



Music and Urban Health: Listening and Driving to Music in Lagos, Nigeria

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Abstract

This study investigates how music affects urban health and liveability among drivers in Lagos city. According to historical documentations of the automotive industry, driving and music listening have remained subjects of discourses for decades. However, in-depth research on the influences of music listening on the mood and behaviour of drivers in a city like Lagos is limited. This study fills this gap by unveiling the effects of music listening on mood and behaviour while driving, the response of drivers to music while driving, and how music listening contributes to road safety, and urban health in relation to coping with stress. Using a semi-structured questionnaire, we carried out a survey of drivers of both public and private vehicles. Findings show that listening to music while driving affects drivers from two points of view: arousal and distraction. Respondents report that music listening serves as a companion while driving on a long-distance journey, and it also minimise attention to daily worries. By implication, when music is appropriately applied and utilised in vehicles while traveling, living in an ever-bustling urban city will become more tolerable. The study concludes by calling for the enactment of carefully designed protocols for listening to music while driving with attendant modalities for enforcing such policies to enhance road safety and to reduce stress in urban areas.

Keywords: Liveability; Urban; Music; Driving; Listening; Emotion, Health Music Listening

1. Introduction

A city is shaped through its multi-layered identities and contexts. Joe (2020) identifies cultural distinctiveness, heritage and the quality of the built environment as factors that place cities at the forefront in the pursuit of diverse growth and liveability. Creating a livable city has been a major

subject of discourse in various academic disciplines, and the field of music is no exemption. Shain (2017) investigates the importance of music in cities and asserts that “using music as an indicator provides a great lesson that could be applied to other urban indicators such as industries, amusement centres, hotels, sports centres, institutions, and commercial activities for impressive outcome.” He adds that, music is an art form that had found its way into the urban cities. If music is used properly within the urban cities, it is capable of releasing transformative potential across all dimensions of city life.

Music is a common subject of public interest across age, gender, socio-economic dimensions. While it is an important component of the city, its transmission is embedded into everyday living.

Physical activity is associated with the improved health outcomes of weight loss (Murrock & Gary, 2008), others include weight management (Kristal et al., 2005), reduced cardiovascular risk factors (Hiesmayr et al., 2009), blood pressure management (Castaneda et al., 2002), blood sugar management (Kelley & Goodpaster, 2001), and improved quality of life (Lee et al., 2014), initiation and maintenance of physical activity are difficult for many adults.

Exercising to music can improve mood (Murrock, 2002), and positive mood changes might influence an individual's intention to continue the exercise. Thus, music has important implications for increasing physical activity. Theoretical posulates such as the MMM (which is developed further in this article); enjoyment is also an important component of mood alteration. Music interventions designed to increase physical activity focus on promoting enjoyment as this is a reinforcement of the behaviour that is critical to initiation and maintenance of a physical activity programme (Murrock & Bekhet, 2016). However, the entertainment value of music appears to be the most visible.

Over the years, some cities recognise the utility of music in terms of its economic, social, political, religious, and cultural value. Music and musical participation increases access and promote health benefits in several ways. Music, in private transportation and public transit, can enhance an individual's psychological and physiological health when properly utilised. Strategic utilization of music in public can increase value, improve health and safety, improve cities and enhance liveability. In urban areas such as Lagos, vehicles are highly popular points of contact with music as people move from one location to the other in both public and private vehicles; being prone particularly to long hours of traffic. To address the value of music and transportation in the context of Lagos, Nigeria; this research questions and investigates the positive and negative impacts of in-vehicle music, especially while driving, on drivers, road safety and urban living.

2. Theoretical Framework

This study hinges on Carolyn J. Murrock and Patricia A. Higgins's 2009 theory of music, mood, and movement (MMM). The theory interrogates “psychological and physiological responses to music and how it helps improve physical activity and improves health outcomes of those who used it. The theory proposed that music alters mood, acts as a cue for movement, and makes physical activity more enjoyable leading to improved health conditions, such as reduction of weight, decreased blood pressure, improved blood sugar, cardiovascular health and improved quality of life” (Murrock & Higgins, 2009, p. 2251).

The MMM proposes relationships among the psychological responses of mood alteration,

auditory distraction, and physiological responses. All these are cues for increase of movement and other physical activity for a goal: improvement of health outcomes in adult populations.

The first theoretical statement for the MMM is that: “*Music produces the psychological response of altered mood leading to improved health outcomes*” through the use of different musical elements such as rhythm, melody, pitch, and harmony. Music produces psychological responses within a person when it passes the processing channels that relate to sound interpretation: the brain's auditory cortex. This cortex processes music for derivation of emotional responses, sensations, and feelings (Coëgnarts, 2017). Ultimately, the human responses to music occur predominantly in the brain's right hemisphere. This hemisphere carries out intuitive and creative ways of processing information, including songs (Ben-Aharon, et al., 2016). One's mood can be changed through effective response and cognitive recognition. This suggests that listening to music can alter anyone's mood. With regards to in-vehicle music listening, this first statement suggests that music does not only entertain, it also motivates and influences the listener's body to be at the best level in performance. Therefore, driver's disposition could be affected positively or negatively and the effects will be vividly visible on the person.

A second theoretical statement for the MMM is that *The physiological responses to music are a cue for movement leading to the initiation and maintenance of physical activity*. From the auditory cortex, the neural impulses of the auditory rhythm stimulate the neural motor impulses, resulting in an auditory-motor entrainment. In cognisance of this, Nicola and Williamson (2007) suggest that music is a source of distraction and can influence a driver's mood, with subsequent effects on driving behaviour. Ian (2021) affirms that urban areas are imbued with so many risks that listening to music provides a calming effect to the listening. In-vehicle music in particular, serve to keep drivers active during the course of the journey, and media reports that suggest drivers falling asleep on the wheels provide some evidence of a lack of stimulation that leads to sedateness while driving. This could lead to fatal accidents (Agbaye, M. 2022, July 21).

The third theoretical statement for the MMM relating to this study is that *both “the psychological response of altered mood and the physiological response of movement to music, which promotes the initiation and maintenance of physical activity, do lead to improved health outcomes.”* This study seeks to elaborate this statement from the point of view of in-vehicle driving, capturing music as a form of stimulant that compels positive or negative movements in the driver, and the consequences of this for road safety.

The study investigates how music listening affects the mood and behaviour of selected drivers along the Lagos-Abeokuta way, which is an inter-city highway in South-West Nigeria. It reports how the drivers respond to music while driving and how music listening contributes to road safety, either positively or negatively, of the drivers who live and work in the urban cities.

The study specifically examines the following objectives:

- (1) The music listened to and the listening strategies among Nigerian drivers in Lagos city.
- (2) The musical responses of drivers to different musical genre.
- (3) The effects of music on the mind, mood, and health of drivers in the urban settlement.
- (4) Music listening and driving behaviour in Nigeria.
- (5) Recommendation that affirms listening to music as an appropriate activity while driving.

3. Research Methodology

The approach used in this research is the descriptive survey method. Copies of structured questionnaire were distributed and answered by respondents. The responses provide insights to the research objectives.

Forty (40) drivers were purposively selected on the basis of their knowledge, driving experience, music appreciation level, and expertise regarding driving on Nigerian road. They were interviewed as respondents with a set of structured questionnaires. They include drivers of both genders driving commercial and privately owned cars in Lagos.

Table 1.0: Demographic Information

S/N	Item	Frequency	Percentage(%)
1	Population	40	100%
2	Male	30	75%
	Female	10	25%
3	Age Range	25-60	100%
4	Location	Lagos-Abeokuta Expressway	
5	Vehicle Class	40	100%
	Private	20	50%
	Commercial	20	50%

3.2 Analysis and Discussion of Findings

This descriptive study was analysed using the simple tools of frequency and percentages. This survey research presented fifteen questions to the 40 respondents. The respondents were required to select options from “Strongly Agree” to “Strongly Disagree.” Respondents' opinions were sought to give credibility to the research questions and the objectives of the study. The responses required respondents to give demographic information and respond to questions on music listening related activities. Responses were then compiled and analysed using descriptive analysis.

3.2.1 Research Question 1: Are drivers on Nigerian roads active or passive music listeners?

Two questions were asked to ascertain whether drivers are active or passive music listeners. Figure 1 and 2 provide the responses.

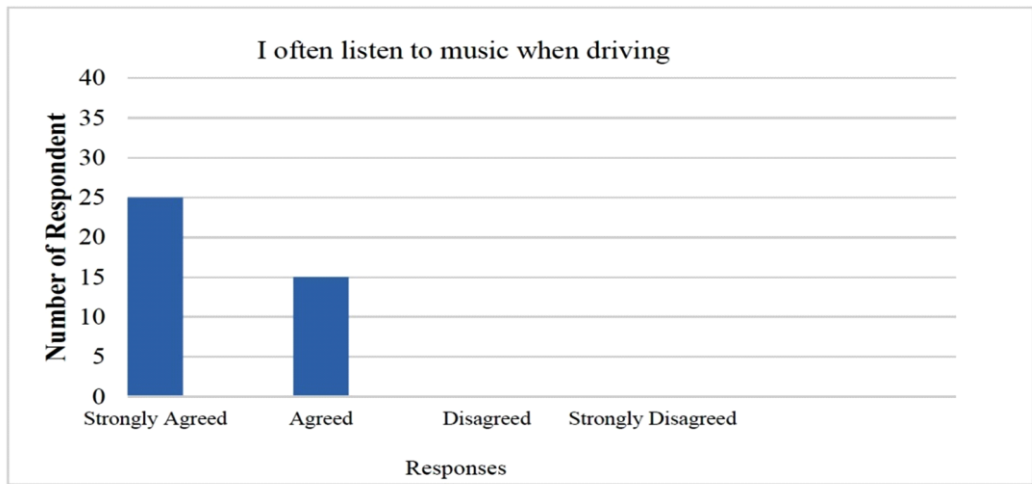


Figure 1: Music listening and driving

A general assertion that addresses one core problem explored in this paper is that “music listening is a common activity when driving” (Marjolein et al., 2012). Out of the forty participants surveyed, twenty-five (25) strongly agreed, and fifteen (15) agreed. These results as in Figure 1 show none of the participants disagreed with the statement.

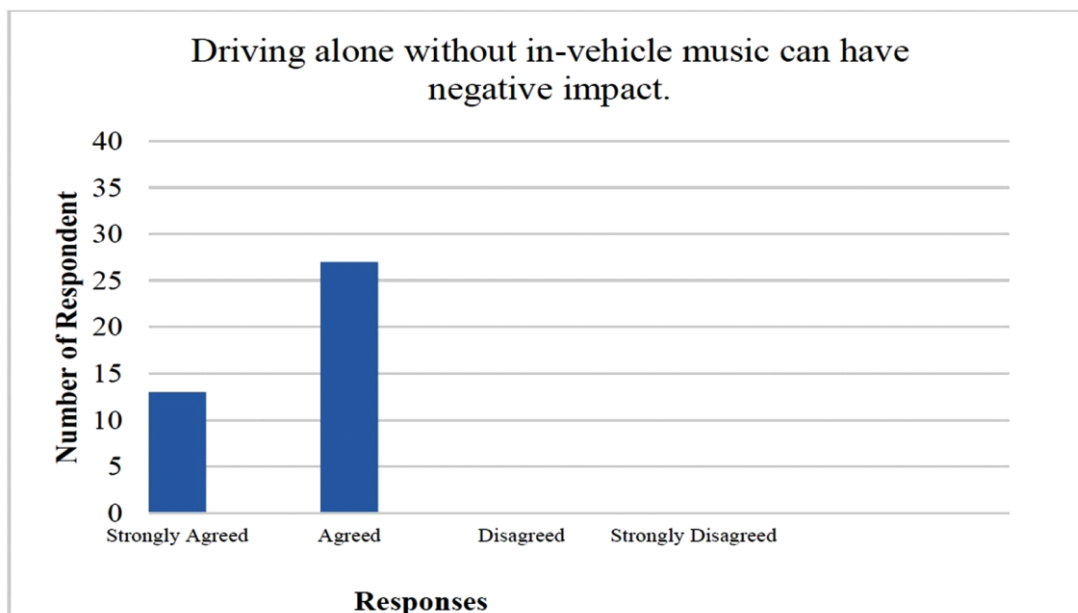


Figure 2: Perceived impact of driving alone without music

As shown in Figure 2, twenty-seven (27) of the forty participants agreed with that “driving alone without in-vehicle music can have negative impact.” and the remaining thirteen (13) strongly agreed. These results indicate that listening to music is a common choice for drivers on the roads. Drivers are aware, to some degree, that driving in a musical environment (music listening) and without music listening have different effects on them. Thus, they often choose to listen to music whenever they are carrying out the task of driving. This aligns with Cohut (2019) assertion that listening to relaxing music while driving may help to relieve stress and protect the heart.

3.2.2 Research Question 2: What are the key elements in music that drivers tend to respond to and how do they respond to them?

Musical compositions are complex blends of expressively organised sounds. They consist of five elements: rhythm, melody, pitch, harmony, and interval (Bunt 1994). As proposed by the MMM, these five elements are vital when selecting music because they evoke listener's emotions.

The question asserted the impact of the pace of music on the heartbeat of drivers.

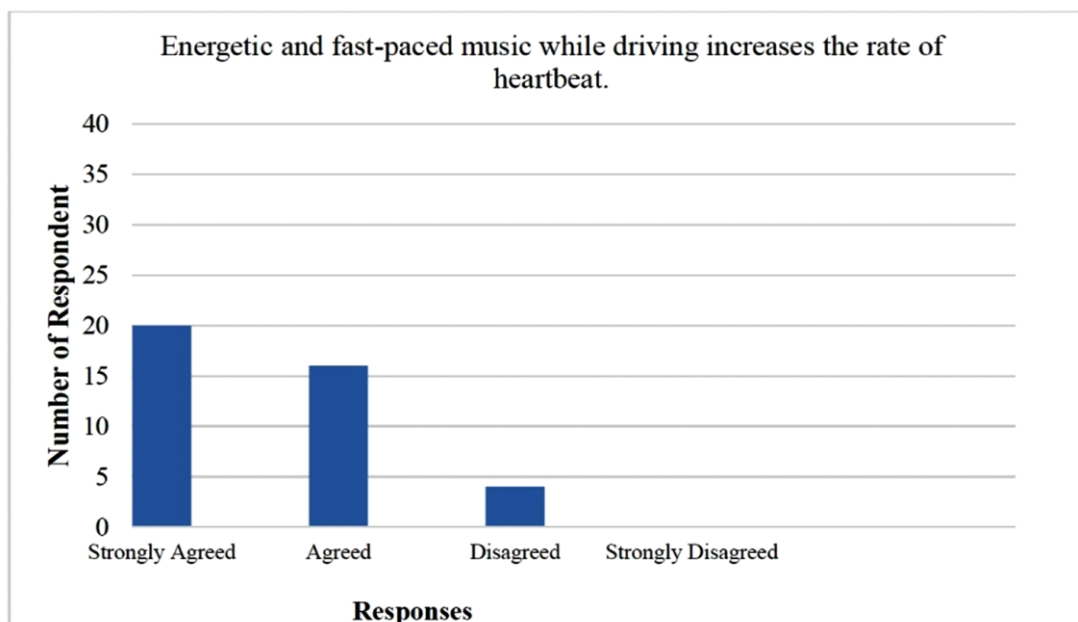


Figure 3: Impact of pace of music on drivers\

As shown in Figure 3, findings reveal that respondents generally agreed that playing energetic and fast-paced music increases the rate of heartbeat with 90% of respondents in agreement. The pace of the music is known as “tempo,” and it defines the speed and the number of beats that occur in a minute. Ian (2021) suggests that lyrical contents, when making a choice of playlist, should be considered while driving. Therefore, it could be said that the first element of music that drivers respond to while driving is rhythm, music's most fundamental, essential, structural, and organisational element. In music, rhythm captures an individual's attention (Ben-Aharon, et al., 2016).

Respondents were asked the extent of their responses to the music they play. A good proportion of them agree that they sing along to in-vehicle music while driving. While 72% of the participants agreed that they do sing along while driving, with the statement, the remaining 28% did not feel such emotion. Singing releases energy from the body and creates joy and free feelings. It reduces a singer's mental worries and then set the mood at peace for a moment, especially if the lyrics are known or at least some of them. In contrast, to some people, singing is not connected to their passion, talent, and hobby. Their sense of music appreciation is average. Hence, the variation in perspective tells us we have differences in the feedback from the respondents.

3.2.3 Research Question 3: How does music affect the emotional experience of drivers?

One of the most important issues in the psychology of music is how music affects the emotional experience. According to previous assertions, “music can alter mood and elicit different emotional responses.” Chills and thrills are derivable from listening to music. Nweke (2020, unpublished class presentation) terms such responses as 'galvanic skin reaction.' Music offers a resource for mood regulation. People use music for different purposes, such as stimulating, energising, concentrating, and reduction of anxiety (Meremi, 1997). Different music evokes different emotions; for example, sad music enables the listener to disengage from the distressing situations and focus instead on the beauty of the song. In fact, different emotions dominate musical experiences.

As shown in Figure 4, all respondents agreed that music can change mood and elicit emotion. Respondents also agree in total, that they had experienced mood changes in them when listening to music which aligns with the previous research by Piagnatiello et al., (1989).

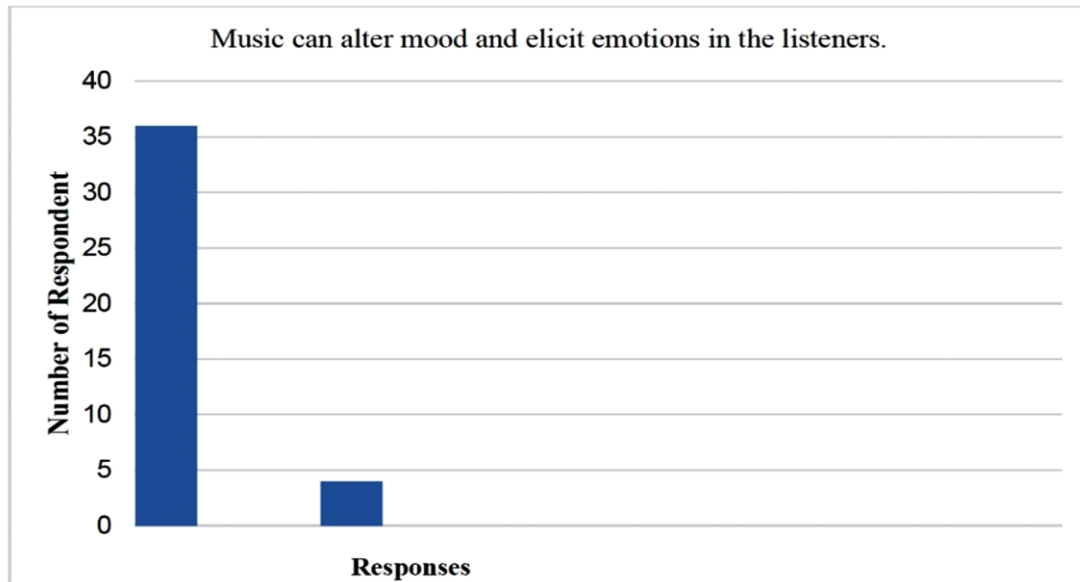


Figure 4: Impact of music on mood of listeners

The soothing power of relaxing music and its close link to human emotions can be tools for effective stress management. They can be helpful for attainment of calmness and can also serve as an agent of stress reduction (Psychreg, 2021). Its potentials on drivers include reductions of anxiety and aggression while driving. It is therefore not surprising again, that respondents generally agreed that music reduces their level of anxiety and aggression when driving.

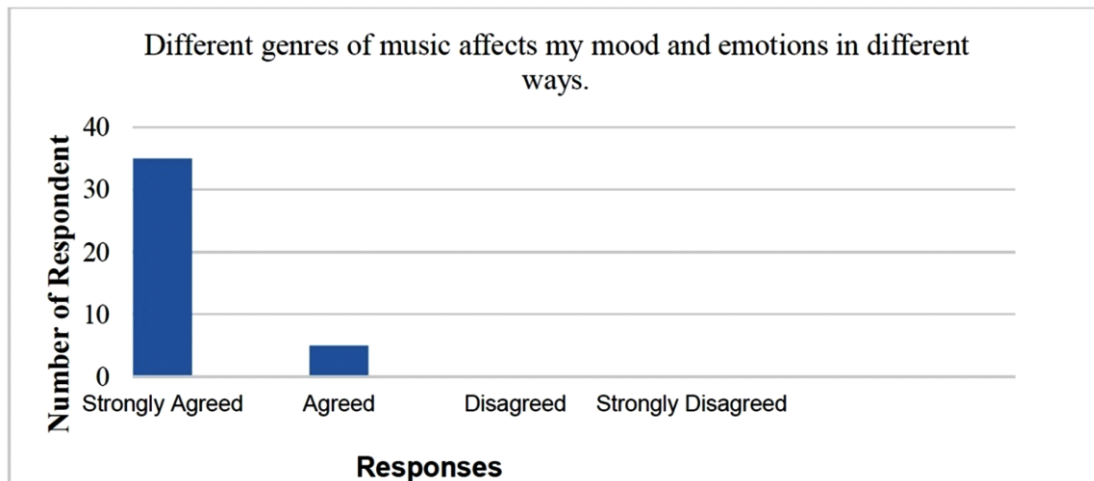


Figure 5: Impact of music on drivers' moods and emotions

In Figure 4, out of the forty participants surveyed, thirty-five (35) 'strongly agreed,' and five (5) 'agreed' that their mood responds in different ways to varieties of genres in music. All the responses indicate the subjects believed that different genres of music can affect listeners' mood

and emotions in different ways which aligns with previous study by Dibben (2001). This analysis displays how the respondents have personally experienced mood swings while listening to different music genres. In the recent decade, automobiles have become popular avenues for music listening. Our results found that drivers experience different moods whenever they listen to music while driving. It aligns in general, with University of Groningen (2013) which indicate that most motorists enjoy listening to music on radio and their devices when driving.

3.2.4 Research Question 4: How Does Music Affect Driving Behaviour and Reaction?

From the analysis, out of the forty participants surveyed, twelve 'strongly agreed,' twenty-four 'agreed,' four of the respondents 'disagreed,' and none 'strongly disagreed' with the statement. Responses indicate the subjects believed that in-vehicle music could influence the rate of driving speed. This data analysis is self-reflecting; the intent was to generate responses based on the respondents' personal fast-speed driving experiences with the music. While 88% of the respondents 'agreed' with the statement, the remaining 12% 'disagreed' that music can influence the rate of one's diving acceleration. This aligns with Millet et al. (2019) who asserted that music impacts drivers in different ways, which could hinder and enhancer in the performance output of the driving process. Brittany (2018) adds that driving requires one to be coordinated in all ramifications. Hence, all the senses must be optimum in functions (cognitively, visually, and perceptually) while using the motor skills. Music can facilitate the speed level of each driver either to drive slowly or at a very high speed.

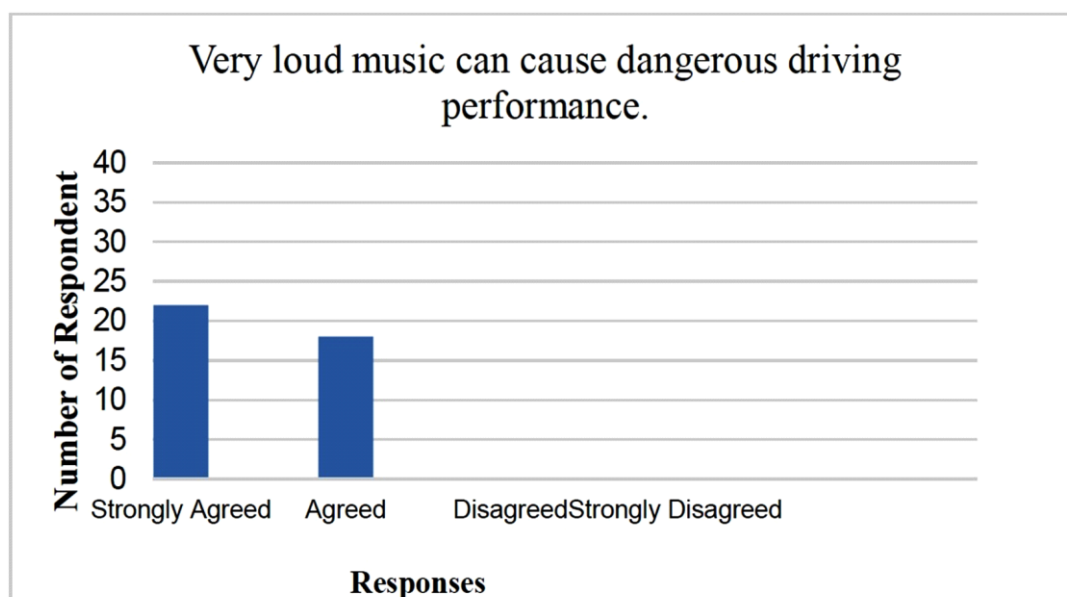


Figure 6: Impact of very loud music on driving performance

Figure 6 shows that twenty-two respondents 'strongly agreed,' and eighteen 'agreed'; no one 'disagreed' or 'strongly disagreed' with the statement. This data analysis shows that all the respondents agreed with the statement that very loud music can cause dangerous driving performances. Past research also show two realities: listening to loud music does influence mental effort while driving, and supports the assumption that music is distracting while performing the driving task. Researchers concluded that mental effort might mediate the effect of music on driving performance. It is not known to many people that driving and listening to loud in-car entertainment can be very dangerous. The combination of the two increases the chances

for reckless driving. Driving with loud music can negatively affect drivers' level of attention and concentration. Goehmann (2018) notes that loud music could negatively impact drivers' reaction time, including the application of brakes, changing of gear, indicating, and failure to dodge an obstacle. Loud music can also hinder a driver from hearing signals from others on the road.

3.2.5 Research Question 5: What Are the Impacts of Music on Road Safety?

To answer the research questions, respondents were asked their position on two statements. The first statement was 'music can stimulate a driver to stay awake when driving' and the second was that 'listening to music while driving can also be distracting in some cases.'

Respondents were questioned on the effect of music on their arousal, concentration, and distraction experience. Responses to the statement 'music can stimulate a driver to stay awake when driving' indicate respondents believed that music can keep a driver awake while driving. fifteen 'strongly agreed', twenty-three 'agreed', two 'disagreed', and none 'strongly disagreed' with the statement. The participants' responses are reflections of how music had kept them awake during driving. In a similar vein, Road Safety Education (2020) studies have affirmed that it is quite injurious for drivers to be carried away with the music playing in the background.

Results show that respondents believed that music can indeed be distracting when driving in some cases. From the analysed data, ten respondents 'strongly agreed', twenty five 'agreed', five respondents 'disagreed,' and none 'strongly disagreed' with the statement.

While music can be entertaining, therapeutic, stimulating, and enhance many activities in life, it can distract or minimise attention when driving. Listening to music may have some hazardous influences on a driver. Research has equally shown that car audio volume had a greater effect on drivers' ability to react promptly to unexpected scenarios, no matter the genre of the music.

However, hazardous driving cannot be blamed on music listening alone. The elements of music, including rhythm, melody, harmony, pitch, and interval, are not always the factors responsible for distraction while driving, but rather the technology attached to it. Just like talking and texting on the phone, scrolling or song search seemed to be a major point of distraction because drivers do change their focus while searching for their favourite playlist songs. Drivers sometimes are not aware that as they get carried away by a song, their brain shifts from concentrating on driving tasks into a state of active music listening which can be very hazardous (Sloboda, 2010).

4. Conclusion

The urban city is shaped through its multi-layered identities and context. Transportation is an aspect that attracts all and sundry in the city. One of the well-known attributes of cities relate to the fast-paced lifestyle, which has impacted on residents' health and wellbeing. The stress factor associated with city life is also well-known, although research into the linkages are only at the nascent stages, in the context of African cities. While stress is inevitable and a healthy factor of life, its duration, frequency and individual's state of mind and wellbeing could provide a basis for stress as a positive or negative factor for overall health. Coping mechanisms for adjusting to stress caused by different aspects of city life are therefore critical for enhancing wellbeing of residents. Music is assessed to be one of those instruments for promoting mental health and coping with normal stresses of life. Thus, highly populated, dense cities need to connect music with wellbeing in urban policy making.

This study finds that in the context of driving, in-vehicle music listening is a common activity

among drivers in the study area. It found two categories of drivers: there are active/attentive listeners who are consciously engaged in the music they play. There are also passive/inattentive listeners who only listen to music as background noise to sustain their self-alertness or as a form of entertainment while driving. The result from this research shows that drivers respond to the speed of music (tempo) (Thaut & Weeler, 2011).

Listening to fast-paced and energetic music while driving increases heart rate physiologically. This can also influence the velocity of a vehicle. Besides, slower-paced music makes drivers feel relaxed. Thus drivers experience modification of mood when driving. It is confirmed from this study that listening to music with very loud volume while driving could have negative impact such as distracting drivers from paying attention to road safety regulations. Music is also found to be a non-pharmacological stimulant because it acts a substitute for psychoactive stimulants such as caffeine. Despite this, music listening removes boredom from drivers, stimulating them and keeping them awake, whether during long distance driving or monotonous traffic situation.

In addition, the study identifies the various contrasting positions that experts present in analysing the desirability of listening to music. Whereas some scholarly opinions show that listening to music while driving may have calming effects, other scholars assert that listening to music while driving increases the driver's chances of making errors because such a practice overcrowd the mental alertness of a motorist. The latter position, therefore, cautions against listening to music while driving. Yet, other positions are somewhat neutral, suggesting that listening to music while driving has little effect on driving performance.

All of these urge us to not only decode the value of music in while driving, but also to rethink the role of music in cities. Therefore, the position of this study is that music should be treated intentionally in driving, road safety, and urban policy. This is a call for enacting carefully designed protocols for listening to music while driving with attendant modalities for enforcing such policies to enhance road safety and to reduce stress in urban areas.

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