

# PERSONALITY TRAITS IN SINGERS PERFORMING VARIOUS MUSIC STYLES AND WITH DIFFERENT SINGING STATUS

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## Abstract

**Objectives:** Objective was to find personality traits in singers performing various music styles and with different singing status. **Material and Methods:** The study consisted of 87 singers (66 females, 21 males; age:  $M \pm SD$  25.5 $\pm$ 8.2 years; 40 students, 22 professionals and 25 amateurs; 38 classical singers, 42 contemporary commercial music [CCM] singers; 55 solo singers and 22 choral singers). Participants filled in the *NEO Five-Factor Inventory* questionnaire and demographic information form. **Results:** Median values compared to the Polish general population, suggest that solo, CCM, student and professional singers have a high level of conscientiousness. Those who sing in a choir, classical music, amateurs and students have relatively high level of agreeableness. High level of extraversion is observed among CCM singers and students. Students score higher on extraversion than professionals ( $p < 0.001$ ). Professionals score higher on extraversion than amateurs ( $p < 0.01$ ). Professionals less frequently than amateurs and students score high on agreeableness ( $p < 0.001$ ). High scores on conscientiousness are significantly higher among professionals and students compared to amateurs ( $p < 0.001$  in both cases). Solo singers have higher level of conscientiousness ( $p < 0.001$ ) and openness ( $p < 0.001$ ) and lower neuroticism ( $p < 0.01$ ) than choral singers. Classical singers more often than CCM singers score low on openness ( $p < 0.01$ ) and high on agreeableness ( $p < 0.01$ ). **Conclusions:** Classical singers have lower level of openness and higher level of agreeableness than CCM singers. Neuroticism is higher among choir than solo singers and conscientiousness is higher among solo than choir singers. Amateurs had the highest level of neuroticism and the lowest level of conscientiousness as compared with professional singers and students. *Int J Occup Med Environ Health*. 2023;36(4):541–50

## Key words:

personality, personality traits, singing, singers, music styles, singer's status

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## INTRODUCTION

In the Big Five model personality traits are treated as basic tendencies – “abstract potentials, hypothetical psychological features of the individual that, over time and in specific situations, come to be manifested in concrete realizations” [1]. In spite of some criticism of the theoretical and empirical foundations [2] this model is widely used in research and practice – from personnel selection to therapy [3]. One of the research areas in which the analysis of personality traits is carried out concerns the choice of profession, career and achievements in the selected job [4], as well as the involvement in various art activities [5].

Singers remain unique professional voice users, however their personality traits were seldom taken into account [6]. Literature on personality of musicians (mainly – instrumentalists) is consistent in regard to only 1 out of 5 personality traits – openness to experience – which is higher among musicians than in general population [7]. Several studies provide evidence on higher level of extraversion among singers compared to musicians playing on instruments [8]. This is explained by the fact that singers have to be extraverted due to eye contact with audience and the need to build a personal relationship with listeners [9]. Vaag et al [10] also found higher scores on openness in singers than in instrumentalists.

In the literature, singers are usually described as a homogenous group compared with instrumentalists or people who are not musicians [11]. The fact that singers varies in terms of professional status (amateurs, students, professionals), musical preferences, way of singing (solo vs. choir) and years of the training, is rarely taken into account.

Singers are well used to living with fear because of general expectation that a singer will always perform at his or her best, with a strong, pure, touching voice, and unique character and each of this performance is going to be evaluated by audience [12,13]. As of these voice expectations,

singers tend to spend lot of time to develop their voices by practicing and training. In their diligently work they focus on numerous repetitions of a vocal phrases, which drive them to perfection. Any injury of singers' voice has dramatic implications on their psyche and sense of self-worth [12,13].

Learning to sing has very much to do with learning to coordinate and excellently control the balance between many different muscles, which is connected to fine sensorimotor self-awareness of the vocal tract [13]. Although lots of singing students spend years to learn how to sing only few of them become professional singers due to performer's anxiety, the unpublished realities of daily professional life, or insufficient motivation to fight for themselves in the music business. Studies by Sandgren [14] showed that singers suffer from performance anxiety, depression and other somatic and psychosocial problems. It could be connected with many factors, e.g., risky or demanding lifestyle as performing singers [15]. Furthermore, there is a connection between performance anxiety and other elements like trait anxiety, occupational stress and perfectionism [16]. Emotional stress leads to hypercontraction of the extrinsic and intrinsic laryngeal muscles [6], which prevents proper singing with flexible voice. If singing student does not have an ability on how to control emotional stress, it would be difficult for him to function as a professional.

Apart from singing students and professionals there is a group of singers, known as amateurs for whom singing remain an enjoyable hobby. In amateurs singing bring pleasure and reinforcement from family and friends. For some reasons, they do not decide to become professional singers. In singers with high performer's anxiety, singing in a choir with a group of other singers might allow them to stay in a singer's occupation. However, musician making music with others need to agree for general rules, like singing in an imposed tempo or dynamic. On the other hand, in group performance the responsibility is divided

into all group members therefore the performer's anxiety could be lower [17].

Singing enables to express ideas and emotions which cannot be said in words. However, in European classical music and opera for several centuries, voices have been treated like musical instruments, which encouraged composers to write melodies in higher pitch. Therefore, the text could be more difficultly interpreted by a singer and hardly understood by a listener.

The growing importance of placing vocal expressivity before beauty, in the early 20th century led to creation of a new music genre of contemporary commercial music (CCM), previously described as "non-classical" music [18]. Within this style many subgenres, like pop, blues, jazz, country music, hip hop, or rock music, are encompassed. Nowadays CCM is much more popular and is called "music of the people" unlike classical music, which is dedicated for elite audience [18]. However, there are still young people who tend to classical singing instead of CCM performing and opposite.

It is interesting why singers choose different styles of music and ways of singing (singing status). There are many factors of music preferences, e.g., musical styles, gender, age and also personality traits [19]. There is an important link between personality traits and music preferences among listeners [5]. According to 5-factor model research openness is connected with preference of rock soul and rhythm and blues music, conscientiousness with classical and extraversion seems to be positively linked to pop and dance [20]. There is still a great need to explore the connection between personality traits and music preferences also among musicians [19]. It seems to be interesting to find if singers with different singing status and performing different music styles present also different personality traits. The purpose of this study was to find personality traits in singers performing various music styles and with different singing status.

Based on the earlier studies it may be hypothesized that:

- H1: Singers score high on openness and extraversion as compared to the general population.
- H2: Classical singers are more conscientious than CCM singers, while CCM singers have higher level of openness and extraversion than classical singers.
- H3: Choir singers have higher level of neuroticism and agreeableness than solo singers, who have higher level of conscientiousness.
- H4: The highest conscientiousness is observed among professional singers followed by students and then – by amateurs, who on the other hand, have the highest level of neuroticism.

## MATERIAL AND METHODS

Approval was obtained from the Polish Local Ethics Committee of the Medical University of Warsaw, Poland.

### Participants

Eighty-seven singers were included in the study. Table 1 shows the demographic characteristics.

Singers were recruited from those who reported to Phoniatrics Clinic of the Medical University of Warsaw, Poland, and gave their consent to participate in the study. The study was conducted between 2015–2020. Forty-one healthy singers reported to the Clinic for initial or control voice assessment as a part of their voice training program or for control voice assessment in those singers who sang professionally. The remaining singers complained of temporarily singing voice disorders due to muscle tension dysphonia, laryngitis, or benign vocal fold lesions. All participants were active singers. Furthermore, the inclusion requirements meant that the participants should have a minimum of 0.5 year singing experience and to be at least 18 years old.

### NEO Five-Factor Inventory

The *NEO Five-Factor Inventory* (NEO-FFI) by Paul T. Costa Jr. and Robert R. McCrae [1,3], in Polish adaptation

**Table 1.** Demographic characteristic of the singers participating in the study conducted between 2015–2020 in Phoniatics Clinic of the Medical University of Warsaw, Poland

Variable	Participants (N = 87)
Age [years]	
M±SD	25.5±8.2
Me (min.–max)	23.0 (18–59)
Gender [n (%)]	
male	21 (24.1)
female	66 (75.9)
Singing's time [years]	
M±SD	8.8±6.0
Me (min.–max)	8.0 (1–33)
Individual singing training [years]	
M±SD	4.2±3.3
Me (min.–max)	3.0 (0–63)
Singing status [n (%)]	
student	40 (46.0)
professional	22 (25.3)
amateur	25 (28.7)
Singing solo/choral [n (%)]	
choral	22 (25.3)
solo	55 (63.2)
choral and solo	10 (11.5)
Singing style [n (%)]	
classical	38 (43.7)
contemporary commercial music	42 (48.3)
classical and contemporary commercial music	7 (8.0)

by Zawadzki et al. [21] was used to assess of personality traits. In the questionnaire, the personality description is given in 5 dimensions: neuroticism, extraversion, agreeableness, openness and conscientiousness. Their characteristic features might be summarized as:

- neuroticism (n) – negative emotionality, impulsivity and vulnerability to stress;
- extraversion (e) – optimistic outlook, a sociable, active lifestyle, and high levels of positive affect;

- openness to experience (o) – curiosity, unconventionality and a willingness to consider new ideas;
- agreeableness (a) – altruism, cooperation and a concern for others;
- conscientiousness (c) – the tendency to act in a planful, deliberate, and self-controlled fashion [22].

Each dimension is given 12 items. Each of the items is measured on a 5-point Likert scale ranging from 0 (“strongly disagree”) to 4 (“strongly agree”).

### Demographic information form

The demographic information form collected the information about age, gender, singing period, individual singing training, singing status and style and information about experience in solo and choir singing.

### Procedure

Singers who reported to the Phoniatic Clinic at the Medical University of Warsaw, Poland, were asked to participate in the study. After a short explanation by the examiner, participants filled in the NEO-FFI questionnaire and demographic information form on the same day without any additional help.

Due to Polish adaptation of the NEO-FFI questionnaire, according gender and age, the raw results were converted into the sten values [22]. This allows to the comparison of the obtained values for each groups of singers with norms of population, indicating the range in which the results were found.

### Statistical analysis

A statistical analysis was performed using the Statistical 15 package. The quantitative variables were summarized using descriptive statistics (mean [M], standard deviation [SD], median [Me] and range, up and down quartile). The distribution of each variable was checked for consistency with the normal distribution using the Kolmogorov-Smirnov test. Since the analyzed variables did

**Table 2.** *NEO Five-Factor Inventory* (NEO-FFI) sten scores for the singers participating in the study conducted between 2015–2020 in Phoniatics Clinic of the Medical University of Warsaw, Poland

Dimension	NEO-FFI sten score							
	singing solo/choral			singing style		singing status		
	all singers (N = 87)	solo singers (N = 55)	choral singers (N = 22)	classical (N = 38)	CCM (N = 42)	students (N = 40)	amateurs (N = 25)	professionals (N = 22)
<b>Neuroticism</b>								
M±SD	4.6±1.9	4.3±1.8	5.2±2.2	4.6±2.0	4.3±1.7	4.4±1.8	5.0±2.1	4.3±2.0
Me (min.–max)	4.5 (1–10)	4 (1–9)	5 (1–10)	5 (1–8)	4 (1–9)	4 (1–9)	5 (1–10)	4 (1–8)
<b>Extraversion</b>								
M±SD	6.3±1.7	6.4±1.5	5.9±2.0	6.1±1.6	6.6±1.7	6.6±1.6	6.1±2.0	6.1±1.6
Me (min.–max)	6 (3–9)	6 (3–9)	5.5 (3–9)	6 (3–9)	7 (3–9)	7 (3–9)	6 (3–9)	6 (4–9)
<b>Openness</b>								
M±SD	5.8±1.7	6.1±1.5	4.7±1.8	5.6±2.0	6.0±1.5	5.9±1.5	4.8±1.8	6.6±1.6
Me (min.–max)	6 (1–10)	6 (3–9)	5 (1–7)	6 (1–10)	6 (3–9)	6 (3–9)	5 (1–9)	6 (4–10)
<b>Agreeableness</b>								
M±SD	6.4±2.2	6.2±2.2	6.7±2.2	6.9±2.1	6.0±2.3	6.4±2.1	6.7±2.3	6.1±2.5
Me (min.–max)	7 (1–10)	6 (1–10)	7 (2–10)	7 (2–10)	6 (1–10)	7 (1–10)	7 (2–10)	5.5 (2–10)
<b>Conscientiousness</b>								
M±SD	6.6±2.2	6.9±2.2	5.7±1.9	6.1±2.1	7.0±2.3	7.2±2.1	5.5±1.9	6.7±2.2
Me (min.–max)	6 (2–10)	7 (2–10)	5 (2–10)	6 (2–10)	7 (3–10)	7 (3–10)	5 (2–10)	7 (2–10)

not fill the condition of normal distribution the median values were analyzed. The categorical data were presented as the percentage.

The  $\chi^2$  test was used to assess the relationship between NEO-FFI standardized results [22] and subgroups of the singing status group, the singing solo/choral group and the singing style group. The Fischer exact test was used when the expected cell counts were <5.

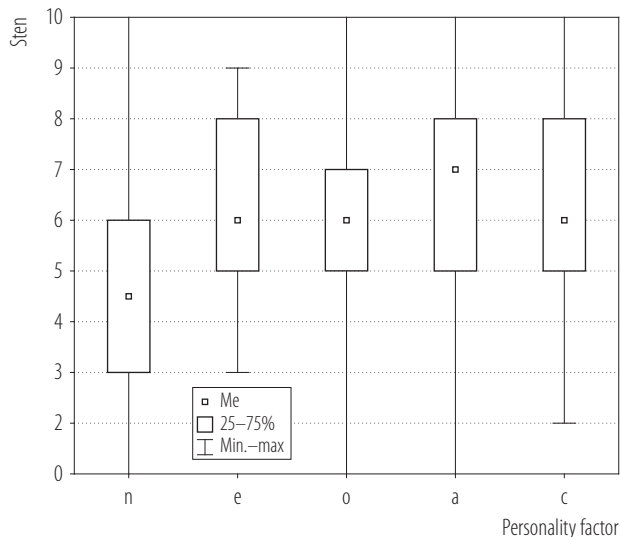
To find if there are any statistical differences between the subgroups according to style of singing the results of the NEO-FFI questionnaire were categorized at 3 levels including a low intensity of the tested feature (stens 1–3), average results providing moderate intensity (stens 4–6) and high results providing high intensity of the tested feature (stens 7–10). To compare categorical variables such as percent of participants who received low, average and

high scores of NEO-FFI personality factors the  $\chi^2$  test was applied, followed by the Bonferroni correction in case of the singing status group. The results were considered statistically significant when the p-value was <0.017. In all other cases probability values of <0.05 were considered statistically significant. Mean, SD, Me and range were calculated for each studied parameter.

**RESULTS**

Table 2 shows the M, SD and the range of NEO-FFI sten scores for all participants.

The received mean results of all components are on the average level. The Me value for agreeableness is 7 (higher than the M) indicating higher number of individuals scoring above the average on this dimension. However, the range of scores for this and other components



a – agreeableness; c – conscientiousness; e – extraversion; n – neuroticism; o – openness.

**Figure 1.** Distribution of personality factors for study group of the singers participating in the study conducted between 2015–2020 in Phoniatics Clinic of the Medical University of Warsaw, Poland

(besides extraversion) is extended (from 1 or 2 to 10) suggesting strong intergroup variability (Figure 1).

Table 2 show the M, SD and the range of NEO-FFI sten scores of each subgroups of singing status group, singing solo/choral and singing style group, respectively.

Median values compared to the Polish general population, suggest that solo, CCM, student and professional singers have a high level of conscientiousness. Those who sing in a choir, classical music, amateurs and students have relatively high level of agreeableness. High level of extraversion is observed among CCM singers and students. All other scores in studied groups are on the average level.

Table 3 includes a comparison of the results obtained by each of the subgroups of singing status group, singing solo/choral and singing style group.

For subgroups of singing status group, the authors noticed statistical significance for 4 of 5 factors: neuroticism ( $p < 0.01$ ), extraversion ( $p < 0.001$ ), openness ( $p < 0.001$ ) and conscientiousness ( $p < 0.001$ ). Among professionals

average scores on extraversion are more prevalent than among amateurs ( $p < 0.01$ ) while students more often than professionals score high on this dimension ( $p < 0.001$ ). Professional singers less frequently than representatives of 2 other groups (amateurs and students) score high on agreeableness ( $p < 0.001$  in both cases). On the other hand, prevalence of high scores on conscientiousness is significantly higher among professionals and students compared to amateurs ( $p < 0.001$  in both cases).

For singing solo versus choral subgroups, the authors noticed statistical significance for 3 of the 5 personality factors: neuroticism ( $p < 0.01$ ), openness ( $p < 0.001$ ) and conscientiousness ( $p < 0.001$ ). These results indicate that solo singers have higher level of conscientiousness and openness and lower neuroticism than choral singers.

The p value for singing style group, between classical and CCM subgroups, was statistically significant ( $p < 0.01$ ) in case of openness (classical singers more often than CCM singers score low on this dimension) and agreeableness (high scores are more prevalent among classical singers).

## DISCUSSION

The main objective of this study was to assess personality traits of singers. The results indicate that compared to the normalization sample of the NEO FFI test [22], the singers obtained average results on all Big Five components. Therefore, the first hypothesis, that singers score high on openness and extraversion as compared to the general population, is not confirmed. Actually, the highest scores were observed for the agreeableness (sten 7) what is in line with the results of Nogaj and Ossowski study of Polish students of music schools [23]. It is worth noting that previous research on musically gifted youth in Poland indicated a higher level of neuroticism and extroversion in this subpopulation [18].

The results of Polish research, in general are not consistent with the results of cited above Scandinavian [10,11] and Portuguese [7] studies indicating that the most

**Table 3.** Comparison of distribution *NEO Five-Factor Inventory* (NEO-FFI) sten scores in singers performing different singing styles, singing solo or choral and with different singing status participating in the study conducted between 2015–2020 in Phoniatics Clinic of the Medical University of Warsaw, Poland

Score	Participants (N = 87) [%]									
	singing style			singing solo/choral			singing status			
	classical (N = 38)	CCM (N = 42)	p	solo (N = 55)	choral (N = 22)	p	professional (N = 22)	amateur (N = 25)	student (N = 40)	p
Neuroticisms score			n.s.			<0.01				
low	28.9	38.1		35.2	22.7		40.9	24	30.8	
average	52.6	52.4		53.7	50.0		40.9	52	59.0	<0.01
high	18.5	9.5		11.1	27.3		18.2	24	10.2	
Extraversion score			n.s.			n.s.				
low	2.6	2.4		1.9	9.1		0.0	8	2.6	pa <0.01
average	57.9	42.8		50.0	50.0		68.2	48	38.4	<0.001
high	39.5	54.8		48.1	40.9		31.8	44	59.0	ps <0.001
Openness score			<0.01			<0.001				
low	15.8	2.4		1.9	27.3		0.0	24	2.6	
average	55.3	69.0		66.7	63.6		59.1	64	66.7	n.s.
high	28.9	28.6		31.5	9.1		40.9	12	30.7	
Agreeableness score			<0.01			n.s.				
low	5.3	16.7		13.0	9.1		13.6	12	10.3	pa <0.001
average	31.5	42.8		40.7	31.8		45.5	28	38.5	<0.001
high	63.2	40.5		46.3	59.1		40.9	60	51.2	ps <0.001
Conscientiousness score			n.s.			<0.001				
low	10.5	4.7		5.6	13.6		4.5	16	2.6	pa <0.001
average	47.4	41.9		37.0	59.1		40.9	60	35.9	<0.001
high	42.1	51.4		57.4	27.3		54.5	24	61.5	as <0.001

CCM – contemporary commercial music.

n.s. – not significant.

pa – professional vs. amateur; ps – professional vs. student; as – amateur vs. student.

characteristic feature of musicians is their openness to experiences. This may reflect the national characters, as the NEO FFI proved its useful in detecting differences in national self-ratings [24]. In Hřebíčková et al. study [25], young Poles scored significantly higher than representatives of 2 other Slavic (Czechs and Slovaks) nations on the openness to experiences scale. This may suggest that Poles in general, not only musicians, are rather opened to

experiences. But this would have to be checked in a cross-national survey.

In the sample, the intra-group variation of all traits is very large (usually 1–10 sten), suggesting that singers are not a homogenous group of people. In this regard, the authors' hypothesis on the differences between singers performing different types of music has been confirmed partially. There are no statistically significant differences between



classical and CCM singers in conscientious (nor in neuroticism and extraversion). But classical singers have lower level of openness and higher level of agreeableness than CCM singers. This may be interpreted from the perspective of the freedom for expression-related individual performance in CCM [26] and the need for rather high level of conventionality and readiness to cooperate in classical singing.

The study results provide partial support for the hypothesis on the differences between choir and solo singers, too. The expected differences have been observed in neuroticism (higher among choir than solo singers) and conscientiousness (higher among solo than choir singers). As indicated in other studies, the performance anxiety, which is lower in case of choir singing, makes this type of activity more accessible for people vulnerable for stress. Moreover, singing in a choir is beneficial for mental and physical health and therefore, can be recommended as a remedy for people with high level of neuroticism [10,27]. On the other hand, self-control and ability to act in a planful manner, i.e., key characteristics of conscientiousness, are extremely needed for solo singers. The authors also assumed higher level of agreeableness among choir than solo singers, as a cooperation and concern for others are required in this type of activity. But in this case the hypothesis was not confirmed or more precisely – the differences did not reach the level of statistical significance. Surprisingly, solo singers scored higher than choir singers on openness to experiences. This result suggests similarities between solo singers in the studied sample and Scandinavian and Portuguese musicians in general.

The authors' last hypothesis concerned differences in 2 personality traits (conscientiousness and neuroticism) between singers with various professional status. Actually, the cross-groups comparisons revealed significant differences in all, but 1 dimensions. As predicted amateurs had the highest level of neuroticism and the lowest level of conscientiousness as compared with professional singers

and students. Moreover, high scores on extraversion and agreeableness were the most uncommon among professionals. Especially surprising is the relatively low level of extraversion among professional singers, as in literature singer are described as extravert musicians [8,28]. But to explain this, the comparison with non-singers and or non-musicians is needed.

Finally, the findings of this study have to be seen in light of some limitations. An increase in the size of the study groups may point the researchers in different directions, particularly when comparing subgroups for which no statistically significant differences were found. Therefore, further studies are needed with bigger sample size. Furthermore, a further study with bigger sample size of subgroups should be performed to explore the differences between amateurs and professionals, classical and CCM singers.

## CONCLUSIONS

Singers do not score high on openness and extraversion as compared to the general population. Classical singers have lower level of openness and higher level of agreeableness than CCM singers. Neuroticism is higher among choir than solo singers and conscientiousness is higher among solo than choir singers. Amateurs had the highest level of neuroticism and the lowest level of conscientiousness as compared with professional singers and students.

### Author contributions

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