Investigating the Relationships Between Subjective Well-Being and Psychological Well-Being Over Two Decades

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Although much research has been conducted on the predictors and outcomes of both subjective well-being (SWB) and psychological well-being (PWB), the magnitude and direction of the causal relationship between these constructs remain unclear. The studies reported in this article were designed to assess the temporal relationship between SWB and PWB during a period of 20 years. The studies used 3 waves of survey data, with intervals of 10 years, from the Midlife in the United States project, a representative longitudinal panel study of American adults (N = 2,731). Cross-lagged panel analyses were conducted to examine directionality of the relationships. Results showed that the autoregressive effects were large, suggesting a high degree of stability in SWB and PWB over time. Yet the levels of stability were generally higher for PWB than SWB. Whereas PWB unequivocally predicted increases in SWB over time, the prospective effects of SWB on PWB were inconsistent (i.e., positive, negative, or nonsignificant) across various points in time. The study findings suggest that PWB represents a more robust and consistent antecedent of future well-being than SWB.

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ment of the model provides a test of the directionality of relationship between the two concepts (Newsom, 2015). The data used in the present studies were from the Midlife in the United States (MIDUS) project. This project has collected three waves of data since 1995 with intervals of about 10 years. Study 1 included data from all three time points, whereas Study 2 used data from the last two time points. Study 2 included more reliable PWB scales that were not available in the first wave of the project.

**Method**

**Participants**

**Study 1.** Data were from the first (collected in 1995–1996), second (2004–2006), and third (2013–2014) waves of the MIDUS project (Ryff, 1989). The integrated data file includes 7,108 participants. However, only individuals who completed the survey three times were included. The final sample of the study consisted of 1,217 males (44.5%) and 1,500 females. The average age was 46.53 years (SD = 11.24) at Time 1. Among the 2,731 participants included, 2,451 (89.7%) had complete data on all of the 27 variables of the study, whereas 280 participants had 1–20 missing values.

**Study 2.** Individuals who completed the survey at Time 2 and Time 3 were included. The final sample consisted of 1,217 males (44.6%) and 1,500 females. The average age was 64.52 years (SD = 11.18) at Time 3. Among the 2,731 participants included, 2,512 (92%) had complete data on all of the 18 variables of the study, whereas 219 participants had 1–11 missing values. A detailed description of data collection procedures can be found at the MIDUS website (http://midus.wisc.edu/).

**Measures**

**SWB.** In both studies, life satisfaction was assessed using five items capturing satisfaction with overall life, work, health, relationship with spouse/partner, and relationship with children. Each item was coded from the worst possible (0) to the best possible (10). In both studies, the 12-item negative and positive affect scale was used to measure affect (Joshanloo, 2017; Mroczek & Kolarz, 1998). Using a recoded scale from none of the time (1) to all of the time (5), respondents indicated how often, during the past 30 days, they felt six positive and six negative affective states.

**PWB.** In Study 1, the 18-item version of Ryff’s (1989) PWB scale was used. Items are rated on a 7-point scale ranging from strongly disagree (1) to strongly agree (7). In Study 2, a 42-item version of Ryff’s (1989) PWB scale was used. Descriptive statistics, alphas, and $R^2$ estimates are reported in the supplementary material. The 18-item PWB scale used in Study 1 yielded unacceptable alphas. Study 2 was conducted to replicate the findings from Study 1 with longer and more reliable PWB scales. As expected, the internal consistencies of the PWB scales were found to be acceptable in Study 2.

**Statistical Analysis**

The analyses were conducted in Mplus 8 with robust maximum likelihood estimation. To handle missing data, full information maximum likelihood was used. The six PWB variables at each time point were used as the indicators of PWB factors (labeled as PWB1, PWB2, and PWB3). The latent variables of SWB (labeled as SWB1, SWB2, and SWB3) were indicated by life satisfaction, positive affect, and (reverse-coded) negative affect. First, confirmatory factor analysis (CFA) models and metric and scalar invariance across time were tested (Selig & Little, 2012). Invariance in this context would indicate that the measurement properties of the latent variables are stable over time, and the changes in the latent variables are not due to the changing measurement properties (Newsom, 2015). Changes in the Comparative Fit Index (CFI) values less than .01 were considered as indicative of invariance (Cheung & Rensvold, 2002). Next, bidirectional cross-lagged panel models were tested without covariates. Finally, in separate models, gender, age, and age$^2$ were added to control for their effects.

**Results**

**Study 1.**

A CFA involving all of the PWB and SWB variables was first tested. All of the factors were specified to have nondirectional covariance relationships. Additionally, all of the autocorrelations among measurement residuals across time were estimated. The model fitted the data very well (M1 in Table 1). Whereas full metric invariance (M2) was supported ($\Delta$CFI = −.002), full scalar invariance (M3) was not supported ($\Delta$CFI = −0.022). As suggested by the modification indices, the constraints on the intercepts of environmental mastery and positive relations were relaxed. The modified model (M4) fitted the data very well, providing support for partial scalar invariance ($\Delta$CFI = −0.007).

Holding the equality constraints, a model was tested (M5) in which all of the cross-time covariance relationships were converted into directional predictive paths. Given that the structural portion of this model is saturated, model fit does not indicate the accuracy of the directional paths. The nonsignificant cross-time paths are usually dropped in cross-lagged models to build more parsimonious models (Little, 2013; Newsom, 2015). Accordingly, in a series of modified models, the paths from PWB2 and SWB1 to SWB3, and from SWB1 to PWB2 were eliminated one at a time, which resulted in the final model of the study (M6). This model is shown in Figure 1. The parameter estimates of the final model are presented in Table 2.

The synchronous correlation between PWB1 and SWB1 were significant. The concurrent associations between latent variable disturbances at Time 2 and Time 3 were also significant. All of the autoregressive paths were significant, with the exception of SWB1 to SWB3. With regard to the cross-lagged relationships, the paths from SWB1 and SWB2 to PWB3 were significant, but the former was surprisingly negative. This suggests that, when the prior levels of the variables are held constant, higher levels of SWB may even lead to lower levels of PWB over time. The cross-lagged paths from PWB1 to SWB2 and SWB3 were positive and significant, suggesting that the higher the levels of PWB, the higher the future levels of SWB. Finally, in a separate model (M7), all of the well-being factors were regressed on gender, age, and age$^2$. Controlling for the demographic variables had no substantial effect on the autoregressive and cross-lagged effects, indicating that the demographic variables do not explain the relationships observed in
M6. The fit of the model with covariates is reported in Table 1, and its parameter estimates are reported in the supplementary material.

Study 2
The CFA model fitted the data well (M8 in Table 1). Full metric (M9, $\Delta$CFI = −.001) and scalar (M10, $\Delta$CFI = −.003) invariance was also supported. A model with autoregressive and cross-lagged directional paths (M11) was next tested. The results with the structurally saturated model showed that the path from SWB2 to PWB3 was not significant, and accordingly it was dropped from the final model (M12). The parameter estimates of the final model are shown in Table 2. The model is shown in Figure 1.

The two autoregressive paths were significant. The cross-lagged path from PWB2 to SWB3 was also significant, indicating that the higher the levels of PWB at Time 2, the higher the levels of SWB at Time 3. The negative prospective effect of SWB on PWB was not replicated in Study 2, suggesting that the prospective effects of SWB may depend on lag length. For example, these effects may be more likely to be negative over longer periods of time and positive or nonsignificant over shorter periods. Finally, as reported in the supplementary material, the effects were nearly unchanged when controlling for the demographic variables (M13).

Discussion and Conclusion
It was found that SWB at a time predicted SWB 10 years later and PWB at a time predicted PWB both 10 and 20 years later. The autoregressive paths were generally stronger for PWB than for SWB (see Table 2), indicating more longitudinal stability for PWB. Compared with PWB, the levels of SWB are more strongly determined by emotional experiences, which can vary dramatically across time and context (Diener, 2014). In contrast, PWB is based on developing more stable skills and abilities, presumably leading to higher levels of stability (Steger, 2016). Therefore, these results suggest that PWB is more strongly predictive of its future values than SWB is. Along the same lines, Huta and Ryan (2010) found that participation in eudaimonic activities boosted well-being both immediately and 3 months afterwards, whereas participation in hedonic activities boosted well-being only immediately.

In both studies, the initial levels of PWB predicted positive changes in the levels of SWB over time. The sizes of the cross-lagged paths from SWB2 to PWB3 ranged from .162 to .372 (see Table 2). Yet the cross-lagged paths from SWB ranged from −.249 to .122, suggesting that higher initial levels of SWB may lead to increases or decreases in future PWB. The negative prospective effect of SWB observed here is consistent with evidence showing that intensive and/or extended positive states of mind can interfere with psychological functioning and the process of skill formation (Gru-
ber et al., 2011; Joshanloo & Jarden, 2016). This also is in accordance with evidence showing that moderate levels of cumulative lifetime adversity can be associated with optimal well-being in the long run (Seery, Leo, Lupien, Kondrak, & Almonte, 2013). That the cross-lagged paths from SWB were rather weaker or in the unexpected direction indicates that higher levels of SWB if not supplemented by higher levels of PWB may not be conducive to future PWB. Altogether, the results suggest that PWB may be more beneficial than SWB in the long run (Seery, Leo, Lupien, Kondrak, & Almonte, 2013). That the cross-lagged paths from SWB were rather weaker or in the long run because it is more likely to boost future levels of both aspects of well-being.

Despite the clear advantages of cross-lagged panel models over cross-sectional studies for investigating causal precedence, it should be acknowledged that cross-lagged models of passive correlational data are in fact imperfect tools for determining causal directionality “with certainty” (Newsom, 2015, p. 147). Specifically designed experiments can lead to more certainty about directionality and causal precedence because of the fact that they are more efficient in minimizing potential confounding effects. Therefore, the present results should be considered preliminary until replicated in additional research with various methodologies, samples, and lag lengths.

References


### Table 2

<table>
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<th>Parameter</th>
<th>Estimate</th>
<th>Low</th>
<th>Up</th>
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</thead>
<tbody>
<tr>
<td>SWB1 → PWB3</td>
<td>.551***</td>
<td>.446</td>
<td>.656</td>
</tr>
<tr>
<td>SWB2 → PWB3</td>
<td>.398***</td>
<td>.309</td>
<td>.487</td>
</tr>
<tr>
<td>SWB1 → PWB3</td>
<td>−.249***</td>
<td>−.340</td>
<td>−.158</td>
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<tr>
<td>SWB2 → PWB3</td>
<td>.122**</td>
<td>.029</td>
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<tr>
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<tr>
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<td>.497</td>
<td>.626</td>
</tr>
<tr>
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</tr>
<tr>
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<tr>
<td>PWB1 ↔ SWB3</td>
<td>.853**</td>
<td>.826</td>
<td>.880</td>
</tr>
</tbody>
</table>

Note. CI = confidence interval; PWB = psychological well-being; SWB = subjective well-being. Cross-lagged effects are shown in bold.

*p < .05. ***p < .001.


Steger, M. F. (2016). Hedonia, eudaimonia, and meaning: Me versus us, fleeting versus enduring. In J. Vittersø (Ed.), *Handbook of eudaimonic well-being* (pp. 175–182). Switzerland, Cham: Springer International Publishing. [http://dx.doi.org/10.1007/978-3-319-42445-3_11](http://dx.doi.org/10.1007/978-3-319-42445-3_11)

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