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THE IMPORTANCE OF MUSIC AS A MOOD REGULATOR: ADAPTATION OF MUSIC IN MOOD REGULATION SCALE IN THE CONDITIONS OF SLOVAKIA

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ABSTRACT

Objectives. The main goal of the presented article is the investigation of music as a mood regulator in Slovak conditions based on the Music in Mood Regulation Scale (MMR). *Sample and settings*. The basis of the primary survey was a convenience sample consisting of 209 respondents. The sample has similar (but not the same) characteristics as the population. *Hypotheses*. Based on the professional literature, it was expected that the Slovak adaptation of the MMR scale would preserve the dimensions of the instrument. It was also the ambition of the article to examine certain segments in the context of dimensions of mood regulation and the characteristics of the respondents. The article has the ambition to investigate the influence of age and gender on the measure of music in mood regulation, where differences were expected. *Statistical analyses*. Descriptive and inferential statistics were used. An adaptation of the MMR to the conditions of Slovakia was made with the help of reliability rate estimators (Cronbach's α, McDonald's ω, and item-rest correlation). The author also used exploratory factor analysis (EFA) and cluster analysis (the Two-Step Algorithm).
Results. The tool had to be adapted to Slovakia's conditions. It was found that music represents an important element of mood regulation. The age of the participants is an important factor in the degree of mood regulation. Based on exploratory factor analysis, there were seven mood regulation strategies identified. With the help of cluster analysis, they identified two segments that use the identified strategies to varying degrees.
Limitations. Convenience sampling and only self-reported studies can be considered the main limitations of the article.

key words:
mental health,
mood regulation,
Music in mood Regulation scale,
Slovakia

INTRODUCTION

The generic meaning of music, as well as its perception by music consumers, has its significant influence on emotions and mood (Boer et al., 2012). Moods are generally distinguished from emotions by their longer duration and lack of a specific cause (Barrett & Bond, 2015; Beedie et al., 2005; Gross, 1998a), but in music psychology, they cannot always be exactly distinguished (Hu et al., 2010). The regulation of moods and emotions may not be conscious and may be focused on different aspects of emotion: behavioural manifestations, subjective experiences, or physiological reactions (Gross, 1998b), while the ability to regulate one's moods has a significant impact on well-being (Lischetzke & Eid, 2003).

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In the context of mental health and mood, music has two generic levels: defensive as a regulator (Allen et al., 2009; Baltazar et al., 2019; Dingle et al., 2016; Gillen et al., 2008; Saarikallio, 2007; Thayer et al., 1994; Thoma, et al., 2012; Trehub et al., 2015; Zoteyeva et al., 2015) thus mitigating/minimizing/eliminating negative moods, and offensive in the sense of the creation and/or expansion of positive mood (Hewston, 2008; Kenny & Faunce, 2004; Song et al., 2016). Music is closely related to mental health, and the pandemic period brought new challenges in this area (Xiang et al., 2020). Of course, music fulfils a social function, but it also brings benefits to individuals (Cross, 2009), whether in the context of biology, such as the production of hormones (Keeler et al., 2015), as well as neurological and neuropsychological (Clynes 1978; Levi et al., 1975).

When examining the degree of influence of music as a mood regulator, the need to measure this degree arose. Several studies (e.g., Catanzaro & Mearns, 1990; Lischetzke & Eid, 2003) have created scale instruments to measure mood regulation, but not in the context of music. Pioneering in this regard is the study by Saarikallio (2008), whose main purpose was the measurement of music as a mood regulator (Music in Mood Regulation - MMR). The subsequent application to adolescents showed a high degree of reliability and validity. However, there are assumptions that there may be some differences in the effect of mood regulation with the help of music in different cultures (Bello & Garcia, 2021; Boer et al., 2012; Schäfer et al., 2020). In Slovakia, such a measurement has not yet been carried out.

On the basis of the above, a gap in the knowledge base can be identified and therefore it is advisable to think: What is the level of use of music as a mood regulator in the Slovak sample?

Previous studies indicated the influence of demographic factors such as age and gender on mood regulation using music (Juslin & Sloboda, 2001; Naz et al., 2019; Shaarikallio, 2008). In the context of age, studies focusing on adolescents often appear (Laiho, 2004; Miranda & Claes, 2009; Saarikallio & Erkkilä, 2007). Differences in the context of gender and age in regulatory strategies have already been observed in adolescents (Saarikallio, 2008). The use of music as a mood regulator has been demonstrated in adults (Hanser et al., 2016; Karreman et al., 2017) and in seniors (Hays & Minishiello, 2005).

Considering the above, how can the influence of selected demographic factors on the level of music used as a mood regulator be characterised? The stated question can be supported by hypotheses:

There is a relationship between age and the level of use of music for mood regulation.

There is a significant difference in the context of gender and the level of use of music as mood regulation.

Several studies (Aldao & Nolen-Hoeksema, 2012; Meule et al., 2013) indicate that the dimensions or regulation strategies of music may not necessarily all be adapted. Schäfer et al. (2012) point to differences in the strategies of the regulatory potential of music in the context of two cultures, namely Germany and India, but it can be concluded that the generic function of music as an emotional regulator is preserved across cultures (Bello & Garcia, 2021; Boer et al., 2012). The MMR tool considers seven strategies or dimensions, namely "Entertainment, Revival, Strong sensation, Diversion, Discharge, Mental work, and Solace" (Saarikallio, 2008; Saarikallio & Erkkila, 2007). It can also be stated that the perception of music as a regulator in the context of strategies can create certain groups that are similar to each other, but this claim has not yet been sufficiently investigated in the literature. As part of music mood regulation

strategies, it is appropriate to explore the possibilities of creating and identifying strategic groups of people for whom the same prerequisites for the use and management of music-based mood regulation work for the effective use of these strategies not only at the individual level (Granot et al., 2021; Miklowitz et al., 2012; Völker, 2019). When adapted to the Slovak conditions, what dimensions can be identified in the MMR tool? Based on the identified dimensions, how can strategic groups of people be characterized in the context of the use of musical mood strategies based on the identified dimensions?

The aim of the presented article is the investigation of music as a mood regulator in the conditions of Slovakia based on the MMR tool, as well as an in-depth analysis of the adaptation of the MMR tool to the conditions of Slovakia.

METHOD

Sample

The population was defined as Slovaks in adolescence and older. The interval of the development period was included both for ethical and professional reasons. The age limit of 14 years is regulated by several laws and rights (citizenship, labour, and criminal law), as it is assumed that a certain physical and psychological level of development has been reached (Ministry of Education of the Slovak Republic, 2005). At the same time, it can be stated that it is from this group that the transition from childhood to adulthood begins, which brings significant changes. Many studies work with this group as one of the riskiest in an affective context (e.g., Laiho, 2004; Shaarikallio & Erkkilä, 2007). Since our goal is not only to examine adolescents but also other developmental categories, adolescence formed only a minimum boundary for the needs of the survey.

The survey was conducted online and offline (print). The questionnaire was anonymous and completely voluntary. Respondents were warned that none of the answers were correct or incorrect, but rather reflected their subjective perception. Respondents did not receive any benefit or penalty for checking the answer. The resulting sample (cleansed of incomplete questionnaires) consisted of 209 respondents. Their ages ranged from 14 to 89 years, while the sample mean was 33 and a half years (Table 1).

Considering the nature of the population (SORS, 2023), we managed to capture the age group from 14 to 39 as well as the group from 40 to 55 years. The group over 55 years of age is represented to a much lower extent compared to the population, which may be due to the implementation of the survey in an online environment (Hope et al., 2014) as well as the reluctance and mistrust of older people, especially if the purpose of the questionnaire survey is health research (Liljas et al., 2017). In the context of gender, roughly 54% of women and 46% of men took part in the survey. In the population in 2022, women also predominated, but women were approximately 51.1% (SOSR, 2023). Within the sample, all regions of Slovakia were represented based on the respondents' places of residence. It can be concluded that the sample has similar (not the same) characteristics as the population. In the context of an acceptable margin of error, the sample can be considered representative from the point of view of age categories and gender. Factors other than the region cannot be considered representative as they do not consider population quotas. The sample size tells us the accuracy of the results. In this sense, considering the size of the population, it can be concluded that for a sample of 209 respondents, the maximum statistical error (with a 95% confidence probability) is around 6–7%.

Table 1 General demographic profile of the sample

Variable	Value	Frequency			Percent		
		online	print	total	online	print	Total
Gender	man	84	11	95	40.2	5.3	45.5
	woman	101	13	114	48.3	6.2	54.5
Age segments	less than 18	8	0	8	3.8	0	3.8
	18-55	176	9	185	84.2	4.3	88.5
	55 and more	1	15	16	0.5	7.2	7.7
Total				209			100

Note. Age segmentation adjusted according to recommendations from Currie et al. (1998).

Questionnaire structure

To fulfil the goal, we use the tool Music in Mood Regulation Scale (hereinafter referred to as MMR), which was presented in 2008 by Saarikallio (2008). As stated above, the original instrument containes seven dimensions, namely Entertainment, Revival, Strong Sensation, Diversion, Discharge, Mental Work, and Solace.

In our paper, we focus on the adaptation of this tool for measuring mood regulation in Slovakia. The tool, originally from Finland, was available in the article in an English translation, it was necessary to ensure a Slovak translation of the tool (see Appendix A) to be understood by the respondents in Slovakia, while the effort was to stick as close as possible to the original wording. Since it is an adapted tool, it is necessary to verify its reliability.

As part of the reliability investigation, we used an estimate of the reliability rate based on Cronbach's α and McDonald's ω coefficients, as well as Item-rest correlation (calculated in JASP). The choice of several reliability estimation indicators is due to the fact that each has its advantages and limits (Feißt et al., 2019). As a result, it is necessary to employ all of the aforementioned strategies in order to find optimal solutions. At the same time, we use the "if item dropped" method, which helps us optimise the reliability of the research tool. In this case, the interpretation of individual coefficients is important. In general, it can be concluded that if the value of the coefficient for an item dropped is higher than the overall reliability of the tool, it is advisable to exclude it in order to achieve a higher degree of reliability for the overall tool. In general, it is recommended that the value of reliability estimation coefficients be higher than 0.70 (Lance et al., 2006), but several authors interpret acceptability as strictly between 0.75 and 0.80 (Feißt et al., 2019). Within the Item-rest correlation, a minimum value of 0.40 is recommended (Hair, 1992, 2010).

RESULTS

Reliability

The initial solution yielded a high degree of estimation of the reliability of the tool, but some statements reached low values and thus negatively affected the overall reliability (see Appendix B). At the same time, a low item-rest correlation was found for some statements (see Appendix B). Based on the recommendations in the "if item dropped" method, it was therefore appropriate to exclude statements Q6 (Listening to music doesn't help me to relax) which had item-rest correlation 0.09, Q15 (Music does not evoke strong emotional experiences in me) which had item-rest correlation

0.08, Q23 (I can't push my worries aside with the help of music) which had item-rest correlation 0.11, Q28 (When I'm angry, I almost never listen to angry music) which had item-rest correlation 0.26, and Q37 (Listening to music doesn't comfort me in my sorrows) which had item-rest correlation 0.29.

Subsequently, we performed a recalculation. Considering the recommendations of the three examined indicators, it can be concluded that for Slovakia it is appropriate to use a 35-item instrument that achieves a higher degree of reliability (McDonald's ω = 0.957, CI 95% = <0.948 - 0.965>; Cronbach's α = 0.956, CI 95% = <0.947 - 0.964>; Item-rest correlation >0.400). Based on the above, we will continue to work with this adapted MMR tool.

What is the level of use of music as a mood regulator in the Slovak sample?

Within the framework of the MMR concept in Slovakia, we modified the scale tool to achieve a higher degree of reliability. As part of the mentioned adjustments, we reduced 40 statements to 35 statements. Respondents responded to the statements using a 7-point Likert scale (1: absolutely disagree; 7: absolutely agree). As it is a model that achieves high internal consistency, the results can be interpreted in the context of individual statements (Table 2) and comprehensively (we use the Slovak translation of the questionnaire, which is available in Appendix A).

Table 2 Mean value and standard deviation within individual statements (N = 209)

CODE	MMR scale*	Mean	St. dev.
Q1	When I'm busy around the house and no one else is around, I like to have some music on the background	5.82	1.60
Q2	When I'm going out (for example for school, hobbies, or a party), I listen to music to get myself in the right mood	5.50	1.69
Q3	I listen to music to make cleaning and doing other housework more pleasant	6.05	1.47
Q4	I usually put background music on to make the atmosphere more pleasant	5.87	1.34
Q5	When I'm tired out, I rest by listening to music	4.62	1.68
Q7	I listen to music to perk up after a rough day	5.26	1.59
Q8	When I'm exhausted, I listen to music to perk up	5.12	1.70
Q9	When I'm exhausted, I get new energy from music	5.03	1.66
Q10	I listen to music to get a breathing space in the middle of a busy day	5.07	1.61
Q11	Listening to music helps me to relax	5.81	1.19
Q12	I feel fantastic putting my soul fully into the music	5.38	1.38
Q13	Music has offered me magnificent experiences	5.46	1.37
Q14	Music offers me unforgettable moments	5.79	1.12
Q16	I want to listen to music that evokes feelings in me	5.64	1.21
Q17	I want to feel the music in my whole body	5.16	1.45
Q18	Sometimes music feels so great that I get goose bumps (in a positive sense)	5.94	1.33

CODE	MMR scale*	Mean	St. dev.
Q19	When stressful thoughts keep going round and round in my head, I start to listen to music to get them off my mind	4.79	1.57
Q20	For me, music is a way to forget about my worries	4.99	1.57
Q21	Listening to music helps to block out disturbing factors from my mind	5.05	1.45
Q22	When I feel bad, I try to get myself in a better mood by engaging in some nice, music-related activity	5.02	1.49
Q24	When I get angry, I give vent to my anger by listening to music that expresses my anger	3.81	1.92
Q25	When everything feels miserable, I start to listen to music that expresses these feelings	4.35	1.79
Q26	When I'm angry with someone, I listen to music that expresses my anger	3.47	1.83
Q27	When I'm really angry, I feel like listening to some angry music	3.58	1.89
Q29	When everything feels bad, it helps me to listen to music that expresses my bad feelings	3.87	1.81
Q30	Music has helped me to work through hard experiences	5.02	1.47
Q31	Music helps me to understand different feelings in myself	4.71	1.56
Q32	Listening to music takes me back and gets me thinking about different things that have happened to me	5.05	1.56
Q33	Music inspires me to think about important issues	4.66	1.59
Q34	When I'm distressed by something, music helps me to clarify my feelings	4.60	1.59
Q35	When something is troubling me, I find solace in music	4.95	1.51
Q36	I listen to music to find solace when worries overwhelm me	4.66	1.54
Q38	When everything feels bad, music understands and comforts me	4.60	1.60
Q39	Music is like a friend who understands my worries	4.60	1.65
Q40	When I'm feeling sad, listening to music comforts me	5.32	1.40

Note. * MMR scale from Saarikallio (2008).

In Table 2, we have recorded the mean value and standard deviation for individual statements. In the interpretation of individual indicators, it is necessary to consider the nature of the data. The data were constructed on a scale from 1 to 7, so it should be noted that the middle value of the scale represents 4 points. In this sense, mean values above 4 points can be considered above middle, and mean values below 4 points can be interpreted as below-middle. Only three statements (Q24, Q16, and Q27) had a mean to below-middle value measured. The standard error is from 1.12 to 1.92, which, in the context of the scale, represents acceptable values. With a greater degree of standard deviation, greater inconsistency in respondents' answers can be noted. In our case, it is the mean values below the level of the middle value of the scale that are associated with a higher standard deviation. In general, an above-middle use of music as a mood regulator can be noted.

The final (reliable) tool contains 35 statements to which respondents responded on a seven-point Likert scale, which means that the results will range from 35 to 245

points. The mean measured value was 174.6 points, with a standard deviation of 34.5 points and a standard error of the mean of 2.4 points. The median was at the level of 175 points and the mode at the level of 197 points. The minimum value was set at 59 points. The highest value was at the top of the scale, at 245 points. Overall, we rate the level of use of music as a mood regulator as above mean (roughly at 67%). This insight points to the need to solve the given problem.

How can the influence of selected demographic factors on the level of music used as a mood regulator be characterised?

The research question is quite complex, and therefore it is necessary to divide it into several parts. The selected demographic factors were age and gender. Based on the above, we formulated the following hypotheses. The hypotheses were adapted to statistical tests, with the help of which they will be verified.

There is a relationship between age and the level of use of music for mood regulation.

As part of the investigation of the relationship between age and MMR level, we chose correlation analysis in JASP. Based on the categorical variable (age) and the fulfilment of the assumptions, we used the Pearson correlation coefficient. It is a matter of course that the Pearson correlation coefficient is verified using inductive statistics for generalisation needs in the population. The results indicate a weak to moderate negative dependence between age and the MMR rate ($r = -0.282$; significant at the 0.01 level). We can conclude that older respondents achieve a lower rate of MMR, and conversely, younger respondents have a higher rate of MMR level. Such a response can also be expected in populations. Considering the 95% CI, we can expect a correlation in the population in the interval from -0.402 to -0.152.

There is a significant difference in the context of gender and the level of use of music as mood regulation.

In the first step, mean values and standard deviations were examined. Men achieved an mean value of 170.27 points (std. dev. = 35.9) and women 178.27 (std. dev. = 33.1). Based on the above, only small differences can be estimated (considering the depth of possible results). For verification in the sense of the population, due to the nature of the data and the number of investigated variables (2), we chose the T-Test for two independent samples (calculated in SPSS).

Levene's Test for Equality of Variance (Sig. = 0.730) indicates the assumption that the variances are equal in both groups. The results indicate that there is no statistically significant difference between the results (sig. 0.096 > alpha 0.05). Therefore, it cannot be denied that the difference between men and women in population would be zero. Thus, there is an assumption that gender does not affect the MMR rate. In addition to statistical significance, we also verified material significance with the help of Cohen's d. The result (0.12) points to low substantive significance.

What dimensions can be identified in the adapted and modified MMR tool?

For examining the dimensions, we chose exploratory factor analysis (hereinafter referred to as EFA). The author himself (Saarikallio, 2008) states that there are seven dimensions in the model that form the basis of the MMR model. As we modified the tool, we examined its dimensionality based on EFA (Rabušic et al., 2019).

In the first step, we investigated the suitability of the tool for EFA applications. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) criterion reached a level

Table 3 Summary of EFA results

Items	Communalities (Extraction)	Dimensions						
		D1	D2	D3	D4	D5	D6	D7
Q1	0.614	-0.058	0.027	**0.684**	-0.010	-0.264	0.223	-0.069
Q2	0.555	0.002	0.100	**0.661**	-0.006	-0.053	0.055	-0.109
Q3	0.631	0.081	0.013	**0.693**	-0.049	0.077	-0.202	0.027
Q4	0.733	0.073	-0.040	**0.759**	-0.132	0.048	-0.180	0.062
Q5	0.623	0.128	0.164	0.219	**-0.575**	0.119	-0.190	0.236
Q7	0.612	-0.048	0.017	0.199	**-0.437**	-0.256	-0.049	-0.253
Q8	0.776	0.090	0.002	0.072	**-0.763**	-0.002	0.211	-0.188
Q9	0.732	0.164	0.073	0.047	**-0.680**	0.039	0.186	-0.198
Q10	0.652	-0.031	0.062	0.002	**-0.633**	-0.188	-0.048	-0.186
Q11	0.653	0.034	0.049	0.029	**-0.698**	-0.109	-0.170	0.057
Q12	0.591	0.179	0.068	0.085	**-0.342**	-0.182	-0.316	-0.019
Q13	0.728	0.029	0.049	0.051	-0.094	**-0.748**	-0.111	-0.009
Q14	0.744	-0.009	0.024	0.053	-0.053	**-0.834**	-0.023	0.031
Q16	0.623	0.060	0.131	-0.150	-0.075	-0.318	**-0.590**	-0.027
Q17	0.688	0.106	-0.004	0.102	-0.049	-0.174	**-0.596**	-0.184
Q18	0.539	-0.013	0.050	0.212	0.098	0.082	**-0.619**	-0.192
Q19	0.733	0.028	0.167	0.028	-0.198	0.023	-0.037	**-0.674**
Q20	0.761	0.232	-0.015	0.109	0.008	0.041	-0.215	**-0.644**
Q21	0.791	0.116	0.020	0.000	-0.026	-0.054	-0.080	**-0.776**
Q22	0.675	0.211	0.056	0.077	-0.296	0.001	-0.150	**-0.405**
Q24	0.813	-0.073	**0.894**	0.034	-0.012	-0.022	0.000	-0.068
Q25	0.733	0.146	**0.754**	0.126	0.017	0.037	-0.090	0.148
Q26	0.869	-0.028	**0.947**	0.002	-0.047	0.035	0.013	0.003
Q27	0.890	-0.076	**0.947**	-0.012	-0.028	0.002	0.003	-0.100
Q29	0.653	0.135	**0.763**	-0.122	0.026	-0.072	0.041	0.026
Q30	0.613	**0.573**	0.098	0.152	0.018	-0.003	-0.167	-0.054
Q31	0.692	**0.734**	0.109	0.022	0.147	-0.130	-0.076	-0.010
Q32	0.665	0.418	0.143	0.121	0.160	**-0.465**	0.094	-0.093
Q33	0.566	**0.597**	0.057	0.188	0.147	-0.184	-0.002	-0.026
Q34	0.711	**0.723**	0.076	-0.081	0.004	-0.015	-0.009	-0.187
Q35	0.714	**0.691**	0.032	-0.076	-0.216	-0.055	-0.091	-0.001
Q36	0.680	**0.621**	0.106	-0.060	-0.156	0.006	-0.068	-0.130
Q38	0.774	**0.841**	0.079	0.060	-0.077	0.070	0.088	0.026
Q39	0.747	**0.827**	0.041	0.053	-0.037	0.099	0.122	-0.084
Q40	0.572	**0.608**	-0.171	-0.053	-0.271	-0.052	-0.127	-0.034
Explaxined variance (in %)		41.07	7.48	5.84	4.62	3.85	3.15	2.97

Note. Rotation Method: Oblimin with Kaiser Normalization.

of 0.915. Bartlett's Test of Sphericity (Sig. = <0.001) also pointed to the fulfilment of the conditions for the possibility of using EFA. On the basis of the mentioned criteria, it can be concluded that it is appropriate to use EFA.

We performed multiple methods of EFA calculation. Since the literature and initial EFA solutions point to a possible correlation between the dimensions, we have chosen the extraction method as the optimal solution in our paper pca with the rotation method: Oblimin with Kaiser normalisation.

We first studied the scree plot, but it was ambiguous. We decided to use the Keiser criterion, in which we consider the number of initial eigenvalues to be greater than 1 (Keiser, 1960). Based on this, seven dimensions can be established. Subsequently, we examined the affiliation of the statements to the dimensions, their cumulative explained variance within the pattern matrix, communalities and total variance explained (see Table 3).

Based on Table 3, it can be concluded that all elements - statements reach a high level within communities. At the same time, it follows from Table 3 that the tool contains seven dimensions.

The first dimension explains roughly 41% of variance and contains nine statements (namely Q30, Q31, Q33, Q34, Q35, Q36, Q38, Q39, and Q40); the second dimension explains roughly 7% of variance and contains five statements (namely Q24, Q25, Q26, Q27, and Q29); the third dimension explains roughly 6% of variance and contains four statements (namely Q1, Q2; Q3 and Q4); the fourth dimension explains roughly 5% of variance and contains seven statements (namely Q5, Q7, Q8; Q9, Q10, Q11, and Q12); the fifth dimension explains roughly 4% of variance and contains three statements (namely statements Q13, Q14, and Q32); the sixth dimension explains about 3% of variance and contains three statements (namely statements Q16; Q17, and Q18); and the seventh dimension explains about 3% of variance and contains four statements (namely statements Q19, Q20, Q21, and 22).

Based on the semantic analysis of individual statements and their affiliation with individual dimensions, the dimensions can be named as follows: 1st dimension: Mental comfort; 2nd dimension: Reduction of negativity; 3rd dimension: Entertainment; 4th dimension: Spiritual regeneration; 5th dimension: Memories; 6th dimension: Strong Sensation and 7th dimension: Diversion.

Correlations can be identified between the dimensions, which we recorded in Table 4.

Table 4 Component Correlation Matrix

Component	1	2	3	4	5	6	7
1	1.00	0.48	0.30	-0.39	-0.29	-0.31	-0.44
2	0.48	1.00	0.31	-0.24	-0.32	-0.20	-0.26
3	0.30	0.31	1.00	-0.28	-0.26	-0.24	-0.26
4	-0.39	-0.24	-0.28	1.00	0.19	0.23	0.34
5	-0.29	-0.32	-0.26	0.19	1.00	0.18	0.29
6	-0.31	-0.20	-0.24	0.23	0.18	1.00	0.19
7	-0.44	-0.26	-0.26	0.34	0.29	0.19	1.00

Note. Code for dimensions/components: 1 = Mental comfort; 2 = Reduction of negativity; 3 = Entertainment; 4 = Spiritual regeneration; 5 = Memories; 6 = Strong Sensation and 7 = Diversion.

First of all, the assumption of correlations between dimensions can be confirmed (see Table 4). It can also be stated that the strongest measured positive relationship exists between Mental comfort and Reduction of negativity, which is logical since the reduction of negative emotions creates mental comfort in a certain way. Some correlations are negative, which only points to the strategy of using individual aspects of mood regulation with the help of music. In other words, it can be considered that some strategies of using music as mood regulation are to a certain extent complementary and others are rather (to a certain extent) antinomic.

How can strategic groups of people be characterized in the context of the use of musical mood strategies based on the identified dimensions?

Based on the EFA, we concluded that there are seven significant factors within the instrument under study. We further examine these dimensions in terms of the identification of strategic groups of respondents. The purpose is a better understanding of groups and the use of strategies (identified dimensions) within the framework of mood regulation. Individual dimensions represent the sums of individual statements that belong to them. We recorded the generic parameters of the dimensions in Table 5.

Table 5 Generic parameters of dimensions

Name of dimension	Code	Number of statements	Interval of the dimension scale		
			Min	Max	Middle
Mental comfort	D1	9	9	63	36
Reduction of negativity	D2	5	5	35	20
Entertainment	D3	4	4	28	16
Spiritual regeneration	D4	7	7	49	28
Memories	D5	3	3	21	12
Strong Sensation	D6	3	3	21	12
Diversion	D7	4	4	28	16

Table 5 provides an overview of the individual dimensions, their name, code designation, number of statements, and generic numerical parameters (minimum possible measured value, the maximum possible measured value, and the middle value of the scale/dimension). Based on the mentioned dimensions, we created segments with the help of cluster analysis (TwoStep cluster analysis). During the analysis, we considered the nature of the data, which we standardised due to the difference scale (see Table 5). Distances were measured using the Log-likelihood metric. We did not determine a number of clusters. We used an auto-clustering algorithm, specifically Schwarz's Bayesian criterion (BIC). The quality cluster based on the Sillhouette measure of cohesion and separation indicates an adequate level of analysis (0.4). In terms of size, it can be concluded that the first cluster (Cluster 1) contains 63.6% of respondents, and the second cluster (Cluster 2) contains 36.4% of respondents. The examination of predictors is important for the characteristics of clusters, and their importance can be considered a basic parameter. We can stated, the first dimension (Mental comfort) had the greatest importance within the segmentation. The third dimension (Entertainment) had the lowest importance. If we think about the predictors, there is a difference within individual dimensions. It is therefore logical that Entertainment is so significant in the context of music that there are no differences within this dimension to aid in

segmentation. In other words, Entertainment is the general function of music. Cluster one represents the majority of respondents (63.6%), while this group is characterized by the fact that, on mean, it achieves above-mean values within the dimensions. So, they use music as a mood regulator. The mean age for this cluster is 36 years. Cluster two represents a smaller part of the respondents, while significantly higher values in all dimensions can be identified within the mean. This is a group that uses music to a great extent as a mood regulator. The mean age of respondents in this cluster is 29 years old. It is clear that music in this segment represents a key component of life and its undeniable importance for creating, influencing, and reducing negative moods.

DISCUSION

In our paper, we use the MMR tool (Shaarikallio, 2008), which we have adapted to the conditions of our population. Adaptation took place in the sense of maximising reliability or improving the estimation of the reliability of the research instrument. The modified instrument contains 35 statements. The modified model of music as a mood regulator aims to measure the overall influence of music as well as examine it in the context of individual dimensions of regulation.

Factors affecting the strategic aspect of using music as a mood regulator were investigated. Only one of the examined demographic factors (age, gender) showed statistical significance: age. The low gender difference is quite surprising, as previous studies have pointed to a difference (e.g., Saarikallio 2008). However, it should be added that in other studies, the authors focused on a certain age segment, which may cause a difference. It is not surprising that music is more important as a mood regulator for young people, since it is younger people who are under stress, experience emotional turmoil, and therefore have a higher need to control and influence moods (Halle, 2003). At the same time, music is an integral part of their lives (North et al., 2000). Of course, music is also important for the older population. For seniors, music can act as a stress reliever but also have a significant influence on mood (Lehmberg & Fung, 2010). At the same time, the findings suggest that music can represent a link to the past, memories, and thus a certain element of nostalgia. Within the cluster analysis, two clusters were identified, and in the context of the previous results, it can be stated that age played an important role in the sense of using music as a mood regulator. As part of the research, we identified two segments based on dimensions. As stated DeNora (2001), music satisfies a number of needs that are associated with life. It is therefore not surprising that some dimensions had higher effects on individual groups than others because they satisfied the regulatory and affective needs of individual clusters.

The study contains certain limitations. First of all, it is about obtaining information through a questionnaire survey, which may represent a certain interpretation limit, since it is only the subjective statements and reactions of respondents who may not be aware of certain facts and thus may answer inaccurately. At the same time, a measurement was made at a certain moment. As Gross (2015) suggests, emotion regulation is a dynamic process that develops over time, which points to the need for further measurements and investigations of differences over time. It is also possible to speculate about the effect of acquiescence bias, which appears within the Likert scale (Ray, 1987), which may also indicate the fact that many discarded statements were negatively worded. At the same time, there may be a number of other factors that affect the mood regulation strategy (e.g., Saarikallio, 2010 points to differences in the segments of musicians and non-musicians).

CONCLUSION

The article is supported by a primary survey in which, in addition to identification questions, respondents responded to 40 statements from the original version of the MMR (Saarikallio, 2008). With the help of reliability estimation, we subsequently found the need for adaptation and modification of the tool. The modification involved reducing the number of statements to 35 in order to increase the reliability of the research instrument in Slovakian conditions. The results indicate an above-mean use of music as a mood regulation tool. In the context of the investigated demographic factors, it was pointed out that gender does not influence the level of mood regulation measured on the basis of the adapted MMR. Age, on the other hand, demonstrated statistical significance, manifesting itself with moderate intensity and in a negative direction. In other words, older respondents had a lower MMR rate. The adapted instrument consists of seven dimensions. Certain dimensions are identical to the original version, indicating possible cross-cultural universality. As part of the investigation of segments with the help of the presented dimensions, it points out the existence of three segments that have differences in the use of MMR in the context of individual dimensions. The results complement the knowledge base on the investigated issue.

In the future, research in other countries would also be appropriate. At the same time, it would be appropriate to investigate several factors and their influence of selected factors on individual (identified) dimensions. At the same time, a multi-level classification would be appropriate, where gender differences in individual age categories would be revealed.

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APPENDICES

Appendix A Used MMR translation in Slovak

CODE	MMR scale (Saarikallio, 2008)
Q1	Keď som zaneprázdnený prácou a nikto iný nie je nablízku, mám rad hudbu v pozadí.
Q2	Keď niekam idem (napríklad do školy, von s kamarátmi), počúvam hudbu, aby som sa dostal do správnej nálady.
Q3	Počúvam hudbu, aby som si spríjemnil upratovanie a iné domáce práce.
Q4	Zvyčajne si púšťam hudbu do pozadia, aby som si spravil správnu atmosféru.
Q5	Keď som unavený, odpočívam pri hudbe.
Q6	Počúvanie hudby mi nepomáha uvoľniť sa.
Q7	Počúvam hudbu, aby som sa povzbudil po náročnom dni.
Q8	Keď som vyčerpaný, počúvam hudbu, ktorá mi dodáva energiu.
Q9	Keď som vyčerpaný, načerpám novú energiu z hudby.
Q10	Počúvam hudbu, aby som si vydýchol uprostred rušného dňa.
Q11	Počúvanie hudby mi pomáha relaxovať.
Q12	Cítim sa fantasticky, keď počúvam hudbu celou svojou dušou.
Q13	Hudba mi sprostredkováva moje zážitky.
Q14	Hudba mi pripomína nezabudnuteľné chvíle.
Q15	Hudba vo mne nevyvoláva silné emocionálne zážitky.
Q16	Chcem počúvať hudbu, ktorá vo mne vyvoláva pocity.
Q17	Chcem cítiť hudbu celým svojím telom.
Q18	Niekedy je hudba taká skvelá, že mám husiu kožu (v pozitívnom zmysle).
Q19	Keď sa mi v hlave neustále dokola krútia stresujúce myšlienky, začnem počúvať hudbu, aby som ich dostal z mysle.
Q20	Hudba je pre mňa spôsob, ako zabudnúť na starosti.
Q21	Počúvanie hudby mi pomáha blokovať zlé myšlienky.
Q22	Keď sa cítim zle, snažím sa dostať do lepšej nálady tým, že začnem robiť niečo v spojitosti s hudbou.
Q23	Nemôžem zahnať svoje starosti pomocou hudby.
Q24	Keď sa hnevám, dávam priechod svojmu hnevu počúvaním hudby, ktorá vyjadruje môj hnev.
Q25	Keď mi všetko príde mizerné, začnem počúvať hudbu, ktorá vyjadruje moje pocity.
Q26	Keď sa na niekoho hnevám, počúvam hudbu, ktorá vyjadruje môj hnev.
Q27	Keď som naozaj nahnevaný, mám chuť počúvať nejakú hudbu, ktorá to vyjadrí.
Q28	Keď som nahnevaný, takmer nikdy nepočúvam adekvátnu hudbu.
Q29	Keď je všetko zlé, pomáha mi počúvanie hudby, ktorá vyjadruje moje negatívne pocity.
Q30	Hudba mi pomáha prekonať ťažké časy.
Q31	Hudba mi pomáha pochopiť rôzne vnútorné pocity.

CODE	MMR scale (Saarikallio, 2008)
Q32	Počúvanie hudby ma vracia do minulosti a prinúti ma premýšľať o rôznych veciach čo sa mi stali.
Q33	Hudba ma inšpiruje premýšľať o dôležitých otázkach.
Q34	Keď ma niečo trápi, hudba mi pomáha ujasniť si pocity.
Q35	Keď ma niečo trápi, nachádzam útechu v hudbe.
Q36	Počúvam hudbu, aby som našiel útechu, keď mám starosti.
Q37	Počúvanie hudby ma neutešuje v mojom smútku.
Q38	Keď je všetko zlé, hudba ma chápe a utešuje.
Q39	Hudba je ako priateľ, ktorý rozumie mojim starostiam.
Q40	Keď sa cítim smutný, počúvanie hudby ma utešuje.

Appendix B Estimated reliability rate

Item	First solution			Final solution		
	McDonald's ω*	Cronbach's α **	Item-rest correlation	McDonald's ω ***	Cronbach's α ****	Item-rest correlation
Q1	0.947	0.945	0.41	0.957	0.956	0.41
Q2	0.947	0.945	0.49	0.956	0.956	0.49
Q3	0.947	0.945	0.51	0.956	0.955	0.50
Q4	0.946	0.945	0.53	0.956	0.955	0.54
Q5	0.946	0.945	0.53	0.956	0.955	0.55
Q6	0.950	0.948	0.09	-	-	-
Q7	0.946	0.944	0.63	0.955	0.955	0.64
Q8	0.946	0.944	0.55	0.956	0.955	0.58
Q9	0.946	0.944	0.61	0.955	0.955	0.62
Q10	0.946	0.944	0.60	0.955	0.955	0.61
Q11	0.946	0.945	0.56	0.955	0.955	0.58
Q12	0.946	0.944	0.65	0.955	0.954	0.67
Q13	0.946	0.944	0.56	0.956	0.955	0.56
Q14	0.947	0.945	0.47	0.956	0.956	0.46
Q15	0.950	0.949	0.08	-	-	-
Q16	0.946	0.945	0.53	0.956	0.955	0.53
Q17	0.946	0.944	0.61	0.955	0.955	0.62
Q18	0.947	0.945	0.42	0.956	0.956	0.42
Q19	0.945	0.944	0.65	0.955	0.954	0.67
Q20	0.945	0.944	0.67	0.955	0.954	0.68
Q21	0.946	0.944	0.62	0.955	0.955	0.64
Q22	0.945	0.943	0.71	0.955	0.954	0.73

Item	First solution			Final solution		
	McDonald's ω*	Cronbach's α **	Item-rest correlation	McDonald's ω ***	Cronbach's α ****	Item-rest correlation
Q23	0.949	0.948	0.11	-	-	-
Q24	0.946	0.944	0.62	0.955	0.955	0.62
Q25	0.946	0.944	0.62	0.955	0.955	0.61
Q26	0.946	0.944	0.62	0.955	0.955	0.62
Q27	0.945	0.944	0.64	0.955	0.955	0.64
Q28	0.949	0.947	0.26	-	-	-
Q29	0.946	0.945	0.54	0.956	0.955	0.53
Q30	0.945	0.944	0.70	0.955	0.954	0.70
Q31	0.945	0.944	0.69	0.955	0.954	0.68
Q32	0.945	0.944	0.64	0.955	0.955	0.64
Q33	0.946	0.944	0.62	0.955	0.955	0.63
Q34	0.945	0.943	0.69	0.955	0.954	0.70
Q35	0.945	0.943	0.72	0.955	0.954	0.72
Q36	0.945	0.943	0.73	0.955	0.954	0.73
Q37	0.948	0.946	0.29	-	-	-
Q38	0.945	0.943	0.71	0.955	0.954	0.71
Q39	0.945	0.944	0.67	0.955	0.954	0.68
Q40	0.946	0.944	0.57	0.955	0.955	0.59

Note. * McDonald' ω = 0.947. ** Cronbach's α = 0.946. *** McDonald's ω = 0.957; (CI 95 % = = <0.948 - 0.965>); **** Cronbach's α =0.956; (CI 95 % = <0.947 - 0.964>)