

A South African Interpersonal Circumplex Instrument

A revision of the International Personality Item Pool-Interpersonal Circumplex (IPIP-IPC)

Sebastian Clifton, Gideon P. De Bruin and Brandon Morgan | University of Johannesburg
3rd World Conference on Personality | April, 2-6, 2019 | Hanoi, Vietnam

Introduction

The interpersonal circumplex orders interpersonal variables in a circular space through the blending of two orthogonal axes that frame the interpersonal world, namely Dominance and Warmth. The interpersonal circumplex slices its two-dimensional space into octants to yield eight interpersonal scales that are circularly arranged. Each octant represents an interpersonal style that exists as a particular blend of Dominance and Warmth (Figure 1). The interpersonal circumplex is operationalized in several inventories, of which one is the International Personality Item Pool-Interpersonal Circumplex (IPIP-IPC; Markey & Markey, 2009).

We found that the Northern American developed IPIP-IPC had satisfactory structural validity in the South African context (Clifton, 2018). This holds promise for the use of the interpersonal circumplex model in South Africa. However, the octant scale reliabilities were less than satisfactory ranging from .29 to .77. Two possible reasons for the lower reliabilities are that (a) some items contain metaphorical language unfamiliar in South Africa (Cheung, Van de Vijver, & Leong, 2011) and (b) the low number of items each octant scale comprise (Markey & Markey, 2009). Revising the language used in the IPIP-IPC and including additional items may therefore enhance the measurement of the interpersonal circumplex in South Africa.

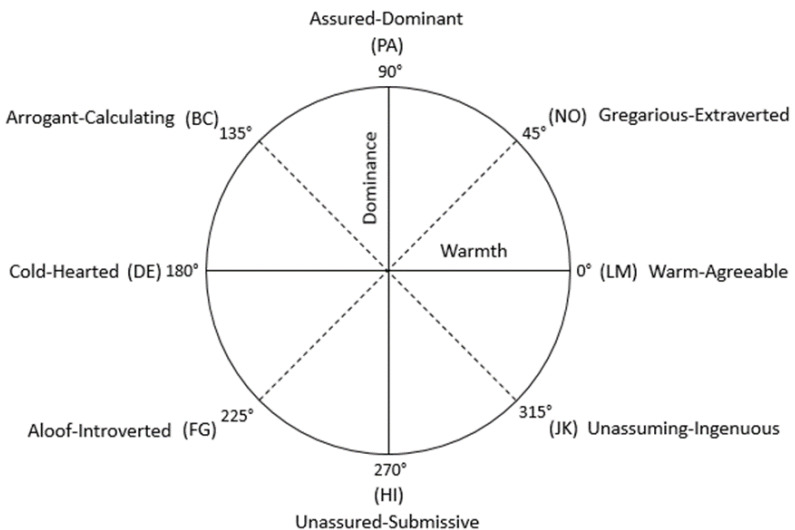


Figure 1. International Personality Item Pool-Interpersonal Circumplex (IPIP-IPC). Adapted from "A brief assessment of the Interpersonal Circumplex: The IPIP-IPC," by M. P. Markey and C. N. Markey, 2009, *Assessment*, 16(3), p. 353. Copyright 2009 by Sage Publications. Adapted with permission.

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1. The IPIP-IPC was subjected to a content review to identify potentially problematic items.
2. Problematic items were rephrased to be linguistically appropriate in the South African context and included as new items in the item pool.
3. Additional new items were developed and added to the item pool. Item content had to be linguistically simple and contextually appropriate.

Method

Participants

The participants were 756 South African late adolescents and adults (60.32% women). 58.07% were black African, 27.12% whites, 7.80% mixed ethnicity and 3.97% Asians/Indians. 53.47% indicated a South African indigenous language as their first language, 33.47% English and 10.32% Afrikaans.

Instrument

The South African revised IPIP-IPC consisted of 96 items, with 32 being original IPIP-IPC items, and the remaining 64 consisting of the rephrased and new items deemed applicable to the South African context. Each octant scale comprised 12 items.

Analysis

Cronbach's (1951) coefficient alpha was used to examine the octant scale reliabilities in R version 3.4.3 (R Core Team, 2017) using the *MBESS* package version 4.4.3 (Kelley, 2018).

Circumplex structure was analyzed with multidimensional scaling (MDS), the randomization test of hypothesized order relations (RTHOR) and circumplex covariance structural equation modelling (CCSM). The analyses were conducted in R version 3.4.3 (R Core Team, 2017) using the *SMACOF* package version 1.8-13 (De Leeuw & Mair, 2009) for MDS, Tracey's (2016) *RANDALL* R script for RTHOR and the *CircE* package version 1.1 (Grassi, Luccio, & Di Blas, 2010) for CCSM.



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Results

Reliability

Table 1

Cronbach's Coefficient Alpha of the South African Revised IPIP-IPC Octant Scales

	PA	BC	DE	FG	HI	JK	LM	NO
Alpha	.83	.80	.67	.81	.66	.60	.87	.89
Mean	2.57	2.26	2.65	3.13	2.91	3.34	4.02	3.43
SD	.70	.65	.57	.72	.55	.49	.64	.82

Circumplex Structure

Multidimensional Scaling (MDS)

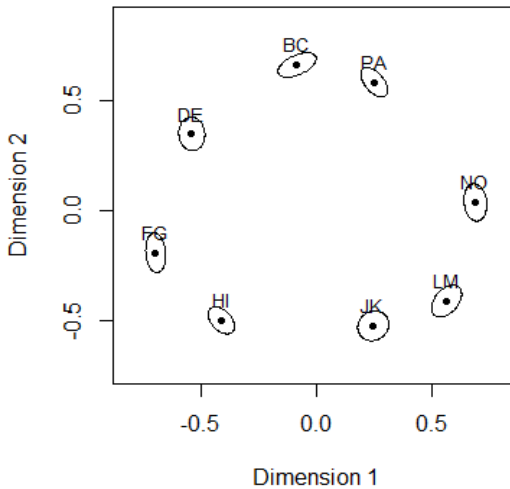


Figure 2. Circular structure of the South African revised IPIP-IPC. Ellipses around points reflect 95% percentile bootstrap confidence intervals. PA = Assured-Dominant, BC = Arrogant-Calculating, DE = Cold-Hearted, FG = Aloof-Introverted, HI = Unassured-Submissive, JK = Unassuming-Ingenuous, LM = Warm-Agreeable, NO = Gregarious-Extraverted.

Randomization Test of Hypothesized Order Relations (RTHOR)

The randomization test was used to evaluate the fit of the circular order model to the data. A CI value of .94 ($p < .01$) was yielded, with 280 order predictions met of the 288 theoretical order predictions.

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Results

Circumplex Structure

Circumplex Covariance Structural Equation Modelling (CCSM)

Table 2

Fit Statistics of Four Circumplex Models to the South African Revised IPIP-IPC

	Unconstrained	Equal Spacing	Equal Community	Circulant
χ^2	278.84	484.53	407.69	548.60
<i>df</i>	10	17	17	24
CFI	.91	.84	.87	.82
RMSEA	.19	.19	.17	.17
SRMR	.08	.10	.09	.10

Note. CFI = Comparative Fit Index, RMSEA = Root Mean Squared Error of Approximation, SRMR = Standardized Root Mean Square Residual.

Conclusion

The results of this study show that the revised IPIP-IPC is an enhanced interpersonal circumplex instrument for the South African context. Importantly, the reliabilities were better following the revision. Evidence for satisfactory circumplex structure was found. CCSM provided useful insights for the further development and refinement of the revised IPIP-IPC. As a whole, these results hold promise for the operationalization of the interpersonal circumplex in South Africa using the revised IPIP-IPC and support the revision as a substantial development to further study interpersonal behaviors in the South African context using the interpersonal circumplex.

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