



***Human Well-Being in the Context of Rapid Changes  
to the Sound Environment During the COVID-19 Pandemic***  
***Dobrostan człowieka w czasie gwałtownych zmian środowiska  
dźwiękowego podczas pandemii COVID-19***

**ABSTRACT**


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**RESEARCH OBJECTIVE:** The aim of the article is to analyze the impact of the sound environment on human well-being during rapid changes to the audiosphere.

**THE RESEARCH PROBLEM AND METHODS:** What changes in the audiosphere took place during the lockdown? How were they perceived by the respondents, taking into account their well-being? The research material was free-form interviews focused on the problem, with elements of expert interviews conducted during the COVID-19 pandemic.

**THE PROCESS OF ARGUMENTATION:** The research analysis focused on the respondents' perception of changes in the audiosphere during the lockdown and the impact of these changes on their well-being. Attention was paid to the similarities and differences in the perception of the sound environment and the reasons for these differences.

**RESEARCH RESULTS:** All interviewees reported changes in the sound environment during the pandemic and an impact on their well-being. The intensity of changes varied, depending on the place of residence and previous lifestyle. In addition to the negative changes, there were positive ones, such as less traffic noise, more sounds of nature, and new inspiring sound phenomena. The psychological (focusing on oneself and one's body, encouragement to meditation) and artistic (artistic inspiration) potential of the new sound environment was noted.

**CONCLUSIONS, INNOVATIONS, AND RECOMMENDATIONS:** The reflective potential brought about by the changes to the audiosphere during the pandemic has not yet been used. Experiences from the pandemic can help care for the soundscape and plan possible modifications to it in order to improve people's health and well-being. More research on functioning after returning to the previous sound environment is needed. If a similar situation is repeated, its educational and psychoeducational potential should be used.

→ **KEYWORDS:** COVID-19, WELL-BEING, SOUND ENVIRONMENT, AUDIOSPHERE, HUMAN CORPOREALITY

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**STRESZCZENIE**

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**CEL NAUKOWY:** Celem artykułu jest analiza oddziaływania środowiska dźwiękowego na dobrostan człowieka w czasie gwałtownych zmian audiosfery.

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**PROBLEMY I METODY BADAWCZE:** Jakie zmiany w audiosferze nastąpiły podczas lockdownu? Jak były odbierane przez badanych i jak wpłynęły na ich dobrostan? Materiałem badawczym były wywiady swobodne skoncentrowane na problemie z elementami wywiadu eksperckiego, przeprowadzone w czasie pandemii COVID-19.

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**PROCES WYWODU:** W analizie badań skoncentrowano się na percepcji zmian audiosfery w czasie lockdownu oraz wpływie tych zmian na dobrostan badanych. Zwrócono uwagę na podobieństwa i różnice w postrzeganiu środowiska dźwiękowego i przyczyny tych różnic.

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**WYNIKI ANALIZY NAUKOWEJ:** Wszyscy rozmówcy zauważyli zmiany środowiska dźwiękowego w pandemii oraz ich wpływ na swoje samopoczucie. Natężenie zmian różniło się w zależności od miejsca zamieszkania i wcześniejszego trybu życia. Oprócz zmian negatywnych pojawiły się pozytywne, takie jak mniejszy hałas komunikacyjny, większa obecność dźwięków natury, nowe inspirujące zjawiska dźwiękowe. Zauważono potencjał psychologiczny (możliwość koncentracji na sobie i własnym ciele, zachęta do medytacji) i artystyczny (inspiracje estetyczne) zmienionego środowiska dźwiękowego.

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**WNIOSKI, INNOWACJE, REKOMENDACJE:** Potencjał refleksyjny wynikający ze zmian audiosfery w pandemii pozostaje na razie niewykorzystany. Doświadczenia pandemiczne mogą wspomóc troskę o krajobraz dźwiękowy i zaplanowanie jego ewentualnych modyfikacji w celu poprawy zdrowego życia i dobrostanu ludzi. Potrzebne są dalsze badania na temat funkcjonowania po powrocie do wcześniejszego środowiska dźwiękowego. W przypadku powtórzenia podobnej sytuacji należy wykorzystać jej potencjał edukacyjny i psychoedukacyjny.

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→ **SŁOWA KLUCZOWE:** COVID-19, DOBROSTAN, ŚRODOWISKO DŹWIĘKOWE, AUDIOSFERA, CIELESNOŚĆ CZŁOWIEKA

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## Introduction

The course of the COVID-19 pandemic is the subject of analysis by specialists in various scientific fields. Not only is the impact of the virus itself on the human body noteworthy, but so are the psychological and social effects of the lockdown, which was supposed to limit the spread of the disease, but changed the way societies functioned for months. Among the significant modifications were changes in the audiosphere. The purpose of this article is to analyze the impact of the lockdown on the sound environment and the well-being of the people living in it, with a special focus on their corporeality. This can show the impact that auditory stimuli have on humans.

The focus on audibility counterbalances the focus on visual stimuli that characterizes modern culture. As Sztompka (2005) points out, we are witnessing a pictorial turn, with

the image taking the place of the “central cultural form” (p. 12). Meanwhile, “a holistic perception of the world is not possible if it excludes the acoustic factor” (Szpunar, 2020, p. 3). Although hearing is not the superior human sense (this function is performed by sight), it does provide a lot of relevant information about the environment. Moreover, unlike the eyes, “the ear has no eyelids” (Momro, 2020) and the brain processes auditory information even during sleep, which is evolutionarily determined.

Certain terms, popularized by the founder of acoustic ecology, R.M. Schafer (1977), are used to analyze the human sound environment. The sound environment – called the audiosphere in cultural anthropology (Misiak, 2010) – is a complex of all the auditory impressions that reach a person. The entirety or a slice of the sound environment surrounding a person at any given moment is called the soundscape. It is extremely important to perceive sounds along with their perceptual, social and historical context.

The reflection on the sound environment advocated by acoustic ecology would not be possible without considering human corporeality. Every human being functions in their body (Sasin, 2022) and it is through the body that they learn about the world and communicate with it. Both listening and making sounds, such as speaking, are bodily acts. The body is the source of human development, including mental development (Sa Carvalho, 2017); therefore, any stimuli that affect it also stimulate the mind. Shilling (2010, p. 24) reminds us that “in a very important sense, acting people are acting bodies.” Bodily stimuli play a large role in a person’s experience of psychological well-being, which is considered an important component of quality of life and defined as cognitive and emotional evaluation of one’s life (Diener et al., 2004). C.D. Ryff (1989) distinguishes six dimensions of psychological well-being: autonomy, mastery over one’s environment (particularly relevant to the issue at hand), self-acceptance, positive relationships with others, life purpose, and personal growth.

Paying attention to the information provided by the senses values the bodily dimension of human existence. Only in recent years have the social sciences, including pedagogy, overcome the Cartesian dualism in the perception of body and mind (Sasin, 2022). A significant influence comes from the views of Merleau-Ponty (1993), who argued that “the body is our general way of possessing the world” (p. 166).

## Research methods and tools

I collected the data for the analysis by means of a problem-focused free interview. The interviews bear the characteristics of an expert interview (Skryplonek, 2011). The assumption was that expert knowledge, providing the ability to “make informed, reflective and reasoned decisions” (p. 216), facilitates insight into one’s own experience. The selection of interviewees was purposeful: each of them is a person with a special connection to the sound dimension of reality, as evidenced by their professional path and interests. The specificity of the study group is due to the fact that it included people whose sensitivity to the audiosphere is higher than average.

All interviewees readily agreed to reveal their identities. This is acceptable because the interviews do not raise controversial issues and most of the interviewees are well-known people, publicly or at least in their communities. Anonymizing the interviews would have significantly impoverished their content. The following people were interviewed (in alphabetical order):

- Aleksandra Chciuk – visual and sound artist who takes up the subject of sound phenomena, does audio-performances, and runs the Audiosphere Studio at the Academy of Fine Arts in Lodz
- Bartłomiej Czubak – engineer, interior acoustics expert, and amateur musician
- Mikołaj Jarosz – architect and researcher of acoustics of school buildings
- Agata Kiedrowicz – curator, design critic, and lecturer at the Academy of Art in Szczecin who specializes in design for the senses and spends a lot of time in the countryside
- Robert Losiak – musicologist, soundscape researcher, and researcher at the University of Wrocław
- Marcin Stańczyk – composer and professor at the Academy of Music in Łódź
- Przemysław Staroń – teacher, lecturer, and trainer associated with SWPS University, psychologist and cultural studies specialist by training, and Teacher of the Year 2018
- Artur Zagajewski – composer who devotes great attention to sonoristic explorations, teacher, and professor at the Academy of Music in Łódź
- Barbara Zaradzka – retired teacher who specialized in environmental protection and ornithology and recently moved from the city to the countryside

I conducted all the interviews in 2021 in an online format. For the analysis, I used open and analytical coding to identify the meanings and significances within them (Gibbs, 2011). This analysis proceeded in three main stages: encoding meanings, condensing them, and interpreting them (Kvale, 2010). The perception of the audiosphere during the pandemic was not the only topic covered in the interviews, which made it possible to consider data on the respondents' other sound experiences. The background for the conclusions was provided by the findings of other Polish and foreign studies on a similar topic.

## Changes in the soundscape during the lockdown

The relevant changes were primarily associated with restrictions in various spheres of social life, including movement and leisure activities. This led to a reduction in such sounds as vehicle traffic, the bustle of the street, the sounds characteristic of cafés and restaurants, etc. These changes were noted by all the respondents, though the intensity was greater in the city and less noticeable in the countryside, where traffic noise is not so annoying on a daily basis. It also depended on the respondents' previous lifestyle: the non-working person noticed less change than those who were economically active: "The pandemic didn't cause any problems for me, because first of all, well, I don't go to work anymore. I sat at home, I didn't have to wear a mask" (B. Zaradzka).

Another phenomenon was the appearance or intensification of previously unnoticed sounds. The sounds of nature, such as birdsong, made their presence felt more strongly, especially in urban areas. They were more pronounced because they were not muffled by human activity and because the animals, emboldened by the silence and tranquility, allowed themselves to be much more active.

New and unusual sounds included messages reminding people to stay indoors and isolate themselves, coming from police cars that patrolled the streets of cities and villages. This reinforced the sense of danger and triggered the body's stress response, which consists of stimulation of the central nervous system, leading to an excessive increase in hormonal activity (Trybalska et al., 1997).

There was a moment when the police were going back and forth and these messages appeared. Well, it also certainly, you know, influenced people, right. The reproduced message, it gave some rhythm, it changed that rhythm, by giving a new rhythm. It was also a specific content, so I think it also built up some tension that wasn't there before (A. Chciuk).

New forms of interference in the audiosphere also included attempts to manage the silence, referring to earlier customs, such as concerts from balconies given free of charge by professional musicians who had been deprived of their previous occupation. Most people received such concerts positively, but there were adverse reactions:

It doesn't matter at all to me what kind of music it is, and, consequently, I wouldn't be happy if, right now, during the quarantine, some singer, a tenor, lived at my estate and decided to sing Verdi to me and make my time pleasant. I would hit him with a slipper (A. Zagajewski).

Interpersonal contact, with the exception of immediate family members, moved online. This mediation of contact resulted in different perceptions of other people's voices – and even one's own. It also allowed for incidental insight into others' sound environment:

I, for example, was very surprised by the first moment of teaching online. When I was waiting for the students, I went to the kitchen, left Zoom or some other program open. I come back, and in my room I hear overlapping sounds from different spaces of the houses of these people. [...] Nothing changes in the visual aspect, because people haven't suddenly arrived there, and there are both voices and some different surrounding noises. It was such an interesting collision, a surprise. And it also merged with this visual aspect, that suddenly I'm just looking into people's apartments, into their altogether intimate surroundings, their rooms, which I would never otherwise look into (A. Chciuk).

The results of the study are consistent with a meta-analysis of soundscape studies in various countries during the pandemic (Hasegawa & Lau, 2022), which showed that there were almost the same number of positive and negative impacts of COVID-19 on the subjects' perceptual responses. The negative phenomena were mainly an increased perception of noise inside buildings and from the neighborhood. The positives were reduced traffic noise and greater access to the sounds of nature, leading to better recovery

and improved health, including in such measurable terms as improved cardiovascular health due to a reduction in the noise of aircraft taking off.

## The bodily dimension of the lockdown

The most obvious corporeal effects of the pandemic were complications after contracting the COVID-19 disease. However, it affected everyone, including those who were not ill. Polish children and adolescents, abruptly cut off from their peer environment (Panda et al., 2021), were noted to have lower mood and higher levels of depressive and anxiety disorders (Twardowska-Staszek et al., 2021). Similar results have come from studies conducted in other countries (Brooks et al., 2020).

From the connection between the psyche and the body, which no one denies nowadays, there is a two-way interaction: physical ailments affect the psyche and problems with emotions affect the body. One respondent stresses that knowing one's body builds self-awareness and promotes self-confidence. "It also gives us agency that we know our body, we know how it can react, we know how we can develop it, we are also less susceptible to manipulation, for example, you could say political manipulation" (A. Kiedrowicz). In schools, however, body awareness receives little attention:

I believe that teachers don't [pay attention to sounds at school]. Like to the senses in general. [...] We are neither taught this connection with each other on, I would say, the psychological level, nor precisely on this fundamental, sensual level, that is, the reading of signals from the body. Which is very ruinous (P. Staroń).

The positive "side effects" of the lockdown on the body should not be overlooked. Reduced automobile traffic helped reduce smog and noise. The significant quieting of the environment (closure of public facilities, no live concerts, closed cafes, etc.) may have worked beneficially, not only for plants and animals, but also for people. This was of particular importance for sound-hypersensitive people, of whom there are more and more in modern societies (Kabzińska, 2017). In the words of one respondent, "one can observe a higher percentage of students who are in some way hypersensitive to noise or sounds. And I'm not entirely sure whether this is due to the fact that there are actually more such cases, or whether they are simply being diagnosed at the moment" (M. Jarosz). Two of the interviewees spoke of problems resulting from hypersensitivity.

I, for example, am unable to work in any noisy environment. [...] I've also been passionately using different kinds of earplugs for some time now [...] I get away from all loud noises as much as I can. I don't like it when someone bangs or knocks at something. When they put spoons down on the plate (M. Stanczyk).

Stańczyk said that auditory hypersensitivity, although it interferes with his daily life, is also valuable for his art, as it stimulates the imagination. Another respondent agreed:

“This also has its pros and cons, that is, more sound reaches me, but also more stimuli can simply affect me, leave some positive, but also a negative trace. But on the other hand, it also builds my awareness, sensitivity” (A. Kiedrowicz). According to Chan et al. (2022), people involved in art-making during the COVID-19 crisis experienced reduced stress and improved mood. This is because contact with art promotes constructive regulation of emotions and alleviates feelings of isolation (Pikała & Sasin, 2016).

## Audiosphere awareness – the importance of silence

The rapid changes in the audiosphere during the lockdown promoted an awareness of the importance of the sound environment, which most people do not pay attention to on a daily basis:

So [the importance of the audiosphere is expressed] in a certain sense of people’s identity, an unconscious one, that we live in a certain interaction with the environment and we become aware of this when something changes, we go somewhere or our space undergoes some kind of change. And then it turns out that [...] there are sounds which are important for human memory, for cultural consciousness (R. Losiak).

Having less variety of sounds promoted a more intense experience of them. Many people became aware of how polluted and invasive their sound environment had been up to that point: “I think it made a lot of people realize, not only me, but other people as well, that this machinery that is working, this city that is in motion is really a very noisy thing” (B. Czubak). Respondents began to pay more attention to acoustic hygiene: “As I, for example [...] enter a shopping mall, I feel strange, and I wonder what it’s all about. Some time ago, I came to the conclusion that it’s just a matter of sound: that I’ve already gotten used to a life in which, well, it’s just quieter” (P. Staroń). At the same time, however, the interviewees were unanimous in their belief that the changes in the audiosphere caused by the lockdown were only temporary: “For me, it was quite pleasant, but I just don’t have any illusions that it is about to end” (M. Stańczyk).

Studies have shown particularly high sound sensitivity in composers, for whom sound is the artistic medium. One of our composers proved to have the most radical views and showed the greatest openness to new sound phenomena, which immediately translates into creative inspiration: “Every change is beneficial [...]. New times introduce new categories. I immediately translate it to music: what comes out of it, how can it be reflected in music?” (A. Zagajewski).

What drew attention during the pandemic was the greater presence of silence: “I think I felt there that it was quite noticeably quieter during that lockdown. For me it was quite pleasant” (M. Stańczyk). Silence does not boil down to an absence of sound, because this state is basically impossible in nature; it is established primarily by comparison with the immediately preceding situation (Jeziorański, 2022), so it is determined by the perception of a difference.

Reactions to the silence varied: “Some were very comfortable with this silence behind their windows, some were afraid of this silence” (R. Losiak). It helped people to realize that the most perfect silence is not always the ideal situation; certain repetitive sounds in the human environment create a sense of security, so their absence can be perceived as a threat.

At the moment when these sounds were missing, there was indeed absolute silence, this began to arouse some anxiety. Anyway, this happened rather fast as I learned from the students, because the urban space, when it is completely de-sounded, drained of itself, so to speak, from the hubbub of, for example, cafés and restaurants, is a zombie space (A. Kiedrowicz).

As a scarce phenomenon in the modern world, silence draws the attention of educators and scientists (Olearczyk, 2010; Zembylas & Michaelides, 2004). The value of silence, its importance for human well-being, and its developmental potential for self-awareness are emphasized. “Lately I’ve been hearing repeatedly about people seeing this connection between listening, between these sound walks, all these workshops, and meditation” (R. Losiak). The need for attentiveness and reflection is addressed by the concept of so-called deep listening, developed by the American composer Pauline Oliveros (2005). It assumes that each person has a slightly different, individual way of listening and that there is therefore no single objective soundscape.

## Results of analysis

All respondents agreed that they had noticed significant changes in the sound environment during the lockdown. Smaller changes affected those living in the countryside, while larger changes affected those living in the city. The extent of the changes was also related to their previous lifestyles, and their perception was influenced by their individual sensitivity and diverse tastes. It follows that changes in the audiosphere in a lockdown cannot be characterized as unambiguously positive or negative. Moreover, everyone has their own audiosphere, as a result of both differences in the environment and individual sensitivity.

The altered sound environment brought about psychological (the ability to focus on oneself and one’s body, encouragement to meditate) and artistic (esthetic inspiration) potential for the respondents. Composers, for whom sound is the medium of creative activity, have particularly high sound sensitivity and changes in the audiosphere can have an inspiring effect. Sonically hypersensitive people appreciated the calm and reduction of stimuli. However, it was also noted that silence is not an ideal to aspire to: sounds are needed as a carrier of memory and cultural awareness; without them, a “zombie space” is created.

The respondents expressed concern, based on their past professional experience, that the beneficial changes in the sound environment were only temporary and would



not result in greater concern for the audiosphere once the pandemic had ceased. They attributed this to a lack of reflection on sounds, the senses, and – more broadly – corporeality in school education.

## Conclusions

a person's existence is their body and that without appreciating it, there can be no full awareness or self-development. The corporeality of the human being makes the perception of the sound environment a subjective matter to some extent, as the lockdown confirmed. It is important to note not only the negative effects of changes in the pandemic sound environment, but also the positive ones, which still await scientific analysis (Hasegawa & Lau, 2022). For pedagogical reflection, it would be useful to conduct further research on how people functioned after returning to the previous sound environment and the changes that occurred in the perception of the audiosphere due to the lockdown experience. This would also allow the past pandemic and lockdown to be viewed through the lens of the potential for change, and would help formulate demands for modifying the sonic environment to provide better conditions for work, study, and rest.

The educational potential of lockdown to raise awareness of the importance of the sound environment in everyday life and its impact on mental and physical well-being was not exploited. Possible reflections were made only on an individual level. In school education, despite the favorable situation (remote lessons), the issues of the sound environment, changes to it, and the possibility of consciously modifying it were not discussed. After the pandemic subsided, old sound habits were quickly returned to – sometimes even in a more radical form, as if dictated by the need to make up for lost time.

One common problem is the underestimation of the importance of the audiosphere, which has a significant impact on the quality of human life. Although there are more and more educational and awareness-raising initiatives about sounds and people's sensitivity to them (Sasin, 2019), they mainly reach those already interested. There is a need for activities aimed at the general population, which in a school setting could be combined with the core curriculum of various subjects: not only music, but also Polish, history, nature, physical education, etc. Acoustic ecology classes should also be targeted directly at teachers. An awareness of the importance of the audiosphere should lead to changes in the sound environment of a school, kindergarten, or university. In the future, such activities would make it easier to cope with changes (sonic and otherwise) in emergencies, which would increase the sense of agency and thus psychological resilience. Recognizing concern for well-being as an important factor in the hygiene of everyday life and awakening body awareness, including through the example of reactions to sounds, would equip students with the knowledge of how their body and mind react and would sensitize them to the needs of others. Such goals should be part of educational interactions in working with children and adolescents.

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