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brief report

Temporal Measurement Invariance of the Financially Focused Self-Concept Construct

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Abstract

Persons maintaining a financially focused self-concept view financial success as a core aspect of their respective self-concepts. Herein, we examined whether the measurement properties of the financially focused self-concept scale (FFS) are invariant over time. A sample of predominantly older community members who gamble (N = 147) completed the 4-item FFS and Problem Gambling Severity Index (PGSI) twice, approximately four weeks apart. FFS had strong temporal measurement invariance and moderate-to-high temporal stability. FFS and PGSI were also positively associated within and across waves. These findings indicate that people who score higher (relative to lower) in financial focus report more gambling problems concurrently and over time. However, further longitudinal research is needed to disentangle the temporal association between possessing a financially focused self-concept and the development of a gambling disorder.

Keywords: self-concept, disordered gambling, financial success, measurement invariance

Introduction

Certain persons place overriding importance on their financial success for self-definition and self-worth. Possessing such a financially focused self-concept has

unique predictive utility for explaining disordered gambling beyond that of the known risk factors for disordered gambling (for a recent review, see Tabri & Wohl, 2021). However, most research on this association has been cross-sectional, which limits causal inferences about directionality. Also, the measurement of the financially focused self-concept construct has only been examined using an exploratory approach (Tabri et al., 2017). Herein, we report the first longitudinal study that sought to assess associations between financially focused self-concept and disordered gambling over time. To do so properly, we first assessed, through a community sample of older people who gamble, the temporal measurement invariance of the financially focused self-concept construct using a confirmatory approach. We did so because results from longitudinal research may lead to misleading conclusions if the measurement of the key variables are not temporally invariant (Fried et al., 2016; Newsom, 2015).

Method

Participants, procedure, and materials

Participants were 147 (49 men and 51 women) customers of a Canadian provincial gaming company.[1] Age-based categories were: +65 (43.5%), 55–64 (27.2%), 45–54 (16.3%), 35–44 (7.5%), 25–34 (4.1%), and 19–24 (1.4%). They completed the 4-item financially focused self-concept scale (FFS; Tabri, et al., 2017) twice, approximately one month apart. Responses were anchored at 0 (*not at all*) and 4 (*extremely*; Time 1 $\alpha = 0.80$, Time 2 $\alpha = 0.82$) and averaged to form a scale. The 9-item Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001) was used to assess disordered gambling. Responses were anchored at 0 (*never*) and 3 (*almost always*) and summed. Time 1 assessed gambling over the previous 12 months ($\alpha = 0.96$), whereas Time 2 assessed gambling in the month since the initial session ($\alpha = 0.83$).

Data analytic plan

Structural equation modelling (Kline, 2016) was used to assess temporal invariance of the FFS. Four sequential models were tested. The first model examined the factor configuration of the FFS, which involved testing a confirmatory two-factor model of FFS (with four observed indicators) on two occasions with residual covariances between the same indicators across occasions. The χ^2 test, comparative fit index (CFI), and root mean square error of approximation (RMSEA) and its 95% confidence interval were used to adjudicate model fit. Metric (factor loadings), scalar (intercepts), and residual variance (item uniqueness) invariance models were tested and compared using chi-square difference tests ($\Delta\chi^2$). After establishing at least partial measurement invariance, differences in FFS latent factor means and variances were tested. Concurrent validity was assessed by examining observed associations between FFS and PGSI over time.

[1]The data reported were collected as part of a large-scale study and associations examined herein were not reported in the original study (Wood et al., 2017). For more information about the method, see Study 3 in Wood and colleagues (2017).

Results

Descriptive statistics and correlations for the four FFS items on both occasions are in Table 1. The configural model provided an excellent fit to the data, $\chi^2(15) = 20.04$, $p = 0.17$, CFI = 0.99, and RMSEA = 0.05 [< 0.001, .10]. The metric model did not fit worse than the configural model, $\Delta\chi^2(4) = 4.34$, $p = 0.36$. Likewise, the scalar model did not fit worse than the metric model, $\Delta\chi^2(4) = 0.16$, $p = 0.99$. Further, the residual variance model did not fit worse than the scalar model, $\Delta\chi^2(2) = 4.85$, $p = 0.09$. Thus, FFS has strict temporal invariance. Standardized factor loadings, unstandardized intercepts, and residual variances are in Table 2. There was a moderate-to-large positive correlation between the FFS factors at Times 1 and 2, $r = 0.67$, $p < 0.001$. In terms of differences between the FFS factor means and variances over time, imposing equality constraints on the means and variances at Times 1 and 2 did not worsen model fit relative to the strict invariance model, $\Delta\chi^2(2) = 0.38$, $p = 0.83$. Thus, no change was determined in FFS over a one-month period. As for concurrent validity, FFS and PGSI were moderately and positively correlated within and across occasions (see Table 3).

Discussion

The findings replicated the factor structure of the FFS using a confirmatory approach and showed that the FFS is temporally invariant, which allowed for a proper assessment of the association between FFS and PGSI over time. Financial focus and disordered gambling were positively correlated. Additionally, only little change emerged in scores after a one-month span, a finding which may be partially attributed to the short duration between assessments. Future research should extend the temporal distance between waves to capture better fluctuations in PGSI and whether those fluctuations are in fact associated with a financial focus.

Results add to the financial focus literature in that FFS was found to have moderate-to-strong test-retest reliability. The magnitude of the test-retest correlation is consistent with research that assessed the test-retest reliability of a measure assessing an appearance focused self-concept over a three-week period (Spangler & Stice, 2001) as well as 10 and 20 months periods' span, respectively (Spangler, 2002). Together, these observations suggest that a focused self-concept may not be a trait-like belief.

One limitation of this research is participants were older community members. Findings may differ with younger community members, who tend to be more risk-taking. Secondly, the short span between waves may have contributed to the observed temporal invariance of the FFS. However, the invariance observed positions the FFS for use in longitudinal research—research that may in turn help us to understand better the progression and maintenance of disordered gambling.

Table 1

Descriptive statistics and inter-correlations for all items in the FFS at both measurement occasions

Variable	*M* (SD)	1	2	3	4	5	6	7	8
1. FFS1 Time 1	1.65 (0.76)	—	0.74**	0.53**	0.50**	0.47**	0.55**	0.35**	0.34**
2. FFS2 Time 1	1.73 (0.77)		—	0.45**	0.44**	0.41**	0.58**	0.28**	0.26**
3. FFS3 Time 1	1.44 (0.71)			—	0.47**	0.32**	0.42**	0.62**	0.36**
4. FFS4 Time 1	2.19 (0.99)				—	0.27**	0.41**	0.37**	0.57**
5. FFS1 Time 2	1.69 (0.75)					—	0.69**	0.54**	0.52**
6. FFS2 Time 2	1.75 (0.77)						—	0.53**	0.57**
7. FFS3 Time 2	1.45 (0.65)							—	0.36**
8. FFS4 Time 2	2.23 (1.01)								—

Note. FFS = Financially Focused Self-concept. FFS1 = How I feel about myself is largely based on the amount of money I possess; FFS2 = My moods are influenced by the amount of money I possess; FFS3 = People will think less of me if I do not possess a lot of money; FFS4 = The opportunities that are available to me depend on the amount of money I possess.
*$p < .05$; **$p < .01$. $N = 147$.

Table 2
Factor loadings, intercepts, and residual variance of the FFS items constrained to be equal across time

Item	FL	INT	RES
1. How I feel about myself is largely based on the amount of money I possess.	0.64	1.67	0.15
2. My moods are influenced by the amount of money I possess.	0.63	1.74	0.19
3. People will think less of me if I do not possess much money.	0.42	1.44	0.29
4. The opportunities that are available to me depend on the amount of money I possess.	0.61	2.21	0.60

Note. FL = Factor Loading; INT = Intercept; RES = Residual variance. Reported factor loadings are standardized whereas intercepts and residual variances are unstandardized.
All estimates are statistically significant, $p < .05$. $N = 147$.

Table 3
Descriptive statistics and inter-correlations between FFS and PGSI

Variable	*M* (SD)	1	2	3	4
1. FFS Time 1	1.75 (0.64)	—	0.28**	0.63**	0.29**
2. PGSI total score Time 1	0.19 (1.45)		—	0.25**	0.95**
3. FFS Time 2	1.78 (0.65)			—	0.23**
4. PGSI total score Time 2	0.13 (0.92)				—

Note. FFS = Financially Focused Self-concept; PGSI = Problem Gambling Severity Index.
*$p < .05$; **$p < .01$. $N = 147$.

The results of research reported herein suggest that the relative rank order of participants in terms of their financial focus is stable, and this degree of stability may be generalizable to having a focused self-concept in other domains.

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Competing interests: In the interest of transparency, the current study stems from a large-scale study that was funded by the British Columbia Lottery Corporation (BCLC). The third author (Wood) has conducted previous consultancy work for BCLC. The second author (Philander) previously worked for BCLC. Importantly, however, in conducting the current study, we were given full consent to investigate, analyze and report all findings that the authors perceived to be relevant for understanding financially focused players—BCLC did not enjoy a role in determining the aims and outcomes of the current study. Therefore, we do not consider there to be conflict of interest between the authors of this manuscript and the funders of the research.

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