Gender and religion as factors of individual differences in musical preference

João Fortunato Soares-Quadros Júnior (iD)
Federal University of Maranhão, Brazil

Oswaldo Lorenzo
University of Granada, Spain

Lucía Herrera (iD)
University of Granada, Spain

Naiara Sales Araújo Santos (iD)
Federal University of Maranhão, Brazil

Abstract

The goal of this article is to analyse the musical preferences of Brazilian students by considering the variables of gender and religion. Using random sampling, a class was selected from each high school year group of 10 public schools in the city of São Luís (Brazil).The total study sample consisted of 658 students: 358 females (54.4%) and 300 males (45.6%). Of these, 343 (52.1%) were Protestants and 315 (47.9%) were Catholics, and their ages ranged from 14 to 19 years ($M = 16.24$ years old, $SD = 1.14$). For the data collection, a version of the *Questionnaire on Musical Style Preferences* by Lorenzo, Herrera, and Cremades (2008) was used; however, it was shortened and culturally adapted to the Brazilian context. The participants were asked to evaluate how often they listened to 19 different styles of music. The overall results indicated that the participants' musical preferences were heavily influenced by mass media. However, ANOVA results indicated significant differences and a variety of size effects in the frequency of musical listening based on gender and religion. Females had a greater preference for styles with emotional content, dance music and music with a strong connection to mass culture, while males preferred more vigorous styles. Regarding religion, Protestants had a stronger preference for gospel music, while Catholic preferences were more diverse.

Corresponding author:
João Fortunato Soares-Quadros Júnior, Department of Music, Faculty of Human Sciences, Federal University of Maranhão, Av. dos Portugueses, 1966 – Vila Bacanga, São Luís – MA, Maranhão 65080805, Brazil.
Email: joaofjr@gmail.com

Music features in all cultures and is a primordial element in maintaining the culture, history and social identity of a society (Cross, 2009; Shuker, 2016). Therefore, studies have attempted to determine the concrete motives that lead individuals to choose between one musical style, artist or song and others (Bonneville-Roussy & Rust, 2017; Schäfer & Sedlmeier, 2010).

The scientific literature defines the recurrence of these decisions as "musical preference", an attitude that is favourable or unfavourable – and can be permanent or transitory – for different types of music (Hargreaves, North, & Tarrant, 2015; Pimentel, Gouveia, Coelho, Athayde, & Lima, 2014). Authors such as Pimentel, Gouveia, and Pessoa (2007) and Robinson and Hatten (2012) argue that musical preference is a fundamental element that forms human character, especially during adolescence. Tekman and Hortaçsu (2002) point to adolescence as the stage of life in which individuals are subject to the greatest influence from their peer groups regarding decisions related to clothes, hairstyle, preferences for places of leisure and types of entertainment. For this reason, Pais (1998) suggests that music and musical styles (along with aspects such as external appearance and language) act as "symbolic elements" that provide internal coherence to groups of young people, thereby helping to construct and consolidate a collective identity. Other authors have affirmed that musical preferences are also related to the roles that music plays in people's everyday lives, such as affecting emotions, causing physiological arousal, promoting self-awareness and satisfying psychological needs (Bonneville-Roussy, Rentfrow, Xu, & Potter, 2013; Kuan, Morris, & Terry, 2017; Schäfer, 2016).

Musical preference differences between individuals

Studies have shown that musical preferences vary (to a greater or lesser extent) as a function of several factors, including the specific characteristics of the music (tone, timbre, metric, etc.), the quality of the performance, the age and personality of the listener, and the social, cultural, psychological and emotional influences of the music (Getz, Chamorro-Premuzic, Roy, & Devroop, 2012; Leblanc, 1982; Levitin, 2008; Rentfrow & Gosling, 2006; Tekman & Hortaçsu, 2002). Therefore, this study analyses how the factors of gender and religion relate to differences in Brazilian students' individual musical preferences.

Previous studies on associations between gender and musical preferences tend to concur in considering females to be more open to "romantic" or "mellow" music, which has a high level of emotional content and is strongly attached to mass culture. In contrast, males have been shown to have a greater preference for more complex, exciting and "heavy" styles (Esfandiari & Mansouri, 2014; George, Stickle, Rachid, & Wopnford, 2007; Gouveia, Pimentel, Santana, Chaves, & Paraíba, 2008; North & Hargreaves, 2008; Schwartz & Fouts, 2003). In his study, Russell (1997) indicated that styles such as hard rock, progressive rock, heavy rock, rock and roll and (sometimes) jazz have masculine characteristics and that mainstream pop, pop hits, classical music and dance songs are more related to the female gender. On the other hand, some studies indicate the existence of musical styles that please both genders, such as electronic and mainstream rock. The scientific literature calls these "crossover styles" (Colley, 2008; Tipa, 2015).

There is some evidence that females listen to music both more intensely and more often than do males (Crowther & Durkin, 1982); a discrepancy that may be related to differences in the way the different genders use music (North & Hargreaves, 2008). Music seems to assume a primary place in the life of males because it plays an important role in the social and affective relationships that they establish with their peer group. For females, music functions as background noise during everyday activities, thereby serving to make social occasions enjoyable, relieve boredom, improve mood and express feelings and emotions (Tipa, 2015). In a school

context, Silva (2005) indicates that differences in musical choices based on gender seem to be associated with feelings, such that (as Christenson and Roberts (1998) affirm) males prefer not to be associated with styles linked to the female gender. Consequently, males vigorously reject styles that are "characteristic" of females (Colley, 2008). Nevertheless, Lorenzo, Pérez, and Soares-Quadros Jr. (2014) observed no preference differences due to gender in a sample of higher music education students. Such reports of gender discrepancies therefore warrant further investigation of gender and music preferences, as previously stressed by North (2010).

Regarding the second variable of this paper, to date, few studies have suggested an association between religion and music preference. First, from a historical analysis, the relationship between music and religion is obviously very old. Until the end of the 18th century, the most prestigious classical music composers were responsible for the creation and presentation of music within churches, thereby generating musical productions that had a great impact on religious ideas and precepts (Burkholder, Grout, & Palisca, 2014). Ok and Erdal (2015) emphasized that religions use their normative and guiding characteristics of behavioural conduct to legitimize or prohibit listening to certain types of music. This relationship was also demonstrated by Soares-Quadros Jr. and Lorenzo (2013), who identified low listening levels for styles such as heavy metal, hardcore, punk and reggae in places where people listened to considerable amounts of gospel music, a musical style preferred among Protestant church members in Brazil (Neder et al., 2016). Thus, cultural expressions traditionally stigmatized as predictors of behaviours, habits and values that are considered undesirable (e.g., the indiscriminate consumption of alcohol, tobacco and illicit drugs) are often rejected by communities in which religious practices and ideals have great importance (Brehem, 2010; Cleveland, Laroche, & Hallab, 2013). In addition, studies note that music assumes functions similar to those of religious experiences, such as evoking feelings of transcendence, excitation and self-reflection; moreover, it also serves as a way to express feelings and as a manifestation of personal values and beliefs (Boer & Fischer, 2012; North, Hargreaves, & Hargreaves, 2004; Schubert, 2009). In general, the scientific literature correlates religious attitudes positively with country and western, classical music, disco, gospel, musical theatre and traditional music styles and negatively with styles such as hip-hop, heavy metal and rap (George et al., 2007; Lynxwiler & Gay, 2000; North, Desborough, & Skarstein, 2005; North & Hargreaves, 2007).

Based on the above analysis, the objectives of this study are as follows:

- To analyse the musical preferences of students from public high schools in the city of São Luís (Brazil);
- To determine the associations between musical style preferences and the variables of gender and religion.

Method

This study follows a quantitative approach and adopts an empirical-analytical type of social research method, which is descriptive in nature (Outhwaite & Turner, 2008).

Participants

In this study, the participants were selected through random sampling. Ten public high schools in the city of São Luís (Brazil) (out of a total of 84) were selected by lottery, followed by the random selection of one class from each grade year by institution. In total, 658 students participated in the study: 358 were females (54.4%) and 300 were males (45.6%). Of these, 236 were

in 10th grade (35.9%), 229 in 11th grade (34.8%) and 193 in 12th grade (29.3%). The participants' ages ranged from 14 to 19 years ($M = 16.24$ years old, $SD = 1.14$). Regarding the religion variable, this study opted to organize the participants into only two groups: Protestants ($n = 343$, 52.1%) and Catholics ($n = 315$, 47.9%). The Protestant group included participants associated with the following denominations: Adventist ($n = 12$), Assembly of God ($n = 2$), Baptist ($n = 1$), Evangelical ($n = 326$) and Jehovah's Witnesses ($n = 2$). Regarding gender and religion, 52.5% of the Protestants were female ($n = 180$) and 47.5% were male ($n = 163$). Similarly, 56.5% of the Catholics were female ($n = 178$) and 43.5% were male ($n = 137$).

Instrument

Each participant was given a modified version of the *Questionnaire on Musical Style Preferences* (Lorenzo, Herrera, & Cremades, 2008) that was shortened and adapted to the Brazilian context and that was modified to incorporate the religion variable. As an initial approach to select the musical styles for inclusion in the questionnaire, a group of students ($N = 92$) with characteristics similar to those in the sample of the present study were asked to indicate all the musical styles that they knew. After collecting this information, the styles mentioned by at least 20% of the students were adopted for the main study, resulting in a total of 19 musical styles (see Appendix): arrocha, axé-music, brega, classical, dance, electronic, forró, funk, gospel, hip-hop, international, Brazilian popular music (BPM), pagode, pop, rap, reggae, rock, samba and sertanejo. Arrocha is music that has a rhythm associated with Bahia and axé-music. Brega is associated with northern and north-eastern Brazil; its content tends to be both sentimental and vulgar. Forró is associated with the harsh ways of traditional life in the rural interior of Brazil, and although it can be played at any time, it is dominant in the month of June (during the maize harvest); it tends to feature the accordion, various forms of flutes and hand-held percussion instruments. Pagode is a style that developed from samba; and sertanejo is a Brazilian variant of country and western music that often features male duets and guitars.

The survey instrument was divided into two parts. In the first part, the participants were asked to provide personal information such as gender, age and religion. The second part included questions concerning how often the participants listen to each of the 19 musical styles listed above, using a 5-point Likert scale ranging from 2 = I never listen to this, to 6 = I always listen to this (see the Appendix). Respondents could optionally indicate whether they were unfamiliar with one or more of the musical styles evaluated (option 1 of the scale). The final version of the questionnaire was initially submitted for evaluation by subject specialists (Escobar-Pérez & Cuervo-Martínez, 2008) consisting of academic staff from Brazilian universities specializing in music education, musicology and ethnomusicology. These specialists evaluated the instrument regarding its suitability, congruence and relevance, thus ensuring the validity of the content.

Procedure

Data collection. The questionnaire was administered during November and December 2016, and it was approved by the principals of the participating schools, who collaborated with the research and provided the times at which the data could best be collected. Thus, the questionnaires were presented to the students, distributed and collectively read to allow any questions concerned with understanding and completing the task to be answered. Each questionnaire administration lasted 30 minutes.

Data analysis. The data were analysed using SPSS 20.0 software. The data were tested to determine the type of statistical procedure to be adopted (parametric or non-parametric tests). Thus, the Kolmogorov-Smirnov test was adopted when the data distribution did not follow a normal distribution ($p < .001$); however, the Levene statistic, calculated with an independent-samples *t*-test, was adopted when the data indicated the homogeneity of variances for both gender and religion. Although some authors have indicated that when the data normality is not fulfilled, non-parametric tests must be implemented (Osborne, 2012), other criteria are also required, such as homogeneity of variance (homoscedasticity) and sample size. In this case, because the homogeneity of variance was satisfied, and the sample size was sufficiently large, parametric tests were adopted (Norman, 2010; Warner, 2008).

Consequently, Pearson's correlation coefficient was used to analyse possible relationships among the different musical styles evaluated. Additionally, ANOVA followed by Bonferroni correction for multiple comparisons was used to evaluate the differences between participant groups according to the variables of this study (gender and religion). To determine the effect sizes, the partial eta squared used was (η_p^2); where $\eta_p^2 = .01$ indicates a small effect, $\eta_p^2 = .06$ a medium effect and $\eta_p^2 = .14$ a large effect (Cohen, 1988; Lakens, 2013; Richardson, 2011).

Results

Table 1 shows that gospel, forró and sertanejo were the musical styles that the participants preferred most, while classical music and brega were the styles of music that were listened to the least.

Regarding the variables gender and religion involved in this study, males listened to brega to a lesser extent, while females listened to classical music at lower rates. For females, sertanejo, international, gospel, forró and pagode were the most preferred styles; for males, forró, gospel, international, pagode, sertanejo and electronic were the most preferred styles. The Protestant participants tended to like listening to gospel much more than to the other musical styles. Moreover, this group listened infrequently to brega, classical, axé-music and arrocha. Conversely, the Catholic participants had more diverse tastes and had higher listening preferences for forró, sertanejo, pagode, international, funk and electronic styles. However, this group listened to less classical and brega music.

The correlations regarding listening preference among the different musical styles evaluated were computed (see Table 2). Among the significant correlations the strong positive correlations between dance and electronic, between hip-hop and rap and between arrocha and brega were particularly noteworthy. Pagode and forró were strongly positively correlated with each other; they were also the styles that correlated most positively with others: pagode correlated positively with samba, funk and sertanejo, while forró correlated positively with funk and sertanejo.

Musical preferences, gender and religion

Table 3 shows the results of the ANOVA performed for the gender and religion variables and the interaction between them. Initially, the multivariate test indicated significant differences and large effects in musical preference with respect to gender, $F(1, 656) = 7.029$, $p < .001$, $\eta_p^2 = .197$, and religion, $F(1, 656) = 11.246$, $p < .001$, $\eta_p^2 = .282$, but not for the gender × religion interaction, $F(1, 2628) = 1.118$, $p = .308$, $\eta_p^2 = .038$.

On the one hand, ANOVA and Bonferroni adjustment revealed that females' preferences were more diverse and they listened to the following styles more frequently than

Table 1. Means and standard deviations for each musical style by gender and religion.

Style	Religion	Gender				Total	
		Female		Male			
		Mean	SD	Mean	SD	Mean	SD
Arrocha	Protestant	2.89	1.24	2.82	1.13	2.86	1.19
	Catholic	3.66	1.38	3.14	1.33	3.43	1.38
	Total	3.27	1.36	2.96	1.23	3.13	1.31
Axé-music	Protestant	2.85	1.14	2.73	1.13	2.79	1.13
	Catholic	3.36	1.23	2.98	1.22	3.19	1.23
	Total	3.10	1.21	2.84	1.17	2.98	1.20
Brega	Protestant	2.63	1.04	2.53	1.07	2.58	1.05
	Catholic	3.17	1.40	2.70	1.09	2.97	1.29
	Total	2.89	1.26	2.61	1.08	2.76	1.19
Classical	Protestant	2.71	1.08	2.75	1.17	2.73	1.12
	Catholic	2.35	1.01	2.69	1.19	2.50	1.11
	Total	2.53	1.06	2.72	1.18	2.62	1.12
Dance	Protestant	3.34	1.39	3.66	1.48	3.49	1.44
	Catholic	4.03	1.39	3.96	1.35	4.00	1.37
	Total	3.67	1.43	3.79	1.43	3.73	1.43
Electronic	Protestant	3.41	1.44	3.86	1.44	3.63	1.45
	Catholic	4.16	1.42	4.16	1.36	4.16	1.39
	Total	3.78	1.48	4.00	1.41	3.88	1.45
Forró	Protestant	4.03	1.58	3.94	1.58	3.99	1.58
	Catholic	4.95	1.37	4.44	1.58	4.72	1.49
	Total	4.48	1.55	4.16	1.60	4.33	1.58
Funk	Protestant	3.47	1.54	3.37	1.57	3.42	1.55
	Catholic	4.51	1.56	4.13	1.60	4.34	1.59
	Total	3.98	1.63	3.71	1.62	3.86	1.63
Gospel	Protestant	5.00	1.07	4.81	1.42	4.91	1.28
	Catholic	4.09	1.36	3.33	1.32	3.76	1.39
	Total	4.55	1.36	4.15	1.56	4.36	1.48
Hip-hop	Protestant	3.03	1.34	3.56	1.42	3.28	1.40
	Catholic	3.01	1.32	3.52	1.43	3.23	1.39
	Total	3.02	1.33	3.54	1.42	3.26	1.39
International	Protestant	4.50	1.37	4.10	1.41	4.31	1.40
	Catholic	4.63	1.32	4.04	1.46	4.37	1.41
	Total	4.57	1.34	4.08	1.43	4.34	1.40
BPM	Protestant	3.57	1.62	2.86	1.26	3.23	1.50
	Catholic	3.46	1.58	3.35	1.48	3.41	1.53
	Total	3.52	1.60	3.08	1.38	3.32	1.52
Pagode	Protestant	3.90	1.67	3.79	1.51	3.85	1.60
	Catholic	4.72	1.47	4.38	1.43	4.57	1.46
	Total	4.31	1.63	4.05	1.50	4.19	1.58
Pop	Protestant	3.46	1.52	3.59	1.49	3.53	1.51
	Catholic	3.77	1.61	3.78	1.55	3.77	1.58
	Total	3.61	1.57	3.67	1.52	3.64	1.55

Table 1. (Continued)

Style	Religion	Gender				Total	
		Female		Male			
		Mean	SD	Mean	SD	Mean	SD
Rap	Protestant	2.95	1.31	3.56	1.54	3.24	1.46
	Catholic	3.09	1.47	3.62	1.54	3.32	1.52
	Total	3.02	1.39	3.59	1.54	3.28	1.49
Reggae	Protestant	3.17	1.40	3.36	1.51	3.26	1.46
	Catholic	4.08	1.59	3.75	1.61	3.94	1.60
	Total	3.62	1.56	3.54	1.57	3.58	1.56
Rock	Protestant	3.41	1.66	3.58	1.62	3.49	1.64
	Catholic	3.06	1.69	3.32	1.75	3.17	1.72
	Total	3.24	1.68	3.46	1.68	3.34	1.68
Samba	Protestant	3.41	1.44	3.32	1.44	3.36	1.44
	Catholic	4.02	1.53	3.73	1.54	3.89	1.54
	Total	3.71	1.51	3.50	1.50	3.61	1.51
Sertanejo	Protestant	4.32	1.61	3.83	1.47	4.08	1.56
	Catholic	4.91	1.35	4.22	1.60	4.61	1.50
	Total	4.61	1.51	4.01	1.54	4.33	1.55

males: arrocha ($t = .296$, $p = .006$), brega ($t = .282$, $p = .004$), gospel ($t = .629$, $p < .001$), international ($t = .494$, $p < .001$), BPM ($t = .410$, $p = .001$) and sertanejo ($t = .587$, $p < .001$). On the other hand, males were more likely than females to listen to hip-hop ($t = .526$, $p < .001$) and rap ($t = .569$, $p < .001$). Listening to gospel was the only genre that resulted in a medium effect size; the effects were small for all the other styles.

The analysis revealed significant differences and effects of different sizes for the religion variable (see Table 3). Catholics had more musically diverse tastes than did Protestants, and they showed higher indices of listening to and had small-to-medium effect sizes for the following musical styles: arrocha ($t = .542$, $p < .001$), axé-music ($t = .379$, $p < .001$), brega ($t = .357$, $p < .001$), dance ($t = .494$, $p < .001$), electronic ($t = .528$, $p < .001$), forró ($t = .706$, $p < .001$), funk ($t = .896$, $p < .001$), pagode ($t = .703$, $p < .001$), reggae ($t = .652$, $p < .001$), samba ($t = .510$, $p < .001$) and sertanejo ($t = .493$, $p < .001$). In contrast, Protestants were more likely to listen to and have large effect sizes for gospel ($t = 1.347$, $p < .001$).

Discussion and conclusions

This study analysed the associations between gender, religion and differences in the musical preferences of high school students in São Luís (Brazil). First, the musical styles typical of Brazilian culture (e.g., forró and sertanejo) were more popular than were the more global styles related to Western tonal music (e.g., rap and classical music). It seems possible that the participants' musical preferences were influenced by contemporary media culture since the styles they listened to most often coincided with those that traditionally receive the most media exposure (Cremades, Lorenzo, & Herrera, 2010; Pimentel et al., 2007; Pimentel, Gouveia, & Vasconcelos, 2005; Soares-Quadros Jr. & Lorenzo, 2013).

Table 2. Pearson's correlation coefficients (r) between different musical styles.

	Ax	Br	Cl	Da	El	Fo	Fu	Go	Hh	In	BP	Pa	Po	Ra	Re	Ro	Sa	Se
Ar	.35***	.52***	-.14**	.24***	.23***	.47***	.42***	-.14***	-.01	.06	.01	.39***	.02	.05	.39***	-.22***	.35***	.42***
Ax		.26***	-.01	.29***	.29***	.42***	.39***	-.05	.06	.19***	.12**	.47***	.19***	.04	.30***	-.11**	.42***	.43***
Br			-.08	.20***	.20***	.33***	.33***	-.08	-.02	.04	.03	.25***	.04	.03	.37***	-.12**	.23***	.31***
Cl				.06	.03	-.18***	-.20***	.07	.03	.14***	.21***	-.11**	.12**	.01	-.08*	.22***	.02	-.08*
Da					.73***	.37***	.32***	-.11**	.31***	.25***	.05	.24***	.37***	.22***	.27***	.03	.23***	.33***
El						.35***	.27***	-.12**	.33***	.28***	.04	.21***	.38***	.22***	.27***	.07	.23***	.34***
Fo							.58***	-.08*	.10*	.10*	.01	.51***	.08	.10*	.43***	-.25***	.43***	.56***
Fu								-.14***	.19***	.04	-.11**	.54***	.03	.27***	.48***	-.28***	.41***	.42***
Go									-.03	.13**	.05	-.07	-.05	-.08*	-.16***	-.07	-.07	-.02
Hh										.22***	.13**	.14***	.37***	.60***	.19***	.17***	.10*	.05
In											.34***	.16***	.42***	.15***	-.00	.19***	.15***	.26***
BP												.15***	.28***	.12**	-.00	.26***	.18***	.14***
Pa													.10*	.20***	.41***	-.20***	.65***	.53***
Po														.29***	.06	.30***	.06	.18***
Ra															.33***	.12**	.10*	.03
Re																-.16***	.33***	.29***
Ro																	-.11**	-.12**
Sa																		.48***

Note. Ar = Arrocha, Ax = Axé-music, Br = Brega, Cl = Classic, Da = Dance, El = Electronic, Fo = Forró, Fu = Funk, Go = Gospel, Hh = Hip-hop, In = International, BP = Brazilian Popular Music, Pa = Pagode, Po = Pop, Ra = Rap, Re = Reggae, Ro = Rock, Sa = Samba, Se = Sertanejo.
*p < .05. **p < .01. ***p < .001.

Table 3. ANOVA and effect size (η_p^2) for each musical style by gender and religion.

Style	Gender			Religion			Gender × Religion		
	F	p	η_p^2	F	p	η_p^2	F	p	η_p^2
Arrocha	7.588*	.006	.013	25.487*	<.001	.043	4.388	.037	.010
Axé-music	6.187	.013	.011	14.487*	<.001	.025	1.581	.209	.003
Brega	8.236*	.004	.014	13.196*	<.001	.023	3.779	.052	.007
Classic	4.166	.042	.007	4.954	.026	.010	2.598	.108	.005
Dance	1.146	.285	.002	17.287*	<.001	.030	2.742	.098	.005
Electronic	3.607	.058	.006	19.340*	<.001	.033	3.565	.060	.006
Forró	5.475	.020	.010	29.824*	<.001	.050	2.583	.109	.005
Funk	3.252	.072	.006	45.750*	<.001	.075	1.164	.281	.002
Gospel	32.820*	<.001	.061	150.657*	<.001	.212	1.440	.231	.003
Hip-hop	20.463*	<.001	.035	.067	.796	.000	.009	.924	.000
International	17.738*	<.001	.031	.080	.778	.000	.651	.420	.001
BPM	10.484*	.001	.018	2.157	.142	.004	5.761	.017	.012
Pagode	3.146	.077	.006	29.355*	<.001	.050	.836	.361	.001
Pop	.281	.596	.001	3.490	.062	.006	.187	.665	.000
Rap	21.150*	<.001	.036	.659	.417	.001	.067	.796	.000
Reggae	.274	.601	.000	25.529*	<.001	.044	4.088	.044	.010
Rock	2.252	.134	.004	4.564	.033	.008	.092	.762	.000
Samba	2.293	.130	.004	16.492*	<.001	.029	.676	.411	.001
Sertanejo	21.196*	<.001	.036	14.954*	<.001	.026	.664	.415	.001

Note. The Bonferroni adjustment was used to reduce the type I error (*alpha*). Thus, the alpha-value was divided by the number of pair comparisons for each ANOVA, that is, .05/4 = .0125.
*p < .0125.

On the other hand, classical music was one of the musical styles listened to the least by the adolescents who participated in this study. One reason for this result may be lack of exposure to this musical style in Brazilian media (Machado, 2015). However, another hypothesis may be related to the educational context of Brazil. Music instruction is currently part of the arts component in the Brazilian high school curriculum (Ministry of Education, 2008), and it is a discipline that consumes far fewer class hours than do other subjects (e.g., mathematics, language, history; Araújo & Oliveira, 2015; Presidency of the Republic, 2017). Studies conducted in cultural contexts where music forms part of the core school curriculum note that classical is the musical style most present in the lessons and textbooks of this discipline (Cremades et al., 2010). Thus, it seems possible that the results obtained for classical music in this study may be related to the current positioning of music in Brazil's educational system.

Measures of this nature can contribute to formal education in conjunction with informal education, assuming a relevant role in compiling a more diverse universe of sound for adolescents during their aesthetic, educational, cognitive and social formation. Nevertheless, Carvalho (1999) argues that the search for mechanisms to resist impoverished media standardization entails involving young people in pursuits that include their own musical traditions and their own performances, thus making them able to create their own interpretations and emphasizing the relative importance of mass musical genres within the cultural setting in which they are immersed.

The results for the gender variable showed that females have more positive attitudes towards music than males, a result that agrees with the studies by Crowther and Durkin (1982) and North and Hargreaves (2008). This result might be related to the findings by Louven (2016) on the influence of gender in open-earedness, a term originally created by Hargreaves (1982) that describes a greater tolerance, curiosity and openness to a wide range of musical styles. From this perspective, Louven (2016) states that females have higher open-earedness scores than do males.

In addition, females listened more frequently to styles categorized as light music, characterized as much by emotional content (e.g., gospel, international and BPM) as by rhythm and melodies with strong dance ties (e.g., sertanejo; Esfandiari & Mansouri, 2014; George et al., 2007; Schwartz & Fouts, 2003). Males, however, were shown to be more likely to listen to styles that are considered more exciting, that are linked to nonconformist behaviours opposed to imposed social rules and standards and that strengthen ties within a group of friends (Christenson & Peterson, 1988; Pais, 2008; Russell, 1997). A probable explanation for this result may be related to previous findings of gender differences in how music is used (North & Hargreaves, 2008): while females use music for moments of pleasure, to relieve boredom, to express feelings and emotions and to reduce loneliness, males listen to music to be creative, to awaken the imagination and to please friends (North, 2010).

Regarding religion, the Catholic participants, similar to females, showed more positive attitudes towards music than did the Protestant participants. The ANOVA tests showed significant differences and varied effect sizes in the frequency with which participants listened to most of the musical styles evaluated here. One likely explanation for this result may be related to a greater eclecticism and tolerance from Catholics vis-à-vis aspects of life such as alcohol and drug use (Chen, Dormitzer, Bejaro, & Anthony, 2004; Sanchez, Opaleye, Chaves, Noto, & Nappo, 2011) and to valuing pleasure from intimate relations engaged in for purposes other than procreation (Paiva, Aranha, & Bastos, 2008). Moreover, several authors have characterized Catholicism as a more sociable and collective religion than Protestantism (Cohen, Hall, Koenig, & Meador, 2005; Cohen, et al., 2005; Greeley, 1989). Therefore, it can be affirmed that the predisposition of Catholics to listen to a great variety of music mirrors their wider social interactions to a certain extent.

In this study, Protestants were observed to greatly prefer gospel (Banjo & Williams, 2014), an African American style that began on farms employing slaves in the southern United States and was later used to popularize Protestant churches in the USA and in England starting in the 19th century. When gospel arrived in Brazil, it became the main musical style adopted by Protestant denominations (Neder et al., 2016; Sant'Ana, 2013). This situation supported the hypothesis that gospel would be more meaningful to Protestants than to Catholics, as was demonstrated by this study.

Finally, it is necessary to highlight some limitations of this research. First, gender and religion are not experimentally manipulable variables, which makes it impossible to concretely measure their levels of influence on musical preferences, thus forming a limitation of this study. Second, there is a shortage of systematic studies in Brazil that address the theme of musical preference, making it difficult to perform a thorough comparison of the results obtained, especially with respect to the musical styles typical of Brazilian culture. It is also worth stressing the need to conduct new studies that provide evidence of the effects of religion on musical preferences. These studies would not only enable gaining greater knowledge of the potential to generalize such results but also serve to build a profile of what musical styles people listen to, who ascribe to different religious beliefs. Thus, the results of this study contribute to generating

evidence that may help in understanding the relationship between the studied factors and the musical choices of adolescents.

Note

1. The questionnaire was originally presented in Portuguese.

ORCID iDs

João Fortunato Soares-Quadros Júnior https://orcid.org/0000-0003-3763-929X
Oswaldo Lorenzo Quiles https://orcid.org/0000-0002-1087-8138
Lucía Herrera https://orcid.org/0000-0002-5860-1357
Naiara Sales Araújo Santos https://orcid.org/0000-0002-9362-559X

References

Araújo, G. C., & Oliveira, A. A. (2015). O ensino de arte na educação de jovens e adultos: uma análise a partir da experiência em Cuiabá (MT) [Teaching art in youth and adult education: An analysis of an experience in Cuiabá city, Brazil]. *Educação e Pesquisa*, *41*(3), 679–694.

Banjo, O., & Williams, K. M. (2014). Behind the music: Exploring audiences' attitudes toward gospel and contemporary Christian music. *Journal of Communication and Religion*, *37*(3), 117–138.

Boer, D., & Fischer, R. (2012). Towards a holistic model of functions of music listening across cultures: A culturally decentred qualitative approach. *Psychology of Music*, *40*(2), 179–200.

Bonneville-Roussy, A., Rentfrow, P., Xu, M., & Potter, J. (2013). Music through the ages: Trends in musical engagement and preferences from adolescence through middle adulthood. *Journal of Personality and Social Psychology*, *105*(4), 703–717.

Bonneville-Roussy, A., & Rust, J. (2017). Age trends in musical preferences in adulthood: 2. Sources of social influences as determinants of preferences. *Musicae Scientiae*. Advance online publication. doi:10.177/1029864917704016

Brehem, U. (2010). Consumo e evangelho no subgênero do rock gospel [Consumption and gospel in the subgenre of gospel rock]. In S. Endler & V. Brittos (Eds.), *Comunicação, consumo e identidade no Brasil* [*Communication, consumption and identity in Brazil*] (pp. 61–66). São Leopoldo, Brazil: Universidade do Vale do Rio dos Sinos (UNISINOS).

Burkholder, J., Grout, D. J., & Palisca, C. V. (2014). *A history of Western music* (9th ed.). New York, NY: W. W. Norton & Company.

Carvalho, J. (1999). Transformações da sensibilidade musical contemporânea [Transformations of contemporary musical sensibility]. *Horizontes Antropológicos*, *11*, 53–91.

Chen, C., Dormitzer, C. M., Bejaro, J., & Anthony, J. C. (2004). Religiosity and the earliest stages of adolescent drug involvement in seven countries of Latin America. *American Journal of Epidemiology*, *159*, 1180–1188.

Christenson, P., & Peterson, J. (1988). Genre and gender in the structure of music preferences. *Communication Research*, 15, 282–301.

Christenson, P., & Roberts, D. (1998). *It's not only rock 'n' roll: Popular music in the lives of adolescents.* Cresskill, NJ: Hampton Press.

Cleveland, M., Laroche, M., & Hallab, R. (2013). Globalization, culture, religion, and values: Comparing consumption patterns of Lebanese Muslims and Christians. *Journal of Business Research*, *66*(8), 958–967.

Cohen, A., Hall, D., Koenig, H., & Meador, H. (2005). Social versus individual motivation: Implications for normative definitions of religious orientation. *Personality and Social Psychology Review*, *9*(1), 48–61.

Cohen, A., Pierce, J., Jr., Chambers, J., Meade, R., Gorvine, B., & Koenig, H. (2005). Intrinsic and extrinsic religiosity, belief in the afterlife, death anxiety, and life satisfaction in young Catholics and Protestants. *Journal of Research in Personality*, *39*(3), 307–324.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New York, NY: Lawrence Erlbaum Associates.

Colley, A. (2008). Young people's musical taste: Relationship with gender and gender-related traits. *Journal of Applied Social Psychology*, *38*(8), 2039–2055.

Cremades, R., Lorenzo, O., & Herrera, L. (2010). Musical tastes of secondary school students' with different cultural backgrounds: A study in the Spanish North African city of Melilla. *Musicae Scientiae*, *14*(1), 121–141.

Cross, I. (2009). The origins and functions of music. In S. Hallam, I. Cross, & M. Thaut (Eds.), *The Oxford handbook of music psychology* (pp. 1–13). Oxford, UK: Oxford University Press.

Crowther, R., & Durkin, K. (1982). Sex- and age-related differences in the musical behaviour, interest, and attitudes towards music of 232 secondary school students. *Educational Studies*, *8*(2), 131–139.

Escobar-Pérez, J., & Cuervo-Martínez, A. (2008). Validez de contenido y juicio de expertos: una aproximación a su utilización [Content validity and experts judgment: An approach to its usage]. *Avances en Medición*, *6*(1), 27–36.

Esfandiari, N., & Mansouri, S. (2014). The effect of listening to light and heavy music on reducing the symptoms of depression among female students. *The Arts in Psychotherapy*, *41*(2), 211–213.

George, D., Stickle, K., Rachid, F., & Wopnford, A. (2007). The association between types of music enjoyed and cognitive, behavioral, and personality factors of those who listen. *Psychomusicology*, *19*(2), 32–56.

Getz, L. M., Chamorro-Premuzic, T., Roy, M. M., & Devroop, K. (2012). The relationship between affect, uses of music, and music preferences in a sample of South African adolescents. *Psychology of Music*, *40*(2), 164–178.

Gouveia, V., Pimentel, C., Santana, N., Chaves, W., & Paraíba, C. (2008). Escala abreviada de preferência musical (STOMP): evidências de sua validade fatorial e consistência interna [Short Test of Music Preference (STOMP): Evidences of its factor validity and reliability]. *Psico*, *39*(2), 201–210.

Greeley, A. (1989). Protestant and Catholic: Is the analogical imagination extinct? *American Sociological Review*, *54*(4), 485–502.

Hargreaves, D. J. (1982). The development of aesthetic reactions to music. *Psychology of Music*, (Special Issue), 51–54.

Hargreaves, D. J., North, A., & Tarrant, M. (2015). How and why do musical preferences change in childhood and adolescence? In G. E. McPherson (Ed.), *The child as musician: A handbook of musical development* (pp. 303–322). Oxford, UK: Oxford University Press.

Kuan, G., Morris, T., & Terry, T. (2017). Effects of music on arousal during imagery in elite shooters: A pilot study. *PLoS ONE*, *12*(4), 1–13. doi:10.1371/journal.pone.0175022

Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: A practical primer for *t*-tests and ANOVAs. *Frontiers in Psychology*, *4*(863). doi:10.3389/fpsyg.2013.00863

Leblanc, A. (1982). An interactive theory of music preference. *Journal of Music Therapy*, *19*(1), 28–45.

Levitin, D. J. (2008). *This is your brain on music: Understanding a human obsession*. London, UK: Atlantic Books.

Lorenzo, O., Herrera, L., & Cremades, R. (2008). Investigación sobre preferencias de estilos musicales en estudiantes españoles de Educación Secundaria Obligatoria [Research work about preferences of musical styles on Spaniards students of Secondary Obligatory Education]. In M. A. Ortiz (Coord.), *Música. Arte. Diálogo. Civilización* [*Music. Art. Dialogue. Civilization*] (pp. 301–332). Coimbra, Portugal: Center for Intercultural Music Arts and Research Group HUM-742.

Lorenzo, O., Pérez, A. L., & Soares-Quadros, Jr., J. F. (2014). Estudo Sobre Preferências de Estilo Musical em Estudantes Espanhóis de Ensino Superior do real Conservatório Superior de Música "Victoria Eugenia" [Study about the preferences of musical style of Spanish students of higher education at the Conservatory of Music]. *Música Hodie*, *14*(1), 211–222.

Louven, C. (2016). Hargreaves' "open-earedness": A critical discussion and new approach on the concept of musical tolerance and curiosity. *Musicae Scientiae*, *20*(2), 235–247.

Lynxwiler, J., & Gay, D. (2000). Moral boundaries and deviant music: Public attitudes toward heavy metal and rap. *Deviant Behavior: An Interdisciplinary Journal*, *21*(1), 63–85.

Machado, C. (2015). Entre o passado e o futuro das coleções e acervos de música no Brasil [Between past and future of music collections in Brazil]. *Revista de História*, *173*, 457–484. doi:10.11606/issn.2316-9141.rh.2015.100876

Ministry of Education (2008). *Lei nº 11.769* [*Law No. 11769*]. Retrieved from http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2008/lei/l11769.htm

Neder, A., Barros, D., França, D., Matos, M. C., Flora, M., Sued, P., ... Kopp, R. (2016). Música, religião e produção social de espaço de uma cidade operária: o caso da igreja da pastora Ana Lúcia em Belford Roxo, Rio de Janeiro [Music, religion and social production of space in a working-class town: The case of the church of pastor Ana Lucia in Belford Roxo, Rio de Janeiro]. *Per Musi*, *34*, 132–176.

Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in Health Sciences Education*, *15*(5), 625–632.

North, A. (2010). Individual differences in musical taste. *American Journal of Psychology*, *123*(2), 199–208.

North, A., Desborough, L., & Skarstein, L. (2005). Music preference, deviance, and attitudes towards music celebrities. *Personality and Individual Differences*, *38*, 1903–1914.

North, A., & Hargreaves, D. (2007). Lifestyle correlates of musical preference: 1. Relationships, living arrangements, beliefs, and crime. *Psychology of Music*, *35*(1), 58–87.

North, A., & Hargreaves, D. (2008). *The social and applied psychology of music*. New York, NY: Oxford University Press.

North, A., Hargreaves, D., & Hargreaves, J. (2004). Uses of music in everyday life. *Music Perception*, *22*(1), 41–77.

Ok, Ü., & Erdal, B. (2015). Religious and demographics indicators of music preference in a Turkish sample. *Musicae Scientiae*, *19*(1), 23–43.

Osborne, J. W. (2012). *Best practices in data cleaning: A complete guide to everything you need to do before and after collecting your data*. Thousand Oaks, CA: Sage.

Outhwaite, W., & Turner, S. (2008). *The SAGE handbook of social sience methodology*. London, UK: Sage.

Pais, J. M. (1998). *Culturas juvenis* [*Youth Cultures*]. Lisboa, Portugal: Imprensa Nacional Casa da Moeda.

Pais, J. M. (2008). Culturas de Grupo [Group cultures]. In M. Lages & A. Matos (Eds.), *Recursos de Interculturalidade. Contextos e Dinâmicas* [*Interculturality resources: Contexts and dynamics*] (pp. 207–255). Lisboa, Portugal: Alto-Comissário para a Imigração e Diálogo Intercultural.

Paiva, V., Aranha, F., & Bastos, F. (2008). Opiniões e atitudes em relação à sexualidade: pesquisa em âmbito nacional, Brasil 2005 [Opinions and attitudes regarding sexuality: Brazilian national research, 2005]. *Revista de Saúde Pública*, *42*(1), 54–64.

Pimentel, C., Gouveia, V., Coelho, L., Jr., Athayde, R., & Lima, T. (2014). Preferência musical e busca de sensações entre jovens [Music preference and sensation seeking among youngsters]. *Psicologia: Ciência e Profissão*, *34*(1), 4–17.

Pimentel, C., Gouveia, V., & Pessoa, V. (2007). Escala de Preferência Musical: construção e comprovação da sua estrutura factorial [Music Preference Scale: Development and psychometric parameters]. *Psico-USF*, *12*(2), 145–155.

Pimentel, C., Gouveia, V., & Vasconcelos, T. (2005). Preferência musical, atitudes e comportamentos anti-sociais entre estudantes adolescentes: um estudo correlacional [Music preference, attitudes and antisocial behaviors among adolescent students: A correlational study]. *Estudos de Psicologia*, *22*(4), 401–411.

Presidency of the Republic. (2017). *Lei nº 13415, de 16 de fevereiro de 2017* [*Law No. 13415, of February 16, 2017*]. Retrieved from http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2017/Lei/L13415.htm

Rentfrow, P., & Gosling, S. (2006). Message in a ballad: The role of music preferences in interpersonal perception. *Psychological Science*, *17*(3), 236–242.

Richardson, J. T. E. (2011). Eta squared and partial eta squared as measures of effect size in educational research. *Educational Research Review*, *6*(2), 135–147.

Robinson, J., & Hatten, R. (2012). Emotions in music. *Music Theory Spectrum*, *34*(2), 71–106.

Russell, P. (1997). Musical tastes and society. In D. Hargreaves & A. North (Eds.), *The social psychology of music* (pp. 141–158). Oxford, UK: Oxford University Press.

Sanchez, Z. M., Opaleye, E. S., Chaves, T. V., Noto, A. R., & Nappo, S. A. (2011). God forbids or mom disapproves? Religious beliefs that prevent drug use among youth. *Journal of Adolescent Research*, *26*(5), 591–616.

Sant'Ana, R. (2013). A música gospel e os usos da "arma da cultura". Reflexões sobre as implicações de uma emenda [The gospel music and the uses of the "weapon of culture": Reflections on the implications of an amendment]. *Revista Intratextos*, *5*(1), 23–41.

Schäfer, T. (2016). The goals and effects of music listening and their relationship to the strength of music preference. *PLoS ONE*, *11*(3), 1–15. doi:10.1371/journal.pone.0151634

Schäfer, T., & Sedlmeier, P. (2010). What makes us like music? Determinants of music preference. *Psychology of Aesthetics, Creativity, and the Arts*, *4*(4), 223–234.

Schubert, E. (2009). The fundamental function of music. *Musicae Scientiae*, *13*(2), 63–81.

Schwartz, K. D., & Fouts, G. T. (2003). Music preferences, personality style, and developmental issues of adolescents. *Journal of Youth & Adolescence*, *32*(3), 205–213.

Shuker, R. (2016). *Understanding popular music culture* (5th ed.). London, UK: Routledge.

Silva, V. (2005). Tecno, house e trance: uma incursão pelas culturas da "dance music" [Techno, house and trance: An incursion for the cultures of "dance music"]. *Toxicodependências*, *11*(3), 63–73.

Soares-Quadros, Jr., J., & Lorenzo, O. (2013). Preferência musical e classe social: um estudo com estudantes de ensino médio de Vitória, Espírito Santo [Music preference and social class: A study with students of the high school in Vitória, Espírito Santo]. *Revista da ABEM*, *21*(31), 35–50.

Tekman, H. G., & Hortaçsu, N. (2002). Music and social identity: Stylistic identification as a response to musical style. *International Journal of Psychology*, *37*(5), 227–285.

Tipa, J. (2015). Una aproximación a clase social, género y etnicidad en el consumo de música entre los estudiantes de la Universidad Intercultural de Chiapas [An approach to social class, gender and ethnicity in the consumption of music among the students of the Intercultural University of Chiapas]. *Cuicuilco*, *22*(62), 91–112.

Warner, R. M. (2008). *Applied statistics: From bivariate through multivariate techniques*. Thousand Oaks, CA: Sage.

Appendix: Questionnaire on Musical Style Preferences[1]

School: _____ Age: _____
Gender: _____ Religion: _____ Grade: _____

This questionnaire aim to evaluate the frequency of musical listening of high school students to 19 different styles of music. For this reason, you should value each item with one of the numeric possibilities that accompany it, marking the number chosen with a X. Each of the numbers has a specific meaning that related with your frequency of musical listening:

1	2	3	4	5	6
I don't know this musical style. I can't value.	Never	A little	Sometimes	Often	Always

If you know/listen to a style that is not exposed in this list, write it (no more than 3 styles) in item 20 (a, b and/or c), following the same pattern adopted for the musical styles listed.

Thank you for your cooperation!

Item	Musical Style	1	2	3	4	5	6
1	Arrocha						
2	Axé-music						
3	Brega						
4	Classical						
5	Dance						
6	Electronic						
7	Forró						
8	Funk						
9	Gospel						
10	Hip-Hop						
11	International						
12	Brazilian Popular Music						
13	Pagode						
14	Pop						
15	Rap						
16	Reggae						
17	Rock						
18	Samba						
19	Sertanejo						
20a	Other:						
20b	Other:						
20c	Other:						