

Impact of Misophonia on Anxiety and Depression Among Intensive Care Unit Patient: A Survey

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Abstract

Background: Misophonia is a disorder where certain sounds trigger the emotional and physiological responses of the particular individual. Studies state that it is caused by increased autonomic nervous system activity to particular sounds, which leads to irritation, anger, and anxiety and reduces the tolerance capacity to particular sounds, which leads to anxiety and depression. This study deals about the impact of misophonia on hospital-related anxiety and depression among intensive care unit patients.

Method: 43 patients fulfilled the inclusion criteria and they were surveyed initially whether they have disturbance to particular sound in intensive care unit after a week of admission and they were noted as misophonic sounds and their disturbance level was scored with Amsterdam misophonia scale A-MISO-S. On the same day patients were scored for hospital anxiety and depression questionnaire (HADS). Participants were participated through direct interview on bedside. Scoring was done based on the method given in the questionnaire.

Result: Subjects were categorized into five different age groups. Young adult (17-30), middle aged adult (31-45), old adults (46-64), youngest old (65-74), middle old (75-84). The result shows that middle aged adult and old adult experience highest level of anxiety, depression and misophonia with mean value of (18±0.53, 18.5±0.92 and 20.8±3.04) and (16±0.70, 16.38±0.85 and 16.23±1.16) where as, young adult around (13.6±0.86, 14±0.86 and 13.5±4.12). The least amount of depression was experienced by individuals with age more than 65.

Conclusion: From the result it concluded that misophonia is directly related for anxiety and depression in intensive care unit patient. The significant difference in misophonia between anxiety and depression indicates that early management of symptoms or identification of psychological stress among intensive care unit patients is needed to prevent future

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complications.

Keywords: Misophonia; Intensive Care Unit; Anxiety; Depression.

INTRODUCTION

Intensive care unit (ICU) or critical care unit (CCU), in which patients admitted with life threatening condition and injuries. Which requires



additional effort, specialized care and complete supervision of the individuals.¹ According to American psychological association anxiety is defined as an emotion which triggers feeling of tension, worried and changes in blood pressure. Where as depression is defined as feeling of sadness and loss of interest in activities by American psychiatric association.

During Intensive care unit (ICU) stay patient health get affected due to both physical, physiological and psychological changes.² Physical changes include reduction in body weight, muscle wasting, edema, bed sore and deformity. Reduction in body weight due to lack of nutrition and muscle wasting, edema, bed sore may occur due to immobilization complications.^{3,4} Many factors led to depression in intensive care unit one of common reason is lack of individual's time such as staying away from family members, decreased physical activity, fear of infection, changes in vital monitor, during catheterization and some times during intravenous injection.^{5,6}

Phonophobia refers to fear of sound. Phonophobia is said to be an anxiety disorder.⁷ In some situation intensive care unit patient get affected due to sound produced during change in vitals, and during emergency situation patients get affected both physically and mentally.² Phonophobia is defined as continuous irritation or fear to particular sounds like door closing, loud noise, traffic and kitchen. Some studies states that phonophobia is a mental health condition caused by genetic disorder and it may occur at any age category but the exact cause is unknown.⁸

Misophonia is a disorder where certain sounds triggers the emotional and physiological responses of the particular individual. Misophonia is sometimes termed as selective sound sensitivity disorder in which person get triggered by sounds such as chewing, nasal sound like sniffing and breathing, coughing, throat clearing, pen clicking, paper or plastic crushing sound and ticking noises from clock or similar devices.^{8,9} Some studies states that it is caused by increased autonomic nervous system activity to particular sounds leads to irritation, anger and anxiety and reduces the tolerance capacity to particular sounds.²

Depression and anxiety in adult person are based on their burden and stress level.¹⁰ Anxiety and depression experienced by different individuals based on their situation.¹¹ There were different assessment tools for measuring depression and anxiety for adults, and geriatric.¹² Such as child behavior checklist for measuring anxiety and

depression among disabled children of age group 6-18, caregiver self-assessment questionnaire for measuring anxiety and depression among caregivers of disabled individuals, beck inventer which is a self-scored questionnaire used to measure depression in adolescents and adults from age group 13-80. Geriatric depression scale is used in older adults. In some conditions anxiety and depression occurs based on their situation or based on their environment. Revised child anxiety and depression scale is used to measure social phobia, and some disorders like generalized anxiety, panic disorder, compulsive disorder it is a self-reporting questionnaire used in children from 8-18 years.¹³ Center for epidemiology studies depression scale is used in primary care centers. Hamilton depression rating scale used by health care providers to assess depression before and after therapy.¹⁴

This study deals about impact of misophonic on hospital related anxiety and depression among intensive care unit patients during omicron period. Amsterdam misophonia scale A-MISO-S is used to assess the misophonia. This scale contains 6 items and they scored on liker scale of 0-4, total score was 24. It is one of the self-rating questionnaires, a score from 0-4 is subclinical symptoms present, score of 5-9 indicates mild misophonic, 10-14 moderate symptoms present, more than 15 indicates severe misophonic and a score of 20-24 which indicates extreme.^{15,16} Naylor et al., in 2020 reported A-MISO-S as good internal consistency. In hospital anxiety and depression questionnaire there were 14 items in which seven questions deals about the anxiety and another seven for depression, participants need to choose the answer based on the depression and anxiety experienced by them during the past week. Total score of 21 for depression and 21 for anxiety were 0-7 indicates patient is stable, 8-10 indicates borderline abnormal and 11-12 indicates abnormal. It is also one of the self-rating scales which was developed to assess the psychological distress among non-psychiatric in-patients.¹⁷ Aim of the present study is to identify misophonia related anxiety and depression among the intensive care unit patients.

METHODS

Participants: Patients in intensive care unit were included in this study. From the period of September 2021 to March 2022, patients who were under intensive care unit in Adhiparasakthi medical college and hospital, Chengalpattu, India, were asked to participate in this survey after their admission in intensive care unit. Informed consent

was obtained from all participants after explaining them about the procedure and need for the survey.

Inclusion criteria: All individuals of both male and female gender with GCS scoring of 15, age group from 17- 84 were included in this study and patients who were willing to participate were enrolled in this study after getting informed consent from them.

Exclusion criteria: Patients GCS<15, patients who were not willing to participate, patients with hearing disorders such as tinnitus and hyperacusis, and patients with psychological problems were excluded.

Procedure: 43 patients fulfil the inclusion criteria and they were surveyed initially whether they have disturbance to particular sound in intensive care unit after a week of admission and they were noted as misophonic sounds and their disturbance level were scored with Amsterdam misophonia scale A-MISO-S. On the same day patients were scored for hospital anxiety and depression questionnaire (HADS). Participants were participated through direct interview on bedside. Scoring was done based on the method given in the questionnaire. Data collected were compared with male and female patients and also with the different age group.

Data analysis

Age: Mean ± Standard deviation = 50.93 ± 18.76

Anxiety: Mean ± Standard deviation = 14.30 ± 2.89

Depression: Mean ± Standard deviation = 14.65 ± 2.99.

RESULTS

A total 43 patients in intensive care unit were enrolled in this study after fulfilling the inclusion criteria. The demographic of the included patients with Mean and standard deviation of male and female anxiety, depression and A-MISO shown in Table 1. Mean and standard deviation of A-MISO-S, HADS and their age groups were shown in Table 2. Items in the questionnaire were interpreted to analyze the impact of misophonia on anxiety and depression. Based on correlation of A-MISO-S and HADS in intensive care unit patients (Fig. 1) and also with age (Fig. 2).

In this present study, the anxiety and depression level of ICU patients significantly varied between the different age groups. Male and female ratio of included subjects were 29:14, mean age group of individuals included in this study is (50.93 ± 18.76).

Mean anxiety, depression and misophonia in Male patients were (14.43±2.99, 14.69±3.17) and 13.41±5.56. In female patients were (14.57±2.90, 14.71±2.70) and 15.07±5.18.

Subjects were categorized into five different age groups. Young adult (17-30), middle aged aduly (31-45), old adults (46-64), youngest old (65-74), middle old (75-84). Mean anxiety, depression and misophonia were shown in table 2.

Table 1: Mean and Standard Deviation of Male and Female Anxiety, Depression and A-MISO

Gender	Anxiety Mean ± Standard deviation	Depression Mean ± Standard deviation	A-MISO Mean ± Standard deviation
Male	14.4±2.99	14.6±3.17	13.41±5.56
Female	14.57±2.90	14.71±2.70	15.07±5.18

Table 2: Mean Anxiety, Depression and Misophonia

Age group	Anxiety Mean ± Standard deviation	Depression Mean ± Standard deviation	A-MISO Mean ± Standard deviation
17-30	13.6 ± 0.86	14±0.86	13.5±4.12
31-45	18 ± 0.53	18.5±0.92	20.8±3.04
46-64	16 ± 0.70	16.30±0.85	16.23±1.16
65-74	11.75 ± 0.66	11.87 ± 0.83	8.12±0.35
75-84	9.2 ± 0.4	9.6 ±0.54	5.8 ± 0.83

Correlation coefficient between age and anxiety r is -0.50 indicating a moderate negative correlation. Correlation coefficient between age and depression r is -0.49 indicating a moderate negative correlation. Although anxiety and depression were inversely related to the age. Thus, increase in age causes decrease in anxiety and depression.

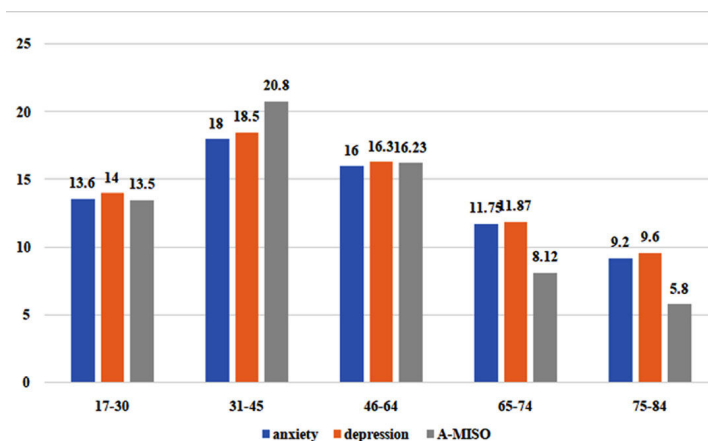
Correlation between misophonia and anxiety r is 0.93 indicating a strong positive correlation. Thus, misophonia and anxiety were directly related which indicates that increase in stress due to misophonia causes anxiety in individuals. Similarly, correlation

between misophonia and depression r is 0.95 which is also a significantly large positive correlation. Which is also directly related to increase in depression level in individuals.

Thus, the result shows that middle aged adult and old adult experiences highest level of anxiety, depression and misophonia with mean value of $(18\pm0.53, 18.5\pm0.92$ and $20.8\pm3.04)$ and $(16\pm0.70, 16.38\pm0.85$ and $16.23\pm1.16)$ where as, young adult around $(13.6\pm0.86, 14\pm0.86$ and $13.5\pm4.12)$. the least amount of depression was experienced by individuals with age more than 65.

Table 3: Correlation

Correlation between age and anxiety r is	Correlation between age and depression r is	Correlation between misophonia and anxiety r is	Correlation between misophonia and depression r is
-0.50	-0.49	0.93	0.95



DISCUSSION

Depression and anxiety were the most common problem encountered by the individuals after intensive care admission.¹⁸ Delay in treatment protocol or identification of depression status in critical ill patient may prolong duration of discharge. Individuals stress level increased in some circumstance such as vital monitor beep or alarming sound, phone ringing, coughing, paper crushing and even sometimes irritated by patients in the same unit.¹⁹

In this study most of the patients that is around 64% complaints of misophonia due to changes in vital monitor, around 20% due to patients in the same unit and 16% due to some other reason. All the included subjects were screened for misophonia and anxiety, depression to correlate the significance level. Similar to this study, Davydow DS et al., done review on anxiety and depression in intensive

care unit patients in 2009.²⁰ Psychological level of patients was surveyed after 3 months of ICU admission by Chahraoui K et al.²¹

In this study we aimed to correlate misophonia and anxiety and depression, show a strong positive correlation indicates that increase in misophonic related disturbance increases the anxiety and depression level in individuals after ICU admission. We obtained negative correlation between age and anxiety, age and depression. Patients above 64 years experiences least level anxiety or depression. Misophonia related depression and anxiety in different age groups show that middle age adults experience highest level of stress compared to that of the other groups.

CONCLUSION

From the result it concluded that misophonia is directly related for anxiety and depression

in intensive care unit patient. The significant difference in misophonia between anxiety and depression indicates that early management of symptoms or identification of psychological stress among intensive care unit patients is needed to prevent future complications. Most common reasons for depression and anxiety in ICU patients were fear of reappearance of symptoms, changes in vital monitor which is one of the reasons which restricts individual co-operation during physical therapy. Reduction in movement leads to future complication. Future researches in physiotherapy management is needed in reducing anxiety, depression in intensive care unit patient.

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