Operating Theatre Staff: What are their perceptions about listening to music in the Theatre?

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ABSTRACT

Background: Music influences the mental state and emotions of clinicians and patients. Its benefits have been well-researched. Listening to music routinely is not a practice in our institution's theatres and less is known about its acceptability by theatre staff. The objective of the study was to assess the perception of theatre staff to music while working in the theatre.
Methods: This prospective study surveyed one hundred and seventy-two theatre staff at the University of Benin Teaching Hospital on the perceived effect of music in the operating theatre using a self-administered questionnaire.
Results: About 65% of respondents were males; over two-thirds were doctors. Obstetricians and gynaecologists constituted 30% of the surveyed doctors. Gospel music was the most preferred choice of music. Over half of the respondents agreed that listening to music had a positive effect on the outlook of surgery. All hospital theatre staff would likely recommend that music devices be installed in the common rooms of surgeons and nurses. ($p<0.05$).
Conclusion: Listening to music during surgery is beneficial however further studies are recommended.

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INTRODUCTION

Music, a tool used to express opinions and it communicates with its listeners. It also has emotional components that listeners can relate to. Music is a powerful tool that has been engaged in all spheres of life including marketing, the film industry, gaming and therapy. It is expected that as music evokes many and varied emotions, research findings will be discordant and incoherent since perceptions would invariably be based on positive emotions and fear and anxiety. (Eerola & Vuoskoski, 2013) Listening to background music in theatre is not ubiquitous in our institution despite the apparent and real benefits of music. Respondents in a survey from a tertiary institution in Nigeria reveal that almost 90% of theatre staff would love to listen to music while working in the theatre (Makama et al., 2010). Although the effects of music in theatre are still controversial, it has been reported that music relieves stress, relaxes and calm nerves thereby improving the efficiency and performance of assigned tasks (Makama et al., 2010)

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Conversely, it has been shown to impair the tasks of surgeons and other staff by worsening the communication between them, thereby increasing tension and frustration (Tsiou et al., 2008; Way et al., 2013; Weldon et al, 2015). There is also an association between high noise in the theatre and surgical site

infection. (El Boghdady & Ewalds-Kvist, 2020) Therefore, this study aimed to investigate the perceptions of theatre staff regarding the utilization of music within the operating theatre at the University of Benin Teaching Hospital

MATERIALS AND METHODS

This prospective cross-sectional study was conducted at the University of Benin Teaching Hospital in Benin City. A self-administered questionnaire was administered to all the hospital's theatre staff which included surgeons in various surgical specialties, anaesthetists, nurses, technicians and porters during the hospital's mid-week departmental seminars. These questions captured demographical information, musical preferences, the perceived effects of music in the operating room and recommendations.

Data were entered into a Microsoft Excel spreadsheet and transferred to IBM SPSS Statistics for Windows, Version 21.0. (Armonk, NY: IBM Corp) for final analysis. All data were analyzed using descriptive statistics. Chi-square was used to establish the relationship between the categorical variables. Statistical significance was set at $P < 0.05$.

RESULTS

One hundred and seventy-two theatre personnel were surveyed within one week of questionnaire distribution This represented a response rate of 86%. The general characteristics of the respondents are presented in Table 1. Male constituted about half of the theatre staff surveyed and 137 (79.6%) were between the age range of 26 and 45 years old. Over one-third of our respondents had worked in various professions for between 1 year and 20 years. Fifty-six (36.1%) and 84 (59.2%) of respondents spent an average of 1 and 8 hours weekly in the major and minor operating theatres, respectively. One hundred and two (88.9%) respondents routinely listened to music at home, whereas 90 (52.9%) would like to listen to music in the theatre. The most preferred music in both the home and theatre is gospel music. Almost all respondents preferred moderate-to low-intensity music.

Table 1. General characteristics of respondents

Variable	Category	Frequency (n=172)	Percentage (%)
Age (years)	≤25	10	5.8
	26–35	73	42.4
	36–45	64	37.2
	46-55	20	11.6
	56-65	4	2.3
	≥66	1	0.6
Gender	Male	111	64.5
	Female	61	35.5
Job specifications	Doctor	143	83.1
	Nurse	17	9.9
	Anaesthetic Technician	7	4.1
	Theatre attendants	4	2.3
	Others (specify)	1	0.6
Specialization	Orthopaedic surgery	8	4.9
	Neurosurgery	2	1.2
	Plastic surgery	3	1.9
	Oral and Maxillofacial surgery	27	16.7
	ENT	1	0.6
	Paediatric surgery	7	4.3
	General surgery	21	13.0
	Ophthalmologist	15	9.3
	Cardiothoracic surgery	4	2.5
	Anaesthesia	25	15.4
	O/G surgeons	49 (n=143)	30.2
Professional cadre for doctors	House officer	26	18.2
	Resident doctor	97	67.8
	Consultant	20	14

Table 2: Relationship between respondents' job specifications and their recommendations

Would you prefer music sources to be installed in the major and minor theatres?	Doctors	Nurses	Others	Total	P-value
Yes	114 (82.6)	13 (76.5)	10 (83.3)	137 (82.0)	0.818
No	24 (17.4)	4 (23.5)	2 (16.7)	30 (18.0)	
Would you prefer music sources to be installed in the Recovery/observation room?					
Yes	89 (63.1)	11 (64.7)	7 (58.3)	107 (62.9)	0.935
No	52 (36.9)	6 (35.3)	5 (41.7)	63 (37,1)	
Would you prefer music sources to be installed in the Induction room?					
Yes	84 (59.6)	10 (58.8)	4 (33.3)	98 (57.6)	0.209
No	57 (40.4)	7 (41.2)	8 (66.7)	72 (42.4)	
Would you prefer music sources to be installed in the Surgeons / Nurses common room?					
Yes	120 (84.5)	14 (82.4)	6 (50)	140 (81.9)	0.001
No	23 (15.5)	3 (17.6)	6 (50)	31 (18.1)	

In descending order, respondents recommended the installation of music devices in the surgeons' or nurses' common rooms 140 (81.9%), operating rooms 137 (82%), in the recovery room or patient observation room 107 (62.9% and in the anaesthesia induction room 98 (57%). All hospital theatre staff would likely recommend that music devices be installed in the common rooms of surgeons and nurses. ($p<0.001$) Table 2. In this survey, over 50% of our respondents agreed that listening to music will reduce anxiety in both patients and operating staff, reduce stress enhance speed, enhance performance, improve accuracy, mask instrument sound, mask worrying sound and minimize conflicts among staff. (Figure 1).

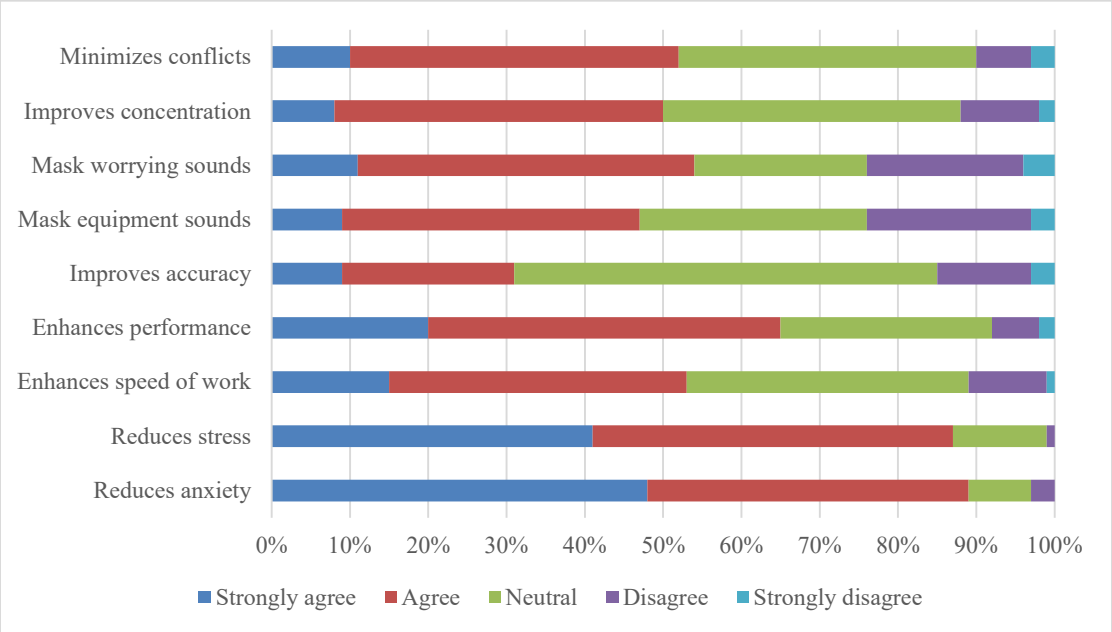

Figure-1: Effect of music in the Operating Theatre

DISCUSSION

The operating theatre is a sanctuary for calm and calculative thoughts. It is an environment, unfamiliar to the patient but provides a high quality, safe and supportive environment for care. Theatre staff has been trained to observe absolute decorum within the operating room.

Our study reveals that 88.9% of the respondents generally liked listening to music outside the theatre environment. However, 53.9% of the respondents prefer to listen to music in the theatre. This is in contrast to another Nigeria study where a higher percentage (89.5%) of respondents would like to listen to music in the theatre (Makama et al., 2010). The reason for this amongst our respondents is not known.

There are a couple of strong evidences supporting the positive attributes of music in the operating theatre. Listening to music induces relaxation and calmness. In a German study, it was deduced that patients who listened to music during an elective joint replacement done under spinal anaesthesia had a corresponding low cortisol. They were less stressful. This neurobiological effect of cortisol, in addition to other mechanisms, may explain the calmness, relaxation, and tranquillity associated with listening to music (Koelsch et al., 2011).

This study did not survey the religious affiliations of respondents; the majority's choice for gospel music outside the operating room was the same as in the theatre. Their choices differ from a previous Northern Nigerian study where jazz music was preferred (Makama et al., 2010; Ahmad, 2017). It can be deduced that majority of our respondents are Christians. Listening to gospel music carries messages of hope which is otherwise most appropriate in a tranquil environment as the operating theatre. It provides the needed "serotonin for a positive outlook to life" (Lai & Amaladoss, 2022). The effect of music type on task performances have been studied in various experimental senerios. It has shown that the type of music surgeons listened to can inflence the performance of specified surgical tasks. Though the results are conflicting. Mozart piano sonata was found to be beneficial in simulated intraocular tasks (Kyrillos & Caissie, 2017) and in vitual reality laporoscopic surgery (Miskovic et al., 2008). However, this was converse in Wiseman's (2013) study, where Mozart-type music listeners in a randomized study performed less in a hand-eye coordination in laparoscopic surgical skills when compared to the Rock-type group.

The allowable noise level in the operating theatre for effective communication, as recommended by the World Health Organization, is any value below 35 dB (Berglund et al., 1999) The average noise level in operating theatres ranges between 51 dB and 79 dB (Macleod 2021) but noise levels can be as high as 131 dB (Kracht et al., 2007; Fritsch et al., 2010). Potential sources of noise in the operating theatre are noise from suction machines, anaesthetic monitors, electric or air-driven drills, clanging and dropping of instruments, air conditioning units, conversations amongst theatre users. The addition of music represents an extra source of auditory input; however, this can be effectively masked by the music itself. 97.6% of the respondents preferred low-to moderate-intensity music. High-intensity music has been found to have a deleterious effect in the theatre which include increased risk of surgical site infection, repetitive requests between surgical team, lack of communication, lack of concentration, raised voices, miscommunication and medical errors (Tsiou et al., 2008; Kurmann et al., 2011; Weldon et al., 2015) hearing imparments in theatre staff (Wallace et al., 1994; Way et al., 2013)

CONCLUSION

With the overall level of appreciation for listening to music in this study, much effort should be made to harness its benefits in the operating room. Further multidisciplinary research in this area is advocated in our environment.

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