

Noise Pollution and Its Psychological Consequences: A Narrative Review

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ABSTRACT

Noise pollution is any undesirable or disturbing sound that negatively impacts the health and well-being of humans and other living creatures. Recent studies suggest that noise pollution, in various forms such as traffic and industrial noise, negatively impacts a person's physical and mental health (Hegewald et al., 2020). Currently available research review studies provide an incomplete overview of the impact of various forms of noise pollution on mental health. This narrative review study examines the relationship between various types of noise pollution and individual mental health issues in India, such as insomnia, stress, depression, anxiety, etc. A total of 11 studies were included in this research. The review included peer-reviewed journal articles published in English that presented quantitative evidence on noise pollution and mental health in India. Eleven research papers were identified and categorized into five major themes: noise pollution and depression & anxiety disorders, noise pollution and stress, noise pollution and sleep disorders, noise pollution and neuropsychological (loss of attention), and noise pollution and irritation, hypertension & headache. This review provides a basis for recognizing noise pollution as a strong predictor or determinant of mental health problems in India. This review also demonstrates the severity of noise pollution in India. Future research on this topic should focus on longitudinal studies, standardized measurements, and intervention-based approaches to better understand causes and effects.

Keywords: *Noise Pollution, Stress, Anxiety, Depression, Sleep Disorder*

The term noise pollution, often referred to as environmental noise or sound pollution, describes excessive or dangerous noise levels in the environment that upset the natural equilibrium and negatively impact people's overall health. Noise pollution is described as "unwanted or harmful sound emitted by various sources, which can interfere with normal activities such as sleeping, conversation, and working, and can contribute to adverse health effects" (WHO, 2018; Miedema & Oudshoorn, 2001). Noise pollution can come from a variety of sources and is commonly defined by its intensity, duration, and frequency. There are different types of noise pollution in India-

Transportation Noise: Road Traffic, Railway, and Aviation Noise: In any case, road traffic noise impacts humans. Road traffic noise is more disruptive because it is variable in time and level. Traffic noise changes several times a day. The main sources of traffic noise

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Received: April 08, 2026; Revision Received: June 25, 2026; Accepted: June 29, 2026

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are vehicle engines, the presence and high speed of commercial vehicles, cars, and motorcycles on the roads. Aircraft noise pollution has also affected the environment in several regions of the world. People cannot escape the noise of aircraft landing overhead. People living near airports are heavily affected by aircraft noise. Trains are considered the backbone of Indian transportation. Millions of passengers travel by train every day. To this end, the government has made efforts to connect all parts of the country through railway tracks and railway stations. The high volume of passengers and trains traveling through these stations and tracks, numbering millions daily, creates significant noise, causing significant inconvenience to nearby residents. This noise becomes even more intense during the winter.

Industrial Noise: Factory/Machine, Construction site, Mining Noise: As a result of the rapid growth of modern industries, the entire world is affected by industrial noise pollution. The noise generated by factories and machinery affects both workers and nearby residents. Furthermore, construction sites and the extraction of minerals from the ground also cause noise pollution.

Weapon Noise: Weapon noise, often generated by propellants, is more harmful to the human body than soft noise. People in war-torn countries like Russia, Ukraine, and the Gulf countries are currently most affected by this type of pollution. People living in areas near a country's border are also affected by this type of pollution.

Community Noise: Recreational Activities, Public events, Social gatherings: Wherever a population resides, it is natural and necessary to have markets, playgrounds, religious festivals, fairs, or other public places. Crowds of people gather at such places from time to time. Therefore, loudspeakers and loud voices are common in these areas, and the resulting noise can be irritating to people. Loudspeakers are used at weddings, political rallies, religious sermons, temples, mosques, or other religious sites, and to sell goods from shops located in markets and fairs.

Residential Noise: Household activities, Pets, and neighbours: Residential noise refers to noise caused by daily household activities, pets, and neighbours.

In India, noise pollution is becoming a growing concern due to industrialization and urbanization. While studies document negative psychological effects—including stress, anxiety, sleep difficulties, and reduced focus—findings are not always consistent. This review aims to summarize and clarify the main psychological consequences identified by Indian research, highlighting recurring and significant effects.

METHODS

Study design and search strategy

This study first conducted a systematic search for journal articles included in the review, followed by a narrative review of the included articles. Systematic reviews have strict inclusion criteria, while narrative reviews offer a more flexible and comprehensive exploration of a theme. Research papers were searched using Google Scholar, PubMed, Embase, Scopus, and PsycINFO databases. The search included research papers from 2000 to 2025.

Study eligibility: Inclusion and Exclusion criteria

The following criteria were used to retrieve research papers from various sites: first, the study should be empirical. Second, it should specifically address the psychological effects of noise pollution. Third, it should be conducted in India and published in English. This study excluded non-empirical papers, such as letters, editorials, literature reviews, and opinion pieces, as well as papers not published in English.

RESULT

Authors	Aim	Methods	Result
Patel, et al., (2006)	To study noise levels in different residential areas of Jharsuguda town in western Orissa (India).	60 Participants, Survey research	Found that, though people experienced noise-induced symptoms such as headache, bad temper, loss of concentration, and sleep disturbance, they were unaware of the ill-effects of noise on health.
Gupta and Ghatak (2011)	To assess the impact of traffic noise on overall health.	52 participants, Survey method, Bivariate analysis	Result shows that due to traffic noise pollution 53% suffered from headache, 36% from anxiety, 40% from high blood pressure and 61% from insomnia.
Agarwal and Swami (2011)	To investigate the impact of noise pollution on residents/community residing near roadside.	550 participants, Survey, Quantitative	A health survey reported about 52% of population was suffering by frequent irritation, 46% respondent felt hypertension, and 48.6% observed loss of sleep due to noise pollution.
Baxy (2014)	To see the effect of noise pollution on physical and mental health of adolescents.	60 participants, Survey methods	Noise pollution negatively influences the physical and mental health.
Gilani and Mir (2022)	To investigate the role of nocturnal traffic noise on insomnia.	4525 respondents, Survey, Jenkins Sleep problems scale, DASS for mental health	The study reported significant associations between traffic noise exposure and all insomnia-related symptoms and severity levels of mental disorders showed an increasing trend with the increasing noise levels.
Joopaka et al., (2023)	To assess the association between environmental noise exposure and psychological distress, depression, anxiety and sleep quality among urban residents in Hyderabad.	1200 adult population, Cross-sectional study, Quantitative analysis	Urban noise exposure is significantly associated with psychological distress, depression, anxiety, and poor sleep quality. High noise levels and disturbed sleep were the strongest predictors of mental health issues.
Kumar et al., (2024)	To examine the perception of the physiological and psychological effects of railway noise in the nearby	10 sites near the railway station and 344 individuals,	Results showed that 57.65% of female and 86.11% of male respondents in the survey reported the disturbance due to

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	areas of railway stations in Delhi, India.	questionnaire survey	railway noise. Findings of the Study show that the primary cause of the health problems is railroad noise, which is negatively impacting the health of the residents who are living in the proximity of the rail track region. The perception survey reported that headache, sleep disturbance, irritation, and stress are common health issues among the locals residing around the railway track proximity in Delhi.
Peer et al., (2025)	To investigate the relationship between road traffic noise exposure and annoyance on insomnia symptoms, a questionnaire survey was administered to	5408 adult population Survey, Quantitative	Statistically significant associations were observed between traffic noise exposure and all insomnia symptoms, with difficulty falling asleep showing the strongest association within the study sample.
Madan and Sinha, (2025)	To see the impact of noise pollution on academic stress and neuropsychological dysfunction in adolescents.	120 adolescents, Quantitative method	The findings revealed that higher exposure to the noise associated with academic stress and neuropsychological dysfunction in school going adolescents.
Babu et al., (2025)	The purpose of this research was to determine how living in a noisy region in Chennai, India affects people's mental health.	300 participants (age 18 to 60 years, descriptive cross-sectional research design	About 62% of participants reported high annoyance due to noise, and 57% reported sleep disturbance. Anxiety, irritability, headache and poor concentration were the most commonly reported mental health complaints. Noise sensitivity, noise annoyance and sleep disturbance showed significant positive associations with mental health issues.
Soy et al., (2025)	To investigate the relationship between different types of noise pollution and sleep qualities among participants.	300 adult (30 to 65 years), Descriptive and regression analysis	Result of the study shows that chronic night time noise pollution is associated with different types of sleep disorders and also negatively influence the overall well-being of the participants.

DISCUSSION

The purpose of this review was to discuss the psychological consequences of different types of noise pollution in India. Eleven studies met inclusion criteria (Patel et al., 2006; Gupta & Ghatak, 2011; Agarwal & Swami, 2011; Baxy, 2014; Gilani & Mir, 2022; Joopaka et al., 2023; Kumar et al., 2024; Peer et al., 2025; Madan & Sinha, 2025; Babu et al., 2025; Soy et al., 2025) and report associations between noise pollution and five main mental health

outcomes: sleep disorders, depression/anxiety disorders, stress, neuropsychological effects, and increased irritation, hypertension, and headache.

Noise pollution and sleep disorder

All reviewed studies found a significant association between noise pollution and sleep disorders. Soy et al. (2025) studied long-term noise exposure and sleep in 300 participants, selecting 60 for detailed review—30 from high-noise areas and 30 from low-noise areas. Using noise measurement tools and validated sleep scales, they found that even moderate levels of nighttime noise pollution significantly lower sleep quality. Other studies (Agarwal et al., 2011; Baxy, 2014; Babu et al., 2025) also reported increased nighttime awakenings and higher rates of insomnia (Gupta et al., 2011; Peer et al., 2025; Joopaka et al., 2023; Kranti, 2024) linked to noise exposure.

Gilani et al. (2022) found a direct link between nighttime traffic noise and insomnia in 4,525 Indian participants. Analysis showed that noise pollution from nighttime traffic was strongly associated with all insomnia problems: trouble falling asleep, maintaining sleep, and frequent awakenings.

In another study (Peer et al., 2025), the authors aimed to examine the association between traffic noise pollution and insomnia symptoms. 5,408 participants were randomly selected. Sleep quality was measured using a standardized sleep disturbance score, and insomnia was assessed using a self-reported questionnaire. Analysis of the data revealed that approximately 80% of participants experienced traffic-related noise pollution. The study also found that traffic-related noise pollution was significantly associated with all insomnia symptoms (difficulty falling asleep, difficulty maintaining sleep, and frequently waking up during sleep), with difficulty falling asleep being the most significant.

Noise Pollution and Anxiety & Depression Disorder

Joopaka et al. 2023 aimed to examine the association between environmental noise pollution and psychological distress, depression, anxiety, and sleep quality. Using a cross-sectional research design, the study recruited 1,200 participants (aged 18–60 years) using stratified random sampling. Noise pollution was measured using a Sound Level Meter, and physical and mental health were measured using the General Health Questionnaire 28 (GHQ-28), Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), and Pittsburgh Sleep Quality Index (PSQI). Survey data were analyzed using descriptive statistics, chi-square tests, correlation tests, and ANOVA. The results of the study showed that 43% reported psychological distress, 33.5% had moderate to severe depression, 31% had moderate to severe anxiety, and 61.5% had poor sleep quality. The comparative study showed that psychological distress was significantly higher in the high-noise-exposure group (59%) than in the moderate (41.8%) and low (29.8%) groups. The study also found that noise pollution predicts psychological distress and insomnia, and that the PHQ-28 and GAD-7 were positively correlated with the PSQI and GHQ-28.

In a study, Babu et al. (2025) aimed to assess the impact of long-term exposure to noise pollution on psychological problems, including stress, anxiety, sleep disturbance, and irritability. Using a cross-sectional, discriminative research design, the researchers collected data from 100 participants via convenience sampling. Descriptive statistics and the Chi-square test were used to analyze the data. The results of the study revealed that most participants experienced moderate to high levels of noise pollution and also experienced

mental health problems such as stress, anxiety (Patel et al., 2006), sleep disturbance, difficulty in concentration, and irritability.

Noise pollution and stress

Patel et al. (2006) conducted a study in Odisha. The study aimed to determine whether noise pollution affects participants' health and well-being. Participants selected 60 households in the city based on their exposure to noise pollution (traffic on the roads near the home, industrial areas, commercial centers, and noisy neighbourhoods). One adult from each household was selected for the survey, resulting in 60 participants. The survey used a questionnaire that assessed sleep disturbances, health complaints (headaches, stress, and irritation), difficulty concentrating, and overall discomfort from noise pollution. In the study, most participants reported experiencing headaches, stress, irritability, and difficulty concentrating due to noise pollution (Babu et al., 2025). Some also reported experiencing constant fatigue and anxiety.

In another study, Kranti et al. 2024 aimed to assess the impact of railway noise pollution on the physical and mental health of people living near railway stations in Delhi. A total of 344 people living near 10 railway station locations were surveyed to collect data. Noise pollution was measured using a Sound Level Meter (SLM), and physical and mental health was assessed using self-reported questionnaires. The study results revealed that headaches, sleep disturbances, irritability, and stress are common health problems among local residents living near railway tracks in Delhi.

In another study, Madan et al. 2025 aimed to explore how prolonged exposure to noise pollution in schools is associated with academic stress and neuropsychological dysfunction in adolescents. Using purposive sampling, the researchers selected two groups of participants: the first group, consisting of 61 participants aged 13-15 years, from a high-noise area in Delhi; and the second group, consisting of 59 adolescents aged 13-15 years, from a low- or moderate-noise area in Jammu, India. Six measures were used in this study: 1) Scale for Academic Stress (Singh, Agarwal, and Kumar, 2011), 2) Weinstein's Noise Sensitivity Scale by Weinstein (1978), and 3) Neuropsychological Battery for Children (Bhoomika R. Kar, 2004), 4) Mini Mental Status form (Folstein, 1975), 5) Serial Seven Subtraction test (Krapepin, 1899), and 6) Number Cancellation Test. Disjunctive analyses, t-tests, and correlations were used to analyze the data. The study found that participants exposed to high noise levels experienced greater academic stress and lower neuropsychological performance than those exposed to low noise levels. Pearson's correlation analysis also revealed a significant positive correlation between noise pollution, academic stress, and focused attention. On the other hand, significant negative correlations were found between noise pollution and working memory and between noise pollution and academic stress.

Noise pollution and Neuropsychological (loss of attention)

Rekha Baxy (2014) sought to examine the impact of noise pollution on adolescents' physical and mental health. The researchers created two groups of 30 participants each. One group was exposed to high levels of noise pollution and the other to low levels. Noise pollution was defined as exposure to sound generated by television, computers, video games, mobile phone use, and sports, and a scale was used to measure mental health. The study's results revealed that participants from urban areas (the high-noise pollution group) had significantly worse mental health than those from rural areas (the low-noise pollution group). The high noise pollution group also experienced irritability, sleep disturbances, distractibility,

decreased concentration (Babu et al., 2025), communication problems (Gupta et al., 2011), and mood disorders.

Noise pollution and irritation, hypertension & headache

Agarwal et al. (2011) examined the impact of noise pollution on the physical and mental health of participants living near roadsides. Data were collected from 550 participants aged 45 to 65 years. The questionnaire asked about three types of data: 1) personal details, 2) experiences related to noise pollution exposure, and 3) information related to physical and mental health. Descriptive statistics were used to analyze the data. The study results indicate that road traffic and factory and machinery noise are the major sources of noise pollution. Analysis of health survey reports revealed that 52% of participants reported irritation due to noise pollution, 46% reported hypertension, and 67% reported sleep problems and headaches.

In another study, Gupta et al. (2011) aimed to examine the negative impact of traffic noise pollution on the health of participants living near roadsides. Using purposive sampling, 52 participants aged 15-50 years were selected. Descriptive statistics and chi-square tests were used to analyze the study. The results of the study indicate that noise pollution negatively impacts the mental and physical health of participants, including sleep-related problems (difficulty falling asleep, frequent awakenings, altered sleep patterns), headaches, blood pressure, cardiovascular disease, communication problems, neuroticism, and irritability.

CONCLUSION

This narrative review is based on empirical Indian studies, primarily examining the psychological impact of noise pollution on individuals. The reviewed studies indicate that noise pollution in India negatively impacts people's psychological and physical health, especially in urban and industrial areas, where population growth, the rapid increase in road traffic, and the increased use of machinery in factories have exacerbated the risk of noise pollution day and night. This review demonstrates the severity of noise pollution in India. Future research on this topic should focus on longitudinal studies, standardized measurements, and intervention-based approaches to better understand causes and effects. Addressing noise pollution will not only protect the country's environment but also improve people's physical and psychological health, thereby improving their quality of life.

REFERENCES

- Agarwal, S., & Swami, B. L. (2011). Road traffic noise, annoyance and community health survey-a case study for an Indian city. *Noise and health*, 13(53), 272-276.
- Akansha, S., Soni, S. A., and Singh N., (2025). Environmental pollution and its effect on sleep disorders. *International Journal of Environmental Science* 11(2) 566-571
- Babu, S., & Gladius Jennifer, H. (2025). Assessing the Impact of Noise Persuaded Mental Health Issues among General Population in Noise Prone Area of Chennai.
- Baxy, D. (2012). Effect of noise pollution on behavior (with reference to environmental psychology). *International Journal of Scientific Research*, 3, 433-434.
- Gilani, T. A., & Mir, M. S. (2022). A study on road traffic noise exposure and prevalence of insomnia. *Environmental science and pollution research*, 29(27), 41065-41080.
- Gupta, S., & Ghatak, C. (2011). Environmental noise assessment and its effect on human health in an urban area. *Int. J. Environ. Sci*, 1(7), 1954-1964.
- Hegewald, J., Schubert, M., Freiberg, A., Romero Starke, K., Augustin, F., Riedel-Heller, S. G., ... & Seidler, A. (2020). Traffic noise and mental health: a systematic review and

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- meta-analysis. *International journal of environmental research and public health*, 17(17), 6175.
- Joopaka, A. K., Jangam, R. V., & Ali, S. A. (2023). Psychiatric Impact of Noise Pollution in Urban Areas: A Cross-Sectional Study. *Journal of Contemporary Clinical Practice*, 9, 52-58.
- Kumar, K., Bhartia, A., Mishra, R. K., Jadon, R. P. S., & Kumar, J. (2024). Diurnal rail noise measurement, analysis, and evaluation of associated health impacts on residents living in the proximity of rail track area. *Environmental Monitoring and Assessment*, 196(6), 543.
- Madan, D., & Sinha, U. K. (2025). Study of Academic Stress and Neuropsychological Dysfunction in Indian Adolescents with Exposure to Noise Pollution. *International Journal of Indian Psychology*, 13(2).
- Miedema, H. M., & Oudshoorn, C. G. (2001). Annoyance from transportation noise: relationships with exposure metrics DNL and DENL and their confidence intervals. *Environmental health perspectives*, 109(4), 409.
- Patel, R., Tiwari, T. N., & Patel, T. (2006). Noise pollution in residential areas of Jharsuguda Town, Orissa (India) and its impact. *Journal of Environmental Science & Engineering*, 48(3), 209-212.
- Peer, M. Y., Mir, M. S., & Mohanty, B. (2025). Impact of nocturnal road traffic noise and annoyance on self-reported insomnia symptoms: policy intervention in noise-polluted environments. *Environmental Monitoring and Assessment*, 197(2), 194.
- World Health Organization. (2018). Environmental noise guidelines for the European region.

Acknowledgment

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author(s) declared no conflict of interest.

How to cite this article: Sonoo (2026). Noise Pollution and Its Psychological Consequences: A Narrative Review. *International Journal of Indian Psychology*, 14(2), 3165-3172. DIP:18.01.286.20261402, DOI:10.25215/1402.286