PSYCHOMETRIC PROPERTIES OF THE MENTAL FITNESS AND RESILIENCY INVENTORY (MFRI)

Introduction

The *Mental Fitness and Resiliency Inventory* (MFRI) was developed to assess mental fitness and resiliency in workplace environments. The MFRI provides workplace environments with quantitative results on their strengths across three mental fitness sub-domains (relatedness needs, competency needs, and autonomy/support needs) and five resiliency sub-domains (relationship assets, professional assets, attitudinal assets, emotional intelligence assets, and adaptation assets).

The MFRI contains short, clear descriptions of 32 distinct practices that can be expected to be observed in positive workplace environments. Each practice provides information on one of the sub-domains described above. There are 4 practices for each of the 8 sub-domains. Thus, Mental Fitness and Resiliency are assessed through 12 and 20 described practices respectively. Respondents were asked to indicate how well each described practice is reflective of their workplace using a 5-point Likert scale where 1 = *Least like my workplace*, 3 = *Somewhat like my workplace*, and 5 = *Most like my workplace*.

Methods

Exploratory factor analysis (EFA), after an initial pilot administration of the MFRI, led to a refinement of its statements. The MFRI was then administered to 1 519 respondents and confirmatory factor analysis (CFA) was carried out to validate the questionnaire's theoretical factor structure. Three models were tested: the complete 32-item questionnaire (Well-being) model; the 12-item Mental Fitness model; and the 20-item Resiliency model. The internal consistency of each scale was also verified and reported here using Cronbach's alpha.

Results

Factor structure Table 1 presents the CFA fit indexes for the complete MFRI (Well-being) model, the Mental Fitness model, and the Resiliency model.

Table 1: CFA fit indexes for the three MFRI models

	df	χ^2	parameters	RMSEA (90% CI)	CFI	TLI	SRMR
MFRI (Well-being model)	453	2872.907*	107	.059 (.057-.061)	.92	.91	.035
Mental Fitness model	50	409.366*	40	.069 (.063-.075)	.96	.94	.030
Resiliency model	164	1290.148*	66	.067 (.064-.071)	.94	.93	.032

* < 0.001

Internal consistency Alpha values for the complete 32 item MFRI (Well-being) model, the Mental Fitness model and the Resiliency model, and their subdomains are presented in Table 2.

Table 2: Cronbach alpha values for the complete 32-item MFRI, its domains, and subdomains.

MFRI (Well-being) (.977)		
	Mental Fitness (.941)	
		Relatedness needs (.859)
		Competency needs (.839)
		Autonomy-Support needs (.873)
	Resiliency (.967)	
		Relationship assets (.873)
		Professional assets (.818)
		Attitudinal assets (.893)
		Emotional intelligence assets (.867)
		Adaptation assets (.849)

Interpretation

Factor structure

The χ^2 serves as an absolute test of fit. A non-significant result suggests a good model fit. Given that this statistic is very sensitive to sample size (the bigger the sample the more sensitive – and significant - it is), using other indexes to complement χ^2 is highly recommended.

CFI / TLI: Values above 0.90 indicate reasonable fit (Bentler, 1990) while values above 0.95 indicate good model fit (Hu & Bentler, 1999).

RMSEA: Values < 0.05 suggest a very good model fit (Hu & Bentler, 1999) while values below 0.08 suggest reasonable model fit (Byrne, 1998; Steiger, 1989).

SRMR: Values < 0.05 indicate good model fit (Hu & Bentler, 1999).

Internal consistency

The internal consistency of the complete 32-item MFRI as reported using Cronbach's alpha was categorized as very high (α = 0.977). Alpha values greater than .60 are considered acceptable for newly-developed instruments (Kline, 2000). As seen in Table 2, all alpha values are well above the .60 threshold, even in the individual subscales.

Conclusion

Interpreting fit indexes from a confirmatory factor analysis should be done using a holistic approach based on the overall information provided instead of focusing on a single fit index (Hoyle & Panter, 1995). Therefore, in addition to the χ^2 which was significant as expected given the large sample size used in this validation study we also report two absolute fit indexes (RMSEA and SRMR) and two confirmatory fit indexes (CFI and TLI). This approach allows us to have a broader, unbiased view of the various fit indexes for the models tested. The overall CFA results show that the MFRI has a good fit relative to its theoretical model. Based on this conclusion, we state that the MFRI can be used with confidence to highlight mental fitness and resiliency strengths and areas in need of further development as well as a general indication of well-being in workplace environments.

References

Bentler, P.M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*, 238-246.

Byrne, B.M. (1998). Structural equation modelling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Hoyle, R. H., & Panter, A. T. (1995). Writing about structural equation models. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 158–176). Thousand Oaks, CA: Sage Publications.

Hu, L. & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55. doi: 10.1080/10705519909540118.

Kline, P. (2000). Psychometrics primer. London: Free Association Books.

Steiger, J.H. (1989). EzPATH: A supplementary module for SYSTAT and SYSGRAPH (Computer Software). Evanston, IL: SYSTAT, Inc.