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Music *and* Sport?

Examination of the Complaints of Young Musician Students During Musical Work in Relation to Their Physical Activity and Sporting Habits

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Abstract
A significant part of the musician community still considers music and sport as very distant, even unknown entities. This work is unique due to its basic approach: the work-related problems of 14-20-year-old musician students were examined in light of their sporting attitudes using a questionnaire. Following the segments of time management and basic obligation, I analysed the complaint perception of three distinct yet interrelated slices of musicians' work in the light of sporting habits, namely: the range of problems stemming from basic lifestyle, during preparation and practice, as well as the perceived complaints and their intensity in the event of an onstage situation. The results indicate real and measurable significance. Therefore, those youths who do sports more are actually less affected by the problems examined than their less active peers.
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1. Introduction

Despite the fact that some of the works published in the international literature deal with the positive role of sport in musicians' work, music pedagogy and the development of a proper musician's lifestyle – whether it is about the links and similarities between music and sport (Hinley, 2018) or its direct effects on the musician's work (Chan and Ackerman 2014) – the majority of the musician community still considers sport as an alien element from their work. This harmful and very often erroneous stereotype, passed down from generation to generation, can be a serious obstacle to effective musicianship.

There is no doubt, however, that there is no comprehensive and purposeful synthesis of music pedagogy, neither to prove the existence of the above-mentioned links, nor to refute the existing entrenchments. It requires large-scale, long lasting and precise research. My doctoral thesis is meant to be the first step in this

process, and the present study summarises its main content and results. However, my aim was not only to provide a theoretical overview of the topic: in the empirical part of the research, I sought to find out whether sporting habits have a measurable effect on the complaints and problems of musicians experienced during work – all the more, because this also provides an answer to the assumptions of the theoretical part.

2. The Research

2.1. Purposes of the Research

One of the purposes of my work is to deny the harmful stereotypical thinking, in other words, to resolve the theoretical contrast between music and sport, in the broadest possible interdisciplinary approach. Following that, in my empirical research along these linkages, the connection is examined between the early stages of a musician's work, life and sporting habits with the help of a custom-designed measurement tool based on the existing literature and my own prior research.

2.2. Area and Participants of the Research

The main area of the work is music, the art of sounds (Dalhaus and Eggelbrecht 2004), which is also a characteristic of a given culture, as old as humanity, a sonorous expression and manifestation of that culture. Within this, music pedagogy is particularly the European classical music and its knowledge transfer segment. Sport is an equivalent element, as "physical activity carried out according to specific rules, in free time or competitively" (Nádori 2005). The direct participants are the 14-20 years old musician students in Hungarian music high schools. It is important to highlight the country as well as the general health status and (related) sporting habits of the examined ones.

2.3. The Relationship of Music and Sport

In order to explore and interpret the connections of my research, it is absolutely necessary to demonstrate the meeting points that connect the two – in many cases considered distant – units. My paper presents five approaches whose analogies suggest undeniable commonalities:

- *Level of basic parallels (skills and abilities, their development, maintenance, the role of the teacher/trainer, motivation and career orientation)*
- *Relationship system of practical connection points (sports with music)*
- *A cultural anthropological approach in the common sections of the consensus value system of society*
- *Presentation of pedagogical-methodological parallels - including the overview of the relationship between music and movement approaches of alternative pedagogies*
- *Examination of the segment of music and sport as an indicator of social mobility that creates opportunities and equal opportunities, and provides a possibility to outstand.*

2.4. The Elements Examined

The three interdependent stages of musician's life had been examined. That is: problems stemming from lifestyle (sleeping disorder, musculoskeletal/spinal problems, weight problems, postural problems, visual disorder, stamina problems, respiratory problems); problems during preparation (fatigue, attention problems, memory problems, learning difficulties, physical pain); as well as the complaints (attention problems, memory problems, unprovoked stage fright) in the event of an onstage situation (concert, exam).

2.5. Musician Stereotypes

Three misconceptions need to be refuted. These are the musician image, time anomaly and gender stereotyping behaviours.

The two dimensions of the distortion of musician image had been studied. On the one hand, the effects of external prejudice, and on the other hand, the self-identification of musicians. The former undoubtedly has an impact on our behaviour, however, the real problem is caused by the false self-image and its persistent transmission based on example. Therefore, referring to a specialised work process, the musician can refrain from the basic elements of proper physical well-being, in our case, from the preventive and health-preserving functions of sport, as well as its effective support of work. The proof that this is not a correct idea is an exploration of the musician image on a historical scale, which shows that, according to music historical sources, musicians occupied a position much more favourable than their present status and that the current "expected" musician image is only a development of the nineteenth century (Kéringer 2023). The musician's work, despite the undoubted professional specialisation (as it is valid for the other professions as well), is a profession similar to others, therefore it is different from the others only in terms of the specific challenges mentioned above, and not in its essential, substantive content. Thus, being in good physical condition to work effectively is as necessary as in case of "outsiders".

The anomalies of time management are particularly accentuated by the "reverse" lifestyle, since work, due to its service and cultural transfer activities, naturally falls to the free time of those who choose another profession. The reference to this (for instance, in terms of the amount of leisure time spent on sport) is often rather absurd as a kind of "ideological" slogan: musicians and music teachers in general spend no more time practising their profession than others. Therefore, these problems can be solved by the rethinking of the schedule.

The third entrenchment is a specific and less researched element of the gender stereotypes (however, this is usually valid for other areas of life): the commonly accepted thesis of "lazy boys, diligent girls". In this case, girls appear as the "vanguard" of duty-performance in relation to the opposite sex. This idea is shared by consensus at almost all levels of education. My examination of the two genders has shown that in reality there is no justification for these ideas. The figures of duty-performance of the two genders are perfectly equal. However, girls' calm and protected status may be seriously affected by the fact that they reported significantly more and more intense complaints than their male counterparts in most of

the complaints examined. As the study has shown that boys do sports significantly more (i.e., they are more "diligent" in sport), the fact that those who do sports more report on less issues than their less active piers makes the girls' group more vulnerable. According to our anomaly, this stereotype concerns boys in the short term and girls in the medium and long term.

2.6. Prior to the Research

Given the lack of specific prior research on my narrowly defined topic, I have presented the more loosely, or more closely related research lines and references mentioned below in three categories. Namely, studies on the connections between music and sport – Wilson (2016), or Bianco et al (2017) –; examination of the physical traumas of musicianship in relation to sporting habits (Voltmer et al (2014); and the research of the synthesis of these two approaches – Nawrocka et al (2014), or Greef et al (2003) –. The works related to the topic, though sharply different in the basic approach, and the research that can be linked to the Kovács method are primarily the writings of Zsuzsanna Pásztor.

3. The Methodology of Research

3.1. Hypotheses

My hypotheses search for the answer whether the connection of sporting habits and the difficulties and problems faced by musician students of this age group is provable. My hypotheses are the followings:

H1: Intense sporting habits may be associated with low levels of perception of the musician's lifestyle problems examined.

H2: The high intensity of the sporting habits of the groups studied may have a positive influence on the intensity of the complaints perceived during musical work (practice, class work, or concert, exam).

H3: Gender stereotypes of duty-performance and time management in musical work are based on false assumptions.

3.2. The Measurement Tool

Due to the lack of validated instruments related to my topic examined, my measurement tool is a self-developed questionnaire, based on the available literature and my own preliminary research, which contains partly questions to be decided and partly five-point Likert scale answers. Its technical implementation is adapted to the current circumstances and opportunities, a mixed solution of online and paper-based formats, with no compulsory questions and anonymous answers. The data was kept confidential and not accessible to third parties. After digitalising the paper-based forms, Microsoft Word, Excel spreadsheet and graph editing programs were used to evaluate the data. Jamovi version 2.4.8. was utilised for data reporting and statistical tests. There was a statistical analysis according to the data types after the cross-tabulation analysis data had been reported if it was reasonable. In the case of ordinal variables, Spearman's correlation tests indicate the

existence of the possible relationships. The strength of these relationships in the present work are shown:

-p <0.05 and Spearman's rho <0.2: no connection

- p <0.05 and Spearman's rho 0.2-0.3: weak connection (*),

- p <0.05 and Spearman's rho 0.3- 0.4: medium connection (**),

- p <0.05 and Spearman's rho > 0.4: strong connection (***).

Cramer V examination was carried out with nominal variables. The strength of these is determined as follows:

-p <0.05 and Cramer's V <0.2: significance with weak connection,

-p <0.05 and Cramer's V 0.2- 0.6: significance with medium-strong connection,

-p <0.05 and Cramer's V > 0.6: significance with strong connection.

Elements of the Questionnaire – Description of the Results – New Variables

The first part includes introductory demographic questions. The questionnaire is self-developed, specifically designed for 14-20-year olds preparing for music career. After the questions on gender and age, it asks about the field of specialisation, not a specific instrument, but a group of instruments (wind, string, keyboard, percussion, vocal) or other fields (solfege, music theory, composition), for the sake of clarity and commonalities. Afterwards comes the everyday musician's work and the elements of daily routine. This includes the time spent within the geographical and physical context of the institution, the amount of instrumental practice and learning general subjects. This section concludes by the examining the frequency of the performance work. Data that are not or only slightly relevant to the research as a whole (type and location of exercise) are excluded from this paper. As I would like to present the context of time management, apart from a few details, as precisely as possible, not separately but in direct comparison with sport, the two variables considered the most important, the daily amount of time spent on instrumental practice and that of on learning general subjects, it is presented with a new common variable, the so-called *Duty variable* (DV), which is generated from the most related segments of the two elements by cross-tabulation analysis using the program Jamovi.

In the second part of the questionnaire, workout and sporting habits were examined. First of all, its weekly amount, and its occasional duration, then its nature and location. Since my primary interest was measuring the *intensity* of sporting activity and the values obtained are difficult to interpret in themselves for a more precise definition, a new variable was introduced at this point, called *Sporting variable* (SV). The most related common sections for the duration of weekly physical activities and occasional exercise were created based on cross-tabulation analysis.

In the third section of the measurement tool, general health problems, complaints and traumas resulting from lifestyle are assessed. These are sleeping disorder, musculoskeletal and posture problems, weight problems, vision problems, stamina problems and breathing problems. Following comes the assessment of issues and deficiencies perceived during practice (fatigue, memory problems, attention problems, learning difficulties, physical pain), then, traumas (attention prob-

lems, memory problems, unprovoked stage fright) in onstage situations (exam, audition, concert[1]).

In all three cases, it is necessary to aggregate the problems of each perception by creating a new variable in order to obtain a complex overview of each set of problems. These are the followings: *Lifestyle problem variable (LPV), Practice problem variable (PPV) and Onstage problem variable (OPV). LPV* means the quantitative average of the complaints perceived, while the other two variables were created by averaging and rounding the Likert scale scores for each problem area question, and then, for better transparency of the data and to ensure the most accurate presentation of the cross-tabulation analyses, the continuous variable was transformed into an ordinal variable.

	Lifestyle problem variable	Practice problem variable	Onstage problem variable
average	2.38	2.0	2.0
min	0	1	1
max	7	4	5
standard deviation	2.40	2.36	2.37

Table 1. "Problem variables" used in the research (own edition)

In order to provide a more precise description of the results, comparability and verification, the data and statistics are presented in four different approaches in this paper: the analysis begins with a presentation of the full sample, followed by a description of the answer data for the gender and then age groups, and concludes with an emphasis on the prioritised elements of the research in a direct comparative study.

3.3 The Sample

The participants of the study were drawn exclusively from the four responding institutions of the twelve Hungarian music high schools. The number of participants is N=214, out of which 211 questionnaires were valid and evaluable. This number represents more than the third (33.46%) of student population of around 640 in the country. By age: according to the input and output units of the music high schools, it ranges from 14 to 20 years. In the process of the study, there were groups: gender groups, age groups and direct comparative studies directly linking sporting habits to the complaints under investigation. These are presented in a separate subsection, but as elements for comparison and confirmation in my work.

1 Among real situation complaints, stage fright is one of the most prominent elements examined in my research (and in my research as a whole) on occupational complaints. It is essential to clarify the definition of "unprovoked stage fright" here. As its extent is quite subjective, it is entirely up to the respondent to decide. In the terminology of this work, it is always presented in relation with the individual, i.e., as the severity of the anxiety in real situations, and complaints that prevents work performance and quality of work.

4. Research Results

4.1. Demographic Data

The introductory, demographic section of the questionnaire seems to have provided an appropriate framework and structure for our subsequent analysis. It was easy to put together the individual sections and the examined units, but the limitations of the research are indicated by the anomalies in some of the investigated groups that are likely to affect the results. While being able to rely on an exact and balanced composition for the gender groups and direct comparisons, the results of my age separation may have been influenced by the different levels of biological and mental development as well as the significantly different numbers of age groups. Even though they may be definitely linked to the overall investigation process, the results of this stage are unlikely to have shown much in the way of a plastic picture and pattern for the reasons given above, and are therefore in most cases only presented for reference or comparison when reporting results.

4.2. Time Investigations

In the matter of time management, the effects of the musician's entrenchments and the significance (then refutation) of the stereotypes examined can be clearly seen, on the one hand, and on the other hand, the plausible presence of tendencies affecting the whole generation, namely the massive spreading of lifestyle structures characteristic of society as a whole. The closely related study of sporting habits highlights the rather serious, and in my sample even more severe, problems of this age group. Our results suggest that practice and learning do not "cause" the lack of sporting activity. At the same time, the combination of time management and lifestyle choices (with a particular focus on the amount of sporting) is shown to have a significant and measurable impact on the segments of the musician's lifestyle, the preparation period, and the onstage situations.

4.3. Results by gender

Taking into account the gender-specific factors of musicianship measured in the present study, only two segments (time spent in the educational institution and the daily amount of time spent on general studies) showed a higher activity rate for girls. The latter indicates a weak significance **(p=0.046; Cramer's V=0.174)**. During data recording and cross-tabulation, boys were found to have better indicators in all other items. However, it is important to note that none of these crossed the statistically measurable limit.

From the point of view of our research, the clear gender difference in sporting activity levels is highly important, which is statistically confirmed **(p=0.007; Cramer's V=0.265)** to point towards a substantial deficit for girls.

4.4. Summary of Problems Stemming from Lifestyle

When comparing the three comparisons examined, a clear tendency (albeit of varying intensity) can be observed: the more active groups are in a better position

all by gender, for age groups and in direct comparison. For some of the lifestyle problems examined in this study, the positive effects of regular exercise seem clear. In addition to the indicators for the tendentious items (musculoskeletal/spinal problems, posture problems, respiratory problems, stamina problems), which were not confirmed by statistical tests, there was a clear significance of varying strength in three of the eight items examined (sleeping disorder, vision problems, "no complaint"). Among these, the tendencies of those who did not report complaints seem to be the most significant, that is, in our case, the more sport activity actually implies fewer complaints in the examined group. The result was surprising in one element (weight problems). Here, all aspects of the investigation show the increasing (although not statistically confirmed) involvement of those who do sports more. Causal studies can no longer be displayed within the framework of this work, but they justify further research.

4.5. Summary of The Practice Problems

In relation to the problems of the preparation (learning and practice) period, we receive a similar but clearer picture than the previous ones. The most plastic results were obtained by the direct comparison, while the age group analysis showed the least significant differences. It can be concluded that all the symptoms of the practice phase examined in this research (with varying severity) can be associated with the sporting habits. Although the tendencies in the age groups are not statistically confirmed, one of the five items examined (fatigue) shows a medium-strong relationship when examined by gender. The results of the direct comparison study are even more striking: the test results of all the items investigated indicate a relationship: memory problem and learning disability are weakly correlated, while the other three (fatigue, attention complaints, physical pain) are strongly correlated. Based on this, we found a real relationship between the intensity of the practice problems and the sporting attitudes of the group studied.

4.6. Summary of The Onstage Situation (Concert/Exam) Problems

The present work examines three of the problems of onstage situations (concerts, exams): onstage attention problems, memory problems and unprovoked stage fright, which obstructs the musician's performance. For attention complaints, all groups and comparisons show a more favourable situation for the more active groups. Without statistical confirmation in the age groups, a medium-strong relationship had been found in the gender analysis and a strong relationship in the direct analysis. Memory problems yielded similar results to the preparation period measures, the direct correlation test suggests a medium-strong association, but the results of the other two groups could not be confirmed. The most sensitive unit appears to be stage fright. This showed the highest involvement of all the problems reported by all the subjects and groups studied. Although the question is quite subjective, it is clear from the pattern that this is the most prominent item we examined in our research. This is confirmed by the fact that a tendency of a relationship was found in all relations and test situations, with an unconfirmed statistical indicator for the age groups, a medium-strong relationship for the gender analysis and a strong

relationship for the direct comparison. Overall, through the three approaches, it can be concluded that the confounding factors investigated in the onstage situation (concert, exam) showed synchrony in all groups. The sporting habits of the groups involved in the test are likely to influence the reporting of complaints and their levels. Differences are only apparent in the differential detectability of the phenomena between groups, not in their detection or direction.

4.7. Summary of the Whole Analysis

The strength of the test results described here is variant but therefore tangible and tendentious in all groups, and in a significant proportion of the elements examined, they not only indicate processes that are related, but also show real significance. Based on these results, in most cases, there is a real relationship between sporting habits and the items under study. Naturally, the writer of these lines is aware that the appearance of the results will vary depending on a number of variables, factors and effects that are not currently being investigated. Nevertheless, my analysis seems valid in the approach described here.

4.8. Hypotheses in the Light of Research Results

Since anomalies observed in the creation of the groups (discussed in details above) did not allow exact statistical measurements in one of the three approaches (age group), the final summary of the results is not presented in these data. It should be noted, however, that in my reporting of this group, similar trends to the other results were observed. In terms of our results, the following was found out:

H1: Intense sporting habits may be associated with low levels of perception of the musician lifestyle problems studied.

When arranging by gender, significance was observed in one of the seven complaints examined - the highest number of sleep disorders detected overall. 41.5% of girls and 27.5% of boys reported this problem. This proportion indicates weak relationship **(p=0.038; Cramer's V=0.144)**. A similar strength of connection can be detected in the set of results for non-complainants **(p=0.009; Cramer's V=0.182).** The latter clearly shows that boys with significantly higher sporting activity **(p=0.007; Cramer's V=0.265)** are in a better position in terms of the complaints examined. This is confirmed by the gender correlation of *the Lifestyle problem variable*, which shows a medium-strong relationship **(p=0.044; Cramer's V=0.255)** indicating the validity of the above findings.

The direct comparative analysis suggests more specific links. In the comparison of the *Sporting variable*, significance is already shown in two of the seven complaints examined: in addition to the medium correlation with sleeping disorder **(p=0.010; Cramer's V=0.310)**, there is a weak correlation with visual problems **(p=0.005; Cramer's V=0.271)**. A similar pattern can be observed for respondents without complaints: a stronger-medium relationship than that of the gender group **(p=0.010; Cramer's V=0.340)**. These tendencies are reinforced by the medium-strong correlation between the *Sporting variable* and the *Lifestyle problem variable* **(Spearman's rho =-0.362**)**. On the whole, there is a real connection between sporting habits and the complaints examined in some of the items studied.

Thus, the hypothesis that an increase in sporting activity is associated with low levels of perceived complaints in some of the elements seems to be partially confirmed.

H2: The high intensity of sporting habits of the groups studied may have a positive influence on the intensity of the complaints perceived during musical work (practice, class work, and concert, exam).

Regarding preparation problems, gender groups revealed that significance was detected in one of the five items tested: fatigue showed a weak association **(p=0.004; Cramer's V=0.272)** with sporting habits. However, the medium-strong relationship **(p=0.044; Cramer's V=0.255)** of the *Preparation problem variable* points towards a real direction of tendencies that are not statistically confirmed.

Based on the results of the direct comparative analysis, all complaints investigated show a different degree of correlation between the perceived problems of the *Sporting variable* and the preparation. Memory problems **(Spearman's rho =-0.252*)** and learning difficulties **(Spearman's rho =-0.281*)** were weakly correlated, while fatigue **(Spearman's rho =-0.523***)**, attention complaints **(Spearman's rho =-0.483***)**, and physical pain **(Spearman's rho =-0.441***)** were strongly correlated. The strong relationship between the *Preparation problem variable and Sporting variable* **(Spearman's rho =-0.576***)** confirmed the above calculations again.

The statistical analysis of onstage problems by gender, out of the three items examined, found no measurable relationship for memory problems, for attention problems **(p=0.003; Cramer's V=0.274)** and excessive stage fright **(p=0.011; Cramer's V=0.250)** both showed a relationship of equal strength (medium-strong). The tendency is also reinforced by the medium-strong connection of the *Onstage problem variable* **(p=0.020; Cramer's V=0.235)**, which in all cases is found to be associated with a lower involvement of boys who do sports more.

In direct comparisons, the tendency regarding the *Sporting variable* suggests a similar but more specific and stronger relationship: memory problems are medium-strongly correlated **(Spearman's rho =-0.368**)**, while attention complaints **(Spearman's rho =-0.421***)** and excessive stage fright **(Spearman's rho =-0.506***)** are strongly correlated. The strong correlation **(Spearman's rho =0.533***)** between the *Sporting variable and Onstage problem variable* confirms our previous results.

Although no specific hypothesis examination has been done on this topic, it is important to highlight the results of the studies on onstage performance anxiety, which indicate its high priority: this segment showed the highest frequency and the strongest significance for sporting habits overall. The association was confirmed at all levels and groups of the work process: medium-strong in the gender groups **(p=0.011; Cramer's V=0.250)** and strong in the direct examination **(Spearman's rho =-0.506***)**.

On the whole, my hypothesis seems to be partially confirmed: the level of sporting activity shows a real relationship with the examined elements of both phases in most of the key comparisons, i.e., in our case, high levels of sporting activity do indeed imply low levels of complaint detection.

H3: Gender stereotypes of duty and time management in musical work are based on false assumptions.

Overall, the results of the present study seem to partly confirm my hypothesis, and in its essential thesis in whole: there is no evidence of greater investment of energy and time of girls in the segments of musicianship studied.

To sum up, two of my three hypotheses (H1, H2) seem to be partially confirmed, and one (H3) seems to be fully confirmed.

5. Summary

In this study, my primary interest was whether sporting habits have a significant influence on the perception and intensity of the work-related complaints of young people preparing for music career. When the survey results were processed, a real and measurable significant relationship was found, i.e., young people who do sports more are indeed less affected by the relation of the complaints examined. Its value is enhanced by the fact that my results also provide a refutation of the false and harmful stereotypes that not only hinder the professional development of musician, but, at the same time, can also affect their ideal quality of life and health.

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