapted from the Quality of Work Life (QWL) questionnaire developed by Swamy et al. (2015). One item was adapted from the Organisational Climate Scale developed by Peña-Suárez et al. (2013).

Organisational support

Organisational support was measured using 10 items that were constructed for this study. Eight items were adapted from the Perceived Organisational Support (POS) measure developed by Eisenberger et al. (2020). Items have been adapted onto a five-point Likert scale in previous study investigating the impact of perceived organisational support on work engagement (Imran et al., 2020). The remaining two items were adapted from an 11-item scale for organisational support as used in studies by Wu et al. (2013) and Smith (2005).

Other measures

General mental wellbeing

General mental wellbeing was measured using the short-form of the original Singapore Mental Wellbeing (SMWEB-S) Scale which consisted of 16 items developed by Fen et al. (2013). These items measured overall mental wellbeing in five areas - Emotional Intelligence, Self-Esteem, Social Intelligence, Cognitive Efficacy, Resiliency.

Job satisfaction

Job satisfaction was measured with the 5-item Short Index of Job Satisfaction (SIJS) which is a shorten version of the 18-item Index of Job Satisfaction developed by Brayfield and Rothe (1951).

Work performance

Work performance was measured with the 18-item Individual Work Performance Questionnaire (IWPQ) developed by Koopmans et al. (2014). The IWPQ measures individual work performance with three sub-scales consisting of three domains - task performance (five items), contextual performance (eight items) and counter-productive work behaviour (five items). Items on the IWPQ were rated on a five-point rating scale (0 = seldom to 4 = always for task and contextual performance; and 0 = never to 4 = often for counterproductive work behaviour).

Flourishing

Flourishing was measured with the eight-item Flourishing Scale (FS) developed by Diener, Wirtz et al. (2010) to measure wellbeing in the domains of relationships, life purpose, self-esteem, and optimism. Items on the scale are rated on a seven-point Likert scale, ranging from 'strongly disagree' to 'strongly agree'.

Burnout

Burnout was measured with the Copenhagen Burnout Inventory (CBI) developed by Kristensen et al. (2005) to measure three domains of burnout, namely personal burnout, work-related burnout, and client-related burnout. Items on the CBI are rated on a five-point Likert scale, ranging from 'never' to 'always' The term 'client' in the client-related burnout subscale can be replaced by other terms to suit the research context (Kristensen et al., 2005). Due to the restrictions arising from the COVID-19 pandemic draining the mental and emotional capacities of employees trying to fulfil both family and work responsibilities (Restubog et al., 2020), the term 'client' had been replaced by 'remote working' to investigate this phenomenon in the current research.

Depression, anxiety and stress

Depression, anxiety, and stress were measured on the short version 21-item Depression, Anxiety, and Stress Scale (DASS21) for the negative emotional states of depression, anxiety and stress developed by Lovibond and Lovibond (1995). All three domains are moderately inter-correlated and the DASS21 can be taken as a whole to measure negative emotional state (Lovibond & Lovibond, 1995). Items on the scale are rated on a four-point Likert scale (0=did not apply to me at all to 3=applied to me very much, or most of the time).

Data analysis

All analyses were conducted using SPSS 27.0.0 (IBM, 2020) and AMOS 26.0.

Study 1

Construct validity was first examined using parallel analysis (PA; Horn, 1965), conducted with O'Connor's (2000) SPSS syntax. Exploratory Factor Analyses (EFA) were then performed using the principal axis factoring method of extraction with oblique (Promax) rotation, as the factors were expected to correlate. Factor retention was guided by PA results, eigenvalues greater than one, scree plot inspection, percentage of variance explained, and theoretical interpretability. Sampling adequacy was assessed using the Kaiser–Meyer–Olkin (KMO) measure, and Bartlett's Test of Sphericity was used to verify factorability. Items were evaluated based on factor loadings, cross-loadings, and conceptual fit, and iterative EFAs were performed to identify the most parsimonious and interpretable factor solution. Internal consistency reliability for each factor and the overall scale was assessed with Cronbach's alpha coefficients.

Study 2

Confirmatory Factor Analysis (CFA) was conducted using Maximum Likelihood (ML) estimation in AMOS 26.0. Model fit was evaluated using multiple indices including the chi-square statistic and its ratio to degrees of freedom (χ^2/df), the Root Mean Square Error of Approximation (RMSEA), Standardised Root Mean Square Residual (SRMR), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Parsimony Normed Fit Index (PNFI), and Parsimony Comparative Fit Index (PCFI). Items with standardised factor loadings below 0.50 were considered for removal. Modification indices were consulted, and correlated error terms were permitted only when justified by theory or substantive overlap in item content.

Construct reliability and validity were further assessed using Cronbach's alpha, Composite Reliability (CR), Maximal Reliability (MR), and Average Variance Extracted (AVE) (Fornell & Larcker, 1981). Discriminant validity was evaluated by comparing AVE with Maximum Shared Squared Variance (MSV) and by calculating heterotrait–monotrait ratios (HTMT). Nomological validity was examined by correlating the SWWB measure with constructs within the nomological network, including job satisfaction, job performance, flourishing, burnout, depression, anxiety, and stress. To further evaluate construct validity, the SWWB measure was also compared against the Singapore Mental Wellbeing Scale (SMWEB; Fen et al., 2013). This allowed for direct assessment of the SWWB's convergent and discriminant validity relative to an established wellbeing measure developed within the Singapore context. Effect size interpretation followed both conventional criteria (Cohen, 1988, 1992) and updated recommendations by Gignac and Szodorai (2016).

Results

The results are presented separately for Study 1 (Exploratory Factor Analysis, EFA) and Study 2 (Confirmatory Factor Analysis, CFA). This structure reflects the sequential scale development process, with Study 1 focusing on identifying the underlying factor structure and Study 2 on confirming and validating the measurement model.

Study 1

Exploratory factor analysis (EFA)

Parallel analysis (PA) suggested a nine-factor solution, whereas initial EFAs identified up to 16 factors with eigenvalues greater than one, explaining approximately 71% of the total variance. These findings indicated that plausible models ranged between nine and 16 factors. Iterative EFAs within this range were conducted, and a 14-factor solution provided the most stable and interpretable structure, accounting for 70.16% of the total variance. The PA results are shown in Appendix C.

Sampling adequacy was excellent (KMO = 0.954), and Bartlett's Test of Sphericity was significant ($p < 0.001$), confirming the suitability of the data for factor analysis. After several rounds of refinement, the 14 retained factors were labelled according to their content: support from boss (factor 1), fairness (factor 2), autonomy (factor 3), meaningful work (factor 4), co-worker relationships (factor 5), role clarity (factor 6), work–life balance (factor 7), learning and professional growth (factor 8), person–organisation fit (factor 9), employee engagement (factor 10), employee recognition (factor 11), flexitime work (factor 12), accomplishment (factor 13), and organisational support (factor 14).

The factor loadings for each item are presented in Table 1, and the factor correlations are shown in Table 2. Internal consistency coefficients for each factor and the total scale are reported in Table 3. Correlational analysis indicated mostly moderate correlations between the factors, suggesting that the constructs were related but distinct. Reliability analysis demonstrated excellent internal consistency across all 14 factors (α = 0.874–0.965). The overall SWWB instrument also showed very high internal reliability (α = 0.986), well above the recommended 0.70–0.80 range (Kline, 1999), indicating that the items were highly intercorrelated and represented a coherent underlying construct of workplace wellbeing in Singapore.

Study 2

Confirmatory factor analysis (CFA)

Prior to CFA, the data were screened and found suitable for analysis. The initial 14-factor model did not demonstrate acceptable fit (χ^2 = 9700.42, $p < 0.05$; χ^2/df = 2.80; RMSEA = 0.077 [90% CI]; SRMR = 0.099; CFI = 0.675; TLI = 0.666; PNFI = 0.558; PCFI = 0.657). Examination of standardised loadings revealed that 15 items had loadings below 0.50 and were removed. In addition, based on modification indices and consistent with theoretical justification, 16 pairs of within-factor error terms were allowed to covary to account for overlapping item content.

The respecified model showed substantial improvement and acceptable fit: χ^2 = 5054.78, $p < 0.05$; χ^2/df = 2.18; RMSEA = 0.063 [90% CI = 0.061, 0.065]; SRMR = 0.083; CFI = 0.834; TLI = 0.826; PNFI = 0.702; PCFI = .799. While the CFI and TLI did not reach the conventional cut-off of 0.90, this was considered reasonable given the complexity of the model, the large number of observed variables, and theoretical grounding of the scale (Hooper et al., 2008; Kenny & McCoach, 2003). As emphasised by Barrett (2007) and Doll et al. (1994), model evaluation should not rely solely on strict cut-offs but also on substantive theory and intended application. The standardised factor loadings are illustrated in Figure 1.

Reliability and validity

Internal consistency reliability was strong across all constructs (α ≥ 0.70). Convergent validity was largely supported, with Average Variance Extracted (AVE) values exceeding 0.50 for most constructs, alongside Composite Reliability (CR) values ranging from 0.876 to 0.953 and Maximal Reliability (MR)

Table 1. Factor loadings for the 14-factor solution of the SWWB scale (study 1, EFA).

		Factor													
Item	Communalities	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. My boss gives me help when I need it.	0.857	0.975													
2. My boss provides the help I need to complete my required tasks.	0.858	0.951													
3. My boss helps me learn and improve.	0.800	0.863													
4. My boss genuinely cares about me.	0.806	0.804													
5. My boss encourages me when I have problems so that I can solve them.	0.734	0.798													
6. My boss is available to me when I ask for help.	0.701	0.748													
7. My boss is approachable.	0.800	0.722													
8. I really feel supported by my bosses.	0.829	0.716													
9. My boss helps me prevent and address burn-out.	0.776	0.665													
10. My boss is supportive of any on-the-job-training I attend.	0.675	0.645													
11. My boss shares important information.	0.604	0.396													
12. Promotions are handled fairly.	0.761		0.904												
13. Procedures at your organization have been free of bias.	0.716		0.856												
14. My organization does a good job of linking rewards to job performance.	0.746		0.832												
15. Procedures at your organization been applied consistently.	0.746		0.824												
16. Your outcome reflects what you have contributed to your organization.	0.732		0.637												
17. Where I work, there are fair privileges.	0.652		0.618												
18. Communication and information flow between the departments is satisfactory.	0.583		0.549												
19. My efforts are adequately rewarded.	0.666		0.445									0.410			
20. My organization communicates every new change that takes place.	0.575		0.375												0.304
21. The orders received are consistent.	0.635		0.365												
22. The goals and results obtained are shared with the employees.	0.616		0.349												
23. My job allows me to make decisions about what methods I use to complete my work.	0.755			0.889											
24. My job allows me to decide on the order in which things are done on the job.	0.751			0.841											
25. My job allows me to make a lot of decisions on my own.	0.735			0.824											
26. My job allows me to decide on my own how to go about doing my work.	0.787			0.822											
27. My job gives me considerable opportunity for independence and freedom in how I do the work.	0.827			0.820											
28. My job allows me to plan how I do my work.	0.741			0.778											
29. My job provides me with significant autonomy in making decisions.	0.723			0.761											
30. My job allows me to make my own decisions about how to schedule my work.	0.733			0.693											

(*Continued*)

Table 1. Continued.

Item	Communalities	Factor													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
31. My job gives me a chance to use my personal initiative or judgment in carrying out the work.	0.729			0.669											
32. The work I do serves a greater purpose.	0.787				0.946										
33. I know my work makes a positive difference in the world.	0.769				0.918										
34. My work helps me make sense of the world around me.	0.607				0.787										
35. I have discovered work that has a satisfying purpose.	0.778				0.755										
36. I have a good sense of what makes my job meaningful.	0.583				0.727										
37. I understand how my work contributes to my life's meaning.	0.599				0.702										
38. My work helps me better understand myself.	0.547				0.662										
39. I have found a meaningful career.	0.683				0.638										
40. My work really makes no difference to the world (reversed scored)	0.357				0.620										
41. I view my work as contributing to my personal growth.	0.638				0.535										
42. I have formed strong friendships at work.	0.756					0.879									
43. I can confide in people at work.	0.682					0.839									
44. I socialize with colleagues outside of the workplace.	0.617					0.826									
45. I have the opportunity to develop close friendships at my workplace.	0.754					0.825									
46. Being able to see my colleagues is one reason why I look forward to my job.	0.658					0.767									
47. I have the opportunity to get to know my colleagues.	0.584					0.688									
48. I feel I can trust many colleagues a great deal.	0.676					0.680									
49. I am able to work with my colleagues to collectively solve problems.	0.535					0.618									
50. In my organization, I have the chance to talk informally and visit with others.	0.598					0.517									
51. My job is well defined.	0.753						0.872								
52. Explanation is clear as what has to be done at work.	0.757						0.824								
53. The goals of my work are clearly defined.	0.764						0.769								
54. I know what my work responsibilities are.	0.576						0.700								
55. I know exactly what is expected of me at work.	0.685						0.699								
56. The relation between the job description and the tasks I carry out is good.	0.548						0.431								
57. There is a good fit between my personal life and work life.	0.806							0.906							
58. There is a good fit between my family life and work life.	0.778							0.877							
59. There is a good fit between my job and my personal health.	0.772							0.751							
60. I am able to do my job and not burn out.	0.682							0.717							
61. I have sufficient emotional energy for the job.	0.737							0.692							
62. Training programs in our organization help employees to achieve the required skill for performing the job effectively.	0.673								0.742						

(*Continued*)

Table 1. Continued.

Item	Communalities	Factor													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
63. My organization offers sufficient opportunities to develop my own abilities.	0.736								0.681						
64. My organization provides resources to facilitate my performance.	0.731								0.668						
65. My work offers opportunities for improving knowledge and skills.	0.665								0.545						
66. The job has the right level of challenge.	0.599								0.315						
67. My organization provides enough information to discharge my responsibilities.	0.664								0.302						
68. I am the right type of person for this type of work.	0.793									0.872					
69. I have the right skills and abilities for doing this job.	0.688									0.836					
70. My personality is a good match for this job.	0.716									0.699					
71. There is a good match between the requirements of this job and my skills.	0.714									0.674					
72. My organization is committed to my personal safety in the office.	0.607										0.588				
73. Help is available from my organization when I have a problem.	0.668										0.521				
74. Communication among employees is encouraged by my organization.	0.637					0.336					0.486				
75. Physical workspace is satisfactory.	0.434										0.477				
76. Your organization has treated you with dignity.	0.786		0.392								0.464				
77. Your organization has treated you with respect.	0.783		0.383								0.450				
78. My job lets me use my skills and abilities.	0.616										0.351				
79. My bosses value the ideas I put forward for improving the job.	0.788	0.373										0.661			
80. My boss values the order and accuracy in my work.	0.694	0.345										0.606			
81. In my job, innovative contributions are appreciated.	0.718											0.605			
82. When I do something well, my boss congratulates me.	0.739	0.518										0.547			
83. My work is adequately valued.	0.776											0.532			
84. My suggestions about the job are listened to.	0.735											0.510			
85. My efforts receive the recognition they deserve.	0.766		0.336									0.444			
86. The contribution of new ideas is encouraged.	0.630											0.436			
87. My organization allows a flexi-time option.	0.723												0.739		
88. My work offers schedule flexibility.	0.739												0.629		
89. It is easy to take time off during our work to take care of personal or family matters.	0.678												0.607		
90. My daily work activities give me a sense of direction and meaning.	0.793													0.665	
91. My job allows me to recraft my job to suit my strengths.	0.637													0.637	
92. My work offers challenges to advance my skills.	0.670								0.329					0.522	
93. My work brings a sense of satisfaction.	0.740													0.493	
94. In my work, I have a feeling of success and accomplishment.	0.729													0.450	
95. I feel capable and effective in my work on a day-to-day basis.	0.692													0.434	

(*Continued*)

Table 1. Continued.

Item	Communalities	Factor												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
96. My organization is complimentary of my accomplishments at work.	0.750														0.504
97. My organization cares about my general satisfaction at work.	0.773		0.306												0.472
98. My organization is willing to offer assistance to help me perform my job to the best of my ability.	0.713														0.391
99. My organization really cares about my wellbeing.	0.751		0.324												0.382

Note: Extraction method: principal axis factoring, rotation method: Promax with Kaiser normalisation. Factor loadings below 0.30 are not shown.

Table 2. Inter-factor correlations among the 14 SWWB factors (study 1, EFA).

factor	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1.000													
2	0.671	1.000												
3	0.573	0.490	1.000											
4	0.436	0.441	0.322	1.000										
5	0.453	0.404	0.328	0.376	1.000									
6	0.579	0.549	0.461	0.484	0.323	1.000								
7	0.517	0.528	0.557	0.444	0.364	0.483	1.000							
8	0.576	0.515	0.344	0.428	0.372	0.505	0.319	1.000						
9	0.377	0.378	0.453	0.500	0.361	0.475	0.479	0.285	1.000					
10	0.534	0.446	0.500	0.374	0.481	0.463	0.363	0.471	0.424	1.000				
11	0.568	0.604	0.598	0.440	0.371	0.528	0.524	0.358	0.495	0.519	1.000			
12	0.515	0.452	0.460	0.283	0.298	0.332	0.496	0.264	0.294	0.253	0.376	1.000		
13	0.487	0.520	0.413	0.579	0.457	0.535	0.494	0.387	0.558	0.485	0.509	0.271	1.000	
14	0.364	0.434	0.325	0.214	0.313	0.351	0.362	0.302	0.248	0.314	0.457	0.321	0.212	1.000

Note: Extraction method: principal axis factoring; rotation method: Promax with Kaiser normalisation.

Table 3. Internal consistency (Cronbach's alpha) for SWWB factors and SWWB scale (study 1, EFA).

SWWB construct	cronbach's α
Support from boss (11 items)	0.965
Fairness (11 items)	0.942
Autonomy (9 items)	0.956
Meaningful work (10 items)	0.921
Co-worker relationship (9 items)	0.927
Role clarity (6 items)	0.904
Work-Life balance (5 items)	0.926
Learning and professional development (6 items)	0.897
Person-Job fit (4 items)	0.895
Employee engagement (7 items)	0.897
Employee recognition (8 items)	0.948
Flexitime work (3 items)	0.874
Accomplishment (6 items)	0.917
Organisation support (4 items)	0.926
SWWB (99 items in total)	0.986

ranging from 0.889 to .957. Although AVE values for job performance (0.448) and DASS (0.470) were slightly below 0.50, their CR values exceeded 0.70, supporting convergent validity (Malhotra & Dash, 2011).

For discriminant validity, AVE values were compared against Maximum Shared Squared Variance (MSV). While SWWB, job satisfaction, and DASS showed some overlap, HTMT values ranged between 0.231 and 0.893, with only SWWB and job satisfaction (0.893) approaching the recommended threshold. This indicated generally adequate discriminant validity, with some expected conceptual overlap between closely related constructs. Descriptive statistics and reliability coefficients are presented in Table 4. Correlations between SWWB and related constructs are shown in Table 5. Convergent and discriminant validity indices are reported in Table 6, while HTMT ratios are presented in Table 7.

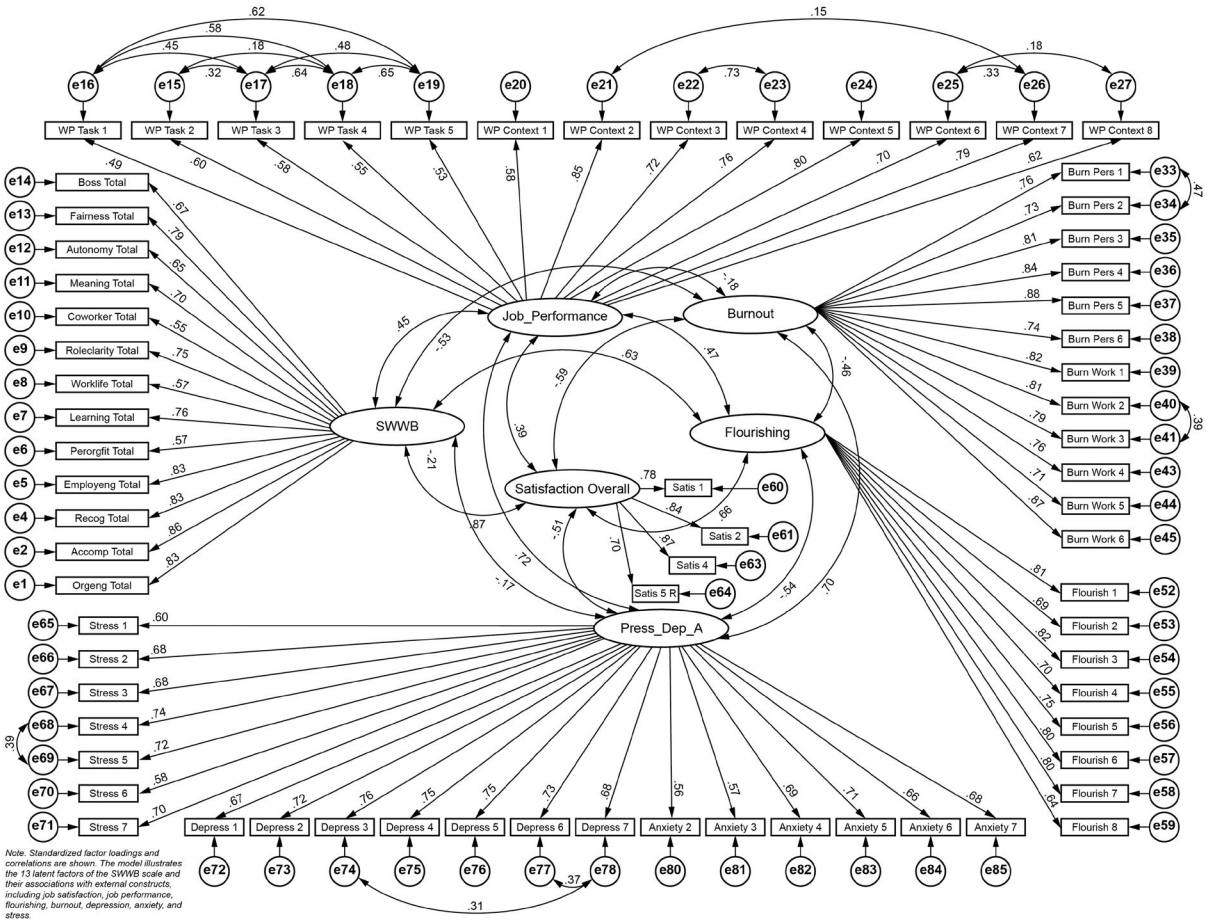

Figure 1. Confirmatory factor analysis (CFA) model of the SWWB scale (Study 2).

Nomological validity

Nomological validity was supported through correlations with related constructs. SWWB showed strong positive associations with job satisfaction (r = 0.873), job performance (r = 0.447), and flourishing (r = 0.628), and strong negative associations with burnout (r = –0.531) and DASS (r = –0.471), all representing large effect sizes.

When compared to the Singapore Mental Wellbeing (SMWEB) Scale, SWWB demonstrated stronger correlations with job satisfaction (0.760 vs 0.482), job performance (0.493 vs 0.471), and burnout (–0.419 vs –0.374). By contrast, SMWEB showed stronger correlations with flourishing (0.676 vs 0.599) and DASS (–0.507 vs –0.451). The correlation between SWWB and SMWEB itself was positive and moderate (r = 0.575). The results of the full SWWB CFA analysis model is presented in Figure 1.

Discussion

Study 1

In study 1, a 14-factor structure rather than a 13-factor structure as initially proposed through phase one study was found to be a better factor structure and consisted of 99 items. Specifically, the analysis revealed that the initial items comprising the 'work-life balance' construct had subdivided into two factors – one that measured maintaining a work-life balance and the other that measured having flexible work time. The analysis also revealed that the items in the 'transparency'construct as originally proposed in the qualitative phase one study are now subsumed under other factors. Transparency is concerned with information and the sharing of information, and it fosters trust and openness leading to better decision- making process within the organisation (Farrell, 2016). Thus, it would be expected that four

Table 4. Descriptive statistics for SWWB and other variables (study 2, CFA).

Variable	No of items	M	SD	Actual range	α	Skew	Kurtosis
SIJS	5	3.49	0.79	1.00-5.00	0.85	−0.56	0.41
FS	8	5.55	0.90	1.00-7.00	0.91	−0.63	0.40
DASS	21	1.74	0.57	1.00-4.00	0.94	0.99	0.68
Depression	7	1.69	0.65	1.00-4.00	0.90	1.16	1.09
Anxiety	7	1.65	0.59	1.00-4.00	0.83	1.01	0.54
Stress	7	1.89	0.63	1.00-4.00	0.87	0.65	0.01
CBI							
Personal	6	2.97	0.88	1.00-5.00	0.92	0.34	−0.38
Work	7	2.83	0.84	1.00-5.00	0.91	0.42	−0.19
Remote	6	2.37	0.97	1.00-5.00	0.88	0.57	−0.20
IWPQ							
Task	5	3.66	0.88	1.00-5.00	0.92	−0.26	−0.76
Contextual	8	3.32	0.89	1.00-5.00	0.91	−0.09	−0.78
Counter							
Productive	5	2.36	0.68	1.00-5.00	0.80	0.46	1.32
SMWEB	16	3.93	0.53	1.00-5.00	0.91	−0.49	0.76
SWWB	99	3.69	0.56	1.00-5.00	0.98	−0.42	0.62
Support							
From boss	11	3.70	0.77	1.00-5.00	0.95	−0.40	0.01
Fairness	11	3.36	0.71	1.00-5.00	0.93	−0.19	0.14
Autonomy	9	3.86	0.80	1.00-5.00	0.96	−0.94	1.61
Meaningful Work	10	3.87	0.75	1.00-5.00	0.94	−0.74	0.84
Co-worker Relationship	9	3.71	0.74	1.00-5.00	0.92	−0.65	0.86
Role Clarity	6	3.76	0.76	1.00-5.00	0.93	−0.93	1.73
Work-life Balance	5	3.38	0.94	1.00-5.00	0.93	−0.54	0.03
Learning & Professional Development	6	3.56	0.68	1.00-5.00	0.87	−0.39	0.26
Person-Organisation Fit	4	3.92	0.75	1.00-5.00	0.91	−0.57	0.41
Employee Engagement	7	3.88	0.66	1.00-5.00	0.90	−0.71	1.43
Employee Recognition	8	3.79	0.71	1.00-5.00	0.94	−0.71	1.07
Flexitime	3	3.57	1.04	1.00-5.00	0.88	−0.53	−0.25
Accomplish	6	3.65	0.83	1.00-5.00	0.92	−0.80	0.82
Organisation Support	4	3.46	0.86	1.00-5.00	0.92	−0.58	0.38

$N = 303$.
Note. SWWB = Singapore Workplace Wellbeing; SMWEB = Singapore Mental Wellbeing; SIJS = Short Index of Job Satisfaction; IWPQ = Individual Work Performance Questionnaire; FS = Flourishing Scale; CBI = Copenhagen Burnout Inventory; and DASS = Depression Anxiety and Stress Scale.

Table 5. Correlations between SWWB and other constructs (study 2, CFA).

Variables	SWWB	SMWEB	SIJS	IWPQ	FS	DASS	CBI
SWWB	1.00						
SMWEB	0.575	1.000					
SIJS	0.760	0.482	1.000				
IWPQ	0.493	0.471	0.399	1.000			
FS	0.599	0.676	0.573	0.502	1.000		
DASS	−0.451	−0.507	−0.529	−0.321	−0.498	1.000	
CBI	−0.419	−0.374	−0.524	−0.319	−0.400	0.647	1.000

Note. : All correlations significant at the $p = 0.01$ level (2-tailed). SWWB = Singapore Workplace Wellbeing; SMWEB = Singapore Mental Wellbeing; SIJS = Short Index of Job Satisfaction; IWPQ = Individual Work Performance Questionnaire; FS = Flourishing Scale; CBI = Copenhagen Burnout Inventory; and DASS = Depression Anxiety and Stress Scale.

Table 6. Convergent and discriminant validity indices for SWWB and other constructs (study 2, CFA).

	CR	AVE	MSV	MaxR	SWWB	SIJS	IWPQ	CBI	FS	DASS
SWWB	0.934	0.528	0.762	0.946	0.726					
SIJS	0.876	0.640	0.762	0.889	0.873**	0.800				
IWPQ	0.911	0.448	0.220	0.928	0.447**	0.388**	0.669			
CBI	0.953	0.631	0.485	0.957	−0.531**	−0.590**	−0.176*	0.795		
FS	0.913	0.569	0.432	0.919	0.628**	0.657**	0.469**	−0.457**	0.754	
DASS	0.946	0.470	0.485	0.949	−0.471**	−0.513**	−0.214*	0.696**	−0.540**	0.685

*Significant at the $p = 0.01$ level.
**Significant at the $p = 0.001$ level.
Note: CR = Composite Reliability, AVE = Average Variance Extracted; MSV = Maximum Shared Squared Variance; MaxR = Maximal Reliability; SWWB = Singapore Workplace Wellbeing; SIJS = Short Index of Job Satisfaction; IWPQ = Individual Work Performance Questionnaire; CBI = Copenhagen Burnout Inventory; FS = Flourishing Scale; and DASS = Depression Anxiety and Stress Scale.

items (items 18, 20, 21 and 22) which denote transparent communication, are subsumed under 'fairness' which according to Brotheridge (2003), is concerned with the way employees perceive if they are being treated equally. Item 11 is highly relevant in how employees perceive the amount of support they receive from their boss; it is critical that the leader or leaders of an organisation knows how to role model and

Table 7. Heterotrait–monotrait ratios (HTMT) for SWWB and other constructs (study 2, CFA).

	SWWB	SIJS	IWPQ	CBI	FS	DASS
SWWB						
SIJS	0.893					
IWPQ	0.517	0.406				
CBI	0.545	0.612	0.231			
FS	0.655	0.648	0.520	0.445		
DASS	0.492	0.534	0.273	0.690	0.534	

Note: SWWB = Singapore Workplace Wellbeing; SIJS = Short Index of Job Satisfaction; IWPQ = Individual Work Performance Questionnaire; CBI = Copenhagen Burnout Inventory; FS = Flourishing Scale; and DASS = Depression Anxiety and Stress Scale.

foster transparency in order to increase employee engagement which in turn increase support for their employees (Farrell, 2016; Jiang & Luo, 2018). The last item (item 67) is associated with learning and professional development as professional growth would only be possible if employees clearly know what their job responsibilities are and can therefore subsequently strive towards improving their knowledge and skillsets in their work.

Employee engagement is a newly named theme comprising of seven items. Employee engagement is an important construct that has been widely used in many organisations today (Bailey et al., 2017; Knight et al., 2017). Yet, several definitions for employee engagement exist and there is no consensus on a universal concept (Ling et al., 2013; Macey & Schneider, 2008). It has also been argued that employee engagement can be viewed as an evolving construct rather than one with a fixed theoretical background (Guest, 2013). Notwithstanding, Kahn (1990) introduced the initial concept of employee engagement (Shahruddin & Daud, 2018) where he explained that employee engagement involved three psychological conditions of meaningfulness, safety, and availability (Kahn, 1990); specifically, meaningfulness refers to the extent that an employee feels the work is worthwhile and valuable, as reflected item 78; safety refers to the extent an employee can express themselves without repercussions in a psychological and physically safe working environment, as reflected by four items which represent safety and respect - items 72, 75, 76, and 77. Availability refers to the extent of engagement between people and the amount of psychological resources that can be made available, as reflected in the remaining two items – items 73 and 74.

As mentioned previously, the 27-item iWorkHealth instrument was developed to identify workplace psychosocial risk factors amongst employees in the Singapore working population, and it consisted of five key dimensions (Abdin et al., 2019); the job demand dimension was associated with emotional drain and contradictory demands; the job control dimension was associated with skillset, availability of help and meaningful work; the supervisor and colleague support dimensions were associated with support from and relationship with supervisors and colleagues. Consistent with the iWorkHealth instrument, all the five dimensions were similarly identified in the SWWB scale except for pay and benefits, while employee engagement also emerged as a distinct dimension. This might be attributed to a greater focus on the fulfilment of psychological needs at the workplace beyond monetary rewards when addressing workplace wellbeing in Singapore. Thriving at work goes beyond monetary measurement (Seligman, 2011) and further monetary incentives may not necessarily lead to better wellbeing (Bunge, 2012; Easterlin, 2017; Mikucka & Sarracino, 2014). In fact, an increase in income has a much smaller impact on wellbeing in affluent countries as compared to when in poorer countries (Diener & Diener, 1995; Oishi et al., 1999), and psychological needs were found to be only weakly correlated with money and material resources (Diener, Ng et al., 2010; Tay & Diener, 2011). Monetary measurement as fulfilment of basic needs was important only during the early stages of economic growth in a country but indicators of wellbeing now include other factors such as interpersonal relationships as citizens become wealthier (Diener & Seligman, 2004). Thus, the current study expands upon the iWorkHealth instrument in terms of improving employee wellbeing, and the SWWB scale supported a holistic approach towards improving employee wellbeing (LaMontagne et al., 2007) consisting of a reduction in workplace risk factors and combined with a focus on the positive dimensions of work and on mental health (LaMontagne et al., 2014).

Further, while reducing workplace psychosocial risk factors is important, positive approaches aimed at promoting and improving employee mental wellbeing are equally important (LaMontagne et al., 2014) with the need to consider both the eudaimonic and hedonic aspects of wellbeing at the workplace (Keyes, 2005; LaMontagne et al., 2010). Some of these approaches can include developing a positive organisational culture and practices and creating meaningful work for the employees (Page & Vella-Brodrick,

2012). For example, research has indicated that older employees place greater emphasis on factors such as opportunities to utilise their knowledge and skills, having a sense of accomplishment and having good relationships with colleagues rather on financial incentives when considering whether to remain in the workforce (Kooij et al., 2008; Peeters & van Emmerik, 2008). In the Singapore context, this has important implications as the population and workforce are ageing rapidly, and it is expected that individuals aged 55 would make up 23% of the workforce in 2050 (Chuan, 2007). The SWWB scale consists of dimensions that not only address workplace psychosocial risk factors, but also taps into employee strengths and the positive aspects of work encompassing both the eudaimonic and hedonic elements of wellbeing.

Study 2

Based on the employee wellbeing framework developed by Danna and Griffin (1999) that identifies the important components of the nomological network of health and wellbeing in the workplace context, the SWWB model was developed for CFA analysis in which the core constructs of wellbeing are identified along with the nomological network including individual and organisational consequences that surrounds these constructs. The results of the SEM analysis have shown that the SWWB scale has a significant and positive association with positive individual and organisational consequences, but significant and negative association with negative individual and organisational consequences. The high correlation between SWWB and job satisfaction was expected as the concept of employee wellbeing can be seen as comprising of job satisfaction in the workplace context (Danna & Griffin, 1999). Both the concepts of employee wellbeing and job satisfaction have also been found to be related from past literature (Sironi, 2019). Yet, both concepts are clearly distinct as employee mental wellbeing reflects the positive aspects of mental health including the hedonic and eudaimonic components (Keyes, 2005; LaMontagne et al., 2010), and job satisfaction reflects the extent that employees like or dislike their jobs with an affective component (Spector, 2022).

The perception of job satisfaction can be directly influenced by an employee's mental health status (Warszewska-Makuch, 2021). While a meta-analysis conducted by Bowling et al. (2010) found evidence of a reciprocal relationship between wellbeing and job satisfaction, the authors also found that the influence of wellbeing on job satisfaction was greater than the influence of job satisfaction on wellbeing. This helps to establish the casual path from wellbeing to job satisfaction which could be explained from the dispositional perspective that posits that the affective state of an individual such as the experience of positive emotions can influence satisfaction in areas such as work domain (Diener, 1984; Diener, Ng et al., 2010); Judge & Hulin, 1993). Moreover, the mind-congruent theory also suggests that having positive emotions can lead to an individual having positive evaluations, and an employee with positive mental health is therefore likely to experience greater job satisfaction (Cao et al., 2022). This was supported by the study conducted by Cao et al. (2022) which indicated that the positive aspects of mental health had a significant and positive relationship with job satisfaction. Thus, the high correlation between the SWWB and job satisfaction in the current study is consistent with theory and prior empirical results; employee wellbeing tends to be too narrowly focused on being operationalised as job satisfaction (Rothmann, 2008), and investigation into employee wellbeing needs to involve examining factors beyond the concept of job satisfaction (Hone et al., 2015). In line with the recommendation by Hone et al. (2015), the current study has therefore helped to elucidate the specific the factors that comprised employee wellbeing.

Notwithstanding, the results supported a 13-factor structure rather than a 14-factor structure for the SWWB scale identified in study 1. Specifically, the 'flexi-work time' subscale was dropped from the SWWB scale due to loading of less than .50. First, it may be that many of the sample participants in study 3 did not perceive flexible work time as feasible or practical in their line of work. Second, it may be that they have yet to see the importance of having flexible work time. In fact, although concept of flexible work time work appears warranted, its utilisation by employees remains low (Williams et al., 2013).

In Singapore, it was found that employees were less likely to utilise flexible work options even if provided the opportunity (Hill, 2007; Straughan & Tadai, 2016). The reasons given included the lack of organisation support and procedures for the normalisation of flexible work time and employee concern of significant personal costs including pay and career progression (Straughan & Tadai, 2016). Third, it may

be that employees who utilised flexi work options might be already experiencing a high level of stress juggling work and family matters therefore making little difference to their level of wellbeing (Jones et al., 2008). Last, the context under which flexible work time can be effectively utilised, such as the cultural context, needs to be considered. For example, although having flexible work time is common in Europe (Wessels et al., 2019), this may not be the case in Asia. In fact, the work-life concept including having flexible work time originally stemmed from the USA and other developed economies (Hein, 2005), and most of the research around the work-life concept were conducted in Western countries and may not be applicable to other cultural contexts (Bowes, 2005; Lewis et al., 2007). For example, it was found that employees in collectivist societies tended to view work as a way to support their families and not to enhance their self-esteem which suggests that work demands are unlikely to significantly interfere with family demands (Lu et al., 2006). Although working life in Southeast Asia including Singapore has started to shift as a consequence of globalisation (Cieri & Bardoel, 2009), flexi work time is still a relatively new concept and has not gained widespread acceptance in organisations.

As expected, that workplace mental wellbeing had a significantly stronger and positive correlation with job satisfaction as compared with general mental wellbeing. General mental wellbeing, as measured by the SMWEB scale developed by Fen et al. (2013), was primarily intended as a measure of positive psychological functions of general life experiences of individuals in Singapore. At the workplace however, work life can present a different set of experiences for the individuals. Specifically, workplace wellbeing as measured by the SWWB scale was represented by 13 unique workplace factors. Workplace wellbeing is therefore likely to significantly correlated stronger with job satisfaction within the workplace context. As indicated by Danna and Griffin (1999), the concept of wellbeing can include measures of general experience such as life satisfaction in the context of general life experience, but within the workplace context, a measurement of generalised job-related experience such as job satisfaction is warranted.

Finally, from the contribution of phase one qualitative study and phase 2 (study 1 and study 2) quantitative study, study 2 provided further empirical support that established the construct validity of the SWWB scale in Singapore workplaces. Study 2 also provided empirical support for the important relationship between workplace mental wellbeing and job satisfaction. Specifically, workplace mental wellbeing had a significant and positive association with job performance and flourishing, yet, it had a significant and negative association with burnout and the negative emotional states of depression, anxiety and stress. Thus, the overall findings provide strong evidence for the psychometric rigour of the SWWB Scale.

Theoretical and practical implications

The current research presents organisations in Singapore with a psychometrically sound and culturally meaningful workplace wellbeing measuring tool that identifies important workplace factors. A novel contribution of this study is that the SWWB scale was specifically developed for use in the local context of Singapore with a culturally diverse population. In line with the recommendations by Danna and Griffin (1999), the workplace factors identified in the SWWB scale can be targeted for interventions to improve individual and organisation outcomes. Specifically, the SWWB scale goes beyond measuring organisational outcomes and taps into measuring the positive functions of individuals within the employee wellbeing framework. It is a practical tool for monitoring and enhancing employee wellbeing. Its multidimensional structure allows organisations to identify specific domains where employees may require additional resources or support. The tool can also be used to evaluate the effectiveness of wellbeing initiatives and to track changes over time, thereby informing evidence-based HR policies and organisational interventions. By capturing both individual and organisational dimensions of wellbeing, the SWWB scale provides practitioners and policymakers with actionable insights to foster healthier and more supportive workplaces in Singapore. Consequently, this would lead to positive benefits for the society and for the entire nation.

Limitations and further research

Several limitations of the current research were noted. First, the data were collected via self-report surveys which seemed appropriate as the focus of the research was on the participants' subjective experience of workplace mental wellbeing and general mental wellbeing. Although self-report surveys have a

few advantages such as easy accessibility to data, issues including common method variance and response bias are not uncommon (Podsakoff et al., 2012). Thus, steps were followed to minimise these issues. These include voluntary participation in the research and anonymity. Second, the current study involved the use of a cross-sectional survey design, with participants' responses captured at one point-in-time. While cross-sectional design studies are useful for exploratory studies (Spector, 2019), limitations exist. For example, the evaluation of temporal validity may be limited. Future studies could employ longitudinal research designs to assess participants' wellbeing over a period of time. Third, although the participants of the study came from a variety of industries, many of them were managers, professionals, technicians, and associate professionals. Many participants also had qualifications with a bachelor's degree and above. Thus, the findings may have limited generalisation to individuals outside of these categories. Future studies could address this issue with a larger sampling size consisting of participants of diverse and/or specific demographic groups.

The SWWB scale will benefit from further development and validation. The current development of the scale included an overrepresentation of employees in white-collar or knowledge-based occupations and an underrepresentation of employees who may not normally work with computers such as blue-collar workers, skill-based workers and workers in the food and entertainment industries. As Singapore moves towards emphasising on skill-based employment rather than solely relying on traditional yardsticks such as educational qualifications, it will be necessary to further validate the SWWB scale on these group of employees.

Conclusion

The current research was undertaken to develop a workplace wellbeing scale that is culturally appropriate in the Singapore workplace context. The findings indicate that the newly developed SWWB scale is a psychometrically sound instrument in terms of its structural validity and reliability and has significant potential to be used as a workplace wellbeing screening tool and in research within the Singapore context.

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No potential conflict of interest was reported by the author(s).

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Professor Machin consulted with a wide range of clients including Queensland Health, the Department of Public Works, Main Roads, Queensland Transport, the Department of Industrial Relations, Queensland Treasury, and the Department of Emergency Services. He completed needs analyses, organisational climate surveys, programme evaluation, and organisational improvement initiatives which involved the analysis of data from between several hundred to over 15,000 respondents.

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Data availability statement

The data that support the findings of this study are available from the corresponding author, C. C. E. Yip, upon reasonable request. Disclaimer for the Singapore Workplace Wellbeing Scale (SWWB) Copyright © 2025 Yip et al., All rights reserved. The Singapore Workplace Wellbeing Scale (SWWB) is the intellectual property of the authors. The scale items and scoring instructions are protected under copyright law, and the scale name is subject to trademark protection. Academic and research use: The SWWB may be freely used for non-commercial research, teaching, and academic purposes with proper citation of the original source (Yip et al., 2025). Commercial use: Any use of the SWWB for commercial, consulting, or organizational assessment purposes requires prior written permission from the authors.

References

Abdin, E., Subramaniam, M., Chan, A., Chen, J. A., Chong, C. L., Wang, C., Lee, M., & Gan, S. L. (2019). iWorkHealth: An instrument: To identify workplace psychosocial risk factors for a multi-ethnic Asian working population. *PloS One*, *14*(8), e0220566. https://doi.org/10.1371/journal.pone.0220566

Afonso, P., Fonseca, M., & Pires, J. F. (2017). Impact of working hours on sleep and mental health. *Occupational Medicine (Oxford, England)*, *67*(5), 377–382. https://doi.org/10.1093/occmed/kqx054

Afsar, B., Badir, Y. F., & Khan, M. M. (2015). Person–job fit, person–organization fit and innovative work behavior: The mediating role of innovation trust. *The Journal of High Technology Management Research*, *26*(2), 105–116. https://doi.org/10.1016/j.hitech.2015.09.001

Akhtar, C. S., Kashif, A., Arif, A., & Khan, A. (2012). Impact of long working hours on family wellbeing of corporate family. *World Applied Sciences Journal*, *16*(9), 1302–1307.

Alsagoff, L. (2010). English in Singapore: Culture, capital and identity in linguistic variation. *World Englishes*, *29*(3), 336–348. https://doi.org/10.1111/j.1467-971X.2010.01658.x

Aon. (2017). *APAC benefits strategy study 2017*. https://www.aon.com/australia/insights/people-risk/2017/apac-benefits-strategy-study-2017

Bailey, C., Madden, A., Alfes, K., & Fletcher, L. (2017). The meaning, antecedents and outcomes of employee engagement: A narrative synthesis. *International Journal of Management Reviews*, *19*(1), 31–53. https://doi.org/10.1111/ijmr.12077

Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual Differences*, *42*(5), 815–824. https://doi.org/10.1016/j.paid.2006.09.018

Bian, Y., & Ang, S. (1997). Guanxi networks and job mobility in China and Singapore. *Social Forces*, *75*(3), 981. https://doi.org/10.2307/2580527

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health*, *6*, 149. https://doi.org/10.3389/fpubh.2018.00149

Bowes, J. M. (2005). Emphasizing the family in work family research: A review of current research and recommendations for future directions. In S. A. Y. Poelmans (Ed.), *Work and family: An international research perspective* (pp. 415–438). Erlbaum.

Bowling, N. A., Eschleman, K. J., & Wang, Q. (2010). A meta-analytic examination of the relationship between job satisfaction and subjective well-being. *Journal of Occupational and Organizational Psychology*, *83*(4), 915–934. https://doi.org/10.1348/096317909X478557

Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. Sage.

Brayfield, A. H., & Rothe, H. F. (1951). An index of job satisfaction. *Journal of Applied Psychology*, *35*(5), 307–311. https://doi.org/10.1037/h0055617

Brotheridge, C. M. (2003). The role of fairness in mediating the effects of voice and justification on stress and other outcomes in a climate of organizational change. *International Journal of Stress Management*, *10*(3), 253–268. https://doi.org/10.1037/1072-5245.10.3.253

Bunge, M. (2012). Wealth and well-being, economic growth, and integral development. *International Journal of Health Services: planning, Administration, Evaluation*, *42*(1), 65–76. https://doi.org/10.2190/hs.42.1.g

Camfield, L. (2004). Measuring SWB in developing countries. In W. Glatzer, S. Von Below, & M. Stoffregen (Eds.), *Challenges for the quality of life in contemporary societies* (pp. 268-288). Kluwer Academic Publishers.

Camfield, L. (2006). *The why and the how? Understanding subjective wellbeing in four developing countries: Exploratory work by the WoD group*. Wellbeing in Developing Countries Group, Economic and Social Research Council. http://www.welldev.org.uk/research/workingpaperpdf/wed26.pdf

Cao, X., Zhang, H., Li, P., & Huang, X. (2022). The influence of mental health on job satisfaction: Mediating effect of psychological capital and social capital. *Frontiers in Public Health*, *10*, 797274. https://doi.org/10.3389/fpubh.2022.797274

Chari, R., Chang, C. C., Sauter, S. L., Petrun Sayers, E. L., Cerully, J. L., Schulte, P., Schill, A. L., & Uscher-Pines, L. (2018). Expanding the paradigm of occupational safety and health: A new framework for worker well-being. *Journal of Occupational and Environmental Medicine*, *60*(7), 589–593. https://doi.org/10.1097/JOM.0000000000001330

Christopher, J. C. (1999). Situating psychological well-being: Exploring the cultural roots of its theory and research. *Journal of Counseling & Development*, *77*(2), 141–152. https://doi.org/10.1002/j.1556-6676.1999.tb02434.x

Chuan, K. E. (2007). Labour force growth in Singapore. *Asian Population Studies*, *3*, 207–220. https://doi.org/10.1080/17441730701746292

Cieri, H. D., & Bardoel, E. A. (2009). What does 'work–life management' mean in China and Southeast Asia for MNCs? *Community, Work & Family*, *12*(2), 179–196. https://doi.org/10.1080/13668800902778959

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.

Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*(1), 155–159. https://doi.org/10.1037//0033-2909.112.1.155

Colquitt, J. A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *The Journal of Applied Psychology*, *86*(3), 386–400. https://doi.org/10.1037/0021-9010.86.3.386

Cooper, C. L. (2009). The changing nature of work: Enhancing the mental capital and well-being of the workplace. *Twenty-First Century Society*, *4*(3), 269–275. https://doi.org/10.1080/17450140903197393

Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment Research & Evaluation*, *10*, 1–9.

Cox, T., & Cox, S. (1992). Occupational health: Past, present and future. *Work & Stress*, *6*(2), 99–102. https://doi.org/10.1080/02678379208260343

Danna, K., & Griffin, R. W. (1999). Health and well-being in the workplace: A review and synthesis of the literature. *Journal of Management*, *25*(3), 357–384. https://doi.org/10.1177/014920639902500305

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, *95*(3), 542–575. https://doi.org/10.1037/0033-2909.95.3.542

Diener, E., & Diener, M. (1995). Cross-cultural correlates of life satisfaction and self-esteem. *Journal of Personality and Social Psychology*, *68*(4), 653–663. https://doi.org/10.1037//0022-3514.68.4.653

Diener, E., Ng, W., Harter, J., & Arora, R. (2010). Wealth and happiness across the world: Material prosperity predicts life evaluation, whereas psychosocial prosperity predicts positive feeling. *Journal of Personality and Social Psychology*, *99*(1), 52–61. https://doi.org/10.1037/a0018066

Diener, E., & Seligman, M. E. P. (2004). Beyond money: Toward an economy of well-being. *Psychological Science in the Public Interest: A Journal of the American Psychological Society*, *5*(1), 1–31. https://doi.org/10.1111/j.0963-7214.2004.00501001.x

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research*, *97*(2), 143–156. https://doi.org/10.1007/s11205-009-9493-y

Doll, W. J., Xia, W., & Torkzadeh, G. (1994). A confirmatory factor analysis of the end-user computing satisfaction instrument. *MIS Quarterly*, *18*(4), 453. https://doi.org/10.2307/249524

Easterlin, R. A. (2017). Economic growth increases people's well-being. In B. S. Frey, D. Iselin (Eds), *Economic ideas you should forget* (pp.37–38). Springer.

Edwards, J. R. (1996). An examination of competing versions of the person–environment fit approach to stress. *Academy of Management Journal*, *39*(2), 292–339. https://doi.org/10.2307/256782

Eisenberger, R., Shanock, L. R., & Wen, X. (2020). Perceived organizational support: Why caring about employees counts. *Annual Review of Organizational Psychology and Organizational Behavior*, *7*(1), 101–124. https://doi.org/10.1146/annurev-orgpsych-012119-044917

Farrell, M. (2016). Transparency. *Journal of Library Administration*, *56*(4), 444–452. https://doi.org/10.1080/01930826.2016.1157426

Fen, C. M., Isa, I., Chu, C. W., Ling, C., & Ling, S. Y. (2013). Development and validation of a mental wellbeing scale in Singapore. *Psychology*, *04*(07), 592–606. https://doi.org/10.4236/psych.2013.47085

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.2307/3151312

Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences*, *102*, 74–78. https://doi.org/10.1016/j.paid.2016.06.069

Goh, Y. W., Kim, S., Wang, R., & Goh, P. S. (2025). Do Chinese employees avoid seeking social support when coping with work stress? *Journal of Management & Organization*, *31*(4), 2079–2097. https://doi.org/10.1017/jmo.2022.48

Goh, Y. W., Sawang, S., Oei, T. P. S., & Ranawake, D. S. (2012). An Asian perspective of occupational stress coping model: A case study of Sri Lankan employees. *The Australian and New Zealand Journal of Organisational Psychology*, *5*, 25–31. https://doi.org/10.1017/orp.2012.5

Gopalkrishnan, N., & Babacan, H. (2015). Cultural diversity and mental health. *Australasian Psychiatry: bulletin of Royal Australian and New Zealand College of Psychiatrists*, *23*(6 Suppl), 6–8. https://doi.org/10.1177/1039856215609769

Guest, D. E. (2013). Employee engagement: Fashionable fad or long-term fixture. In C. Truss, K. Alfes, R. Delbridge, A. Shantz, & E. Soane (Eds.), *Employee engagement in theory and practice* (pp. 221-235). Routledge.

Guest, D. E. (2017). Human resource management and employee well-being: Towards a new analytic framework. *Human Resource Management Journal*, *27*(1), 22–38. https://doi.org/10.1111/1748-8583.12139

Hart, P. M., & Cooper, C. L. (2001). Occupational stress: Toward a more integrated framework. In N. Anderson, D. S. Ones, H. K. Sinangil & C. Viswesvaran (Eds.), *Handbook of industrial, work and organisational psychology* (Vol 2., pp. 93–114). London.

Hein, C. (2005). *Reconciling work and family responsibilities: Practical ideas from global experience*. International Labor Organization.

Hill, E. J. (2007). *Singapore national study of work-life harmony: Final report*. Brigham Young University.

Hill, M., & Lian, K. F. (1995). *The politics of nation building and citizenship in Singapore*. Routledge.

Ho, J. T. S. (1997). Corporate wellness programmes in Singapore: Effect on stress, satisfaction and absenteeism. *Journal of Managerial Psychology*, *12*(3), 177–189. https://doi.org/10.1108/02683949710174801

Hone, L. C., Jarden, A., Duncan, S., & Schofield, G. M. (2015). Flourishing in New Zealand workers: Associations with lifestyle behaviors, physical health, psychosocial, and work-related indicators. *Journal of Occupational and Environmental Medicine*, *57*(9), 973–983. https://doi.org/10.1097/JOM.0000000000000508

Hooper, D., Couglan, J., & Mullen, M. R. (2008). Structural equation model: Guidelines for determining model fit. *Electronic Journal of Business Research Methods*, *6*, 53–60.

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika*, *30*(2), 179–185. https://doi.org/10.1007/BF02289447

Hsu, Y.-Y., Bai, C.-H., Yang, C.-M., Huang, Y.-C., Lin, T.-T., & Lin, C.-H. (2019). Long hours' effects on work-life balance and satisfaction. *BioMed Research International*, *2019*, 5046934–5046938. https://doi.org/10.1155/2019/5046934

Hughes, E. L., & Parkes, K. R. (2007). Work hours and well-being: The roles of work-time control and work–family interference. *Work & Stress*, *21*(3), 264–278. https://doi.org/10.1080/02678370701667242

Imran, M. Y., Elahi, N. S., Abid, G., Ashfaq, F., & Ilyas, S. (2020). Impact of perceived organizational support on work engagement: Mediating mechanism of thriving and flourishing. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(3), 82. https://doi.org/10.3390/joitmc6030082

International Labor Organization. (1986). *Psychosocial factors at work: Recognition and control*. Report of the Joint International Labour Office and World Health Organization on Occupational Health, Ninth Session, Geneva, 18–24 September 1984. Occupational Safety and Health Series No. 56. ILO.

Jiang, H., & Luo, Y. (2018). Crafting employee trust: From authenticity, transparency to engagement. *Journal of Communication Management*, *22*(2), 138–160. https://doi.org/10.1108/JCOM-07-2016-0055

Jones, B. L., Scoville, D. P., Hill, E. J., Childs, G., Leishman, J. M., & Nally, K. S. (2008). Perceived versus used workplace flexibility in Singapore: Predicting work-family fit. *Journal of Family Psychology: JFP: journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, *22*(5), 774–783. https://doi.org/10.1037/a0013181

Joshanloo, M., Van de Vliert, E., & Jose, P. E. (2021). Four fundamental distinctions in conceptions of wellbeing across cultures. In M. L. Kern & M. L. Wehmeyer (Eds.), *The Palgrave handbook of positive education* (pp. 207-226). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-64537-3_26

Judge, T. A., & Hulin, C. L. (1993). Job satisfaction as a reflection of disposition: A multiple source causal analysis. *Organizational Behavior and Human Decision Processes*, *56*(3), 388–421. https://doi.org/10.1006/obhd.1993.1061

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, *33*(4), 692–724. https://doi.org/10.2307/256287

Kenny, D. A., & McCoach, D. B. (2003). Effect of the number of variables on measures of fit in structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, *10*(3), 333–351. https://doi.org/10.1207/S15328007SEM1003_1

Keyes, C. L. M. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, *73*(3), 539–548. https://doi.org/10.1037/0022-006X.73.3.539

Kline, P. (1999). *The handbook of psychological testing* (2nd ed.). Routledge.

Knight, C., Patterson, M., & Dawson, J. F. (2017). Building work engagement: A systematic review and meta-analysis investigating the effectiveness of work engagement interventions. *Journal of Organizational Behavior*, *38*(6), 792–812. https://doi.org/10.1002/job.2167

Koopmans, L., Coffeng, J. K., Bernaards, C. M., Boot, C. R., Hildebrandt, V. H., de Vet, H. C., & van der Beek, A. J. (2014). Responsiveness of the individual work performance questionnaire. *BMC Public Health*, *14*(1), 513. https://doi.org/10.1186/1471-2458-14-513

Kooij, D., de Lange, A., Jansen, P., & Dikkers, J. (2008). Older workers' motivation to continue to work: Five meanings of age: A conceptual review. *Journal of Managerial Psychology*, *23*(4), 364–394. https://doi.org/10.1108/02683940810869015

Kowalski, T. H. P., & Loretto, W. (2017). Well-being and HRM in the changing workplace. *The International Journal of Human Resource Management*, *28*(16), 2229–2255. https://doi.org/10.1080/09585192.2017.1345205

Kristensen, T. S., Borritz, M., Villadsen, E., & Christensen, K. B. (2005). The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work & Stress*, *19*(3), 192–207. https://doi.org/10.1080/02678370500297720

LaMontagne, A. D., Keegel, T., Louie, A. M., & Ostry, A. (2010). Job stress as a preventable upstream determinant of common mental disorders: A review for practitioners and policy-makers. *Advances in Mental Health*, *9*(1), 17–35. https://doi.org/10.5172/jamh.9.1.17

LaMontagne, A. D., Keegel, T., Louie, A. M., Ostry, A., & Landsbergis, P. A. (2007). A systematic review of the job-stress intervention evaluation literature, 1990-2005. *International Journal of Occupational and Environmental Health*, *13*(3), 268–280. https://doi.org/10.1179/oeh.2007.13.3.268

LaMontagne, A. D., Martin, A., Page, K. M., Reavley, N. J., Noblet, A. J., Milner, A. J., Keegel, T., & Smith, P. M. (2014). Workplace mental health: Developing an integrated intervention approach. *BMC Psychiatry*, *14*(1), 131. https://doi.org/10.1186/1471-244X-14-131

Lauver, K. J., & Kristof-Brown, A. (2001). Distinguishing between employees' perceptions of person–job and person–organization fit. *Journal of Vocational Behavior*, *59*(3), 454–470. https://doi.org/10.1006/jvbe.2001.1807

Lewis, S., Gambles, R., & Rapoport, R. (2007). The constraints of a 'work-life balance' approach: An international perspective. *The International Journal of Human Resource Management*, *18*(3), 360–373. https://doi.org/10.1080/09585190601165577

Lim, W. (2010). A culture of work-life 'imbalance' in Singapore. *New Zealand Journal of Asian Studies*, *12*(2), 22–37.

Ling, S. C., Norslah, M., & Mohammed, A. (2013). Organizational practices and employee engagement: A case of Malaysia electronics manufacturing firms. *Business Strategy Series*, *14*(1), 3–10. https://doi.org/10.1108/17515631311295659

Litchfield, P., Cooper, C., Hancock, C., & Watt, P. (2016). Work and wellbeing in the 21st century. *International Journal of Environmental Research and Public Health*, *13*(11), 1065. https://doi.org/10.3390/ijerph13111065

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-u

Lu, L., Gilmour, R., Kao, S., & Huang, M.-T. (2006). A cross-cultural study of work/family demands, work/family conflict and wellbeing: The Taiwanese vs British. *Career Development International*, *11*(1), 9–27. https://doi.org/10.1108/13620430610642354

Macey, W., & Schneider, B. (2008). The meaning of employee engagement. *Industrial and Organizational Psychology*, *1*(1), 3–30. https://doi.org/10.1111/j.1754-9434.2007.0002.x

Malhotra, N. K., & Dash, S. (2011). *Marketing research an applied orientation*. Pearson Publishing.

Manpower Research and Statistics Department, Ministry of Manpower. (2019). *Labour market report*. https://stats.mom.gov.sg/Pages/Labour-Market-Report-4Q-2019.aspx

Mikucka, M., & Sarracino, F. (2014). *Making economic growth and well-being compatible: the role of trust and income inequality*. MPRA Paper 59695, University Library of Munich.

Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *The Journal of Applied Psychology*, *91*(6), 1321–1339. https://doi.org/10.1037/0021-9010.91.6.1321

Mundfrom, D. J., Shaw, D. G., & Ke, T. L. (2005). Minimum sample size recommendations for conducting factor analyses. *International Journal of Testing*, *5*(2), 159–168. https://doi.org/10.1207/s15327574ijt0502_4

Nielsen, I. K., Jex, S. M., & Adams, G. A. (2000). Development and validation of scores on a two-dimensional Workplace Friendship Scale. *Educational and Psychological Measurement*, *60*(4), 628–643. https://doi.org/10.1177/00131640021970655

O'connor, B. P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instruments, & Computers*, *32*(3), 396–402. https://doi.org/10.3758/BF03200807

Oishi, S., Diener, E. F., Lucas, R. E., & Suh, E. M. (1999). Cross-cultural variations in predictors of life satisfaction: Perspectives from needs and values. *Personality and Social Psychology Bulletin*, *25*(8), 980–990. https://doi.org/10.1177/01461672992511006

Page, K. M., & Vella-Brodrick, D. A. (2012). From nonmalfeasance to beneficence: Key criteria, approaches, and ethical issues relating to positive employee health and well-being. In N. Reilly, M. Sirgy, & C. Gorman (Eds.),. *Work and quality of life. International handbooks of quality-of-life*. Springer (pp. 417-435). https://doi.org/10.1007/978-94-007-4059-4_25

Parker, G. B., & Hyett, M. P. (2011). Measurement of well-being in the workplace. *The Journal of Nervous and Mental Disease*, *199*(6), 394–397. https://doi.org/10.1097/nmd.0b013e31821cd3b9

Peeters, M. C. W., & van Emmerik, H. (2008). An introduction to the work and well-being of older workers: From managing threats to creating opportunities. *Journal of Managerial Psychology*, *23*(4), 353–363. https://doi.org/10.1108/02683940810869006

Peña-Suárez, E., Muñiz, J., Campillo-Álvarez, Á., Fonseca-Pedrero, E., & García-Cueto, E. (2013). Assessing organizational climate: Psychometric properties of the CLIOR Scale. *Psicothema*, *25*(1), 137–144. https://doi.org/10.7334/psicothema2012.260

Pescud, M., Teal, R., Shilton, T., Slevin, T., Ledger, M., Waterworth, P., & Rosenberg, M. (2015). Employers' views on the promotion of workplace health and wellbeing: A qualitative study. *BMC Public Health*, *15*(1), 642. https://doi.org/10.1186/s12889-015-2029-2

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, *63*(1), 539–569. https://doi.org/10.1146/annurev-psych-120710-100452

Restubog, S. L. D., Ocampo, A. C. G., & Wang, L. (2020). Taking control amidst the chaos: Emotion regulation during the COVID-19 pandemic. *Journal of Vocational Behavior*, *119*, 103440. https://doi.org/10.1016/j.jvb.2020.103440

Rizzo, J. R., House, R. J., & Lirtzman, S. I. (1970). Role conflict and ambiguity in complex organizations. *Administrative Science Quarterly*, *15*(2), 150–163. https://doi.org/10.2307/2391486

Rojas, M., & García Vega, J. J. (2017). Well-being in Latin America. In R. Estes & J. Sirgy (Eds.), *The pursuit of human well-being* (pp. 217–255). Springer International Publishing.

Rothmann, S. (2008). Job satisfaction, occupational stress, burnout and work engagement as components of work-related wellbeing. *SA Journal of Industrial Psychology*, *34*(3), 11-16. https://doi.org/10.4102/sajip.v34i3.424

Seligman, M. (2011). *Flourishing*. Free Press.

Shahruddin, S., & Daud, N. (2018). Employee engagement determinants and employee retention: A study among generation Y employees in Malaysia. In F. Noordin, A. Othman, & E. Kassim (Eds). *Proceedings of the 2nd Advances in Business Research International Conference*. Springer (pp. 443-453). https://doi.org/10.1007/978-981-10-6053-3_30

Sironi, E. (2019). Job satisfaction as a determinant of employees' optimal well-being in an instrumental variable approach. *Quality & Quantity*, *53*(4), 1721–1742. https://doi.org/10.1007/s11135-019-00835-3

Smith, B. D. (2005). Job retention in child welfare: Effects of perceived organizational support, supervisor support, and intrinsic job value. *Children and Youth Services Review*, *27*(2), 153–169. https://doi.org/10.1016/j.childyouth.2004.08

Spector, P. E. (2019). Do not cross me: Optimizing the use of cross-sectional designs. *Journal of Business and Psychology*, *34*(2), 125–137. https://doi.org/10.1007/s10869-018-09613-8

Spector, P. E. (2022). *Job satisfaction: From assessment to intervention* (1st ed.). Routledge. https://doi.org/10.4324/9781003250616

Steger, M. F., Dik, B. J., & Duffy, R. D. (2012). Measuring meaningful work. *Journal of Career Assessment*, *20*(3), 322–337. https://doi.org/10.1177/1069072711436160

Straughan, P. T., & Tadai, M. E. (2016). Addressing the implementation gap: An integrated approach to identifying barriers and facilitators to flexi work arrangements in Singapore. *Asia Pacific Journal of Human Resources*, 1–20. https://doi.org/10.1111/1744-7941.12126

Swamy, D. R., Nanjundeswaraswamy, T. S., & Rashmi, S. (2015). Quality of work life: Scale development and validation. *International Journal of Caring Sciences*, *8*(2), 281–300.

Tambyah, S. K., & Tan, S. J. (2013). *Happiness and wellbeing: The Singapore experience*. Routledge.

Tan, P. L. (2021). Stress, fatigue, and sexual spontaneity among married couples in a high-stress society: Evidence from sex diary data from Singapore. *Archives of Sexual Behavior*, *50*(6), 2579–2588. https://doi.org/10.1007/s10508-020-01848-y

Taris, T. W., & Schaufeli, W. B. (2015). Individual well-being and performance at work: A conceptual and theoretical overview. In M. V. Veldhoven & R. Peccei (Eds.), *Well-being and performance at work* (pp. 15–34). Psychology Press.

Tay, L., & Diener, E. (2011). Needs and subjective well-being around the world. *Journal of Personality and Social Psychology*, *101*(2), 354–365. https://doi.org/10.1037/a0023779

Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes*, *5*(1), 63. Article https://doi.org/10.1186/1477-7525-5-63

Tov, W., & Diener, E. (2009). The well-being of nations: Linking together trust, cooperation, and democracy. In E. Diener (Ed.), *Social indicators research series: Vol. 37. The science of well-being: The collected works of Ed Diener* (pp. 155–173). Springer Science + Business Media. https://doi.org/10.1007/978-90-481-2350-6_7

Tsutsumi, A. (2019). Preventing overwork-related deaths and disorders—needs of continuous and multi-faceted efforts. *Journal of Occupational Health*, *61*(4), 265–266. https://doi.org/10.1002/1348-9585.12062

Vaingankar, J. A., Subramaniam, M., Chong, S. A., Abdin, E., Orlando Edelen, M., Picco, L., Lim, Y. W., Phua, M. Y., Chua, B. Y., Tee, J. Y., & Sherbourne, C. (2011). The positive mental health instrument: Development and validation of a culturally relevant scale in a multi-ethnic Asian population. *Health and Quality of Life Outcomes*, *9*(1), 92. https://doi.org/10.1186/1477-7525-9-92

Warszewska-Makuch, M. (2021). Workplace bullying, mental health and job satisfaction: The moderating role of the individual coping style. In D. Żołnierczyk-Zreda (Ed.), *Healthy worker and healthy organization: A resource-based approach* (pp. 105–132). CRC Press/Routledge/Taylor & Francis Group. https://doi.org/10.1201/9781003032434-6

Wessels, C., Schippers, M. C., Stegmann, S., Bakker, A. B., van Baalen, P. J., & Proper, K. I. (2019). Fostering flexibility in the new world of work: A model of time-spatial job crafting. *Frontiers in Psychology*, *10*, 505. https://doi.org/10.3389/fpsyg.2019.00505

WHO. (2022). *Guidelines on mental health at work*. World Health Organization.

Wierzbicka, A. (2004). "Happiness" in cross-linguistic & cross-cultural perspective. *Daedalus*, *133*(2), 34–43. https://doi.org/10.1162/001152604323049370

Williams, J. C., Blair-Loy, M., & Berdahl, J. L. (2013). Cultural schemas, social class, and the flexibility stigma. *Journal of Social Issues*, *69*(2), 209–234. https://doi.org/10.1111/josi.12012

Wipfli, H., Zacharias, K. D., Hundal, N., Shigematsu, L. M., Bahl, D., Arora, M., Bassi, S., & Kumar, S. (2018). Workplace wellness programming in low-and middle-income countries: A qualitative study of corporate key informants in Mexico and India. *Globalization and Health*, *14*(1), 46. https://doi.org/10.1186/s12992-018-0362-9

Wu, L., Rusyidi, B., Claiborne, N., & McCarthy, M. L. (2013). Relationships between work–life balance and job-related factors among child welfare workers. *Children and Youth Services Review*, *35*(9), 1447–1454. https://doi.org/10.1016/j.childyouth.2013.05.017

Yearbook of Statistics Singapore. (2019). *Department of Statistics, Ministry of Trade and Industry, Republic of Singapore*. https://www.singstat.gov.sg/-/media/files/publications/reference/yearbook_2019/yos2019.pdf

Yip, C. C. E., Machin, M. A., & Wah Goh, Y. (2024). A qualitative study on workplace mental wellbeing in the Singapore context. *The Qualitative Report*, *29*(7), 1981–2015. https://doi.org/10.46743/2160-3715/2024.6795

Zhang, L. (2005). Prediction of Chinese life satisfaction: Contribution of collective self-esteem. *International Journal of Psychology*, *40*(3), 189–200. https://doi.org/10.1080/00207590444000285

Appendix A

Demographic characteristics of participants in study 1 (N = 318)

		n	%
Gender	Female	190	59.7
	Male	128	40.3
Age	Under 21	2	0.6
	21–30	84	26.4
	31–40	103	32.4
	41–50	75	23.6
	51–60	38	11.9
	Over 60	16	5
Marital Status	Single	145	45.6
	Married	156	49.1
	Divorced	16	50
	Widow	1	0.3
Place of birth	Singapore	265	83.3
	Other	53	16.7
Length of time living in Singapore	Under 5 years	10	3.1
	5-10 years	15	4.7
	Over 10 years	293	92.1
Ethnicity (Culture)	Chinese	255	80.2
	Malay	16	5
	Indian	29	9.1
	Eurasian	5	1.6
	Other	13	4.1
Religion	Buddhism	64	20.1
	Christianity	114	35.8
	Hinduism	9	2.8
	Muslim	20	6.3
	Taoism	8	2.5
	Free Thinker	92	28.9
	Other	11	3.5
Highest level of education completed	"O" Level	18	5.7
	"A" Level	12	3.8
	Poly	29	9.1
	Bachelor's	161	50.6
	Master's and above	98	30.8
Occupation			
Major Group classification			
Managers		113	35.5%
Professionals		116	36.5%
Technicians and Associate Professionals		37	11.6%
Clerical Support Workers		16	5.0%
Services and Sales Workers		20	6.3%
Plant and Machine Operators and Assemblers		1	0.3%
Armed Forces Occupations		2	0.6%
Not Specified		13	4.1%
Sub-major Group Classification			
Chief Executives, Senior Officials and Legislators		31	9.7%
Administrative and Commercial Managers		42	13.2%
Production and Specialised Services Managers		20	6.3%
Science and Engineering Professionals		9	2.8%
Health Professionals		16	5.0%
Teaching Professionals		23	7.2%
Business and Administration Professionals		6	1.9%
Information and Communications Technology Professionals		1	0.3%
Legal, Social and Cultural Professionals		57	17.9%
Science and Engineering Associate Professionals		5	1.6%
Health Associate Professionals		6	1.9%

(*Continued*)

Appendix A. Continued.

		n	%
Business and Administration Associate Professionals		12	3.8%
Legal, Social, Cultural and Related Associate Professionals		7	2.2%
Information and Communications Technicians		2	0.6%
Customer Services Clerks		4	1.3%
Other Clerical Support Workers		11	3.5%
Personal Services Workers		4	1.3%
Sales Workers		8	2.5%
Personal Care Workers		3	0.9%
Protective Services Workers		5	1.6%
Drivers and Mobile Plant Operators		1	0.3%
Non-commissioned Armed Forces Officers		1	0.3%
Armed Forces Occupations, Other Ranks		1	0.3%
Not Specified		43	13.5%
Employment Level	Junior Staff	87	27.4
	Senior Staff	79	24.8
	Supervisor	18	5.7
	Manager	79	24.8
	Business Owner	31	9.7
	Others	24	7.5
Employment Status	Full-time	277	87.1
	Part-time	25	7.9
	Casual/Freelance	16	5.0
Length of Employment (current workplace)	Less than 1 year	75	23.6
	1 to 2 years	61	19.1
	3 to 5 years	72	22.6
	6 to 10 years	53	16.7
	11 to 15 years	24	7.5
	16 to 20 years	13	4.1
	More than 20 years	20	6.3
Total length of employment	Less than 1 year	28	8.8
	1 to 2 years	20	6.3
	3 to 5 years	49	15.4
	6 to 10 years	53	16.7
	11 to 15 years	58	18.2
	16 to 20 years	34	10.7
	More than 20 years	76	23.9

Appendix B

Demographic characteristics of participants in study 2 (N = 303)

		n	%
Gender	Female	180	59.4
	Male	123	40.6
Age	Under 21	4	1.3
	21–30	98	32.3
	31–40	110	36.3
	41–50	53	17.5
	51–60	29	9.6
	Over 60	9	3.0
Marital Status	Single	177	58.5
	Married	108	35.6
	Divorced	18	5.9
	Widow	0	0
Place of birth	Singapore	250	82.5
	Other	53	17.5
Length of time living in Singapore	Under 5 years	19	6.3
	5–10 years	18	5.9
	Over 10 years	266	87.8
Ethnicity (Culture)	Chinese	238	78.5
	Malay	17	5.6
	Indian	23	7.6
	Eurasian	10	3.3
	Others	15	5.0
Religion	Buddhism	63	20.8
	Christianity	105	34.7
	Hinduism	8	2.6
	Muslim	25	8.3
	Taoism	12	4.0
	Free Thinker	82	27.1
	Others	8	2.5

(*Continued*)

Appendix B. Continued.

		n	%
Highest level of education completed	"O" Level	15	5.0
	"A" Level	12	4.0
	Poly	30	9.9
	Bachelor's	173	57.1
	Master's and above	73	24.0
Occupation			
Major Group classification			
Managers		121	39.9%
Professionals		139	45.9%
Technicians and Associate Professionals		5	1.7%
Clerical Support Workers		5	1.7%
Services and Sales Workers		17	5.6%
Not Specified		16	5.2%
Sub-major Group Classification			
Chief Executives, Senior Officials and Legislators		27	8.9%
Administrative and Commercial Managers		53	17.5%
Production and Specialised Services Managers		19	6.3%
Science and Engineering Professionals		18	5.9%
Health Professionals		19	6.3%
Teaching Professionals		21	6.9%
Business and Administration Professionals		35	11.6%
Information and Communications Technology Professionals		1	0.3%
Legal, Social and Cultural Professionals		48	15.8%
Information and communications technicians		1	0.3%
Health Associate Professionals		1	0.3%
Legal, Social, Cultural and Related Associate Professionals		3	1.0%
Information and Communications Technicians		1	0.3%
Customer Services Clerks		1	0.3%
Other Clerical Support Workers		4	1.3%
Personal Services Workers		14	4.6%
Sales Workers		2	0.7%
Hospitality, Retail and Other Services Managers		4	1.3%
Not Specified		31	10.4%
Employment Level	Junior Staff	93	30.7
	Senior Staff	70	23.1
	Supervisor	23	7.6
	Manager	77	25.4
	Business Owner	18	5.9
	Others	22	7.3
Employment Status	Full-time	278	91.7
	Part-time	19	6.3
	Casual/Freelance	6	2.0
Length of Employment (current workplace)	Less than 1 year	81	26.7
	1 to 2 years	59	19.6
	3 to 5 years	70	23.1
	6 to 10 years	51	16.8
	11 to 15 years	21	6.9
	16 to 20 years	7	2.3
	More than 20 years	14	4.6
Total length of employment	Less than 1 year	26	8.6
	1 to 2 years	29	9.6
	3 to 5 years	37	12.2
	6 to 10 years	65	21.5
	11 to 15 years	60	19.8
	16 to 20 years	29	9.6
	More than 20 years	57	18.7

Appendix C

Parallel analysis results

Raw Data Eigenvalues, & Mean & Percentile Random Data Eigenvalues

Root	Raw data	Means	Prcntyle
1.000000	44.705770	2.123268	2.240366
2.000000	5.548893	2.003758	2.098482

(*Continued*)

Appendix C. Continued.

Root	Raw data	Means	Prcntyle
3.000000	4.539400	1.915637	2.005078
4.000000	3.894101	1.840757	1.912558
5.000000	2.762682	1.779223	1.842914
6.000000	2.268509	1.717719	1.774239
7.000000	2.132889	1.666657	1.725099
8.000000	1.874071	1.609807	1.659871
9.000000	1.616277	1.564015	1.608369
10.000000	1.449517	1.510201	1.553931
11.000000	1.306279	1.463602	1.516435
12.000000	1.157259	1.415869	1.465671
13.000000	1.105047	1.374316	1.414516
14.000000	1.038594	1.335688	1.382094
15.000000	0.859045	1.295746	1.338421
16.000000	0.820775	1.259176	1.295749
17.000000	0.782442	1.221456	1.260916
18.000000	0.716075	1.183257	1.228971
19.000000	0.676082	1.149690	1.189831
20.000000	0.639865	1.114936	1.156644
21.000000	0.625509	1.080117	1.115389
22.000000	0.584767	1.046871	1.085578
23.000000	0.559079	1.015861	1.052280
24.000000	0.539043	0.985560	1.024899
25.000000	0.529620	0.954404	0.988210
26.000000	0.476159	0.924247	0.960449
27.000000	0.472904	0.895081	0.933019
28.000000	0.425144	0.865432	0.899422
29.000000	0.407419	0.835624	0.872898
30.000000	0.392512	0.806934	0.835238
31.000000	0.357200	0.779198	0.810115
32.000000	0.352957	0.752904	0.787593
33.000000	0.323236	0.726166	0.759810
34.000000	0.313246	0.701202	0.731045
35.000000	0.288055	0.674976	0.703863
36.000000	0.273399	0.649979	0.672524
37.000000	0.264315	0.626608	0.653217
38.000000	0.246399	0.601229	0.626803
39.000000	0.233385	0.576719	0.602931
40.000000	0.218411	0.555250	0.580851
41.000000	0.207624	0.530165	0.554309
42.000000	0.198042	0.507866	0.532482
43.000000	0.191547	0.485395	0.505074
44.000000	0.184799	0.463840	0.492013
45.000000	0.180449	0.443288	0.464130
46.000000	0.164127	0.423284	0.445272
47.000000	0.155877	0.402416	0.427126
48.000000	0.142650	0.381550	0.404565
49.000000	0.130991	0.360059	0.383306
50.000000	0.118629	0.340556	0.367016
51.000000	0.108119	0.320393	0.343534
52.000000	0.104492	0.301966	0.324541
53.000000	0.102467	0.282291	0.304845
54.000000	0.094726	0.263798	0.284598
55.000000	0.085589	0.244744	0.268263
56.000000	0.080472	0.225990	0.247224
57.000000	0.072891	0.207388	0.225240
58.000000	0.066596	0.189522	0.207835
59.000000	0.061120	0.172038	0.191393
60.000000	0.053727	0.154420	0.179003
61.000000	0.044273	0.136464	0.158364
62.000000	0.037863	0.119303	0.136467
63.000000	0.032746	0.101492	0.119616
64.000000	0.026666	0.085387	0.103527
65.000000	0.022565	0.070134	0.089806
66.000000	0.018438	0.054034	0.074152
67.000000	0.010826	0.039040	0.057394
68.000000	0.007135	0.022596	0.043078
69.000000	0.001663	0.005351	0.024959
70.000000	−0.002582	−0.008918	0.012026
71.000000	−0.008430	−0.023286	−0.005146
72.000000	−0.013873	−0.036521	−0.018140
73.000000	−0.016581	−0.052709	−0.035372

(*Continued*)

Appendix C. Continued.

Root	Raw data	Means	Prcntyle
74.000000	−0.022807	−0.066583	−0.049787
75.000000	−0.024982	−0.080110	−0.061107
76.000000	−0.026929	−0.094756	−0.078594
77.000000	−0.032087	−0.107474	−0.092718
78.000000	−0.034992	−0.120783	−0.106211
79.000000	−0.036041	−0.133920	−0.120281
80.000000	−0.039902	−0.146901	−0.133975
81.000000	−0.043407	−0.159322	−0.143484
82.000000	−0.048148	−0.171550	−0.159914
83.000000	−0.053817	−0.185258	−0.171592
84.000000	−0.055162	−0.197566	−0.183487
85.000000	−0.059161	−0.209449	−0.197225
86.000000	−0.060342	−0.221683	−0.209031
87.000000	−0.066960	−0.233423	−0.220280
88.000000	−0.069783	−0.245343	−0.234537
89.000000	−0.073278	−0.256394	−0.244675
90.000000	−0.075584	−0.267254	−0.256693
91.000000	−0.079181	−0.278322	−0.266451
92.000000	−0.083564	−0.290078	−0.279006
93.000000	−0.087093	−0.301270	−0.293002
94.000000	−0.087887	−0.311646	−0.303258
95.000000	−0.088801	−0.322040	−0.313538
96.000000	−0.093843	−0.333642	−0.324722
97.000000	−0.096413	−0.343422	−0.332988
98.000000	−0.101399	−0.353275	−0.343653
99.000000	−0.102765	−0.363473	−0.354776
100.000000	−0.108339	−0.373996	−0.365439
101.000000	−0.114144	−0.384462	−0.374081
102.000000	−0.115871	−0.395018	−0.386691
103.000000	−0.119678	−0.405445	−0.396637
104.000000	−0.130677	−0.418813	−0.407798

------ END MATRIX -----