

Exploring the Effect of Music in Promoting the Health and Well-being of University Students in the COVID-19 Era

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ABSTRACT

The therapeutic effect of music on mental and physical health is a well-known fact. However, there is a knowledge gap in understanding music's effect on university students coping with the mental health effects of the COVID-19 pandemic. The qualitative analysis method has been used in the research. In this context, an online survey has prepared and presented to the participants. NVIVO 12™, a qualitative data analysis method, has been used to evaluate the survey results. Our study demonstrates that physical distancing measures negatively impact university students' mental health (e.g., stress, depression, anxiety) due to a lack of social interaction, support and the distinction between study and rest areas during the COVID-19 pandemic. Our study also reports diverging opinions regarding the virtual learning system. Some students expressed positivity towards the virtual learning system due to the absence of commuting stress and flexibility. However, many students still answered negatively due to perceived lowered lecture quality and the challenge of adjusting to the new educational environment. Musical experiences were found to be effective coping strategies that help maintain well-being and health among students due to their effectiveness in immediate mood change and distraction from reality.

Keywords: Effect of music; promoting health and well-being of University students; covid-19 era; coping strategy; health intervention; music therapy

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1. INTRODUCTION

Music is an important tool that directs and influences people's emotions. It has been determined that the type of music people listen consequently affects their quality of life. Although the effect of music on people's psychology has been known throughout history, it has been seen that music has a physiological effect on people in studies conducted in recent years (Yurdalan et al., 2022). Music therapy refers to a therapy process consisting of evidence-based practices that are determined and applied according to the needs of individuals or groups by applying certain principles and rules by a specialist therapist (Torun, 2022). With the COVID -19 pandemic, negative situations have occurred caused by both distance education and the disease, with students following their education remotely. It has been observed that the psychology of the students has been negatively affected, and as a result, there has been an increase in the level of fear, anxiety and anxiety in the students (Pektaş & İlhan, 2022). The therapeutic effect of music on mental and physical health is supported by a wide range of research. For instance, according to Fancourt et al. (2016), musical experience, particularly singing, increases immune responses in cancer patients. Musical experience has also been shown to have positive effects on premature infants' cardiac and respiratory functions and reduced stress and anxiety in their parents (Loewy, Stewart, Dassler, Telsey, & Homel, 2013). However, to date, there has been no research conducted to understand the use of music by university students to cope with the mental health effects of the COVID-19 pandemic.

In December 2019, the newest strain of coronavirus (COVID-19) originated in Wuhan, China, and rapidly spread globally (WHO, 2020). This virus causes mild to severe respiratory infections and is transmitted from person to person by inhaling an infected person's droplet in the atmosphere (WHO, 2020). Since COVID-19 is highly infectious, many countries, including Canada, have been practicing strict physical distancing or lockdowns to prevent or slow down the spread of the disease. However, prolonged social or physical distancing has been a concern as it may cause undesirable mental health outcomes (Abel & McQueen, 2020). A qualitative research team interviewed the frontline nurses working with COVID-19 patients in China and found that the nurses experienced psychological exhaustion that even leads to physical pain (Sun et al., 2020). This phenomenon is not only a concern for caregivers but also the general public of all ages. In research by Jiao et al. (2020), the prolonged social distancing due to COVID-19 increased stress, fear and anxiety in children due to the absence of school activities. Post-secondary students are also vulnerable to negative psychological changes caused by a lack of motivation to study due to remote online classes and social events (Cao et al., 2020).

Recent studies have demonstrated the effect of music therapy or musical experience in helping mental well-being and emotional challenges during the COVID-19 pandemic (Corvo & De Caro, 2020; Giordano et al., 2020). Sun et al. (2020) discovered that frontline nurses in China developed strategies to deal with the current pandemic situation, including exposure to musical experiences to decrease anxiety and stress under stressful conditions. The effectiveness of music therapy in relieving stress was reported by Italian clinical staff who cared for COVID-19 patients as well (Giordano et al., 2020). However, there has been very little or no published research on the use of music by university students during the COVID-19 pandemic to promote health and well-being.

1.1. Purpose of the research

This study aims to assess how undergraduate students perceive and maintain their mental and physical health during the COVID-19 pandemic and to understand whether various musical experiences effectively promote mental and physical health during periods of physical isolation. Our study also examines how music may be used as a therapy method for the psychological improvement of students. The sample used for this study is restricted to Ryerson University, Toronto students.

2. METHODS

2.1. Study design

Our study uses a qualitative research approach using an online survey. We received approval from the Ryerson University Research Ethics Board. The survey was administered in November 2020. The study population of interest was undergraduate students who had to continue their studies virtually due to the COVID-19 pandemic. In November 2020, we sent an email containing a research survey link to the program coordinators of undergraduate programs at Ryerson University. Once approved, the coordinators circulated the recruitment email to students in the program. Only full-time undergraduate students enrolled at Ryerson University with an active email address were included in the study. To encourage participation, students could provide their name and email address to win a \$10 Starbucks e-gift card. All the collected answers were saved in Ryerson University's secure server. In total, 30 participants were recruited.

2.2. Questionnaire design

The questionnaire consisted of nine open-ended questions. The survey questions asked about changes in students' psychological wellness due to physical distancing practices enacted in response to the COVID-19 pandemic and their experience as undergraduate students during this time. Some questions focused on whether musical experiences had helped the participants cope with the current situation and whether music would be used as a coping strategy in the future. The online questionnaire was planned to be completed within 15 minutes, and the survey questions were pilot tested by two students.

2.3. Data analysis

Survey responses were analysed by using NVIVO 12TM, a qualitative data management software program, to identify themes within the data for further thematic analysis (TA). TA is a method that can be used to extract "patterns of meaning (themes)" from qualitative data (Clarke & Braun, 2014). Through the NVIVO 12TM, the codes created from the open-ended answers were further analysed, and the answers were classified into three themes to identify and summarize the key elements of the answers. Two researchers independently conducted the coding to ensure the accuracy of the analysis.

3. FINDINGS

3.1. Characteristics of respondents

A total of 30 eligible participants responded to the online survey. Every participant used their Ryerson University email address to complete the survey and answered as they were enrolled in full-time undergraduate programs at Ryerson University. We identified three themes, and they are summarized here with representative quotations for each theme.

3.2. Findings

Theme 1: COVID-19 pandemic, the era of emotional turmoil

The initial question was if the COVID-19 pandemic situation had affected participants' moods or emotional well-being. Almost every participant ($n=29$) said they had experienced changes in mood or emotions while practicing physical distancing. Most of these answers ($n=27$) were related to negative emotions. More than half of these responses (52%, $n=14$) indicated that students felt lonely or isolated due to a lack of or limited social interaction caused by the lockdown. One participant stated: "I am isolated and overlooked due to limited contact with the outside world." Another participant added that "Loneliness, screen fatigue, and negative thoughts are all by-products of my experiences during COVID-19".

Increased anxiety and depression were the second most frequently mentioned issue arising from uncertainty regarding the pandemic and limited physical activity due to social distancing. Many students also mentioned that they had difficulty adapting to the "new normal" since they had to change almost every aspect of their lives (e.g., not being able to make physical contact with loved ones, being unable to go out for physical activities, etc.). As one participant explained, "Quarantine brought up a lot of past feelings/thoughts which made it hard to adjust to the situation and increased anxiety due to COVID-19".

Furthermore, feelings of hopelessness were expressed along with anxiety and depression, which led some participants to lose their self-esteem. Some participants ($n=5$) responded that they were becoming less motivated and more bored due to the prolonged lockdown, which led to a loss of concentration and a lack of energy. One respondent noted that remaining in the same space for extended periods of time contributed to their boredom and fatigue: "... I felt incredibly bored and it started to feel like I was just rotating through the same day over and over...".

Other respondents spoke about the impact of reduced access to support and services. For instance, one student expressed that they were overwhelmed by parental duties and the demands of undergraduate study when childcare facilities were shut down. Physical distancing requirements also meant they could not get support from family members who lived in different households. The student wrote, "I felt completely overwhelmed as a single parent, especially when the daycare was closed. I wanted to ask for help, but I didn't want to risk coming in contact with extended family and friends."

Theme 2: Not all doom and gloom

We received a range of responses to the question, "how do you feel about being an undergraduate student during the COVID-19 era?" Most students offered negative responses ($n=23$), four responded positively, and three said there

was no effect on them. With respect to negative responses, students offered a range of factors that made life as an undergraduate student more difficult during the pandemic. Some factors were specifically related to their studies: reduced quality of lectures, challenges adapting to an online learning environment, decreased concentration, losing in-person opportunities such as field placements, and inability to secure personal space at home. Other factors making undergraduate life more challenging were connected to emotional difficulties: feeling lost, difficulty dealing with an unfamiliar situation, burnout, financial problems or challenges arising due to lack of social interaction. Some students pointed to adverse physical outcomes related to online learning, such as increased frequency of headaches and screen fatigue.

More than half of the study participants complained that the new situation made time management more arduous. Since the beginning of the pandemic, many professors have provided pre-recorded lectures for students' convenience. Despite the added flexibility provided by recorded lectures, our results suggest that many students have found that time management has become more difficult because of the sudden transition to a virtual learning system. Many students struggled to adapt to the new system throughout the academic year. Participants said:

"It is very difficult being home and trying to get through the semester. Being home means less time for yourself (e.g., studying, self-care) when you have to take care of others"

"... it's a very hard transition..."

"...isolated in the context of working virtually as it is a very dramatic difference (working is harder by yourself)"

Furthermore, participants described their current remote learning environment or system as stressful, overwhelming, odd, and demotivating. Many students also pointed out that the current virtual learning system did not provide the same quality of education as in-class learning. Due to these struggles, some students mentioned that their grades had been negatively impacted. For instance, one student wrote: "My grades have decreased significantly. I struggle with online tests and retaining information when I'm distracted at home."

Other students expressed concerns relating to the loss of access to services or in-person opportunities. For instance, one student explained that it is "frustrating to be paying the same amount of tuition when many of the services we are paying for are not being used...". Another wrote, "I'm missing out on meaningful in-person experiences." A lack of a stable Internet connection was also mentioned as another downside of remote learning: "I am scared that my internet will cut out. The teachers are not accommodating with this."

Although most students reported that the pandemic negatively impacted their undergraduate experience, a few wrote about positive outcomes. These positive responses touched on themes of increased flexibility, reduced commuting stress, and a feeling of added safety. For instance, in contrast to those who felt that time management had become more difficult with remote learning, one student wrote: "I feel lucky in a way because of the flexibility my professors and courses have given me...". Another stated, "I enjoy online learning because it saves time on commuting and keeps us safe." Provision of a more manageable number of exams was also mentioned as a benefit of the virtual learning system as most of the tests were conducted using an open-book format.

Theme 3: Music helps so much

Students were also asked whether any musical experience (e.g., listening to music, playing/learning musical instruments, singing/rapping, music composition, beat making, writing lyrics, etc.) helped them cope with psychological changes caused by the pandemic. Most students (n=24) answered in the affirmative, while six students said musical experiences were not effective as a coping strategy. Twenty participants answered that they had used musical experiences to cope; these experiences included listening to music, singing a song, discovering new genres, and learning musical instruments. For some, musical experiences were a way to distract oneself from the reality of one's situation.

"Music always puts me in a zone where I can forget about everything for a while and release some stress."

"It was a short escape to dance it out, sing, be happy while it felt like the world around me was crumbling."

"It feels like a happy distraction and can pull you out of the current moment you are in."

Many participants stated that musical experiences assisted them in de-stressing or elevating their moods. They used words like excitement, happiness, brightness, joy, less alone, calm or relaxation, and in general, expressed positivity in their answers. Increased productivity, creativity, motivation, and concentration were also reported.

"Listening to calming and relaxing music helped my stress and allowed me to relax."

"Playing or listening to slow music decreased my anxiety with the current situation."

"It brings me so much peace and joy playing the violin. It helps me stay calm and centred, and there's a certain euphoria when playing."

A few participants answered that listening to music encourages them to be physically active.

"I started walking to music and going on runs to songs that would just make me feel slightly more hyped or give me energy."

"It helped increase productivity, motivation, and a general sense of happiness to get out of the bed each day."

While most students reported using musical experiences as a coping strategy, six participants said they did not find music helpful and offered various explanations. One participant said listening to music has no impact on their mood. Another participant said music intensifies their mood; therefore, listening to other resources, such as podcasts, would be more helpful as a coping strategy. In contrast to those who said they used music to distract themselves, one participant said it was precise because they found music distracting that they did not use it and instead preferred to work in a quiet space. Of the six students who did not use musical experiences as a coping strategy, half said they might use them in the future, while the other half said they would not.

4. DISCUSSION

4.1. Discussion

Most participants experienced various negative emotions related to the COVID-19 pandemic and measures taken to respond to it, including loneliness, anxiety, and depression. These negative emotions were mainly caused due to a lack of social interaction and support caused by physical distancing and other lockdown measures. Researchers like Galderisi, Heinz, Kastrup, Beehold, and Sartorius (2015) have found that social interaction plays a vital role in mental health. They note that since body, mind, and environment are influenced by each other, the environment surrounding an individual may significantly impact mental and physical health. Therefore, disturbing this relationship may cause adverse mental health events in individuals. This was certainly the case for most of the participants in this study, who experienced extremely restricted conditions that severely disturbed their social relationships and access to support. Rudenstine et al. (2020) have found that there is a significant association between COVID-19-related stressors and depression and anxiety symptoms among urban university students. Therefore, immediate and enhanced mental and physical health interventions for university students should be enacted.

However, most participants expressed negativity regarding their undergraduate experience during the pandemic. Students noted a range of factors such as lack of in-person interaction, decreased perceived education quality, challenges in adapting to new systems, absence of personal space, non-separation of study and rest area, and lack of family support. The school's lack of understanding and academic planning for students who do not have quiet study spaces and access to stable internet caused more stress on several participants. Students with dependents were additionally experiencing more challenges due to the closure of childcare support facilities. If such circumstances become prolonged or recur, it may lead some students to discontinue their education, potentially increasing the health inequity gaps between students in different socioeconomic groups. It is because socioeconomic factors such as income and education are critical social determinants of health that significantly impact one's lifespan (Adler, Glymour, & Fielding, 2016). Individuals with higher education tend to adopt and promote healthier lifestyles compared to those with low education levels due to their high health literacy levels and ability to access healthier environments and resources such as adequate housing and well-balanced nutrition (Braveman, Egerter, & Williams, 2011).

The participants strongly felt that institutions should develop a more situational reflective agenda with a feasible strategy to support their students' health and well-being during the pandemic. This approach should apply to all levels of educational institutions.

At the same time, some participants in this study suggested that physical distancing measures had allowed for increased time and flexibility in their studies. Some participants expressed increased satisfaction with the virtual learning system due to the absence of commuting stress. According to Wener and Evans (2011), commuting causes a negative impact on both mental and physiological health, such as increased stress and blood pressure. Thus, freedom from commuting may offset some of the stress created by physical distancing and the financial burden on some participants.

Finally, evidence from our study suggests that musical experience could become a meaningful and effective coping strategy for university students during the COVID-19 era. The majority of participants answered that music helped them cope with the current situation by distracting them from reality and facilitating positive emotions to emerge and replace painful or undesired emotions (e.g., stress, depression, anxiety, loneliness). It is because pain is relieved when external stimuli create positive emotion, and music is known to be a powerful external stimulant that can have analgesic effects (Garza Villarreal, Brattico, Vase, Østergaard, & Vuust, 2012). Mastnak's (2020) research found that musical activity boosted immune systems and improved respiratory disease symptoms among children. Music, particularly group singing, also erodes feelings of loneliness by hardening community solidarity by connecting and sharing emotions with other community members, which is an essential element in human society as humans are social beings (Corvo & de Caro, 2020). A recent study from Australia suggests that music listening can enhance university

students' life satisfaction compared to other media use during the COVID-19 era. Using online questionnaires, a study from Krause, Dimmock, Rebar, and Jackson (2021) examined university students' media use behaviour, frequency and life satisfaction during the early COVID-19 pandemic. The study chose the four primary media to listen to music, play video/computer gaming, watch TV or movies, and use social media. Among the four media, the participants who answered that they actively listened to music indicated improved mental health and well-being, whereas users who watched TV stated the opposite. It is because listening to music gives freedom in selection compared to other media sources, and listeners have more control over their activity, which can provide higher satisfaction to the particular media user (Krause, North, & Hewitt, 2014). An increased feeling of perceived control can aid an individual's well-being by mediating reaction to stress and pain (Krause et al., 2014).

Music has also been shown to have a positive association with academic performance. A Canadian study observed an increase in academic performance among secondary students who participated in music courses compared to those who did not (Cabanac, Perlovsky, Bonniot-Cabanac, & Cabanac, 2013). Furthermore, the study by Perlovsky, Cabanac, Bonniot-Cabanac, and Cabanac (2013) found that students who listened to pleasant music improved their academic performance and extended their stress tolerance.

The COVID-19 pandemic has had significant impacts on students' lives. Feelings of social isolation and loneliness caused by prohibitions on social gatherings may be mitigated by musical experiences (Krause et al., 2014; Schäfer et al., 2020). Our findings suggest that musical experiences can be adopted as a coping strategy amongst student populations as they are an easily accessible and cost-effective tool. Therefore, we suggest post-secondary institutions promote using musical experience to support their students' health and well-being. For instance, free music streaming services, virtual group singing programs, or school-wide music events, such as online music contests or concerts, may help facilitate physical and mental wellness. In particular, group music classes may promote feelings of inclusion that can help reduce the loneliness experienced by students in lockdown.

In 2020, Perkins, Mason-Bertrand, Fancourt, Baxter, and Williamon conducted meta-ethnographic research regarding the association between mental well-being and participatory music engagement. The research found that music participation can support mental well-being by involving processes that meet each individual's needs and situations, such as helping manage emotions, assisting self-development, providing rest, and offering social connection (Perkins et al., 2020).

4.2. Study Limitations

The qualitative nature of our study limited our sample size within our own university. It also meant that we could not reach out to students from other universities. Therefore, the experiences of other post-secondary students outside our university need to be further explored. Our study is also limited by its short-term focus. It provides a snapshot of students' experiences at a given time. We recommend that longer-term research be conducted to assess the utility of music experience in future health promotion.

5. CONCLUSION

Our study assessed the health and well-being of students at Ryerson University during the COVID-19 pandemic and how music can be used as a coping strategy as a cost-effective and accessible tool. Our study found that physical distancing had led to negative mental health outcomes for many undergraduate students in our sample. Moreover, most students expressed dissatisfaction with remote learning via the university's virtual learning system. Musical experiences were found to be a useful coping strategy for most participants because of their power to improve participants' moods, their ability to encourage physical activity and their capacity to reduce stress by offering a distraction from reality. Our results suggest that promoting the music experience may be an effective strategy for mental and physical health promotion for post-secondary students during the pandemic and beyond.

Ethics Committee Approval: This study was reviewed and approved by the Ryerson University Research Ethics Board. All participants agreed with informed consent by clicking the submit button.

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