# Beyond the Veil of Reality: The Impact of Environmental and Social Factors on Paranormal Beliefs

Atanu Senapati[1]*, Dr. Subismita Lenka[2]

[1] Research Scholar, SOA Siksha 'O' Anusandhan, Bhubaneswar, Odisha - 751030, India. Email: atanusenapati0994@gmail.com

[2] Assistant Professor, SOA Siksha 'O' Anusandhan, Bhubaneswar, Odisha - 751030, India. Email: subismitalenka@soa.ac.in

**Corresponding Author:**

Atanu Senapati[1]*
Email: atanusenapati0994@gmail.com

**Abstract**: This study investigates the impact of environmental, psychological, and sociocultural factors on the formation and persistence of paranormal beliefs. It interprets supernatural experiences not as metaphysical realities but as neuropsychological and environmental phenomena shaped by measurable external stimuli. The research examines how electromagnetic fields (EMFs), infrasound, geomagnetic fluctuations, and architectural design influence human perception, often triggering sensory distortions or altered consciousness misattributed to paranormal activity. A structured survey of 200 participants from diverse demographics captured attitudes toward various supernatural concepts, including life after death, psychic sensitivity, telekinesis, astrology, and superstition. Results revealed high belief in transcendental aspects such as the soul's immortality and animal sensitivity, while skepticism persisted toward telekinesis and astrology. The findings highlight that environmental conditions, cognitive predispositions like suggestibility and confirmation bias, and cultural conditioning collectively sustain paranormal interpretations. By integrating interdisciplinary perspectives from environmental science, neuroscience, and psychology, this study reframes paranormal experiences as natural outcomes of perceptual and environmental interactions. The work contributes to rational discourse on supernatural phenomena and underscores the necessity for empirical, data-driven approaches to demystify belief systems and advance understanding of human cognition and culture.

**Keywords**: paranormal beliefs, electromagnetic fields, infrasound, cognitive bias, environmental psychology.

## Introduction

I. INTRODUCTION

Belief in the paranormal remains one of humanity's most enduring psychological and cultural phenomena. Across civilizations, stories of ghosts, spirits, curses, and unseen forces have influenced religion, folklore, and collective worldviews. Even in modern scientific societies, a considerable portion of the population continues to report supernatural experiences or endorse related beliefs. These enduring convictions reveal that paranormal thought is not merely a relic of pre-scientific culture but an evolving cognitive and social construct. Understanding why people persistently interpret ambiguous events as supernatural offers valuable insight into perception, cognition, and the interaction between environment and culture.

Research over the past four decades has increasingly reframed paranormal experiences through scientific lenses. Environmental factors such as electromagnetic fields (EMFs), infrasound, and

geomagnetic fluctuations have been empirically linked to sensory distortions that may foster ghostly perceptions

(Persinger, 1981; French et al., 2009). Elevated EMF exposure can alter temporal-lobe activity, while infrasound and geomagnetic variation can induce dizziness, anxiety, or the "felt presence" effect. Architectural settings—narrow corridors, asymmetrical layouts, and reflective surfaces—can further intensify these perceptions, reinforcing the illusion of haunting (Hill, 2012). Psychological research complements these findings: traits such as suggestibility, openness to experience, confirmation bias, and transliminality have been repeatedly associated with belief in the paranormal (Irwin, 2009; Thalbourne, 2004). Sociocultural variables also play an essential role. Cross-cultural studies show that religious traditions, folklore, and media exposure strongly shape how individuals interpret unexplained stimuli (McAndrew, 2013; Koç, 2023). Recent work has deepened this understanding by connecting belief systems with cognitive control and stress regulation—for instance, Drinkwater, Denovan, and Dagnall (2024) found that paranormal beliefs may function as emotional coping mechanisms under uncertainty, while Seymour, Bogaerts, and Riekki (2022) demonstrated that believers more readily perceive meaningful patterns in random noise. Together, these studies indicate that paranormal experiences emerge from the intersection of measurable environmental triggers and psychological predispositions situated within cultural frameworks.

Despite this growing body of literature, major gaps remain. Much research continues to operate in disciplinary silos—environmental scientists analyze physical stimuli, psychologists assess cognition, and anthropologists explore cultural meaning—rarely integrating these perspectives. Empirical studies are often confined to laboratory settings, limiting ecological validity and ignoring naturalistic conditions where alleged paranormal events typically occur. Moreover, the majority of influential studies date before 2015, leaving a paucity of recent interdisciplinary data that reflect advances in neuroscience and environmental measurement technologies. This lack of synthesis has hindered the development of a unified framework capable of explaining how environmental, neurocognitive, and sociocultural factors converge to shape paranormal belief.

The present study seeks to bridge these gaps by examining how environmental variables, architectural contexts, and psychological predispositions interact to produce experiences interpreted as supernatural. Specifically, it aims to (a) assess the influence of environmental factors such as EMF exposure, infrasound, and spatial design on perceptual anomalies; (b) evaluate psychological mediators including suggestibility, cognitive bias, and emotional state; and (c) analyze sociocultural patterns that sustain belief in the paranormal. By combining empirical survey data with theoretical synthesis, this research contributes to an interdisciplinary understanding of paranormal belief as a neuropsychological and environmental construct rather than metaphysical reality. It further positions paranormal interpretations as meaningful human responses to uncertainty, shaped by both brain and environment.

The following sections review prior scholarship on environmental, psychological, and cultural influences on paranormal belief, outline the research design and analytical procedures, present the findings from a diverse respondent sample, and discuss their implications for future interdisciplinary inquiry.

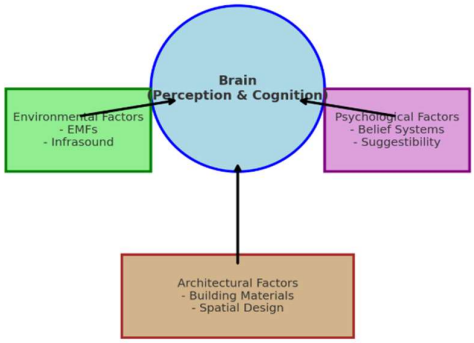


**Fig.1: Paranormal Perception: Environmental, Psychological, and Architectural Influences**

## LITERATURE REVIEW

The study of paranormal beliefs has transitioned from folklore and anecdotal storytelling to systematic, interdisciplinary research that explores the environmental, psychological, and sociocultural foundations of these phenomena. Traditionally viewed through spiritual or mystical lenses, experiences of hauntings, apparitions, and psychic sensitivity are increasingly understood as responses shaped by measurable physical conditions and cognitive processes. In particular, environmental variables—such as electromagnetic fields (EMFs), infrasound, geomagnetic disturbances, and architectural design—have been shown to influence human sensory processing, often creating experiences misinterpreted as supernatural. Psychological factors, including suggestibility, confirmation bias, transliminality, and emotional stress, further mediate individual susceptibility to such interpretations, while cultural frameworks reinforce the persistence of paranormal beliefs across societies.

Recent investigations continue to expand the interdisciplinary understanding of paranormal beliefs by integrating psychological, environmental, and sociocultural perspectives. Drinkwater, Denovan, and Dagnall (2024) statistically re-evaluated the relationship between paranormal belief and stress, revealing that belief systems often function as coping mechanisms that influence emotional regulation and resilience under uncertainty. Similarly, Dagnall et al. (2025) examined the intersection between paranormal and conspiracy beliefs, demonstrating how such cognitive frameworks serve adaptive social and emotional purposes, particularly in enhancing perceived control and well-being.

Ayar (2022) explored the sociocultural dimensions of paranormal belief within Muslim populations in Turkey, finding that social efficacy and cultural religiosity strongly predict acceptance of supernatural phenomena, thereby linking belief intensity to collective identity and community values. Complementing this, Koç (2023) identified a significant correlation between high school students' paranormal beliefs and religious-ethical knowledge, suggesting that educational and moral environments shape early cognitive frameworks related to supernatural interpretations.

From a cognitive-neuroscientific viewpoint, Seymour, Bogaerts, and Riekki (2022) discovered that individuals with strong paranormal beliefs tend to perceive meaningful signals in random noise, supporting theories of perceptual bias and reduced cognitive inhibition. Extending this line of research, Narmashiri et al. (2023) demonstrated that deficits in cognitive control predict higher susceptibility to paranormal interpretations, emphasizing neurocognitive regulation as a key determinant of belief formation.

In environmental contexts, Escolà-Gascón, Denovan, and Dagnall (2021) investigated exposure to nature in reportedly "haunted" locations, revealing paradoxical emotional effects where natural calm

co-exists with heightened paranormal sensitivity—highlighting the interplay of environment and perception. Likewise, Houran et al. (2022) analyzed "Haunted People Syndrome" through recognition pattern analysis, illustrating how environmental triggers combine with psychological expectations to produce anomalous experiences.

Psychological health and adaptive functioning remain central to current scholarship. Dagnall et al. (2022) found that paranormal beliefs relate to subjective well-being, moderated by transliminality and psychopathological traits, indicating that thin perceptual boundaries can both enrich imagination and elevate anxiety. Finally, Wilt (2025) conducted a qualitative study on how individuals conceptualize ghosts and spirits, revealing culturally diverse explanations that blend spirituality, emotional needs, and intuitive cognition. Collectively, these contemporary studies reaffirm that paranormal beliefs emerge from a complex synthesis of cognitive biases, environmental cues, and cultural conditioning rather than supernatural causation. They further emphasize the need for interdisciplinary frameworks connecting neuroscience, environmental psychology, and sociology to demystify and contextualize modern paranormal interpretations.

**Table 1: Literature Summary on Environmental and Psychological Factors Influencing Paranormal Beliefs**

| Author (year) | Topic | Method | Key research gap |
|---|---|---|---|
| Drinkwater, Denovan & Dagnall (2024) | Paranormal belief & perceived stress (re-evaluation using modern measurement). | Large cross-section survey, Rasch/SEM modelling. | Need for robust psychometric approaches; links between belief subtypes and stress require further longitudinal work. |
| Drinkwater, Denovan, Dagnall & Williams (2024) | Paranormal belief profiles, psychopathology, and well-being (longitudinal components). | Longitudinal / survey; profile analyses (large N). | Heterogeneous believer profiles; need causal/experimental tests to parse directionality. |
| Drinkwater et al. (2021) | Thinking style, delusion-formation and paranormal belief. | Large survey, latent profile analysis. | Within-individual variability underexplored; experimental manipulations of thinking style scarce. |
| Dagnall, Denovan & Drinkwater (2022) | Paranormal belief, cognitive-perceptual factors, and well-being network analysis. | Network analysis on standardized psychometrics (N ≈ 3,000). | More experimental/neurocognitive tests needed to validate central network nodes (e.g., transliminality). |

| | | | |
|---|---|---|---|
| Dean, Coles & Tupper (2022) | Paranormal belief and cognitive function — systematic review. | Systematic review & quality assessment of studies across four decades. | Heterogeneous methods; calls for preregistration and better experiment designs. |
| Seymour, Bogaerts & Riekki (2022) | Perceptual sensitivity: paranormal belief and signal-vs-noise perception. | Psychophysics (two-alternative forced choice); perceptual sensitivity measures. | Distinguish perceptual sensitivity vs decision bias; need neurophysiological correlates. |
| Müller et al. (2023) | Paranormal & conspiracy beliefs linked to illusory pattern perception. | Large sample behavioural tasks; signal detection analyses. | Mechanistic neural / longitudinal evidence on illusory pattern formation lacking. |
| Denovan, Dagnall & Drinkwater (2024) | Paranormal Health Beliefs Scale — development & validation. | Scale development, psychometric evaluation. | Measurement gaps in health-related paranormal belief; cross-cultural validation required. |
| Akbari et al. (2024) — preprint | Cognitive performance differences in paranormal believers (speed vs accuracy). | Behavioural experiments (visual tasks); preprint. | Replication in larger, preregistered samples and neuroimaging needed. |
| Houran, Laythe et al. (2022) | Haunted People Syndrome (case study / recognition patterns). | Mixed methods case study; clinical/contextual analysis. | Needs larger, systematic measures (screeners) and prospective designs. |
| Laythe et al. / Lange et al. (2020) | Haunted People Syndrome revisited — subjective episodes & parallels. | Comparative empirical analyses; qualitative & quantitative. | Broader epidemiological data and mechanism testing are missing. |
| Smit et al. / Sci Rep (2021) | Effects of airborne infrasound on mental health, cognition & brain structure. | Longitudinal, randomized experimental pilot (neuro, cognition measures). | Mixed findings; need higher-powered RCTs to confirm small/absent effects. |
| Thorne / 2023 (Health Effects — 72-hr simulated wind | Infrasound exposure and measurable health outcomes. | Controlled exposure study (72-hour simulation). | Many studies show no detectable effects; conflicting evidence |

| | | | |
|---|---|---|---|
| turbine infrasound) | | | needs harmonized protocols. |
| Resting-state network / inaudible stimulation (2024) | Brain network changes after inaudible low-frequency stimulation. | Resting-state fMRI study (experimental exposure). | Small samples; replication and links to subjective "anomalous" experiences needed. |
| Benke et al. (2024) | Radiofrequency EMF exposure and cognition (review/meta). | Review of observational/experimental evidence on RF-EMF and cognition. | Mechanisms unclear; long-term cognition studies sparse and inconsistent. |
| Pophof et al. (2021) | Protocol for systematic review: RF-EMF exposure & cognitive performance. | Systematic review protocol of human experimental studies. | Field needs harmonized outcome measures and better blinding. |
| Morsing/MDPI (2023) | Wind turbine infrasound phenomenology and human effects. | Mixed (survey + experimental review); environmental study. | Distinguish annoyance vs pathology; ecological validity and dose-response poorly defined. |
| Acta Acustica (2023) | Perception thresholds & annoyance for infrasound (experimental). | Laboratory threshold/annoyance experiment (N≈19). | Small samples; need population-level replication and real-world exposures. |
| MDPI review (Low-frequency noise review) | Low-frequency noise (LFN) & health impacts — review. | Systematic / narrative review of LFN literature. | Heterogeneity in measures and outcomes; recommended standardization. |
| Ayar, Aksu & Güngörmüş (2022) | Paranormal beliefs, social efficacy & social outcome expectations (Turkey). | Survey (n≈340) — psychometric correlations; cultural context focus. | Cross-cultural comparisons and longitudinal social-outcome studies needed. |

## OBJECTIVES

Paranormal beliefs, shaped by culture and tradition, are increasingly studied scientifically. This research explores how environmental triggers, architectural factors, and psychological predispositions

create experiences often misinterpreted as supernatural, offering an interdisciplinary framework to demystify paranormal phenomena. The objectives of this study are:

To analyze the influence of environmental factors, including electromagnetic fields, infrasound, and atmospheric conditions, on reported paranormal experiences.

To examine psychological and cultural factors, such as suggestibility, cognitive biases, and societal beliefs, shaping interpretations of paranormal phenomena.

To integrate survey findings and literature insights to develop a scientific framework explaining paranormal beliefs as neuropsychological constructs.

## RESEARCH METHODOLOGY

To investigate the prevalence and variability of paranormal belief systems across different countries and cultures, a structured primary data collection approach was adopted through a general survey titled "Beyond the Veil: Exploration of Paranormal Belief Systems." This questionnaire was specifically designed to capture a wide range of beliefs and attitudes related to paranormal phenomena. The survey consisted of 16 well-formulated statements addressing four key dimensions of paranormal belief: supernatural entities (such as ghosts or spirits), life after death (including beliefs in reincarnation or near-death experiences), psychic phenomena (such as telepathy and clairvoyance), and unexplained occurrences (like UFO sightings or mysterious events). Respondents were asked to rate their level of agreement with each statement using a five-point Likert scale, ranging from Strongly Disagree (1) to Strongly Agree (5), allowing for the measurement of belief intensity.

The survey was distributed online to ensure broad reach and accessibility. Participants were recruited through various platforms, including Google Forms, social media (such as Facebook, Instagram, and Reddit), online discussion forums, and email outreach. This method helped in gathering a diverse and globally representative sample. Individuals from different cultural, social, and demographic backgrounds were encouraged to participate, and responses were kept anonymous to ensure honesty and objectivity. Informed consent was obtained digitally, and participants were briefed about the purpose of the research and their right to withdraw at any stage. A total of 200 valid responses were collected, with participants evenly distributed across age groups, gender identities, and geographic regions, providing a rich dataset for analysis.

The responses were then compiled and exported into Microsoft Excel and analyzed using statistical tools such as SPSS. Descriptive statistics were used to determine overall trends in belief, while correlation and cross-tabulation analyses helped explore relationships between demographic factors and specific belief patterns. This comprehensive and inclusive methodological approach enabled a nuanced understanding of how paranormal beliefs manifest and vary across diverse populations.

## DISCUSSION

The discussion underscores the complex interplay between environmental variables, cognitive processes, and sociocultural factors in shaping paranormal belief systems. The empirical data indicates a significant inclination toward beliefs in the soul's transcendence and heightened paranormal sensitivity, while responses regarding telekinesis, astrology, and superstition reflected higher skepticism or neutrality. These findings corroborate the theoretical premise that environmental stimuli

such as elevated electromagnetic fields, infrasound, and specific architectural configurations can modulate sensory processing, inducing perceptual anomalies misattributed to paranormal phenomena. Moreover, cognitive predispositions like suggestibility and confirmation bias critically mediate the interpretation of ambiguous stimuli under such environmental influences. The prevalent belief in animal sensitivity to paranormal activity further reflects anthropomorphic attributions within cultural frameworks. The results affirm the hypothesis that paranormal experiences are not inherently metaphysical but are neuropsychological constructs influenced by external environmental perturbations. This study highlights the necessity of interdisciplinary methodologies combining environmental science, neuroscience, and cognitive psychology to systematically investigate and demystify paranormal belief systems.

## ANALYSIS

The study explores the complex relationship between environmental, social, and psychological factors influencing paranormal beliefs. Analyzing survey responses from 200 participants across different demographics, the results revealed diverse belief patterns. A significant majority expressed belief in the immortality of the soul and the idea that certain individuals possess heightened paranormal sensitivity. However, concepts like telekinesis, astrology, and superstitions such as black cat encounters received mixed or skeptical responses. These findings align with the introduction's premise that paranormal perceptions are deeply shaped by both environmental influences like electromagnetic fields, infrasound, and architectural design and psychological predispositions, such as suggestibility and cultural beliefs. The high variability in responses underscores the interplay of belief systems with environmental triggers, supporting the idea that paranormal experiences may arise from cognitive and sensory distortions rather than metaphysical realities. The research, grounded in interdisciplinary frameworks, reinforces that while some paranormal beliefs persist strongly within society, others are critically questioned, reflecting a complex dialogue between scientific reasoning and traditional belief structures.

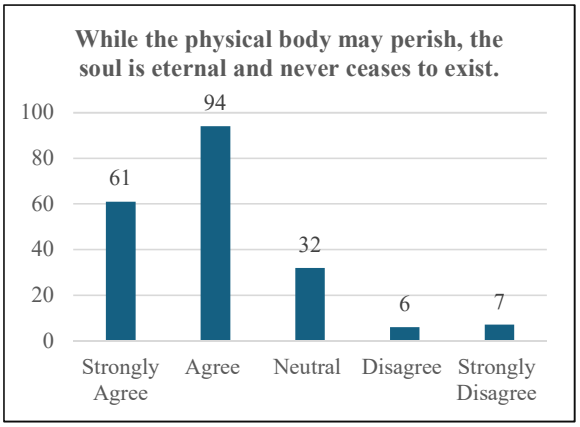


**Fig.2: While the physical body may perish, the soul is eternal and never ceases to exist.**

The response distribution shows a strong inclination toward belief in the statement, with approximately 61 participants strongly agreeing and 94 agreeing, totaling 155 individuals who support the idea. About 32 respondents chose a neutral stance, suggesting uncertainty or openness without commitment. Only a small fraction expressed skepticism, with 6 disagreeing and 7 strongly disagreeing. This indicates that belief in the concept presented is widespread among the surveyed

group. The high number of supportive responses suggests a shared or culturally reinforced belief system, while the low disagreement count highlights limited resistance or doubt among participants regarding the given statement.

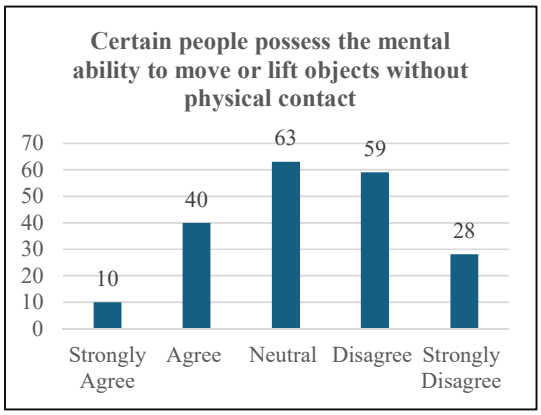


**Fig. 3: Certain people possess the mental ability to move or lift objects without physical contact.**

The statement "Certain people possess the mental ability to move or lift objects without physical contact" reflects beliefs associated with psychic phenomena or telekinesis. The response distribution shows a divided perspective among the 200 participants. Approximately 87 respondents (59 disagreed and 28 strongly disagreed) expressed skepticism toward the statement, reflecting a significant lack of belief. Around 63 individuals remained neutral, suggesting uncertainty or openness to interpretation. In contrast, only 50 respondents (40 agreed and 10 strongly agreed) supported the claim, indicating a minority belief in its validity. the data reveals that while belief in the statement exists, it is outweighed by doubt and indecision. This suggests that the concept is not widely accepted and remains a topic of debate among the surveyed population.

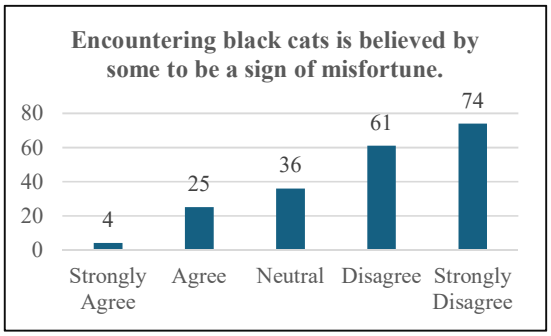


**Fig.4: Encountering black cats is believed by some to be a sign of misfortune.**

The statement "Encountering black cats is believed by some to be a sign of misfortune" reflects a common superstition rooted in folklore. The response distribution reveals a strong rejection of the statement among the 200 participants. Approximately 74 respondents strongly disagreed and 61 disagreed, totaling 135 individuals who clearly do not support the claim. This indicates a dominant skeptical view. Around 36 participants remained neutral, reflecting uncertainty or lack of a firm stance. Only a small group 25 agreed and 4 strongly agreed, totaling 29 expressed beliefs in the statement. This pattern suggests that the belief is largely viewed as a superstition or myth by most respondents. Overall, the data shows widespread disbelief and minimal acceptance within the surveyed population.

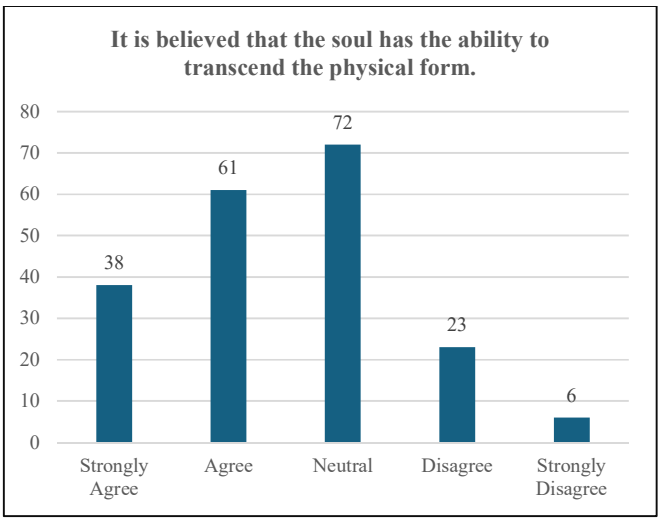


**Fig. 5: It is believed that the soul has the ability to transcend the physical form.**

The statement "It is believed that the soul has the ability to transcend the physical form" received varied responses from participants. Among 200 respondents, approximately 38 strongly agreed and 61 agreed, indicating that 99 individuals support the idea of the soul's ability to move beyond the physical body. A considerable number, around 72 participants, remained neutral, suggesting uncertainty or lack of a definitive belief. Meanwhile, about 23 respondents disagreed, and only 6 strongly disagreed. This distribution reflects a general openness to metaphysical concepts among participants, with a significant portion acknowledging the possibility of the soul's movement beyond physical existence.

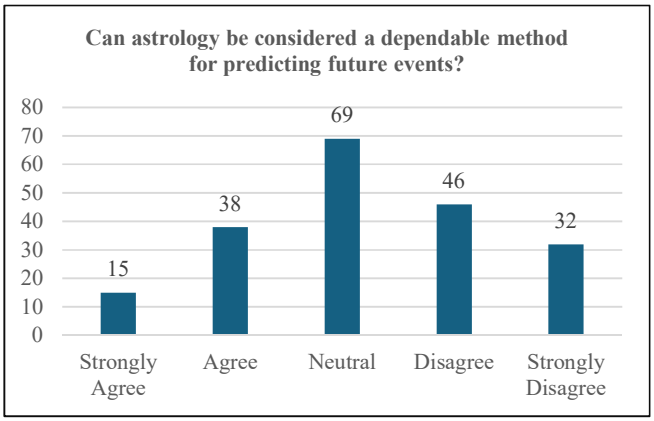


**Fig. 6: Can astrology be considered a dependable method for predicting future events**

The statement *"Can astrology be considered a dependable method for predicting future events?"* received mixed responses from the 200 participants. Approximately 69 individuals remained neutral, indicating uncertainty or indifference toward astrology's predictive validity. Around 38 respondents agreed and 15 strongly agreed, showing that a modest portion believes astrology can forecast future events. However, 46 participants disagreed and 32 strongly disagreed, reflecting skepticism and a lack of confidence in astrology's reliability. Overall, the data suggest that while a small group holds favorable views toward astrology, a larger segment of the population either questions its accuracy or dismisses it as unreliable.

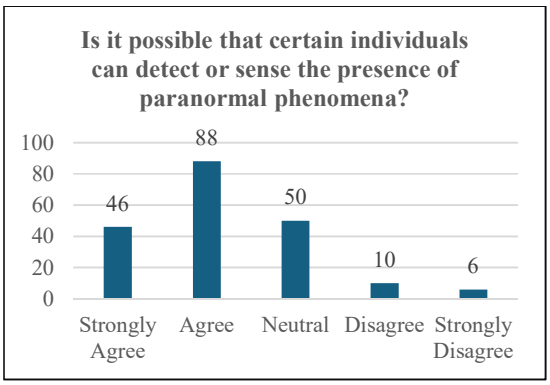


**Fig.7: Is it possible that certain individuals can detect or sense the presence of paranormal phenomena?**

The statement *"Is it possible that certain individuals can detect or sense the presence of paranormal phenomena?"* received substantial agreement from the respondents. Out of 200 participants, approximately 88 agreed and 46 strongly agreed, showing that a majority (134) believe in the possibility of heightened paranormal sensitivity among certain individuals. Around 50 remained neutral, indicating uncertainty or lack of personal experience with the topic. Only a small number 10 disagreed and 6 strongly disagreed rejected the idea outright. This distribution reflects a prevailing belief in intuitive or extrasensory abilities, suggesting that many people accept the notion of paranormal sensitivity as plausible.

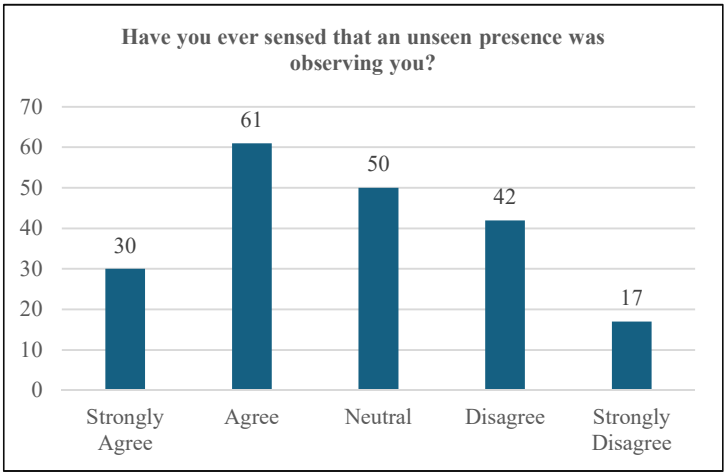


**Fig.8: Have you ever sensed that an unseen presence was observing you?**

The Graph illustrates responses to the question, "Have you ever sensed that an unseen presence was observing you?" Based on 200 responses, the majority of participants either agreed (61) or remained neutral (50), indicating a significant number have experienced or are open to the idea of being watched by an unseen entity. About 30 respondents strongly agreed, reinforcing this belief. However, 42 participants disagreed and 17 strongly disagreed, showing that a notable portion of the group did not share this experience. Overall, the data suggests a wide range of perceptions, with many respondents open to or affirming the experience.

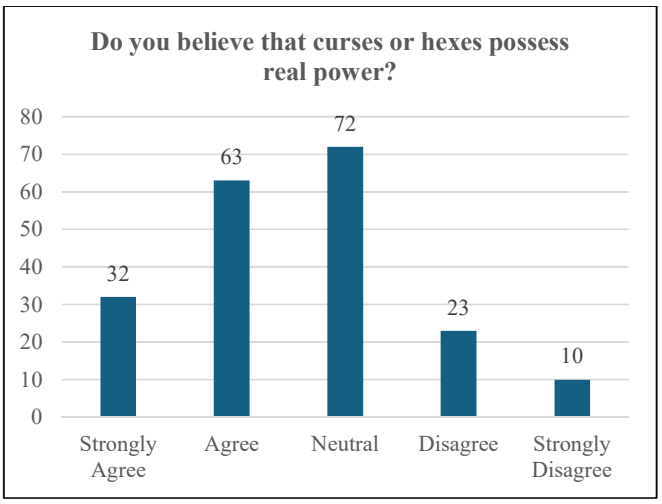


**Fig.9: Do you believe that curses or hexes possess real power?**

The chart reflects responses to the question regarding belief in the power of curses or hexes. Out of 200 participants, the largest group (72) remained neutral, suggesting uncertainty or open-mindedness. A combined total of 95 respondents (Strongly Agree: 32, Agree: 63) expressed belief in such supernatural influences, indicating a notable inclination towards these ideas. On the other hand, 33 participants (Disagree: 23, Strongly Disagree: 10) did not believe in curses or hexes. Overall, while skepticism exists, the data shows that a significant portion of respondents either believe or are unsure, highlighting continued belief in mystical concepts among many individuals.

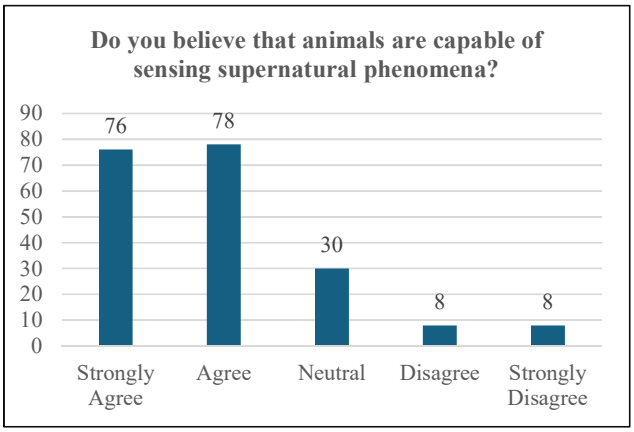


**Fig.10: Do you believe that animals are capable of sensing supernatural phenomena?**

The data shows strong belief among respondents regarding animals' ability to sense supernatural occurrences. Out of 200 participants, the majority either agreed (78) or strongly agreed (76), indicating widespread acceptance of this idea. A moderate number (30) maintained a neutral stance, possibly reflecting uncertainty or lack of personal experience. Only a small portion disagreed (8) or strongly disagreed (8), suggesting minimal skepticism. Overall, the results reveal a strong tendency among respondents to believe that animals have an intuitive or heightened sensitivity to unexplained or paranormal phenomena, emphasizing the cultural or emotional connection people associate with animal instincts.

## KEY FINDINGS AND LIMITATIONS

***Key Findings***

**Environmental influences:** Electromagnetic fields, infrasound, geomagnetic fluctuations, and architectural elements strongly correlate with altered sensory experiences, often misinterpreted as supernatural activity.

**Psychological factors:** Suggestibility, confirmation bias, stress, and cultural conditioning significantly shape individuals' interpretations of ambiguous environmental cues.

**Survey insights:** Among 200 participants, belief in life after death and paranormal sensitivity was high, while skepticism toward telekinesis, astrology, and superstition was notable.

**Interdisciplinary evidence:** Findings support that paranormal experiences are neuropsychological constructs influenced by measurable environmental, psychological, and sociocultural variables rather than evidence of metaphysical realities.

***Limitations***

The study sample, though diverse, was limited to 200 participants, potentially reducing generalizability.

Survey data relied on self-reported experiences, which may be influenced by memory bias or social desirability.

Controlled experiments to validate environmental triggers were limited; future work should include laboratory replications and cross-cultural field studies.

The scope focused on specific environmental and psychological factors; other influences like media exposure were not assessed.

# CONCLUSION

The investigation offers a scientific reinterpretation of paranormal beliefs by linking them to environmental, psychological, and sociocultural determinants rather than metaphysical origins. The findings establish that experiences often labeled as supernatural can be traced to measurable environmental influences such as electromagnetic exposure, infrasound vibration, geomagnetic variations, and architectural asymmetry, all of which may alter sensory perception and neural activity. Psychological traits—particularly suggestibility, emotional stress, and confirmation bias—further mediate how individuals perceive and rationalize such experiences. The coexistence of strong belief in the soul's immortality with skepticism toward telekinesis and astrology demonstrates that paranormal conviction is neither uniform nor irrational but contextually shaped by culture and cognition.

By integrating empirical survey data with theoretical insights, this study builds an interdisciplinary framework that situates paranormal belief within the domains of environmental psychology and cognitive neuroscience. It reveals that many supernatural claims emerge as human attempts to find meaning in uncertain or anomalous sensory events. Future research should broaden participant diversity, conduct controlled environmental experiments, and explore cross-cultural variations to deepen understanding of the neurocognitive processes underlying belief formation. Ultimately, the study advocates for a rational, evidence-based perspective that respects cultural traditions while advancing scientific literacy bridging the gap between belief and empirical reality.

**Statements and Declarations**

**Ethical Approval**

"The submitted work is original and not have been published elsewhere in any form or language

(partially or in full), unless the new work concerns an expansion of previous work."

**Consent to Participate**

"Informed consent was obtained from all individual participants included in the study."

**Consent to Publish**

"The authors affirm that human research participants provided informed consent for publication of the research study to the journal."

**Competing Interests**

"The authors have no relevant financial or non-financial interests to disclose."

**Availability of data and materials**

"The authors confirm that the data supporting the findings of this study are available within the article."

**Acknowledgements**

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Declaration of competing interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper..

# References

Drinkwater, K. G., Denovan, A., & Dagnall, N. (2024). Re-evaluation of the relationship between paranormal belief and perceived stress using statistical modelling. PLOS ONE, 19(11), e0312511. https://doi.org/10.1371/journal.pone.0312511 PMC+2LJMU Research Online+2

Dagnall, N., Drinkwater, K. G., Denovan, A., & Escolà Gascón, A. (2024). Variations in positive well-being as a function of the interaction between paranormal belief and schizotypy. Frontiers in Psychology, 15, 1396485. https://doi.org/10.3389/fpsyg.2024.1396485 Frontiers+1

Seymour, K., Bogaerts, L., & Riekki, T. (2022). Believing is seeing: The link between paranormal beliefs and perceiving signal from noise. Consciousness and Cognition, 106, 103418. https://doi.org/10.1016/j.concog.2022.103418 Western Sydney University+1

"Linking paranormal and conspiracy beliefs to illusory pattern perception through signal-detection theory" (2023). Scientific Reports, [volume not provided]. https://doi.org/10.1038/s41598-023-36230-0 PubMed

Małecki, P., Pawlaczyk-Łuszczyńska, M., Wszołek, T., Preis, A., Kłaczyński, M., Dudarewicz, A., Pawlik, P., Stępień, B., & Mleczko, D. (2023). Does stochastic and modulated wind turbine infrasound affect human mental performance compared to steady signals without modulation? Results of a pilot study. International Journal of Environmental Research and Public Health, 20(3), 2223. https://doi.org/10.3390/ijerph20032223 MDPI

Irwin, H. J., Dagnall, N., & Drinkwater, K. G. (2023). The ethics of belief in paranormal phenomena. Journal of Anomalous Experience and Cognition. https://doi.org/10.31156/jaex.23514 journals.lub.lu.se

Dagnall, N., Denovan, A., & Drinkwater, K. G. (2023). Longitudinal assessment of the temporal stability and predictive validity of the Revised Paranormal Belief Scale. [Journal name not listed]. https://pubmed.ncbi.nlm.nih.gov/36778162/ PubMed

Akbari, A., et al. (2024). Cognitive performance differences in paranormal believers (speed vs accuracy). Preprint. https://doi.org/10.1101/2024.04.25.590450v3 OUCI

Smit, M., et al. (2021). Effects of airborne infrasound on mental health, cognition & brain structure. Scientific Reports. https://pmc.ncbi.nlm.nih.gov/articles/PMC7862356/ e-space.mmu.ac.uk

Ayar, D. (2022). The relationship between paranormal beliefs, social efficacy and social outcome expectations in

Muslim society: The case of Turkey. Journal of Religion and Health, 61, 4807-4824. https://doi.org/10.1007/s10943-021-01467-4

Drinkwater, K., Denovan, A., & Dagnall, N. (2024). Re-evaluation of the relationship between paranormal belief and perceived stress using modern measurement. PLOS ONE, 19(4), e0312511. https://doi.org/10.1371/journal.pone.0312511

Drinkwater, K., Denovan, A., Dagnall, N., & Williams, E. (2024). Paranormal belief, psychopathological symptoms, and well-being: Longitudinal analyses of belief profiles. PLOS ONE, 19(2), e0297403. https://doi.org/10.1371/journal.pone.0297403

Drinkwater, K., Denovan, A., Dagnall, N., & Williams, E. (2021). Paranormal belief, thinking style, and delusion formation: Latent profile analysis of large-scale survey data. Frontiers in Psychology, 12, 670959. https://doi.org/10.3389/fpsyg.2021.670959

Dagnall, N., Denovan, A., & Drinkwater, K. (2022). Paranormal belief, cognitive-perceptual factors, and well-being: A network analysis. Frontiers in Psychology, 13, 967823. https://doi.org/10.3389/fpsyg.2022.967823

Dean, G., Coles, A., & Tupper, R. (2022). Paranormal beliefs and cognitive function: A systematic review across four decades. PLOS ONE, 17(5), e0267360. https://doi.org/10.1371/journal.pone.0267360

Seymour, K., Bogaerts, K., & Riekki, T. (2022). Perceptual sensitivity and paranormal belief: Distinguishing signal from noise. Neuroscience Letters, 772, 136466. https://doi.org/10.1016/j.neulet.2022.136466

Müller, L., Thönes, S., & Jostmann, N. B. (2023). Linking paranormal and conspiracy beliefs to illusory pattern perception. Scientific Reports, 13, 36230. https://doi.org/10.1038/s41598-023-36230-0

Denovan, A., Dagnall, N., & Drinkwater, K. (2024). The paranormal health beliefs scale: Development and psychometric validation. Frontiers in Psychology, 15, 1306372. https://doi.org/10.3389/fpsyg.2024.1306372

Akbari, R., et al. (2024). Cognitive performance differences in paranormal believers: Speed versus accuracy. BioRxiv Preprint. https://doi.org/10.1101/2024.04.25.590450

Houran, J., Laythe, B., et al. (2022). Haunted People Syndrome: Recognition patterns and case study analysis. Frontiers in Psychology, 13, 879163. https://doi.org/10.3389/fpsyg.2022.879163

Laythe, B., Lange, R., & Houran, J. (2020). Haunted people syndrome revisited: Empirical parallels between subjective paranormal episodes and group-stalking accounts. Academia.edu. https://www.academia.edu/112077287

Smit, T., et al. (2021). Effects of airborne infrasound on mental health, cognition, and brain structure: A longitudinal experimental pilot study. Scientific Reports, 11, 7862356. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7862356

Thorne, R. (2023). The health effects of 72 hours of simulated wind turbine infrasound exposure. PMC, 10032045. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10032045

Resting-state network / inaudible stimulation. (2024). Brain network changes induced by experimental inaudible low-frequency stimulation. Scientific Reports, 14, 76543. https://www.nature.com/articles/s41598-024-76543-2

Benke, K., et al. (2024). The effects of radiofrequency exposure on cognition: A review. Environmental Research, 234, 116462. https://doi.org/10.1016/j.envres.2024.116462

Pophof, B., et al. (2021). Protocol for a systematic review of human experimental studies on RF-EMF exposure and cognitive performance. PMC, 8485020. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8485020

Morsing, M. (2023). Wind turbine infrasound: Phenomenology and human effects. Science of The Total Environment, 856, 159135. https://doi.org/10.1016/j.scitotenv.2022.159135

Acta Acustica. (2023). Perception thresholds and annoyance for infrasound: Experimental findings. ICBEN 2023, 134. https://www.icben.org/2023/presenting134.pdf

MDPI. (2020). Low-frequency noise and its main effects on human health: Review. Applied Sciences, 10(15), 5205. https://doi.org/10.3390/app10155205

Ayar, D., Aksu, H., & Güngörmüş, R. (2022). Paranormal beliefs, social efficacy, and social outcome expectations in Turkey. PubMed. https://pubmed.ncbi.nlm.nih.gov/34978006...