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Use of Music for Emotion Modulation: Testing the Validity of the IAAM-Scales

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Abstract. The study examines the validity of the IAAM-scales by using the music in mood regulation scales. The results are showing that the measurement of the use of music in everyday life by the IAAM is reliable and valid.

1. Introduction

The use of music in everyday life (UofM) is a research field of growing interest [1-10]. Within an ongoing project, the IAAM (Inventory for the measurement of Activation and Arousal modulation by Music) has been constructed in 2002. The scales of the IAAM (Inventory of Activation and Arousal-Modulation by Music) are integrated into the components of the neurophysiological personality model of Gray & McNaughton [11]. The IAAM does have five scales with eleven items per scale [12]. These five scales measure the UofM for relaxation (RX), cognitive problem solving (CP), reduction of negative activation (RA), fun stimulation (FS) and arousal modulation (AM). With respect to the question of the role of UofM for different aspects of everyday life, IAAM scales are additionally correlated with health [13-55], psychiatric illness [16, 17], possible effects of music therapy [18], subjective music chill-sensations [19], with personality variables as predicted and furthermore with musical preferences [20] and youth problem behavior [21]. For a short overview of the theory see [20].

2. Aim of the Study

The study examines the validity of the scales by using the MMR (Music in Mood Regulation Scale) by Saarikallio [22]. With respect to her theory and scales the following hypotheses were formulated: MMR-entertainment correlates with IAAM-FS, MMR-revival correlates IAAM-RX, MMR-diversion and -discharge with IAAM-RA and MMR-mental work und -solace with CP. At least the MMR-scale *strong sensation* may covariate with positive aspects of emotion modulation.

3. Method

150 students of medicine completed the IAAM and a first German version of the MMR ($M_{age} = 21,5$; $M_d = 20$; $min = 18$; $max = 34$) ($M_{women} = 20,9$; $SD = 2,32$; $M_d = 20$; $min = 18$; $max = 26$) ($M_{men} = 22,4$; $SD = 3,06$; $M_d = 23$; $min = 19$; $max = 34$) ($n_w = 93$ und $n_m = 57$). Simple correlation and cluster analysis were used to examine the covariance structure of the IAAM- and MMR-scales.

Results

The reliability (Cronbachs alpha) of all IAAM-scales lies above $\alpha=0.80$. All IAAM scales are significantly correlated with the MMR-scales ($p<0,01$), but the structure of the intercorrelation due to the existence of the assumed different contents of the scales (tab.1).

Table 1:
Intercorrelations between the IAAM- and the MMR-scales

IAAM	MMR						
	Discharge (DIS)	Diversion (DIV)	Entertainment (ENT)	mental work (MWO)	revival (REV)	solace (SOL)	strong sensation (STS)
RX	,244	,747 ^{^^^}	,466	,782 ^{^^^}	,674	,760 ^{^^^}	,581 [^]
CP	,304	,688 ^{^^}	,413	,817 ^{^^^}	,554 [^]	,800 ^{^^^}	,480
RA	,591 [^]	,642 ^{^^}	,474	,646 ^{^^}	,539 [^]	,634 ^{^^}	,467
FS	,306	,419	,661 ^{^^}	,397	,524 [^]	,427	,393
AM	,182	,341	,448	,287	,452	,290	,194

All correlations are significant ($p<0,031$); no mark $r<0,50$; [^]: $r\geq 0,50$; ^{^^}: $r\geq 0,60$; ^{^^^}: $r\geq 0,70$; ^{^^^^}: $r\geq 0,80$ (IAAM-scales: RX: relaxation; CP: cognitive problem solving; RA: reduction of negative activation; FS: fun stimulation; AM: arousal modulation)

The cluster analysis shows that with the exception of the assumed covariance between MMR-scales *strong sensation* and *revival* and positive effect of emotion modulation no other hypotheses must be rejected. In detail these both MMR-scales are conjoint in a cluster with a high distance from IAAM-RX and -CP (see fig. 1).

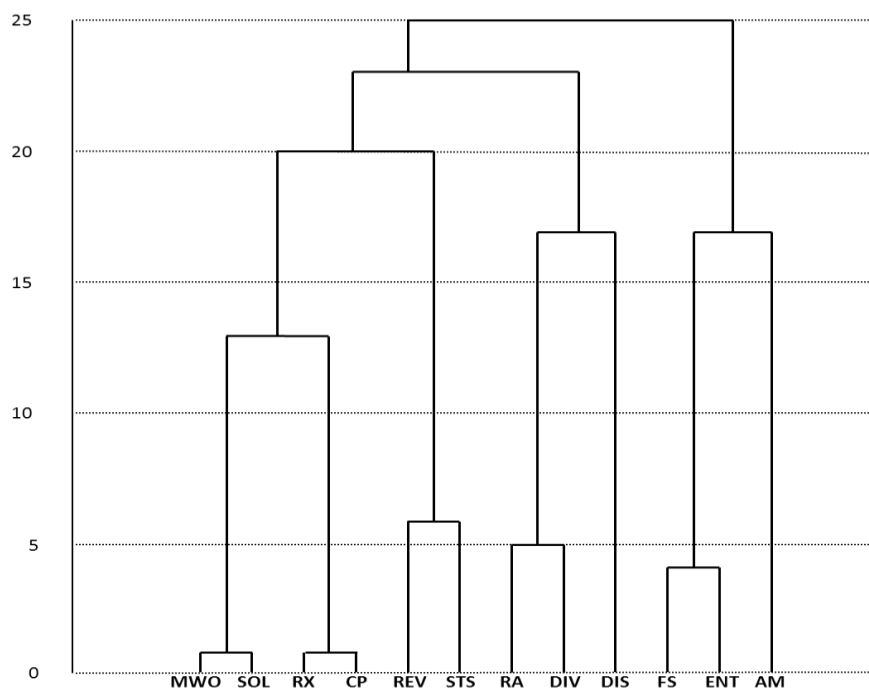


Fig. 1. Dendrogram of the arrangement of the clusters (IAAM-scales: RX: relaxation; CP: cognitive problem solving; RA: reduction of negative activation; FS: fun stimulation; AM: arousal modulation)(MMR-scales: Discharge (DIS); Diversion (DIV); Entertainment (ENT); mental work (MWO); revival (REV); solace (SOL); strong sensation (STS))

4. Summary

The IAAM-scales seem to be high reliable also in the study at hand. As a main result the study shows that the IAAM-scales seem to measure comparable constructs as the MMR. This supports the construct validity of the IAAM scales. At least this shows that the IAAM-scales may be used for further studies in connection with the use of music in everyday life.

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