

Title: The Psychological Well-Being of Older Adults in Singapore: The Role of Work Status, Chronic Illness, Medical Insurance, and Satisfaction with Family

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(c) Summary: Include the outline and conclusions of the research

The study proposed that chronic illness mediates the relationship between work status and psychological well-being, such that older working adults experience higher psychological well-being as a result of a reduction in chronic illness. Additionally, we investigated the moderating roles of satisfaction with family and medical insurance coverage on the link between work status and chronic illness, as well as on the link between work status and psychological well-being. Lastly, we investigated if medical insurance moderated the mediating role of chronic illness on the relationship between work status and psychological well-being. Two hundred thirty-four older Singaporeans aged 60-96 years (N = 125 working and 109 non-working) completed a survey, whose results indicated that older workers experienced greater psychological well-being compared to non-workers, and older workers' higher well-being was fully mediated by a lesser incidence of chronic illnesses. Satisfaction with family and insurance coverage both moderated the links between work status and chronic illness, and between work status and psychological well-being. Finally, we found a moderated mediation effect such that the indirect effect of work status on psychological well-being through chronic illness was significant only for medically insured older workers. Our research emphasizes the importance for psychological well-being of the elderly, of having an active lifestyle and positive family relationships, as well as the need to ensure adequate medical coverage for older workers.

(d) Aim of Research

The relationship between work status and psychological well-being has generated mixed findings in the literature (e.g., Conner et al., 1985; Keyes & Reitzes, 2007; Reitzes et al., 1996; Shapiro & Roos, 1982). Furthermore, the mechanism underlying the link between work status and psychological well-being remains unclear. The current study aims to address these gaps by proposing that chronic illness mediates the relationship between work status and psychological well-being, such that older working adults (compared to non-workers) experience higher psychological well-being as a result of better physical health (i.e., a reduction in chronic illness). Additionally, the importance of family relationships and increased reliance on healthcare services in old age led us to investigate the moderating role of satisfaction with family and medical insurance coverage on the link between work status and chronic illness, as well as between work status and psychological well-being. Lastly, we investigated if medical insurance moderated the mediating role of chronic illness on the relationship between work status and psychological well-being.

(e) Method of Research & Progression

### **Participants**

A total of 234 Singaporean adults (125 working and 109 non-working), aged between 60 to 96 years old ( $M = 71.01$ ,  $SD = 6.13$ ) were recruited to participate in this survey using a variety of recruitment methods including convenience sampling, word of mouth, snowballing, and e-fliers posted on various social-networking websites. Upon completion of the survey, each participant was given SGD \$25 (choice of cash incentive or shopping voucher). All participants provided their written consent prior to answering the survey.

## Materials

A quantitative survey was administered to all participants. Two versions of the survey were developed: English and Chinese. Both versions consisted of basic demographic questions as well as other scales to measure our variables of interest.

**Demographic variables.** The demographic information consisted of work status (non-working or working), medical insurance (yes or no), age (in years), gender (male or female), living arrangement (live only with spouse, live only with children, live alone, live with spouse and children, or others), educational level (primary school, secondary school, Polytechnic/JC<sup>1</sup>, Bachelor, Master or higher, or others), and monthly income level (less than \$1000, \$1000–\$2000, \$2001–\$3000, \$3001–\$4000, \$4001–\$5000, \$5001–\$6000, and \$6000 and above). Past research has identified demographic variables such as age, gender, educational level, monthly income, and living arrangement to be factors that could significantly influence psychological well-being (Jang et al., 2004; Lai, 2009; Lai & Tong, 2012; Levy, Pilver, & Pietrzak, 2014; Sargent-Cox, Anstey, & Luszcz, 2012; Warr et al., 2004). Hence, we included these demographic variables as covariates in our analyses.

**Chronic Illness.** Participants checked against a list of diseases (i.e., hypertension, hyperlipidemia, heart disease, asthma, diabetes, cancer, arthritis, and others) that applied to them. Severity of chronic illness was scored for each participant according to the scoring rules of the original chronic disease score, which had assigned weights to each chronic disease (von Korff, Wagner, & Saunders, 1992). Scores could range from 0–35, with higher scores indicating greater severity of chronic illness.

**Psychological well-being.** The Mental Component Summary subscale (MCS) of the Short Form-12 Health Survey (v1.0) was used to assess participants' psychological well-being (Ware, Kosinski, & Keller, 1995). Some questions require a *yes/no* answer, while others are rated on a five or six point Likert scale. The subscale was scored using standard methods (Ware et al., 1995). In the present sample, reliability for the SF-12 MCS was acceptable ( $\alpha = .66$ ).

**Satisfaction with family.** A one-item measure was used to assess the degree of relationship satisfaction with one's family. Specifically, respondents rated the item "How satisfied are you with your family members?" on a seven-point scale ranging from 1 (*extremely dissatisfied*) to 7 (*extremely satisfied*), with higher scores indicating higher satisfaction with family.

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<sup>1</sup> Polytechnics in Singapore offer three-year diploma courses in various fields aimed to provide a more industry-oriented education to students, as an alternative to junior colleges for post-secondary studies. On the other hand, junior colleges offer a two-year program where students study for advanced school-level qualifications, such as the GCE A-levels, which has become the norm for students pursuing university education.

(f) Results of Research

Finding #1: Working status decreased chronic illness for our sample of older adults, which in turn led to an increase in their psychological well-being (see Figure 1).

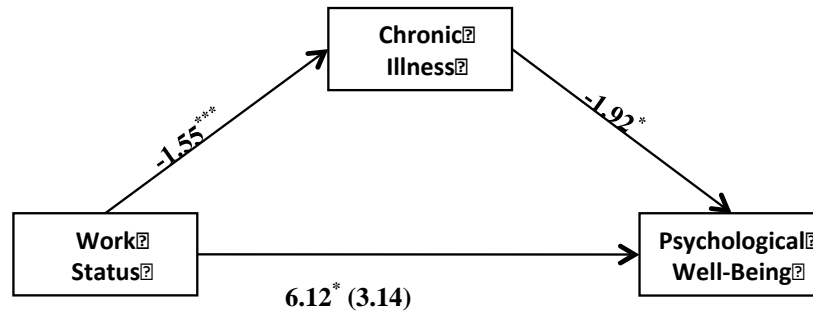


Figure 1. Chronic illness fully mediates the relationship between work status and psychological well-being. Path coefficients estimated using PROCESS are presented. For the *c* path, the total effect appears first, followed by the direct effect in parentheses.

\*  $p < .05$ . \*\*\*  $p < .001$ .

Finding #2: Family satisfaction moderates the effect of work status on psychological well-being and the effect of work status on chronic illness (see Figure 2). Specifically, dissatisfied non-working adults reported significantly lower levels of psychological well-being compared to satisfied non-working adults ( $\beta = 7.40$ ,  $p < .001$ ). On the other hand, working adults did not differ in (and had equally high levels of) psychological well-being, regardless of their satisfaction with family ( $\beta = 0.58$ ,  $p > .05$ ). Additionally, dissatisfied non-working adults reported higher chronic illness scores compared to satisfied non-working adults ( $\beta = -0.34$ ,  $p = .063$ ). On the other hand, working adults did not differ in (and had equally low levels of) chronic illness regardless of their satisfaction with family scores ( $\beta = 0.00$ ,  $p > .05$ ).

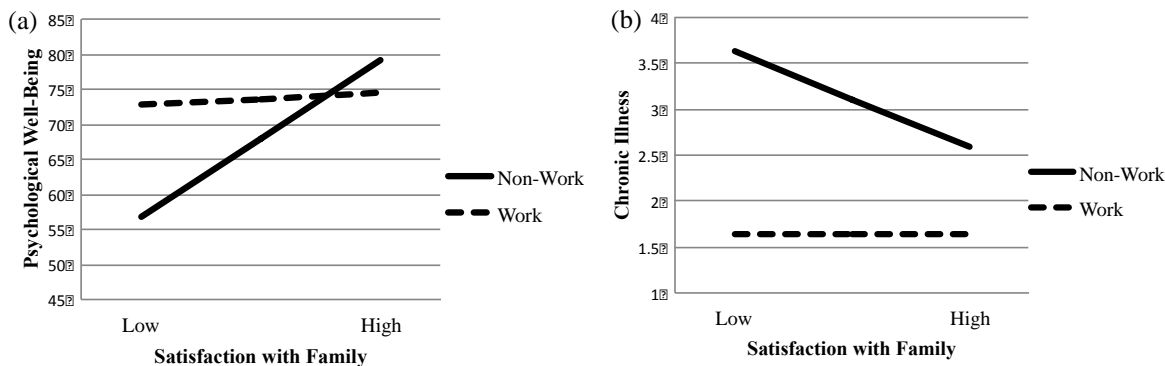


Figure 2. Satisfaction with family moderates the relationship between: (a) work status and psychological well-being; and (b) work status and chronic illness. Both graphs indicate that least

satisfied non-working older adults are at greater risk for psychological distress and chronic illnesses respectively.

Finding #3: Medical insurance moderates the effect of work status on psychological well-being and of work status on chronic illness (see Figure 3). Insured non-working adults reported significantly lower levels of psychological well-being compared to insured working adults ( $\beta = 10.33, p < .01$ ). On the other hand, non-insured older adults did not differ in psychological well-being regardless of work status ( $\beta = 0.66, p > .05$ ). Additionally, insured non-working adults reported significantly higher chronic illness scores compared to insured working adults ( $\beta = -2.12, p < .001$ ). On the other hand, non-insured older adults did not differ in chronic illness regardless of work status ( $\beta = -0.78, p > .05$ ).

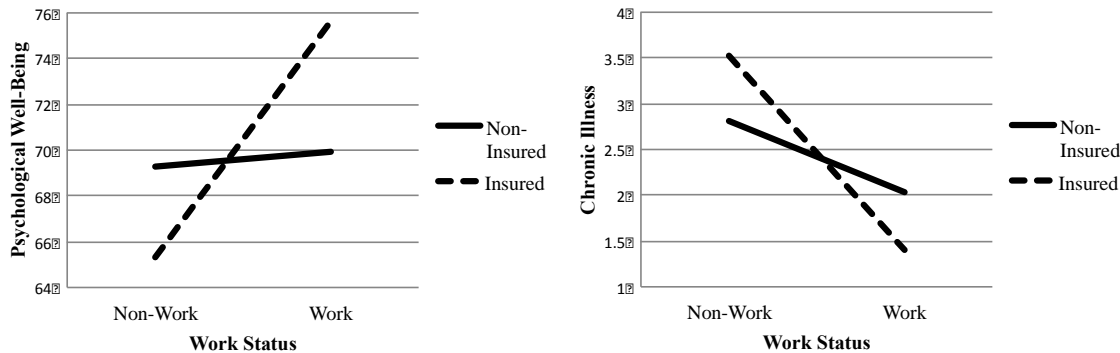


Figure 3. Medical insurance moderates the relationship between: (a) work status and psychological well-being; and (b) work status and chronic illness. Both graphs indicate that insured non-working older adults are at greater risk for psychological distress and chronic illnesses respectively.

Finding #4: The indirect effect of work status on psychological well-being through chronic illness is conditional on medical insurance. In other words, working decreases chronic illness, and in turn increases psychological well-being for older adults, and this effect holds regardless of one's satisfaction with one's family.

#### (g) Future Areas to Take Note of, and Going Forward

As population aging is expected to give rise to more seniors in the workforce and in retirement (Dohm, 2000; Truxillo, Cadiz, & Hammer, 2015), the focus is on how to promote a healthier older workforce and a more positive retirement experience. Our findings suggest the need to examine ways of promoting active aging in the workplace for working elders on one hand, and of healthy aging beyond retirement for non-workers on the other.

#### (h) Means of Official Announcement of Research Results

We plan to submit an article to academic journal(s) for publication. At the moment, a manuscript based is being prepared.