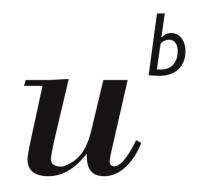# Adaptation of the Bernese Motive and Goal Inventory in leisure and health sports for adolescents and young adults (BMZI-JFEA)

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UNIVERSITÄT BERN

Vanessa Gut & Julia Schmid
Institute of Sport Science, University of Bern, Switzerland.

Introduction

For tailored interventions of physical exercise in adolescence and young adulthood, an appropriate questionnaire is needed to assess sport-related motives and goals. One proven German questionnaire eliciting motives and goals is the Bernese Motive and Goal Inventory (BMZI) for people from 35 to 64 years (Lehnert, Sudeck, & Conzelmann, 2011). However, based on developmental-psychological considerations the found motives and goals in middle adulthood can not be transferred to adolescence and young adulthood without any adaptations. For this reason, the aim of the study is (1) to develop an appropriate questionnaire to assess the sport-related motives and goals of adolescents and young adults from 14 to 34 years (BMZI-JFEA) and (2) to validate the psychometric criteria of the inventory.

Methods

The development of the questionnaire consists of three samples. Sample A consists of 826 Swiss adolescents and young adults (M_{age} = 19.55, SD_{age} = 4.32, 60 % female), Sample B consists of 903 adolescents and young adults (M_{age} = 19.57, SD = 4.94, 57 % female) and sample C, as a subsample of sample B, consists of 278 adolescents and young adults (M_{age} = 18.02, SD_{age} = 2.82, 58 % female).

Focusing on construct validity, an exploratory structural equation modeling (ESEM; Marsh et al., 2009) with sample A was carried out using Mplus 7.4. Additionally, a cross-validation with sample B was conducted. The measurement invariance of sample A and B was tested and for further analyses of the validity the two samples were merged together. Furthermore, the test-retest-reliability with sample C was tested calculating Pearson correlations.

Results & Discussion

Using exploratory structural equation modeling the BMZI-JFEA demonstrated good model fit (see table 1). The BMZI-JFEA covers eight motives and goals for exercising with 26 items: Contact, Competition/Achievement, Distraction/Catharsis, Body/Appearance, Health, Fitness, Aesthetics, and Risk/Challenge (see table 2). Furthermore, various psychometric criteria were examined indicating good internal consistency (.77 ≤ α ≤ .90), good convergent (CR ≥ . 60 and DEV ≥ .50) and discriminant validity and an acceptable test-retest-reliability over a 2-week period (.63 ≤ r ≤ .80).

Overall, the BMZI-JFEA is an age-specific, economical and robust psychometric inventory to assess sport-related motives and goals in adolescence and young adulthood. However, an examination of measurement invariance across age, gender and exercise levels may be warranted.
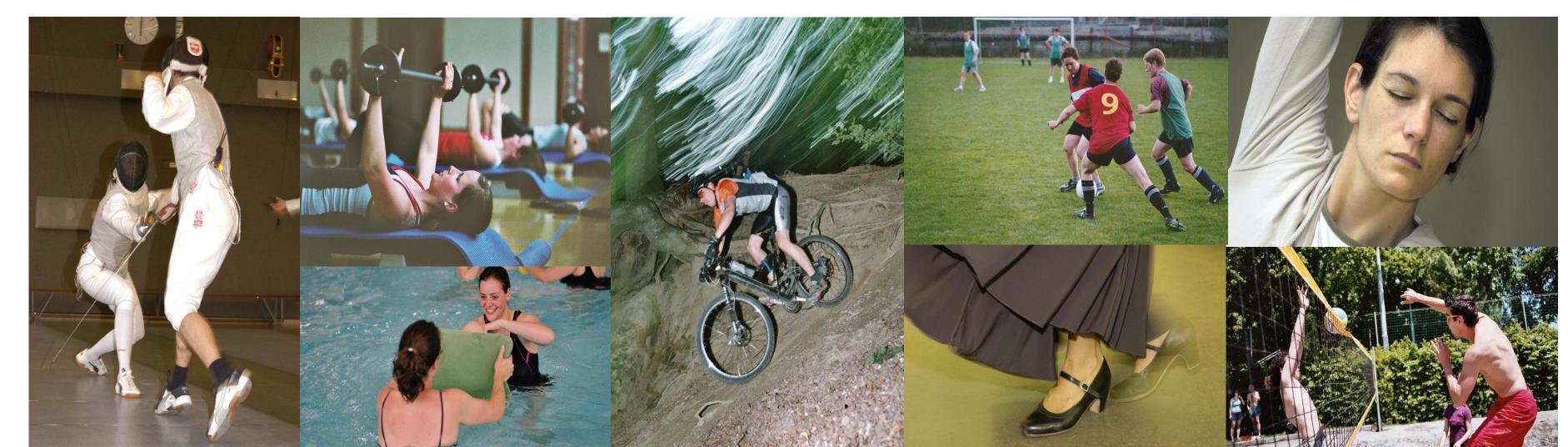

Table 1

Fit indices and measurement invariance across sample A and B

Sample A and B	$x2$	df	CFI	SRMR	RMSEA (90% CI)	ΔCFI	ΔRMSEA
Sample A (n = 786) (independent ESEM)	322.296	144	.985	.012	.038 (.033-.044)	–	–
Sample B (n = 849) (independent ESEM)	327.645	144	.983	.014	.040 (.035-.046)	–	–
Configural model	647.521	288	.984	.013	.039 (.035-.043)	–	–
Metric model	822.988	432	.982	.021	.033 (.030-.037)	.002	-.006
Scalar model	898.989	458	.980	.026	.034 (.031-.038)	.004	-.005

Note. CFA = ESEM = Exploratory structural equation modeling; CFI = Comparative Fit Index; SRMR = Standardized root mean square residual; RMSEA = Root mean square error of approximation; 90%-CI = 90-percent-confidental interval for RMSEA.

Table 2

Descriptive statistics, reliabilities and convergent validity of the BMZI-JFEA

Factors	Descriptive statistics		Reliabilities			Convergent validity	Number of items
	M^a	SD^a	Cronbach's Alpha[a]	CR^a	Test-retest-reliability[b]	AVE^a	
Contact	2.85	1.65	.90	.87	.77	.65	5
Competition/ Achievement	2.70	1.79	.77	.78	.80	.63	3
Distraction/ Catharsis	3.25	1.70	.86	.85	.75	.54	4
Body/ Appearance	2.95	1.88	.88	.88	.83	.75	3
Health	3.28	1.53	.83	.80	.72	.63	3
Fitness	4.16	0.88	.85	.81	.63	.67	3
Aesthetics	2.41	1.56	.84	.84	.68	.74	2
Risk/ Challenge	2.23	1.44	.85	.83	.72	.67	3

Note. CR = Indicator reliability; AVE = average variance explained.
[a]data from sample A and B; [b]data from sample C.

References
Lehnert, K., Sudeck, G., & Conzelmann, A. (2011). BMZI – Berner Motiv- und Zielinventar im Freizeit- und Gesundheitssport [BMZI – Bernese motive and goal inventory in leisure and health sports]. *Diagnostica, 57*(3), 146–159. https://doi.org/10.1026/0012-1924/a000043
Marsh, H., Muthén, B., Asparouhov, T., Lüdtke, O., Robitzsch, A., Morin, A. J. S., & Trautwein, U. (2009). Exploratory structural equation modeling, integrating CFA and EFA: Application to students' evaluations of university teaching. *Structural Equation Modeling: A Multidisciplinary Journal, 16*(3), 439–476. https://doi.org/10.1080/10705510903008220

Contact: Vanessa Gut, Institute of Sport Science, University of Bern, Switzerland, vanessa.gut@ispw.unibe.ch