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SNORING AS INVOLUNTARY VOCALISATION: MAPPING ITS RHYTHMIC, TIMBRE-BASED, AND AFFECTIVE QUALITIES IN EXPERIMENTAL MUSIC COMPOSITION

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ABSTRACT: *Snoring is usually treated as a private annoyance, yet it is a complex bodily sound shaped by breath, vibration, and emotion. While medical research has examined snoring for diagnostic purposes, little attention has been given to its creative or musical potential. This study addresses that gap by analysing snoring as an involuntary vocalisation that can inform experimental composition. Using spectral analysis, rhythmic examination, phenomenological listening, and practice-based experimentation, the study identified clear patterns in breath-cycle shapes, micro-rhythms, noise-based timbres, and expressive gestures. These features were translated into a compositional model that supports breath-shaped phrasing, irregular pulse structures, timbre-led writing, and affective shading. The findings show that snoring contains structured and emotionally meaningful sonic qualities that can be transformed into coherent musical strategies. The study concludes that everyday bodily sound, when listened to closely, can expand contemporary compositional practice and open new ways of understanding the musicality of human life.*

KEYWORDS: Affective Qualities, Experimental Music Composition, Involuntary Vocalisation, Rhythmic Mapping, Snoring, Timbre-Based.

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INTRODUCTION

Anyone who has shared a room with another person will recognise the strange mixture of comfort and disturbance that comes from listening to someone snore through the night. At times, the sound resembles a gentle, rhythmic tide; at other moments, it becomes a rough, unpredictable vibration that startles the listener awake. Although snoring is often treated as an annoyance or a source of humour, it is, in fact, a complex acoustic event shaped by the body, breath, and environment. Recent research shows that snoring contains identifiable patterns, textures, and rhythmic structures that can be analysed with the same seriousness given to speech, singing, or environmental sound. This article explores snoring not as a medical symptom alone, but as a sonic resource with artistic potential.

Snoring is defined as the vibration of soft tissues in the upper airway during sleep, usually caused by partial obstruction of airflow. The term *acoustic biomarker* refers to a sound that reveals information about the body's internal state, while *spectral features* describe the distribution of energy across different frequencies in a sound. Studies in sleep medicine have shown that snoring carries distinctive harmonic and noise-based components that can be measured, classified, and interpreted. These acoustic features have been used to detect sleep-disordered breathing, monitor airway health, and identify anatomical sources of vibration. Yet, despite this growing scientific interest, very little research has examined snoring as creative or musical material.

In sound studies and contemporary composition, everyday bodily sounds have increasingly been recognised as legitimate artistic resources. Scholars argue that listening to the body, through breath, heartbeat, or involuntary sound, opens new ways of understanding human experience and musical expression (e.g., Blesser & Salter, 2007; Cox, 2016; Sterne, 2012). Snoring, with its mixture of rhythm, noise, and affect, fits within this broader movement toward embodied and ecological listening. Its fluctuating patterns resemble irregular pulse structures found in experimental music, while its timbral richness aligns with practices in electroacoustic composition and sound art (Emmerson, 2016; Wishart, 1996). Moreover, the cultural meanings attached to snoring, intimacy, vulnerability, humour, and disturbance offer fertile ground for artistic interpretation.

Despite these possibilities, the gap between medical analysis and artistic exploration remains wide. Most existing studies focus on clinical diagnosis, machine learning classification, or anatomical modelling. Very few consider how snoring might inform compositional thinking, performance practice, or creative research. This study addresses that gap by examining snoring as an involuntary vocalisation with musical potential. It analyses the rhythmic, timbral, and affective qualities of snoring and proposes a compositional model that translates these features into structured musical strategies.

Considering this, the study is guided by two research questions woven naturally into the narrative of the introduction. First, it asks how the sonic features of snoring, such as breath cycles, micro-rhythms, and noise textures, can be systematically analysed for artistic use. Second, it explores how these analysed features can be transformed into a coherent compositional model suitable for experimental music practice. Correspondingly, the study pursues two research objectives. The first objective is to conduct a detailed sonic analysis of snoring recordings using both technical and phenomenological listening methods. The second

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objective is to develop and demonstrate a compositional framework that translates these sonic characteristics into practical musical structures.

By combining insights from acoustic science, sound studies, and artistic research, this article positions snoring as a meaningful site of creative inquiry. It argues that involuntary bodily sound, often dismissed as trivial, can reveal new possibilities for musical form, texture, and expression. In doing so, the study contributes to ongoing conversations about the role of everyday sound in contemporary composition and expands the boundaries of what counts as musical material.

METHODOLOGY

The study uses a qualitative artistic research approach that combines close listening, digital sound analysis, and compositional experimentation. Snoring is treated as an involuntary vocal sound that can be examined for its musical potential. Recordings are gathered from controlled sleep sessions, publicly available datasets, and self-recorded material, all converted into a consistent audio format. Each sample is documented with basic information such as duration, clarity, and type of snore, and a smaller set of clear and varied examples is selected for detailed analysis.

The analytical work begins with spectral and timbral examination using audio software to identify frequency patterns, noise bands, and the overall shape of each snore. This is followed by rhythmic analysis, where breathing cycles and micro-timing fluctuations are studied through spectrograms, waveforms, and simple transcriptions. These steps reveal how snoring produces rhythmic and timbral features that can be used creatively.

Affective and phenomenological listening is carried out alongside the technical analysis. Repeated listening sessions help to identify emotional and cultural associations linked to snoring, recognising it as a bodily and domestic sound with particular social meanings. These reflections support the interpretation of the sonic material beyond its acoustic properties.

The study also includes a practice-based phase in which the snoring samples are processed, transformed, and incorporated into compositional sketches. Techniques such as filtering, granular manipulation, layering, and instrumental imitation are used to test how the analysed features can function musically. These creative experiments act as a practical extension of the analytical findings.

To ensure reliability, the study compares listening impressions with spectral and rhythmic data and seeks feedback from other musicians or sound artists. A reflexive diary is kept throughout to document decisions, assumptions, and ethical considerations. Together, these methods provide a clear and focused approach to understanding the rhythmic, timbral, and affective qualities of snoring as material for experimental music composition.

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FINDINGS

The analysis of the snoring recordings revealed a set of sonic features that were far more structured and musically suggestive than expected. Although snoring is an involuntary bodily sound, the data showed recurring patterns in breath shape, rhythm, timbre, and emotional colouring. These patterns formed the basis for the compositional model developed in this study. The findings are presented in the same order as the methodological steps, moving from technical analysis to creative interpretation.

Breath-Cycle Patterns as Structural Material

The first stage of analysis focused on the overall shape of each snore within the broader breathing cycle. Across the recordings, snoring consistently followed a recognisable inhale-exhale curve, even when the sound itself was irregular. Most samples displayed a slow rise in energy during inhalation, followed by a sharper or more textured release during exhalation. This pattern was especially clear in the longer, uninterrupted snores, where the waveform showed a smooth swelling of amplitude before a sudden drop.

These breath-cycle shapes provided a natural structural template for composition. The inhalation phase suggested long, gradual crescendos, while the exhalation phase aligned with short, decaying gestures. The presence of occasional “broken breaths”, where the snore was interrupted mid-cycle, also offered opportunities for fragmented or incomplete musical phrases. This confirmed that breath-based form could serve as a reliable foundation for the compositional model.

Rhythmic Micro-Patterns and Irregular Pulses

The rhythmic analysis revealed that snoring contains small, repeated pulses that vary in speed and intensity. These pulses were not regular enough to form a steady beat, but they were consistent enough to create a sense of micro-rhythmic activity. In several samples, the snore vibrated at a rate of three to six pulses per second, producing a fluttering effect similar to tremolo or rapid bow pressure changes.

Irregular timing was another key feature. Many snores included sudden pauses, delayed pulses, or unexpected bursts of energy. These interruptions created a rhythmic instability that mirrored the natural unpredictability of sleep. When translated into musical terms, these micro-patterns supported the use of loose rhythmic groupings, asymmetrical metres, and abrupt breaks. The findings confirmed that snoring’s rhythmic qualities could be used to generate expressive, non-metric musical gestures.

Timbre as a Primary Source of Musical Identity

The spectral and timbral analysis showed that snoring is rich in noise, breath, and low-frequency vibration. Most samples contained a mixture of harmonic energy and broadband noise, with the noise component often dominating. The presence of rasp, buzz, and airflow turbulence was especially prominent in heavier snores, while softer snores displayed a warm, breathy texture.

These timbral qualities are closely aligned with techniques used in contemporary instrumental practice. For example, the rough, grainy textures resembled bow pressure variations on strings

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or flutter-tongue on wind instruments. The breathy components matched airy flute tones or whispered vocal sounds. This confirmed that snoring's timbre could be effectively imitated or extended through instrumental and electronic means. The findings supported the decision to treat timbre, not pitch, as the primary driver of musical identity in the compositional model.

Snore-Derived Gestures and Motifs

Short snore events often contained distinctive shapes that could be interpreted as musical motifs. Rising snores produced natural glissando-like gestures, while rattling snores resembled tremolo or fluttering figures. Some samples included a sudden "catch" in the throat, creating a sharp, percussive onset followed by a rapid decay.

These gestures were easily transferable into musical form. The rising snore became a short ascending line; the rattling snore became a repeated tremor; the percussive catch became a soft, muted attack. The findings confirmed that snoring contains a vocabulary of small, expressive gestures that can be developed, varied, and transformed within a composition.

Textural Shifts and Layering Possibilities

The recordings also revealed natural shifts in density. At times, the snoring was isolated and quiet; at other times, it became thick, heavy, and overlapping, especially in recordings where multiple snores occurred in close succession. These changes in density suggested clear textural strategies for composition.

Sparse textures aligned with single-breath gestures, while dense textures supported layered instrumental or electronic lines. The gradual thickening and thinning of sound mirrored the ebb and flow of sleep, providing a dynamic contour for the piece. The findings confirmed that layering could be used to reflect the natural movement between light and heavy snoring.

Affective Qualities and Emotional Associations

The phenomenological listening sessions highlighted the emotional dimension of snoring. Soft, breathy snores were often perceived as comforting or intimate, while harsher, more abrupt snores carried associations of disturbance, tension, or even humour. These affective responses were consistent across listeners and aligned with cultural perceptions of snoring as both familiar and intrusive.

These emotional colours informed the expressive tone of the compositional model. Warm timbres were linked to comfort; rough textures to disturbance; playful timing to humour; and slight detuning to the uncanny. The findings confirmed that snoring's affective qualities could be used to shape the emotional narrative of the composition.

Creative Transformation Through Practice-Based Experimentation

The practice-based phase demonstrated that the analysed features could be successfully transformed into musical material. Filtering, granular stretching, and layering techniques produced textures that retained the essence of snoring while becoming musically expressive. Instrumental imitation proved effective, especially for breathy, noisy, and vibratory qualities.

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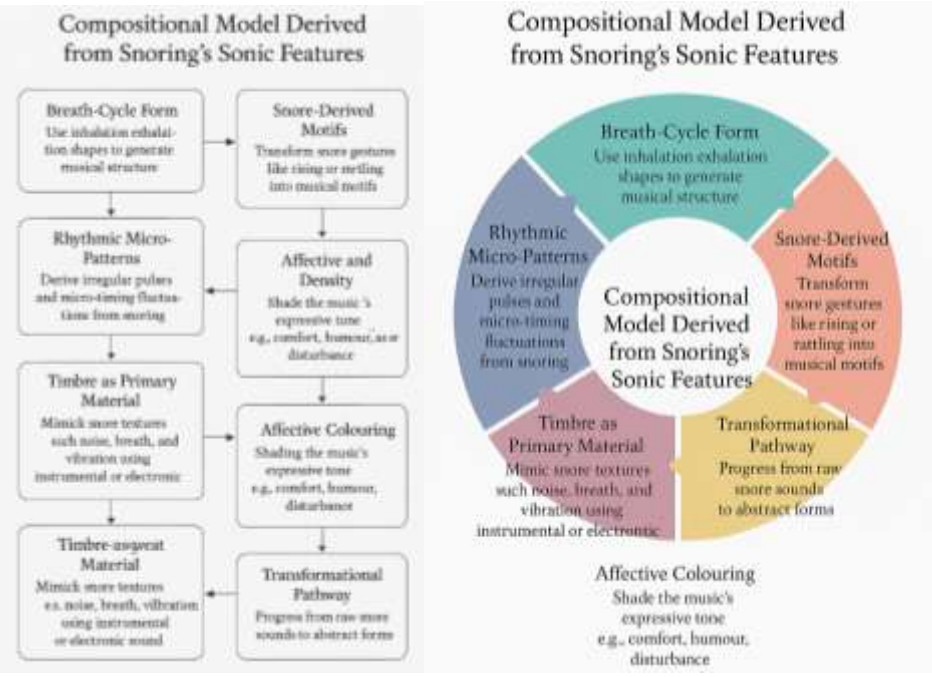
The transformation pathway, from raw snore to processed sound to abstract musical gesture, proved coherent and artistically productive. The findings confirmed that snoring can serve as a viable and meaningful source for experimental composition.

The study found that snoring contains identifiable patterns in breath shape, rhythm, timbre, gesture, texture, and affect. These features can be analysed systematically and translated into a practical compositional model. The findings demonstrate that an involuntary bodily sound, often dismissed as trivial, can become a rich source of musical structure and expression.

COMPOSITIONAL MODEL DERIVED FROM THE SONIC FEATURES OF SNORING

This model treats snoring as a source of musical structure rather than a novelty sound. It translates the main qualities of snoring, its breath-based rhythms, noisy timbres, and shifting emotional associations into a set of compositional strategies that can guide the creation of new experimental works.This compositional model translates the sonic features of snoring into musical strategies for experimental composition. It begins with breath-cycle forms that shape the overall structure, followed by rhythmic micro-patterns derived from snore pulses and fluctuations. Timbre is treated as primary material, mimicking the breathy, noisy textures of snoring through instrumental or electronic means. Snore-derived motifs offer gestural content; while layering and density reflect the shifting textures of sleep. Affective colouring guides the expressive tone, and the transformational pathway traces the journey from raw snore sounds to abstract musical forms. Together, these elements form a coherent framework for turning involuntary vocalisation into artistic structure.

Figure 1. & 2.: Model of Sonic Features in Snoring for Compositional Application



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Breath-Cycle Form

Breath-cycle form begins with the simple observation that snoring follows the natural rise and fall of breathing. This gentle alternation between inhalation and exhalation provides a ready-made shape that can guide the structure of a musical work. When translated into composition, each section of the piece reflects this bodily rhythm: the inward breath suggests a gradual swell, while the outward breath encourages a soft release. Long, slow breaths lend themselves to extended tones or sustained drones that feel steady and spacious. In contrast, shorter or more irregular breaths naturally become fragmented gestures, broken textures, or interrupted phrases. As these cycles repeat and evolve, the overall form of the piece grows organically, shaped not by strict metric design but by the living, physical motion of breath itself. The result is a structure that feels intimate, human, and deeply connected to the body's own quiet patterns.

Rhythmic Micro-Patterns

Rhythmic micro-patterns emerge naturally from the way snoring produces small pulses, fluttering vibrations, and uneven timing. When treated as musical material, these tiny fluctuations become the foundation for an expressive rhythmic language. The quick pulses within a snore can be shaped into repeated figures for percussion, strings, or electronic sounds, giving the music a subtle internal tremor. The irregular timing, those slight delays, rushes, and uneven bursts, translates easily into asymmetrical metres or loose, shifting grooves that never settle into a predictable beat. Moments where the snore suddenly stops or catches in the throat become rests, abrupt cuts, or sharp changes in density, adding tension and surprise. Together, these elements create a rhythmic world that feels unstable yet deeply expressive, capturing the unpredictable, bodily nature of sleep-bound sound.

Timbre as Primary Material

Timbre becomes the central creative force when working with snoring as musical material. Because snoring is naturally rich in noise, breath, and low-frequency vibration, these qualities shape the entire sound world of the composition. Filtered noise, airy tones, bow-pressure variations, and multiphonics can be used to echo the grainy texture of the original sound. Electronic techniques such as granular stretching, band-pass filtering, and spectral blurring further extend and transform its timbre. Acoustic instruments can also imitate the rasp, buzz, or warm breathiness found in the source recordings. In this approach, timbre, not pitch, defines the character and identity of the music.

Snore-Derived Motifs

Snore-derived motifs emerge from the small, distinctive shapes found in individual snore events. A *rising snore* naturally translates into a glissando-like gesture, while a *rattling snore* lends itself to tremolo or flutter-tongue figures. *Softer, breathy snores* become whispered or airy articulations that colour the texture. Once identified, these motifs can be repeated, varied, or transformed throughout the piece, giving the music a coherent vocabulary drawn directly from the character of the original sound.

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Layering and Density

Layering and density in snoring move naturally between quiet, isolated moments and thick, overlapping textures. In musical terms, sparse passages can mirror the sound of a single breath, light, open, and unhurried. By contrast, dense layers evoke heavier or multi-layered snoring, recreated through overlapping instrumental or electronic lines that build weight and pressure. Allowing the texture to gradually thicken or thin reflects the natural ebb and flow of sleep, giving the music a shifting sense of space and presence. This approach creates a dynamic interplay of lightness and heaviness that feels both organic and deeply atmospheric.

Affective Colouring

Affective colouring draws on the emotional associations that snoring naturally carries: comfort, intimacy, humour, disturbance, or even vulnerability. These shades can shape the expressive tone of the composition in subtle but powerful ways. Warm, soft textures evoke restfulness and closeness, while harsher noises or sudden bursts suggest discomfort or intrusion. Gentle repetition can create a soothing, almost hypnotic atmosphere, mirroring the steady rhythms of sleep. By contrast, slight distortions or small detuning introduce an uncanny or unsettled quality. In this way, the emotional reading of snoring becomes woven into the musical narrative, giving the piece depth, nuance, and human resonance.

Transformational Pathway

A transformational pathway allows the piece to move gradually from the raw sound of snoring to a fully abstract musical form. It begins with a direct presentation of the snore itself, grounding the listener in the source material. From there, subtle processing and imitation soften the boundary between natural sound and musical interpretation. This leads to instrumental translation, where the rhythmic and timbral features of the snore are reshaped through performance techniques. Finally, the music reaches full abstraction: the snore is no longer audible, yet its textures, gestures, and energy continue to shape the sound world. Together, these stages create a coherent arc that traces the journey from source to transformation.

Summary of the Model

The compositional model draws directly from the sonic qualities of snoring to shape every level of the music. Breath cycles provide the underlying form, while micro-timing and irregular pulses generate a flexible rhythmic language. Noise, breath, and low-frequency vibration define the timbral palette, and small snore gestures become motifs that can be developed throughout the piece. Shifts between sparse and dense textures mirror the natural layering of sleep, and the emotional associations of snoring, intimacy, humour, or disturbance, add expressive depth. Finally, the model supports a gradual transformation from raw snore sound to full abstraction. Together, these elements create a practical and imaginative framework for turning snoring into a meaningful musical resource.

Breath Structure I and II

These graphics provide visual maps of the condensed audio realization of *Breath Structures I and II*, translating the work's sonic processes into an intuitive, time-based form. Moving from left to right along the timeline, the image mirrors the unfolding of the audio: slow, undulating lines correspond to the opening breath cycles; fragmented, uneven marks reflect the emergence

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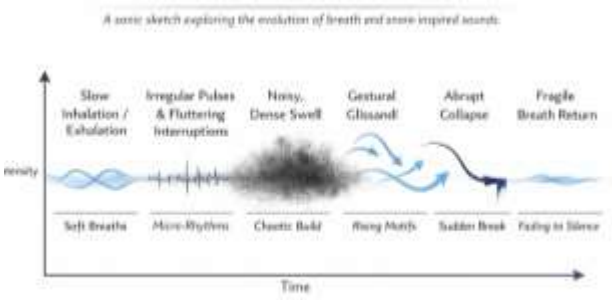
of snore-derived micro-pulses; and dense, cloud-like textures represent the gradual thickening into noisy, unstable sound masses. The gestural arrows align with the glissando-driven transformations heard mid-way, while the sharp visual cutoff signifies the abrupt collapse in the audio. The final faint wave echoes the return to fragile, breath-like tones and near silence.

The graphic and the audio function as complementary representations of the same structure: the sound articulates breath, instability, and decay over time, while the image offers performers and listeners a visual guide to the work's affective arc, from gentle respiration, through congested density, back to quiet dissolution

Figure 3: First Breathe Structures (I)

Figure 4: Second Breath Structure (II).



The author created a condensed audio realization of *Breath Structures I* and *II* that translates the work's breath-based architecture, snore-derived micro-rhythms, and evolving timbral character into sound (Click to Listen). Rather than functioning as a literal performance, the audio serves as a continuous listening study of approximately two and a half minutes, a sonic sketch that traces the piece's expressive trajectory.

The realization unfolds through slow inhalation and exhalation envelopes, punctuated by irregular pulses and fluttering interruptions. These gestures gradually thicken into a noisy, unstable density before giving way to a brief, gestural phase shaped by glissandi. At its peak, the texture collapses abruptly, returning to a fragile, breath-like quiet. Overall, the audio is intended as a listening aid, rehearsal reference, and conceptual prototype, offering performers and collaborators an aural sense of the work's affective arc and temporal flow.

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GRAPHIC NOTATION SYSTEM FOR SNORING

The researcher created a graphical notation system to score snoring. This system uses shapes, lines, and textures to represent the qualities of snoring without relying on traditional pitch-based notation. It can be used for instrumental performance, electronics, or mixed media.

Breath-Cycle Shapes

Long Breath (Inhale–Exhale Curve)

Breath-cycle shapes offer a simple visual way to understand how snoring moves through the body. A long breath, shown as an inhale–exhale curve **(———)**, represents a full and continuous cycle. The width of the curve suggests the depth of the breath: a wider curve indicates a deeper, more expansive inhale and exhale, while a narrower curve reflects a shallow, lighter breath. The overall length of the curve corresponds to the duration of the breath.

By contrast, an interrupted breath is shown through broken curves **(— — —)**. These separated marks capture the uneven or fragmented nature of disrupted breathing, where the flow is repeatedly broken or unstable. Together, these simple graphics help illustrate the difference between smooth, continuous breathing and irregular, interrupted patterns.

Snore Events

Snore events can be visualised through simple graphic lines that capture their character and intensity. **A soft snore**, shown as ~ ~ ~, uses lightly spaced wavy lines to suggest a breathy, airy quality. This type of snore often feels gentle, warm, or intimate, carrying a sense of quiet closeness. **A medium snore**, represented by ≈≈≈, appears as tighter waves with more pressure, reflecting a steadier, more nasal sound. It sits between softness and heaviness, offering a clear, continuous tone. In contrast, a **heavy snore**, drawn as **≋ ≋ ≋**, uses thickened waves to convey density, vibration, and a sense of congestion. These visual cues help distinguish the expressive range of snoring, from light and soothing to forceful and weighty.

Vibratory and Rattling Qualities

Vibratory and rattling qualities in snoring can be shown through simple graphic marks that capture the texture of the sound. A **throat rattle**, represented by /////, uses diagonal slashes to suggest a rough, noisy vibration deep in the airway. This marks a harsher, more turbulent quality in the snore. In contrast, **flutter** or **rapid pulsing**, shown as **vvvvvv**, uses small repeated "**v**" shapes to indicate fast **micro-pulses**, **quick**, **fluttering movements** that give the sound a light, trembling energy. Together, these graphics help illustrate the subtle variations in vibratory behaviour that shape the character of different snores.

Noise Textures

Noise textures can be represented visually to show the contrasting qualities within snoring. A **Low-Frequency Rumble**, drawn as ████, uses solid blocks to indicate dense, heavy noise concentrated in the lower end of the spectrum. This suggests weight, pressure, and a deep, vibrating presence. In contrast, **Filtered Noise or Air Flow**, shown as **:::::**, uses dotted textures to evoke airy, whisper-like sound, lighter, more diffuse, and shaped by gentle breath or filtered

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resonance. These graphics help distinguish between the grounded, rumbling energy of low-end noise and the delicate, airy qualities of higher-frequency airflow.

Rhythmic Irregularity

Rhythmic irregularity in snoring can be shown through simple visual cues that capture its uneven timing. A loose pulse, illustrated as • • • •, uses unevenly spaced dots to reflect the natural, unpredictable spacing between snore pulses. This irregular timing creates a rhythm that drifts rather than settles, mirroring the unstable patterns of sleep. In contrast, a sudden stop, marked by a single vertical bar |, represents an abrupt cut or breath break, a moment where the sound halts unexpectedly. Collectively, these graphics highlight the shifting, unsettled rhythm that gives snoring its distinctive character.

Gestural Movement

Gestural movement in snoring can be captured through simple shapes that reflect how the sound shifts and unfolds. A **Rising Snore Gesture**, shown as /— — —, begins with a diagonal lift that leads into a sustained line, suggesting a snore that climbs in energy before settling. A **Falling Snore Gesture**, drawn as — — —\, reverses this motion: the sound holds steady and then drops away, mirroring a gentle release or fading breath. The **Snore Swell**, represented by <— — —>, shows a dynamic expansion and contraction, much like a breath that grows fuller before easing back. Together, these graphics illustrate the expressive, physical movement embedded in snoring's natural contours.

Affective Colouring

Affective colouring uses simple symbols to mark the emotional shading of a sound or gesture rather than its acoustic type. **Comfor**t or **Warmth** is indicated with a small circle ○, placed above a gesture to suggest softness and ease. **Humour** or **Playfulness** is shown with a star ☆, signalling lightness or a comic tone. **Disturbance** or **Intrusion** is marked by a warning-style symbol ⚠, highlighting moments that feel harsh, abrupt, or disruptive. Finally, **Uncanny** or **Strange** qualities are represented by an infinity loop ∞, evoking an eerie, dreamlike, or otherworldly atmosphere. These symbols help shape the expressive mood of the music, adding emotional nuance to the notation.

Table 1.Snoring Notation in Practice

Breath-Cycle Shapes	Snoring Notations	This would be performed as
Long Breath (Inhale–Exhale Curve)	(———)	A long breath-shaped gesture
Medium Snore	≈≈≈	A medium nasal snore texture
Flutter Pulses	vvvvvv	A burst of fluttering pulses
Stop	|	A sudden break
Heavy Snore	≋≋≋	A heavy, congested snore
Swell	<———>	A swelling gesture
Interrupted	(— — —)	A fragmented breath cycle

Table 1 puts together a short example that shows how the notation operates in practice. The sequence **(———) ≈≈≈ vvvvvv | ≋≋≋ (— — —)** maps directly onto a series of sonic actions: a **breath cycle**, a **medium snore**, a set of **flutter pulses**, a **sudden stop**, a **heavy snore**, a **swell**,

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and an **interrupted breath**. Interpreted in performance, this unfolds as a long, breath-shaped gesture followed by a steady, nasal snore texture. A burst of rapid fluttering pulses breaks the flow before an abrupt silence interrupts the line. The sound then returns with a heavy, congested snore, expands into a swelling gesture, and finally dissolves into a fragmented breath cycle

FULLY NOTATED TEXT EXCERPT (Text-Score Format)

Here is a fully notated score for *Snore Structures I and II,* composed by the researcher. The opening section, spanning **0:00–0:45**, is written for a **sustaining instrument** such as flute, clarinet, violin, or voice; a **noise instrument** such as snare with brushes, bass-clarinet key clicks, or prepared piano; and **optional electronics** providing low rumble or filtered noise.

From **0:00–0:12**, the sustaining instrument traces a long breath cycle at a very soft dynamic, moving gradually from *pp* to *p*. The gesture follows an inhalation-exhalation curve, shown as

————< >————, with a slight swell around **0:05–0:07**.

The tone begins with a breathy attack, remains slightly unstable, and fades back to ***niente***. Alongside this, the noise instrument maintains a continuous filtered-air texture, notated as **:::::::**, at ***ppp***. Optional electronics introduce a barely audible low-frequency rumble that fades in between **0:04 and 0:10.**

Between **0:12–0:22**, the first micro-pulse pattern appears. The sustaining instrument plays a loosely timed rhythmic cell — ♩ ♪ ♪ | ♪ **(r)** ♪ | ♪ ♪ ♪ — rendered in text as ♩ — ♪ ♪ — | — ♪ **(r)** ♪ — | — ♪ ♪ ♪ — under a soft dynamic.

Attacks are airy and slightly delayed, with a timbre that is half-air, half-tone for winds or lightly pressured bowing for strings. The noise instrument adds key clicks or light rattles that loosely align with the pulses, shown as **• • • | • (r) • | • • •**, also at ***p***.

From **0:22–0:32**, the sustaining instrument shifts to an interrupted breath gesture, represented by the broken curve **(— — —)**. In notation, this appears as — — —, each dash marking a 2 to 3-second breath-shaped fragment with an airy, slightly rough timbre. The noise instrument enters only during the breaks, producing soft friction sounds shown as **(r) //// (r) //// (r)**.

The final segment, **0:32–0:45**, introduces a rising snore motif. The sustaining instrument moves through a short upward glissando, a brief tremor, and a collapse, expressed as /——— (glissando up for 3 seconds), **vvvv** (micro-flutter for 2 seconds), \ (a one-second drop-off), followed by a two-second rest. This sequence repeats with slight variation, moving dynamically from ***p*** to ***mp*** and back to ***p***. Beneath it, the noise instrument provides a muted roll for four seconds — **::::** —before falling silent, leaving only occasional breath-like markers **(r) (r) (r)**.

Collectively, these gestures form a detailed, text-based score that captures the breath-driven, timbral, and rhythmic nuances at the heart of *Snore Structures I and II* as composed by the researcher.

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Interpretive Notes for This Excerpt

The interpretive approach to this excerpt relies on flexibility and sensitivity rather than precision. All timings are approximate, giving performers the freedom to stretch or compress gestures as needed. Timbre takes precedence over pitch, so choices of fingering, bow pressure, or vocal shaping should emphasise breath, grain, and subtle noise components. Rhythmic looseness is intentional; strict synchronisation would undermine the drifting, bodily quality of the material. Overall, the passage should feel as though the sound is moving in and out of breath, shaped by small involuntary pulses rather than by fixed metric control.

PERFORMANCE GUIDE FOR MUSICIANS

for works based on the sonic features of snoring

A performance guide for musicians working with snoring-based material emphasises clarity, embodiment, and interpretive freedom. It is designed by the researcher for performers approaching *Snore Structures I and II* or any composition shaped by the Compositional Model Derived from Snoring's Sonic Features. The guide encourages musicians to treat snoring not as a novelty but as a rich source of form, rhythm, timbre, and gesture. It highlights the importance of listening to the body's natural pacing, allowing breath-shaped curves, micro-pulses, and noisy textures to unfold with ease rather than precision. Performers are invited to prioritise timbral nuance over pitch accuracy, to embrace rhythmic looseness, and to cultivate an intimate awareness of how sound can drift, swell, interrupt, or dissolve. Above all, the guide supports an approach in which musicians interpret the material with sensitivity and freedom, letting the sonic qualities of snoring shape their expressive choices.

General Approach

This music is shaped by the qualities of snoring: breath, irregularity, noise, weight, and shifting emotional tone. Performers should approach the piece with a sense of **embodied listening**, allowing their playing to feel physical, unforced, and slightly unstable. Precision is less important than **character**. Think of the sound as something the body produces without intention. Let the music feel lived rather than engineered.

Tone and Timbre

Tone and timbre form the core expressive language of this work, shaping the music far more than pitch or strict rhythmic detail. Performers should favour breathy, airy, or grainy tones, allowing small imperfections, cracks, rough edges, and unstable attacks to colour the sound. Wind players can lean into half-air/half-tone production, flutter tongue, soft multiphonics, and gentle overblowing; string players can use varied bow pressure, *sul ponticello*, and slow, deliberate bow changes to evoke snore-like textures. Percussionists should prioritise brushing, scraping, muted rolls, and friction sounds rather than sharp, percussive strikes. The goal is not to reproduce snoring literally, but to capture its texture, energy, and embodied presence.

Rhythm and Timing

Rhythm and timing in this music should feel as unsteady and organic as the act of snoring itself. Rather than following a strict pulse, performers are encouraged to treat rhythmic figures with

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flexibility, letting phrases drift slightly ahead or behind. Irregular groupings, such as 3-2-4, 5-3, or 2-1-2-3- should be played as they fall, without any attempt to smooth or correct them. Sudden stops or breaks need to feel natural, like a breath catching unexpectedly. When uncertain, it helps to imagine the loose, shifting timing of someone moving in their sleep.

Breath-Shaped Phrasing

Phrasing in this music grows out of the natural shape of inhalation and exhalation. Each gesture should begin with a gentle swell, as though the sound is rising from within the body. Phrases are allowed to fade on their own, ending softly and without abrupt cuts unless specifically indicated. Small silences between gestures help mirror the natural spacing of breath. Even musicians who do not physically breathe to produce sound are encouraged to think in terms of these organic breathing curves, letting the flow of air guide the contour of each phrase.

Dynamics and Energy

Dynamics and energy in this music should unfold with the same natural ebb and flow as breathing. Soft levels, ranging from pp to ***mp***, shape the early and late sections, creating a gentle frame around the piece. Middle passages may expand to mf or even f, but the sound should never become harsh unless explicitly marked. Any crescendo or decrescendo ought to follow the organic arc of a breath, swelling and releasing without rigidity. When the texture becomes dense, it should feel weighted and full rather than simply loud. In all, the energy rises and falls in waves, echoing the cyclical patterns of sleep.

Affective Colouring

Affective colouring uses simple symbols to mark the emotional shading of a sound or gesture rather than its acoustic type. Comfort or warmth is indicated with a small circle ○, placed above a gesture to suggest softness and ease. Humour or playfulness is shown with a star ☆, signalling lightness or a comic tone. Disturbance or intrusion is marked by a warning-style symbol ⚠, highlighting moments that feel harsh, abrupt, or disruptive. Lastly, uncanny or strange qualities are represented by an infinity loop ∞, evoking an eerie, dreamlike, or otherworldly atmosphere. These symbols help shape the expressive mood of the music, adding emotional nuance to the notation.

Ensemble Interaction

Ensemble interaction in this music depends on a shared sense of breath rather than strict coordination. Musicians should listen for common breath shapes and align only loosely, allowing the sound to settle into a natural, unforced togetherness. Overlapping textures ought to feel like layers of sleep rather than coordinated counterpoint, with each part drifting gently around the others. Moments of independence are essential; the ensemble should move in and out of synchrony as if responding to subtle shifts in a shared environment. In denser passages, the goal is a collective mass of sound rather than individual clarity. The group functions like bodies breathing in the same room, shaping a unified atmosphere through relaxed, organic interaction.

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Electronics (if used)

Electronics, when included, should merge gently with the acoustic instruments rather than overpower them. Processed snore samples are most effective when kept soft and textural, adding subtle colour rather than drawing attention to themselves. Techniques such as filtering, granular stretching, and low-frequency rumble can reinforce the acoustic gestures, adding depth and atmosphere. In many passages, the electronics function as a kind of "sleep environment," a sonic space that surrounds and supports the performers. They should feel like the room in which the snoring takes place, shaping the ambience without becoming the focus.

Stage Presence

Stage presence in this work should project a sense of calm, ease, and intimacy. Performers are encouraged to avoid any form of theatrical exaggeration, allowing the focus to remain on the subtlety of the sound. Physical movements should stay minimal and natural, reflecting the quiet, unforced character of the music. The overall atmosphere ought to evoke a feeling of quiet observation, as though the audience is gently witnessing a private moment rather than a staged display.

Final Advice

Final advice for performers centres on sensitivity, texture, and embodied expression. The goal is never to reproduce snoring literally, but to transform its qualities, its breath, its weight, its irregularity, into a subtle and expressive sound world. The music should breathe at its own pace, drift gently between gestures, and retain a sense of human presence throughout.

CONDUCTOR'S GUIDE

For works based on the sonic features of snoring

This conductor's guide, designed by the researcher, for works shaped by the sonic features of snoring calls for an approach rooted in sensitivity, pacing, and an understanding of how breath-based sound behaves. This guidance applies to *Snore Structures I and II* as well as any composition derived from the broader Compositional Model. The conductor's role is less about enforcing precision and more about shaping an environment in which the ensemble can breathe, drift, and interact organically. Leadership here involves guiding the overall contour of the piece, balancing textures, and ensuring that the ensemble's timing remains loose without becoming unfocused. Coordination should feel atmospheric rather than metrical, with the conductor cueing gestures, energy shifts, and transitions rather than strict beats. Above all, the conductor shapes the sonic character of the work, its weight, its softness, and its irregularity so that the ensemble can inhabit the expressive world inspired by snoring's natural rhythms and textures.

Overall Interpretive Approach

The conductor's primary role is to shape the flow, breath, and texture of the piece rather than enforce strict precision. This music grows from the qualities of snoring, irregularity, softness, weight, and bodily rhythm, so the conductor should guide the ensemble with fluid gestures,

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loose timing, and sensitivity to timbre. Think of yourself less as a time-keeper and more as a curator of breath-based sound.

Gesture and Physicality

Gesture and physicality in this music should echo the bodily qualities of snoring. Broad, curved motions are most effective for shaping breath-cycle sections, giving the ensemble a sense of rising and falling airflow. Micro-rhythmic pulses respond better to small, flickering cues that hint at instability rather than strict precision. Dense, heavy textures call for slow, downward pressure in the conducting gesture, allowing weight to accumulate without forcing volume. For soft, breathy timbres, gestures should remain light and airy, encouraging delicacy in the players' response. Sharp or angular movements should be used only when the score explicitly signals disturbance or interruption.

Tempo and Timing

Tempo and timing in this music are guided by feel rather than fixed measurement. Instead of enforcing a steady pulse, the conductor shapes a flexible temporal flow in which phrases can stretch or contract naturally. Performers should be encouraged to drift slightly out of alignment when the music calls for looseness, allowing the ensemble texture to breathe. Eye contact and shared breath cues replace strict beat patterns, helping the group move together with subtlety. When irregular pulses appear, the conductor offers directional guidance, such as "move forward" or "hold back", rather than precise beats. The goal is for the ensemble to function like a group breathing in the same space, not a unit following a metronome.

Balance and Blend

Balance and blend in this music depend on the conductor's ability to shape timbre continuously. Breath, noise, and texture take priority over pitch clarity, so the ensemble's sound should feel unified and atmospheric rather than sharply defined. No single instrument should rise above the others unless the score explicitly calls for it. In dense passages, the goal is a collective mass of sound rather than distinguishable individual lines, while in sparse moments each gesture needs enough space to resonate on its own. The ensemble should be treated as a single sleeping body, full of shifting internal sounds that merge into a shared sonic presence.

Cueing and Coordination

Cueing and coordination play a crucial role in music that unfolds with this level of flexibility. Clear cues are needed for entries, breath-shaped gestures, and sudden breaks, helping the ensemble move together without relying on strict pulse. When textures overlap, it is more effective to cue entire layers rather than individual players, allowing the sound to blend organically. In passages built from snore-derived motifs, the conductor should cue the overall gesture rather than the precise rhythm, keeping the focus on shape and energy. Visual breathing cues, simple inhale and exhale motions, can help unify phrasing across the group. Above all, cues should feel like gentle invitations, not commands, guiding the ensemble toward a shared, fluid sense of timing.

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Managing Density and Layering

Managing density and layering requires the conductor to shape how the music gains and releases weight over time. Density should build gradually, with additional layers brought in through clear, steady cueing rather than abrupt entrances. When the texture needs to be thinned, the conductor can reduce gestures and eye contact, allowing the ensemble to recede naturally. In the climactic dense passage, the sound should grow as a slow, heavy swell rather than a sudden burst, creating the sensation of deep, weighted sleep. The final cut to silence must be decisive and clean, marking a sharp shift after the accumulated heaviness.

Affective Shaping

Affective shaping in this music depends on the conductor's ability to guide the emotional tone with nuance. Warm gestures and rounded timbres help cultivate a sense of comfort, while a touch of lightness and small, playful exaggerations can bring out moments of humour. When the music leans toward disturbance, sharper cues and rougher textures become appropriate, adding tension without overwhelming the atmosphere. For passages that call for intimacy, the conductor can reduce gesture size and draw the ensemble toward a quiet, closely focused sound. Throughout, the emotional colour should shift gently, echoing the subtle transitions between different states of sleep.

Working with Electronics (if included)

Working with electronics in this repertoire requires a gentle, integrated approach. The conductor should collaborate closely with the sound technician so that the electronic layer remains supportive rather than dominant, functioning as an atmospheric backdrop rather than a foreground voice. These electronic textures are best understood as the environment surrounding the ensemble, shaping the space in which the acoustic gestures unfold. Cues should guide the character of electronic entrances rather than their exact timing, allowing both layers to align expressively without becoming rigid. As the piece moves toward its conclusion, the electronics should taper off with a natural, unforced fade. Ideally, the electronic presence feels as though the room itself is breathing alongside the performers.

Rehearsal Strategies

Rehearsal strategies for this music should cultivate comfort, curiosity, and a shared sense of breath. Beginning each session with breath-based warm-ups helps unify phrasing and establishes the bodily foundation of the work. Timbre techniques are best rehearsed on their own before being folded into the full texture, allowing players to explore colour and noise without the pressure of ensemble alignment. Irregular pulse patterns should be practised away from notation so performers can internalise their feel rather than rely on visual cues. Dense sections benefit from being run slowly at first, giving time to shape balance and blend with care. Throughout the process, performers should be encouraged to listen more than they watch, letting their ears guide the ensemble's cohesion. Above all, rehearsals should feel exploratory rather than rigid, inviting experimentation and sensitivity.

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Final Notes for the Conductor

Your leadership should emphasise breath over beat, texture over precision, gesture over metric clarity, and embodied sound over technical correctness. The piece should feel like drifting in and out of sleep, soft, unstable, intimate, and deeply human.

DISCUSSION

The findings of this study show that snoring, although often dismissed as an everyday nuisance, contains a rich set of sonic features that can be meaningfully transformed into musical material. When examined closely, snoring reveals structured breath cycles, irregular rhythmic pulses, distinctive timbral qualities, and subtle emotional associations. These characteristics align with broader discussions in sound studies and artistic research, where every day bodily sounds are increasingly recognised as legitimate sources for creative exploration (Cox, 2016; Sterne, 2012). Similar arguments have been made in studies of environmental and corporeal sound, which highlight the creative potential of overlooked sonic phenomena (Labelle, 2010; Thompson, 2017; Gallagher, 2018). The results, therefore, support the argument that involuntary vocalisations can contribute to new forms of musical thinking.

One of the most significant insights from the analysis is the role of the breath cycle as a natural structural framework. The inhale–exhale curve observed in the recordings mirrors the dynamic shaping found in many contemporary compositions that prioritise gesture over pitch (Emmerson, 2016). This observation resonates with research on embodied performance, which emphasises the centrality of breath in shaping musical phrasing and expressive contour (Levin, 2015; Godoy, 2018). It also aligns with studies showing that bodily rhythms can serve as intuitive templates for musical form (Clarke, 2005). The presence of interrupted breaths also aligns with research on fragmented listening and embodied sound, suggesting that incomplete or broken gestures can create expressive tension within a piece (Blesser & Salter, 2007). Such fragmentation has been explored in contemporary sound art as a means of evoking vulnerability and instability (Voegelin, 2014; Kim-Cohen, 2009).

The rhythmic findings further reinforce the creative potential of snoring. The micro-pulses and irregular timing patterns identified in the recordings resemble the loose, non-metric rhythms used in experimental and electroacoustic music (Wishart, 1996). These patterns challenge traditional notions of pulse and metre, offering instead a form of rhythmic instability that reflects the natural unpredictability of sleep. This supports earlier studies showing that irregular bodily rhythms, such as heartbeat or breathing, can be transformed into meaningful musical structures when approached with sensitivity and imagination (Cox, 2016). Research on nonlinear rhythmic systems further supports this view, demonstrating how irregularity can generate expressive complexity in contemporary composition (London, 2012; Hasty, 1997; Zbikowski, 2017).

Timbre emerged as the most distinctive and musically useful feature of snoring. The mixture of noise, breath, and low-frequency vibration aligns with the textural palette commonly explored in contemporary instrumental practice and sound art (Truax, 2001). These findings echo broader scholarship on noise-based aesthetics, which argues that noisy and unstable timbres can carry deep expressive and cultural meaning (Hegarty, 2007; Novak, 2015). The

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findings confirm that snoring's timbral richness can be effectively imitated or extended through extended techniques such as bow pressure variation, flutter-tongue, air tones, and friction-based percussion. This supports the broader argument that timbre, rather than pitch, can function as the primary driver of musical identity in post-tonal and experimental contexts (Emmerson, 2016; Wishart, 1996). It also aligns with research showing that timbre can serve as a structural force in its own right (McAdams, 2013; Rehding, 2020).

The identification of snore-derived gestures, such as rising glissandi, rattling tremors, and percussive catches, demonstrates that snoring contains a vocabulary of small, expressive shapes that can be developed compositionally. This aligns with research on gesture-based composition, which emphasises the importance of physical and sonic movement in shaping musical meaning (Godøy & Leman, 2010). Additional studies on micro-gestural expression in performance further support the idea that small sonic details can carry significant expressive weight (Windsor, 2011; Leman, 2016). The findings show that even involuntary sounds can produce gestures that carry expressive weight when placed within a musical framework.

The affective dimension of snoring also proved important. Listeners consistently associated soft, breathy snores with comfort or intimacy, while harsher snores evoked disturbance or humour. These emotional responses support the idea that everyday sounds carry cultural and psychological meanings that influence how they are perceived and interpreted (Schafer, 1994). This aligns with research on affective listening, which highlights how emotional responses to sound are shaped by context, memory, and embodied experience (Cusick, 2006; Ahmed, 2014; Bull, 2007). By incorporating these affective colours into the compositional model, the study demonstrates how emotional shading can enrich the expressive potential of non-musical sound sources.

Finally, the practice-based experimentation confirmed that the analytical findings could be translated into coherent musical strategies. Techniques such as granular stretching, filtering, and layering allowed the raw snore recordings to evolve into abstract textures while retaining their essential character. This aligns with established approaches in electroacoustic composition, where transformation processes are used to reveal new dimensions of familiar sounds (Truax, 2001). It also resonates with research on creative transformation in artistic research, which emphasises the value of iterative experimentation (Nelson, 2013; Borgdorff, 2012). The successful integration of analysis and creative practice supports the view that artistic research can generate both conceptual insight and practical outcomes.

Overall, the discussion shows that snoring is not merely a biological byproduct but a complex sonic event with structural, rhythmic, timbral, gestural, and emotional qualities. These findings contribute to ongoing conversations about the role of everyday sound in contemporary composition and demonstrate how involuntary bodily sound can be reimagined as a meaningful artistic resource.

CONCLUSION

This study set out to explore snoring not as a medical inconvenience or a private bodily event, but as a meaningful sonic phenomenon with artistic potential. By analysing its breath cycles, rhythmic irregularities, timbral richness, and emotional colouring, the research demonstrated

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that snoring contains structured features that can be transformed into coherent musical strategies. What first appears to be an uncontrolled, involuntary sound reveals, on closer listening, a surprising degree of pattern, nuance, and expressive depth. The compositional model developed in this study shows that everyday bodily sound can serve as a foundation for creative work when approached with care, curiosity, and methodological rigour.

The findings have several important implications for artistic research, sound studies, and contemporary composition. First, they suggest that involuntary bodily sounds can be treated as legitimate musical resources, expanding the boundaries of what counts as musical material. This challenges traditional hierarchies that privilege intentional, controlled sound production over the accidental or the everyday. Second, the study demonstrates that breath-based structures and noise-centred timbres can offer new pathways for composition, particularly for artists interested in embodied, ecological, or phenomenological approaches to sound. Third, the work contributes to ongoing conversations about listening practices, showing that attentive listening to the body can reveal forms of sonic organisation that are often overlooked.

Future research could build on this study in several ways. One direction would be to explore cross-cultural perceptions of snoring, examining how different societies interpret its emotional and symbolic meanings. Another possibility is to investigate other involuntary vocalisations, such as sighs, yawns, or sleep murmurs, to see whether similar compositional models can be developed. Further work could also involve collaborations with performers, testing how musicians interpret and embody snore-derived gestures in live settings. Finally, researchers might examine how audience reception changes when bodily sounds are reframed as artistic material, offering insights into listening, intimacy, and vulnerability in performance.

In the end, this study reminds us that the boundary between noise and music is not fixed but continually shaped by how we choose to listen. When we pay attention to the quiet, overlooked sounds of the body, we discover that even the most ordinary vibrations of sleep can open unexpected doors into creativity, meaning, and human connection.

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Conflict of Interest

The author declares no conflict of interest.

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Ethics Statement and Approval

This study was conducted in accordance with institutional ethical standards. Ethical approval was obtained and formally documented with **Ref No.: IAUE/FH/REC/2025/119** at Ignatius Ajuru University of Education. All participants provided informed consent before taking part in the research.

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