Noise trends in a changing world: perspectives from the regulator

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Abstract

This study aimed to explore the reasons for changes in noise trends from the perspective of Environmental Health Practitioners (EHPs) regulating environmental noise at local authorities in North-East England. In recent years the Chartered Institute of Environmental Health (CIEH) has conducted a 'noise survey', which is currently the only regular documentation of the number of noise complaints and enforcement actions taken by local authorities in England. The most recent noise survey was conducted in 2020/21 and identified a 54% increase in complaints, yet a reduction in enforcement during the COVID-19 pandemic. Consequently, Environmental Information Requests were used to obtain recent noise complaint and enforcement trends between 2021-2024, followed by semi-structured interviews with EHPs to discuss the reasons behind these trends. It was identified that the number of noise complaints has decreased since the peak noted in the 2020/21 CIEH noise survey but has not returned to pre-pandemic levels, and the number of enforcement notices has increased since 2020/21 but also has not returned to pre-pandemic levels. Various contextual and attitudinal changes contributed to identified trends, particularly a reduction in investigation ability during lockdown, the longer-term rise in home working, as well as changes in tolerance of the public for both noise and the investigation process. Recommendations are proposed to address the impact of these trends on EHPs, including educating the public about what types of complaints can and cannot be actioned, setting expectations with complainants regarding their involvement in noise investigations, promoting mediation where budgets are available, and for a qualitative element to be added to the CIEH noise survey periodically to monitor the reasons behind future trends. This research presents emerging findings from EHPs contributing to ongoing research into the public health importance of environmental noise and offers potential solutions for regulators to consider implementing.

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Abbreviations

AI	Artificial Intelligence
ASBCPA	Anti-social Behaviour Crime and Policing Act
BS	British Standard
CIEH	Chartered Institute of Environmental Health
CPN	Community Protection Notice
CPW	Community Protection Warning
dB	Decibel
DEFRA	Department for Environment, Food and Rural Affairs
DIY	Do it yourself
EHP	Environmental Health Practitioner
EIR	Environmental Information Request
EPA	Environmental Protection Act
LA	Local Authority
LGO	Local Government and Social Care Ombudsman
NCDs	Non-communicable disease
NECA	North-East Combined Authority
NME	Noise monitoring equipment
ONS	Office for National Statistics
SN	Statutory nuisance
SR	Systematic review
WFH	Work / working from home
WHO	World Health Organization

1: Introduction

1.1: Background

Noise is unwanted or harmful sound created by human activity (Peris, 2022) and according to the Chartered Institute of Environmental Health (CIEH), emanates from several sources including commercial and leisure activities, construction, traffic, and residential noise (2022). Long-term exposure to environmental noise is the second most significant cause of environmental-related ill-health (Hänninen et al., 2014; Peris, 2020). There is little research concerning the healthcare costs of noise, though the Department of Environment, Food, and Rural Affairs (DEFRA) estimated an annual social cost of £7-10 billion due to urban traffic noise alone (2014). Consequently, environmental noise is an important public health issue (Murphy and King, 2022; Hahad et al., 2024).

In the UK, reactive regulation of environmental noise primarily sits with Local Authorities (LAs) (DEFRA, 2017). Noise complaints are investigated and enforced as necessary by LA Environmental Health Practitioners (EHPs) (Shelter, 2021). Every LA has their own investigation and enforcement procedure; however, a typical noise investigation is outlined in Figure 1.1 over-page.

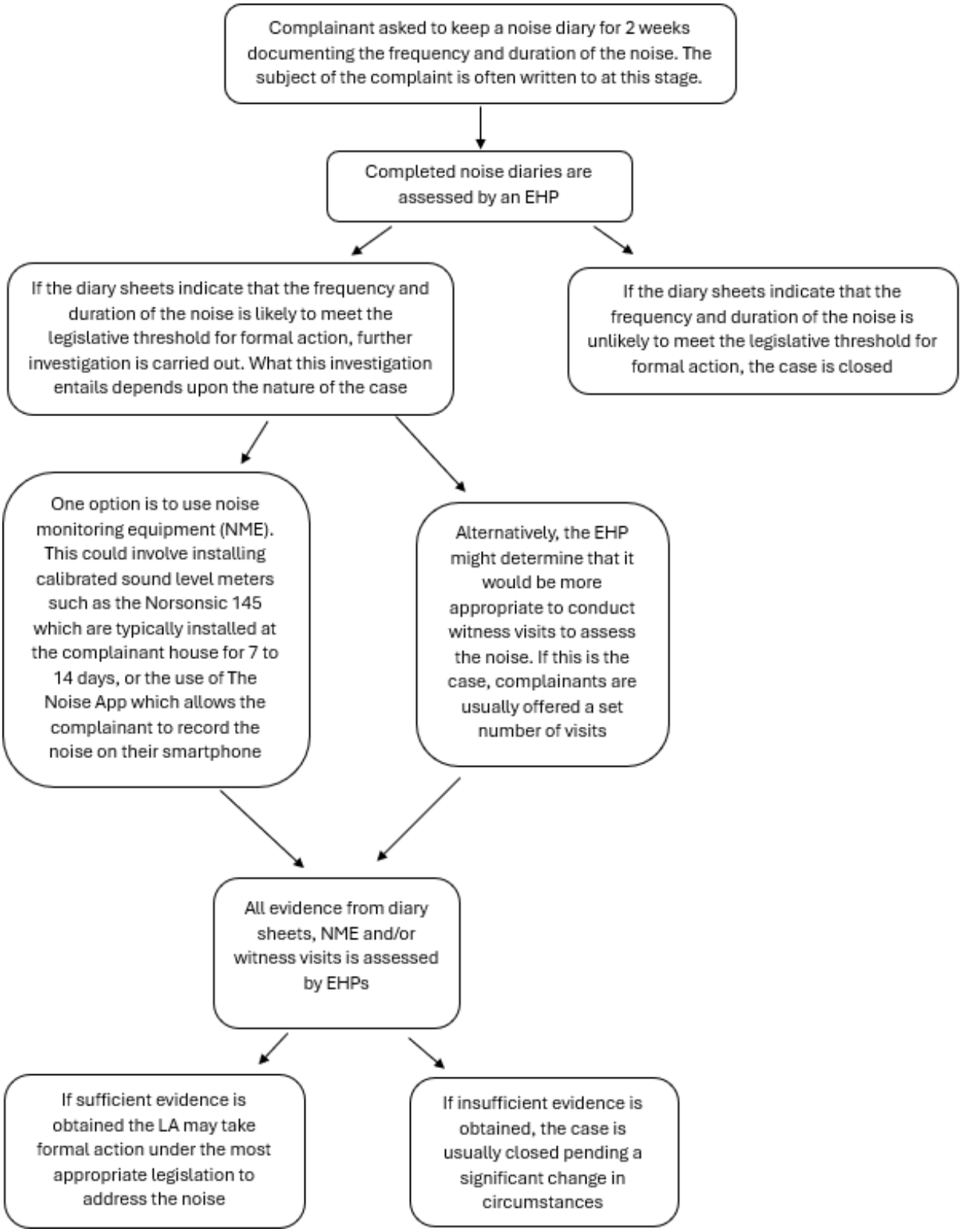

Figure 1.1: *Flow chart of a typical noise investigation. Author's own figure using information from (Ceredigion County Council, 2024; Chesterfield Borough Council, 2024; Sunderland City Council, 2024; Westmorland & Furness Council, 2024)*

The CIEH conducts a 'noise survey' which is the only regular documentation of the contribution of EHPs in respect of reactive noise control (CIEH, 2025). Noise surveys gather information from LAs in England on the number and type of noise complaints received by sector and associated enforcement actions taken (CIEH, 2022), with the most recent survey published in 2021, identifying a 54% increase in complaints between 2019/20 and 2020/21 (CIEH, 2022). This led to an average increased workload of 633 complaints per full-time-equivalent EHP compared to 299 in 2019/20 (CIEH, 2022). Despite increased complaints, the number of enforcement actions taken in 2020/21 reduced (CIEH, 2021a; CIEH, 2022). For example, the number of abatement notices served has decreased from on average 14 per 10,000 population per LA in 2019/20 to 12 per 10,000 in 2020/21 (CIEH, 2021a; CIEH, 2022). Peer-reviewed journal articles also reported increased noise complaints during lockdown in the UK and worldwide (Tong et al., 2021; Yildirim and Arefi, 2021; Trudeau et al., 2023).

1.2: Rationale

As of March 2025, there has not been a further noise survey published by the CIEH. Additionally, although journal articles looked at the number of complaints during or immediately after a lockdown period, there has been no longer-term analysis on any emergent trends (Tong et al., 2021; Yildirim and Arefi, 2021; Trudeau et al., 2023). This presents a knowledge gap, as the most recent data was collected during the pandemic, a unique period as legislation imposed a stay-at-home mandate, resulting in changing soundscapes (Lee and Jeong, 2021; Torresin et al., 2021). Consequently, it is important to obtain recent figures so current trends in a post-pandemic world can be identified.

Further, there has not been any substantial qualitative research undertaken in the UK from the perspective of EHPs to identify the reasons why these trends have occurred. While inferences can be made that trends observed during the 2020/21 period could be due to lockdown measures (Andargie et al., 2021; Douglas-Osborn, 2022), this has not been confirmed with primary research. It is important to gain an understanding of the reasons

behind these changes, particularly as it may allow informed recommendations to be made to help LAs address the impact of these changes. This is pertinent considering LA funding cuts and the reducing EHP workforce (CIEH, 2021b; House of Lords, 2023). It would be of particular interest to investigate the current trends and associated reasons in North-East England, as the most recent noise survey identified that this geographical area received the highest increase in complaints outside of Greater London (CIEH, 2022). There are 12 LAs in the North-East; however, this study will focus on the 7 Authorities which form the North-East Combined Authority (NECA), previously the LA7, see Figure 1.2 (Sunderland City Council, 2022; NECA, 2024). The NECA was chosen as it is a well-established group of LAs with strong inter-authority connections, and members cover a mix of rural and urban communities (North-East Evidence Hub, 2024). This study will seek to obtain the opinions of EHPs who investigate noise complaints on current trends in complaints and associated enforcement action. Alternative study populations included individuals currently involved in a noise investigation or the public; however, EHPs were considered most appropriate as they can provide an impartial professional opinion.

Figure 1.2: *Members of the NECA. Authors own figure using information from (NECA, 2024).*

2: Aim and Research Objectives

This project aims to explore the reasons for changes in noise trends from the perspective of EHPs working in LAs in North-East England. It is formed of four research objectives:

1. To critically review relevant literature and UK legislation relating to noise and recent changes.
2. To identify trends in noise complaints received by and enforcement actions taken by LAs in North-East England between 2021 and 2024.
3. To critically analyse the views and opinions of EHPs regarding why trends have occurred since 2020.
4. To establish recommendations which may aid LAs in addressing the impact of these trends.

3: Literature review

To address Research Objective 1, this Chapter critically reviews literature summarising existing knowledge on the health impacts of noise exposure and available legislation. Contextual and attitudinal changes which may have influenced recent noise and enforcement trends are then considered.

3.1: Noise and health

Extensive literature documents the negative health impacts of noise exposure, with established links being identified between noise, annoyance, sleep disturbance and non-communicable diseases (NCDs), and emerging research regarding poor mental health outcomes (Guski et al., 2017; Basner and McGuire, 2018; Hahad et al., 2024).

3.1.1: Annoyance and sleep disturbance

Multiple systematic reviews (SRs) of high-quality studies have identified a significant association between noise exposure to various sources including transportation noise, wind turbines and increased annoyance (Onakpoya et al., 2015; Guski et al., 2017). This has been confirmed with several more recent primary studies (Benz et al., 2021; Gilani and Mir, 2021), with one study identifying a significant link between annoyance and neighbour noise (Rasmussen and Ekholm, 2021), and a further making a distinction between annoyance during the day and night (Hahad et al., 2022).

Studies also link noise to sleep disturbance. A SR by the World Health Organization (WHO) including 74 studies identified a significant association between noise exposure and self-reported sleep disturbance due to road, rail and aircraft noise in several countries (Basner and McGuire, 2018) and Onakpoya et al. identified a significant link with wind turbine noise (2015). Traffic noise studies also suggest night-time noise exposure can lead to symptoms of insomnia (Evandt et al., 2017; Gilani and Mir, 2022). This is particularly

significant considering poor sleep has been linked to multimorbidity and a high disease burden (Chattu et al., 2019; Nistor et al., 2023).

3.1.2: Physical health

Noise exposure has also been linked to physical NCDs, see Table 3.1 over-page. In general, primary studies find an association between noise and various health conditions, whereas often SRs do not, or report inconclusive findings. This is primarily due to heterogenous study methodologies and/or low response rates, leading to low-moderate quality evidence (Kempen et al., 2018; Wang et al., 2020; Sivakumaran et al., 2022).

Table 3.1: *Summary of studies assessing physical health impacts of noise. Author's own table.*

Category	***Health impact***
Direct damage	Occupational noise is well-known to cause permanent hearing damage (Seixas et al., 2012; Lie et al., 2016; Chen et al., 2020; Zhou et al., 2020), though evidence regarding non-occupational sources is less clear cut (Carter et al., 2014; Engdahl and Aarhus, 2021; Pienkowski, 2021).
Cardiovascular	It is widely accepted that noise exposure can reduce cardiovascular health (Hahad et al., 2024). Several SRs have identified associations between increased noise exposure and various cardiovascular health conditions including an increased likelihood of experiencing hypertension (Dzhambov and Dimitrova, 2018; Chen et al, 2021; Petri et al., 2021), strokes and associated mortality (Fu et al., 2022), and increased blood pressure (Petri et al., 2021). Primary studies have also identified a link with various cardiovascular diseases including ischemic heart disease, atrial fibrillation and heart attacks (Thacher et al., 2022a; Thacher et al., 2022b; Pyko et al., 2023).
Cancer	Research linking cancer and noise is limited, and whilst a SR noted an association between noise and increased incidence of various cancers (Abassi et al., 2023), further studies are needed to determine association significance and establish causal pathways (Clark et al., 2020; Abbasi et al., 2023).
Metabolic	SRs have identified an increased risk of diabetes with noise, particularly to air, road traffic and occupational noise exposure (Zare Sakhvidi et al., 2018; Wang et al., 2020). Further studies assessed the link between noise and obesity, and whilst several primary studies have identified an increasing risk of obesity with exposure (Pyko et al., 2015; Foraster et al., 2018), SRs conclude that the evidence is inconclusive due to poor quality studies (Kempen et al., 2018; Wang et al., 2020).
Neurological	A SR of moderate-high quality studies noted a significant association between chronic noise exposure and dementia risk which increases with greater volumes of exposure, but noted further studies are required to establish causal mechanisms (Meng et al., 2022). Primary studies have investigated the role of noise in cognitive decline but have not consistently identified an association (Weuve et al., 2021; Ogurtsova et al., 2023).

3.1.3: Mental health

A recent review of human and animal studies concluded noise exposure likely impacts on mental health, leading to increased susceptibility to depression, anxiety and suicide due to its impact on the central nervous system (Hahad et al., 2024). Similarly, a SR of 13 studies relating to noise annoyance and mental health identified a potential link between increased annoyance and poor mental health outcomes including depression and anxiety (Gong et al., 2022), whereas a larger SR of 31 studies identified a significantly increased risk of depression, but not anxiety (Hegewald et al., 2020). However, note that alike research linking noise and NCDs, the quality of evidence was considered low to very-low (Hegewald et al., 2020; Gong et al., 2022). More primary studies are therefore needed to confirm these findings and causal mechanisms, particularly as animal studies are still relied upon (Hegewald et al., 2020; Gong et al., 2022; Hahad et al., 2024).

3.2: Noise and the law

Various legislation regulates noise. Some powers address a wide range of noise issues, whereas others deal with specific problems. The most relevant legislative provisions are outlined in Table 3.2 over-page, however other powers include The Control of Pollution Act (1974), The Noise Act (1996), Clean Neighbourhoods and Environment Act (2005), and The Fireworks Regulations (2004). Grounds for appeal and statutory defences for the enforcement actions discussed are beyond the scope of this study.

Table 3.2: *Summary of legislative options to regulate environmental noise. Author's own table.*

Legislation	Summary
Environmental Protection Act (EPA) 1990	s.79 of the EPA 1990 defines a Statutory Nuisance (SN) as something which is either prejudicial to health or a nuisance (EPA, 1990). The nuisance limb to this test is the most relevant in cases of noise complaints, defined as something which unreasonably interferes with the use and enjoyment of someone's home or property (Wolf and Stanley, 2014). s.79(1) stipulates matters which can be considered SNs, with sub-paragraph (g) specifying that this includes noise emitted from any premises and (ga) being noise emitted from of caused by vehicles, equipment or machinery in the street (EPA, 1990). s.79(1) places a statutory duty on LAs to investigate complaints of alleged SNs (EPA, 1990). Once satisfied that a SN exists, is likely to occur or recur, then the LA must serve an abatement notice requiring the nuisance to be abated and/or specify such works or steps to abate the nuisance within a set period (s.80(1)) (EPA, 1990). This must be done within 7 days and served on the person responsible for the nuisance, except in circumstances outlined in s.80(2) and s.80A(2-4) (EPA, 1990). The recipient may appeal the Notice within 21 days, however if no appeal is lodged and they subsequently do not comply without a reasonable excuse, then as per s.80(4) they shall be guilty of an offence (EPA, 1990). The LA may prosecute the responsible person, punishable with an unlimited fine and a further daily fine whilst the nuisance continues (s.50(5)), and/or undertake works to abate the nuisance as per s.81(1-4) (EPA, 1990).
Anti-social behaviour, Crime and Policing Act (ASBCPA) 2014	s.43 of the ASBCPA addresses unreasonable conduct that is having a persistent detrimental effect on the quality of life of those in the locality (2014). Where this evidential test has been met, the LA may serve a written warning known as a Community Protection Warning (CPW) giving notice to the individual or body responsible warning that a Community Protection Notice (CPN) will be issued unless their conduct stops having a detrimental effect (s.43(5)) (ASBCPA, 2014). If satisfied that the warning has not resolved the issue, a CPN can be served identifying the unreasonable conduct and may impose a requirement to stop or to do specified things, or to take steps to achieve a set outcome as per s.43(3) (ASBCPA, 2014). CPN non-compliance is an offence (s.48(1)), meaning the LA can prosecute the responsible person or body, punishable with a fine (s.48(2)), or a fixed penalty notice can be issued (s.52) (ASBCPA, 2014). Upon conviction the court may also order the defendant to carry out certain work or to allow the LA to carry this out as per s.49(2) or require the person to surrender items under s.50 (ASBCPA, 2014).

3.2.1: Strengths

The SN provisions address noise emanating from a variety of premises (McManus, 2000). They also consider a wide variety of factors when determining if a nuisance exists including the frequency, duration and severity of the noise, as well as the subject's motive and the character of the neighbourhood (McManus, 2000). Similarly, the CPW/CPN framework is noted for its flexibility, enabling various problematic behaviours to be addressed (Black and Heap, 2021).

3.2.2: Limitations

UK noise legislation has been criticised for being piecemeal and lacking direction (McManus, 2000). The SN provisions are considered particularly weak due to their technical and overly complex nature which is inaccessible to the public (McManus, 2000; Phillips, 2022). This is problematic, as for regulations controlling public conduct to be effective, they must be understood and supported by the people they aim to regulate (McManus, 2000). Further, SN primarily protects property rights rather than health (McManus, 2000).

A common criticism of the CPN/CPW framework is due to its flexibility, it can be used disproportionately. The framework has been used for minor issues from escaped chickens to serious incidents like noise associated with domestic abuse (Black and Heap, 2021; Manifesto Club, 2023). Consequently, CPNs have been considered to trivialise criminal activity at the same time as making "upstanding citizens" feel like criminals (Black and Heap, 2021; Manifesto Club, 2023). Victim perspective studies are also critical, with Rodgers identifying victims of antisocial behaviour resulting in a CPN did not feel the action addressed the issue (2023). However, as CPWs/CPNs can address a range of antisocial behaviour, not exclusively noise, these studies should be considered cautiously (CIEH, 2014).

On a more practical level, the burden of proof for taking enforcement action like serving an abatement notice is lower than that required to demonstrate non-compliance

(EPA, 1990). For instance, a LA need only be satisfied on the balance of probabilities that a SN exists to serve an abatement notice (EPA, 1990); however, to successfully prosecute for non-compliance, the LA must demonstrate guilt beyond reasonable doubt (EPA, 1990). This can leave EHPs unable to gather sufficient evidence to enforce notices, especially when simple abatement notices are served (requiring the recipient to simply abate the nuisance), instead of prescribed actions (Everett, 2023).

3.3: Recent changes potentially impacting on noise trends

On 23rd March 2020 daily life significantly changed due to lockdown, therefore various changes potentially influencing noise trends will be reviewed (Institute for Government, 2021).

3.3.1: Contextual changes

Firstly, the pandemic dramatically changed people's behaviour and the way they used their homes overnight, as lockdown required people to work from home (WFH) or homeschool; additionally, many were furloughed or became unemployed (Office for National Statistics, 2021; Munford et al., 2021; Parsell and Pawson, 2022). Consequently, most people spent significantly more time at home (Parsell and Pawson, 2022). The Office for National Statistics (ONS) compared behaviours in March-April 2020 to 2014-2015 (ONS, 2020a). The amount of time spent WFH considerably increased, along with sleeping, watching TV, gaming, doing home workouts, or doing DIY and gardening (Ofcom, 2020; ONS, 2020a). However, post-lockdown some of these behaviours have become the new norm (Parsell and Pawson 2022; Park et al., 2023). For instance, more people are continuing to spend significantly longer at home, due to the longer-term shift to hybrid or home working (Kirk et al., 2022; Park et al., 2023). For example, only 4.7% of the workforce WFH in 2019, compared to 14% in September 2024, with a further 24% hybrid working (Felstead and Reuschke, 2020; ONS, 2020b; ONS, 2020c; Clark, 2024). This may have influenced recent noise trends

because it is likely people are experiencing more disturbances to the use and enjoyment of their property from a wider range of sources (Şentop Dümen and Şaher, 2020; Andargie et al., 2021; Lee and Jeong, 2021; Everett, 2023).

Secondly, studies identified a significant decrease in outdoor background noise during lockdown linked to reduced traffic, see Table 3.3 (Hornberg et al., 2021; Basu et al., 2021; Garg et al., 2022). However, it is generally accepted that this reduction was temporary as more recent studies note decibel (dB) levels have largely returned to normal (Seidler and Weihofen, 2021; Carfagni et al., 2023).

Table 3.3: *Summary of studies investigating changes in outdoor noise levels during lockdown periods. Author's own table.*

Authors	Study location	Time period in which dB level was monitored	Number of monitoring sites	Results
(Munoz et al., 2020)	Southern France	January – May 2020	21	Reductions between 4 dB and 6 dB in areas with high road traffic, and up to 10 dB reductions identified at 4 of the monitoring sites
(Asensio et al., 2020)	Madrid, Spain	February – June 2020	5	Reductions between 4 dB and 5 dB which were considered significant
(Garg et al., 2022)	Metropolitan areas in India	Not specified	70	Reductions of ≥5 dB during both day and night.
(Basu et al., 2021)	Dublin, Ireland	January – May 2020	12	Significant, sharp reductions in dB levels were observed when lockdown commenced
(Hornberg et al., 2021)	Ruhr Area, Germany	April – May 2020	22	Mean reduction of 5.1 dB, with greater reductions observed in green spaces, urban forests and residential areas (5.9 dB) and lesser reductions observed on main streets (3.9 dB).

Another consideration is that the dog population increased, with many purchasing "pandemic puppies" (Wheeler, 2023). There is increasing research on the behavioural impact of lockdown on pandemic puppies and of existing pets (Brand et al., 2022; Harvey et al., 2022; Loftus, 2023; Sherwell et al., 2023; Brand et al., 2024). For example, by aged 21 months, 96.7% of UK pandemic puppies displayed one problematic trait, and almost a third had separation anxiety (Brand et al., 2024), including vocal behaviours like barking and howling (Brand et al., 2022). Further, 1 in 10 adult dogs that had not previously experienced separation anxiety were displaying such behaviours in October 2020 (Harvey et al., 2022). Consequently, increases in dog ownership and separation anxiety may have contributed to recent noise trends.

Finally, restrictions reduced EHPs ability to investigate noise complaints. Everett identified during lockdown there was a significant shift towards triaging noise complaints with diary sheets, with many LAs delaying further investigation and direct contact with the complainant (2023). Additionally, over 3 million people of working age in the UK were considered extremely clinically vulnerable and shielded (Hodgson et al., 2021), potentially reducing the number of EHPs able to carry out in-person investigations. Consequently, the reduced ability to investigate complaints may have contributed to the reduced enforcement seen during the 2020/21 noise survey (CIEH, 2022).

3.3.2: Attitudinal changes

Research has emerged on the impact of lockdown on people's perception of noise and associated annoyance during the pandemic. Peer-reviewed studies are limited, however Lee and Jeong in a questionnaire survey of London residents during the May 2020 lockdown identified a perceived decrease in outdoor noise yet an increase in indoor noise, mostly due to neighbour noise (2021). It was also identified that reported noise annoyance from outdoor noise was significantly lower than pre-pandemic levels, whereas annoyance from indoor noise was increased and mainly attributed to neighbours talking, shouting and listening to music or TV (Lee and Jeong, 2021). The authors noted this was consistent with ONS data on

behaviour during lockdown (Office for National Statistics, 2020c; Lee and Jeong, 2021). Similarly, a cross-sectional Turkish study also found a significant decrease in annoyance levels due to outdoor noise, but in contrast to Lee and Jeong (2021), the increase in noise annoyance associated with neighbour noise was negligible (Şentop Dümen and Şaher, 2020). This was a particularly interesting finding as data collected in open text boxes indicated participants were experiencing increased neighbour annoyance (Şentop Dümen and Şaher, 2020). These findings may to some extent explain the significant increase in the number of noise complaints during the pandemic (CIEH, 2022). There is also the potential that this change in noise annoyance has persisted beyond the pandemic and has continued to affect complaint numbers due to the increased time spent at home, and the return of outdoor noise to pre-pandemic levels (Seidler and Weihofen, 2021; Carfagni et al., 2023). However, further research is needed to confirm this.

A further consideration is the reported increase in neighbour tensions and a lack of social cohesion during lockdown. For example, an online news article reporting on findings from interviews with those in the mediation industry identified that people's tolerance for neighbour issues reduced over time, particularly as lockdowns went on as people's patience began to "wear thin" (Bland, 2020). Further, despite some studies reporting an increase in community spirit, particularly in early 2020 (Fancourt et al., 2022), other research suggests a reduction in community cohesion, predominantly among deprived groups (Borkowska and Laurence, 2021). It is unclear to what extent this has persisted following lockdown, however it may have influenced recent complaint trends.

4: Methods

This Chapter outlines and justifies the methods used for data collection and analysis, along with ethical considerations.

4.1: Study design

A mixed-methods approach was utilised, collecting both quantitative and qualitative data from different sources to best answer the research objectives (Mertens, 2023). Mixed-methods were chosen as integrating quantitative and qualitative methods provides a more in-depth understanding of the topic than what would be achieved through a single method (Mertens, 2023). Additionally, it improves the validity of the research and confidence in findings as it facilitates triangulation between the different data sources (Noble and Heale, 2019; Mertens, 2023). Although mixed-methods approaches can be time-consuming and potentially lead to conflicting results (Tariq and Woodman, 2013; Sharma et al., 2023), it allows current data on noise complaints to be obtained, facilitating informed discussions of the reasons behind identified trends.

4.2: Research methods

4.2.1: Secondary data

Existing literature was critically reviewed and synthesised to achieve Research Objective 1. Peer-reviewed journal articles were obtained by searching the University of Derby Online database. Grey literature, legislation, and news articles were also reviewed, as relevant peer-reviewed articles were limited.

To obtain recent data on the number and type of noise complaints and enforcement action taken as specified in Research Objective 2, Environmental Information Requests (EIRs) were utilised because LAs have a legal obligation to provide the data if held unless there is reason not to, avoiding non-response bias (Elston, 2023; Information

Commissioner's Office, 2024). The EIR was designed to replicate the CIEH noise survey to allow comparisons to be drawn between the data and trends identified. Therefore, CIEH surveys were reviewed to better understand the information collected. It was noted data was collected on an inter-year basis (CIEH, 2022). The most recent survey from 2020/21 did not specify an exact study period, therefore the dates specified in the 2019/20 survey were used to inform the EIR (CIEH, 2021a; CIEH, 2022). This aimed to avoid duplicity, although it cannot be guaranteed that this was avoided entirely. The EIR consisted of 4 questions, see Appendix A.1. A key difference between the CIEH survey and the EIR was data regarding the sector breakdown of complaints. A complaint breakdown in the LAs currently held form was requested as the researcher was aware from professional connections that some participating LAs held a sector breakdown of complaints, whereas others did not. This meant data on the type of noise complained about was obtained in some format as opposed to the EIR being rejected.

4.2.2: Secondary data analysis

EIR data were processed in an equivalent manner to the CIEH surveys for ease of comparison. To account for differences in population density between LAs, the number of complaints and abatement notices are given per 10,000 population, obtained from projected census data (ONS, 2020d). In terms of providing a sector breakdown of complaints, the same sector categories (and definition of “other” noise) used in the CIEH surveys were employed (CIEH, 2022). Two different sector breakdowns were generated. Firstly, one LA provided a sector breakdown and a further two provided a complete category breakdown of noise that could clearly be attributed to all 4 sectors. These data were used to provide a sector breakdown from 3 LAs that accounted for all noise categories and did not involve any assumptions from the researcher. A second breakdown was generated including all LAs by manually categorising the type of complaints into the corresponding sector when it was clear from the data which sector it would relate to (e.g., “music from licensed premises”). Where it was unclear from the data what sector the type of noise complained

about would fall under (e.g., “music”), the data was excluded from the sector breakdown only. This provided a more comprehensive sector breakdown from all LAs but involved some researcher assumptions. These data were then used to identify trends in complaints and enforcement.

4.2.3: Primary data

The trends identified from secondary data informed a semi-structured interview schedule aiming to understand the reasons behind these trends from the perspective of EHPs in pursuance of Research Objective 3. Interviews were recorded and transcribed verbatim. Semi-structured interviews allow the researcher to guide the conversation ensuring relevant data were collected, whilst still allowing for an active and detailed discussion of participants experiences and opinions (Dingwall and Staniland, 2021). One pilot interview was conducted, which tested if the interview schedule elicited the necessary information (Malmqvist et al., 2019). No substantial changes were made following this. Focus groups were an alternative method considered as this would have encouraged debate and cross-fertilisation of ideas (Barbour, 2018); however, this was not pursued due to anticipated organisational challenges, particularly considering the heavy workload of EHPs (CIEH, 2022), and inherent limitations of the method including challenges in organising, transcribing and analysing the data afterwards as participants often talk over one another (Barbour, 2018).

4.2.4: Primary data analysis

Braun and Clarke’s six-stage approach was used to thematically analyse the transcripts by hand, see Table 4.1 over-page (2012). This was considered the most appropriate method as it allows patterns in the data to be identified (Braun and Clarke, 2021), which is important considering Research Objective 3 sought to identify reasons for trends in noise and enforcement data over a particular time-period. Additionally, thematic analysis is flexible

which was useful as the LAs in the NECA encompass a range of rural and urban populations (Braun and Clarke, 2012).

The first stage of analysis involved interview transcripts being read and re-read numerous times, facilitating data immersion and identification of contrasting opinions (Castleberry and Nolen, 2018; Fugard and Potts, 2019). This stage ran concurrently with the final interview, further enabling familiarisation (Fugard and Potts, 2019). In the second and third stages, an inductive approach to coding was employed, allowing codes to emerge from and be influenced by the data, rather than applying pre-determined ideas from existing literature onto the transcripts (Castleberry and Nolen, 2018; Fugard and Potts, 2019). Initial themes were identified during these stages by grouping similar codes which were documented in a thematic matrix to aid data management (Rosen et al., 2023). Stage four involved reviewing and refining the themes as there was some overlap, which included combining related subthemes into broader, over-arching main themes (Fugard and Potts, 2019). A section of the data was then re-coded to ensure no themes had been missed, and the themes were finalised and named accordingly in stage five.

***Table 4.1**: The six stages of data analysis carried out (Braun and Clarke, 2012). Author's own table*

Stage	***Activity***
1. *Data familiarisation*	Interviews were transcribed and systematically read and re-read to facilitate data immersion.
2. *Generating initial codes*	Inductive codes were generated from the data and recorded in a working document.
3. *Searching for themes*	A thematic matrix was used to group similar codes into themes.
4. *Reviewing themes*	Initial themes were reviewed, refined and developed. Related themes were combined into over-arching main themes.
5. *Defining and naming themes*	Themes were finalised and appropriately named.
6. *Writing the report*	Illustrative quotes in support of themes and subthemes to present in the results chapter were identified.

4.3: Sampling strategy

A purposive sampling strategy was employed for both the primary and secondary data collection as the study aimed to understand noise trends within a clearly defined study population, and for the qualitative element it enabled the selection of knowledge-rich individuals (Palinkas et al., 2013; Sharma, 2017). Other possible sampling strategies included snowball sampling, but this was not pursued because it was unknown to what extent potential participants were connected to EHPs outside of their LA (Sharma, 2017). To obtain numerical data, each LAs website was reviewed to obtain the email address for their respective information governance departments. Making the EIR requests via email was preferable to the online form provided by some LAs as it enabled all LAs to be contacted in the same manner. To collect primary data, existing professional connections were utilised with the researcher contacting the relevant EHP directly via email to invite their participation. Where connections did not exist, the researcher identified the email address for the LAs Environmental Health department and used this to invite participation, requesting the invite was forwarded accordingly. To ensure participants were able to accurately provide insightful information in support of the study's aims and research objectives, the selection criteria outlined in Figure 4.1 was applied. It was not anticipated that multiple participants from a LA would be identified due to workload pressures (CIEH, 2022); however, if this occurred, the order of preference highlighted in Figure 4.2 would have been applied.

Study inclusion criteria

1. EHPs, technical officers or technical assistants working at one of the NECA LAs; and
2. Their role involves the investigation of noise complaints, or managers who oversee work of the same nature; and
3. They have worked in said role in a participating LA prior to and since March 2020 as participants must have some understanding of how complaints have changed over time.

***Figure 4.1**: Study inclusion criteria for prospective participants. Author's own figure.*

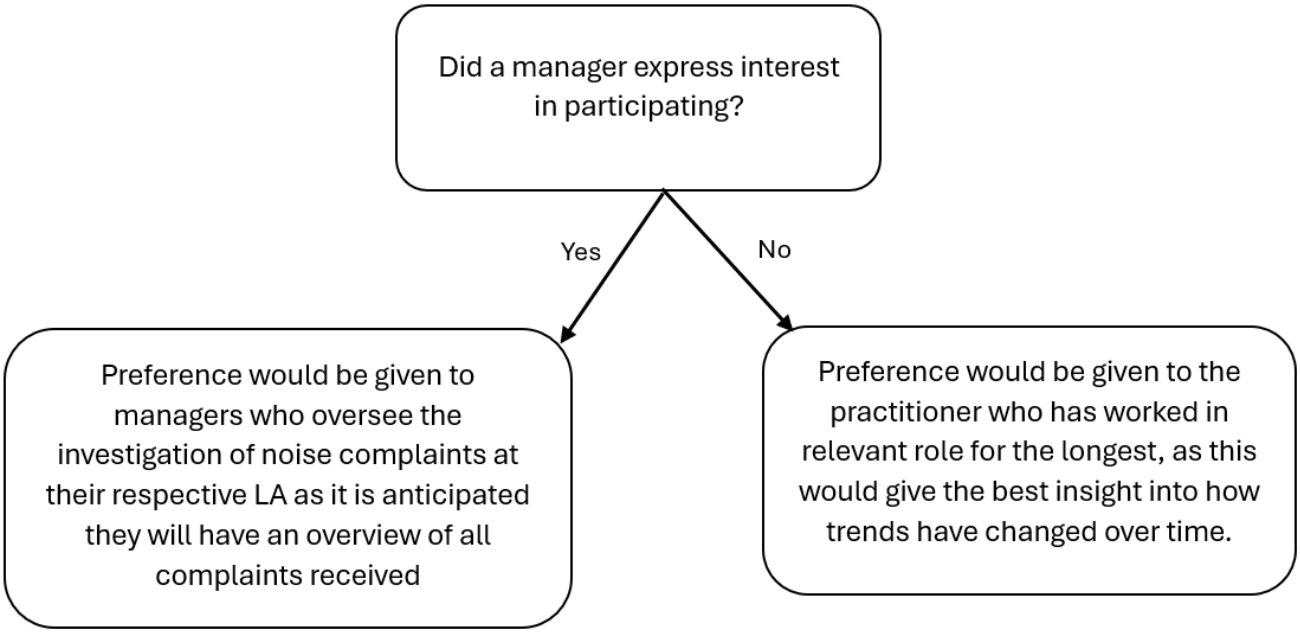

***Figure 4.2**: Order of preference for prospective participants if multiple EHPs expressed interest. Authors own figure.*

4.4: Ethics

Ethical approval was granted from the University of Derby Ethics Committee after reviewing a description of the planned methods, and various documents including the participant information sheet, consent form, and interview schedule (see Appendixes A.2-A.6). Several measures were taken to ensure the research adhered to ethical standards. For instance, LAs were anonymised and given a corresponding letter to protect participant identity (Pope and Mays, 2020). This was particularly important, as there are publicly available documents like job adverts providing individual's job titles, names, and contact details, as well as professional social media (LinkedIn, 2024). Consequently, when presenting illustrative quotes any identifying information was removed and the participant referred to as EHP A, B, C etc (Pope and Mays, 2020).

5: Results

This Chapter outlines key findings of the research, addressing Research Objectives 2 and 3.

5.1: Data sample

All 7 LAs returned the EIR, enabling well-informed conclusions to be drawn concerning recent noise trends. Although all 7 LAs were approached for interviews and reminder emails sent, due to time constraints and recruitment issues only 4 EHPs participated, see Tables 5.1a and 5.1b. This resulted in an interview participation rate of 57%, which is unlikely to have achieved data saturation as only 2 interviewees investigated complaints from domestic sources.

Table 5.1a: *Sample breakdown. Asterisks (*) denote LAs which have at least one university within their administrative boundary. Author's own Table.*

	Authority						
	A*	**B**	**C***	**D**	**E**	**F**	**G***
Rural/urban	Mixed	Urban	Urban	Urban	Mixed	Urban	Urban
EIR	✓	✓	✓	✓	✓	✓	✓
Interview	✓		✓		✓		✓
EHP role	Manager		Manager		Manager		Manager

Table 5.1b: *Types of noise complaints investigated by participating EHPs. Author's own Table.*

	Participant			
	A	**C**	**E**	**G**
Domestic	✓		✓	
Commercial	✓	✓	✓	✓

5.2: Recent trends

This section highlights recent trends in complaints and enforcement. To mirror the CIEH noise survey, the number of complaints is given as a whole number and enforcement actions to one decimal place.

5.2.1: Number of complaints

The number of complaints received by LAs is shown in Table 5.2 and Figure 5.1, indicating a year-on-year decrease in complaint numbers between 2021-2024.

Table 5.2: *Number of complaints received per 10,000 population. Authors own table using information from (CIEH, 2020; CIEH, 2021a; CIEH, 2022)*

Authority	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Total
A	CIEH data (North-East)	CIEH data (North-East)	CIEH data (North-East)	65	62	62	190
B				83	81	80	244
C				92	74	72	238
D				78	111	75	263
E				47	42	41	130
F				71	58	51	180
G				40	39	34	113
Average	**53**	**56**	**85**	**66**	**64**	**59**	**-**

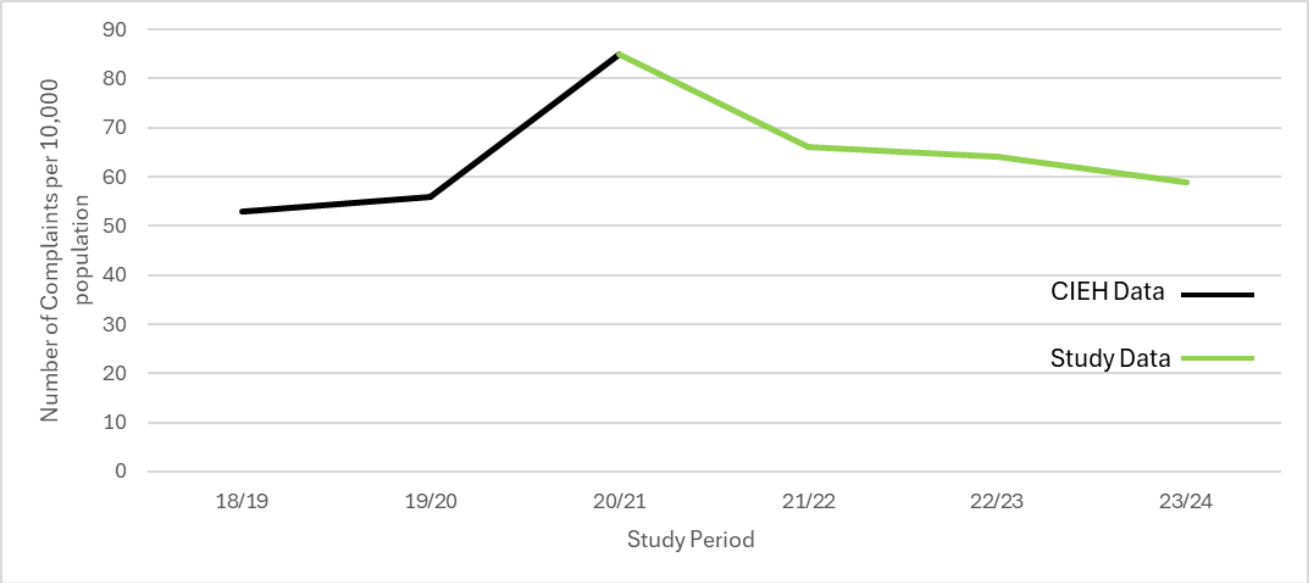

Figure 5.1: *Average number of complaints received per 10,000 population in the North-East. Authors own figure using information from (CIEH, 2020; CIEH, 2021a; CIEH, 2022)*

5.2.2: Complaint type

Two sector breakdowns of complaint types are shown in Figures 5.2a and 5.2b over-page. Regardless of the sector breakdown considered, the data indicates complaints about residential noise account for the highest proportion of complaints in the North-East, but that noise emanating from "other" sources has increased over time. Note that alike the CIEH, noise emanating from "other" sources was excluded when considering which sector accounted for the highest proportion of complaints. "Other" noise is defined as noise in the street, vehicles, machinery and equipment, dogs, agriculture, alarms, military, traffic and railways (CIEH, 2022).

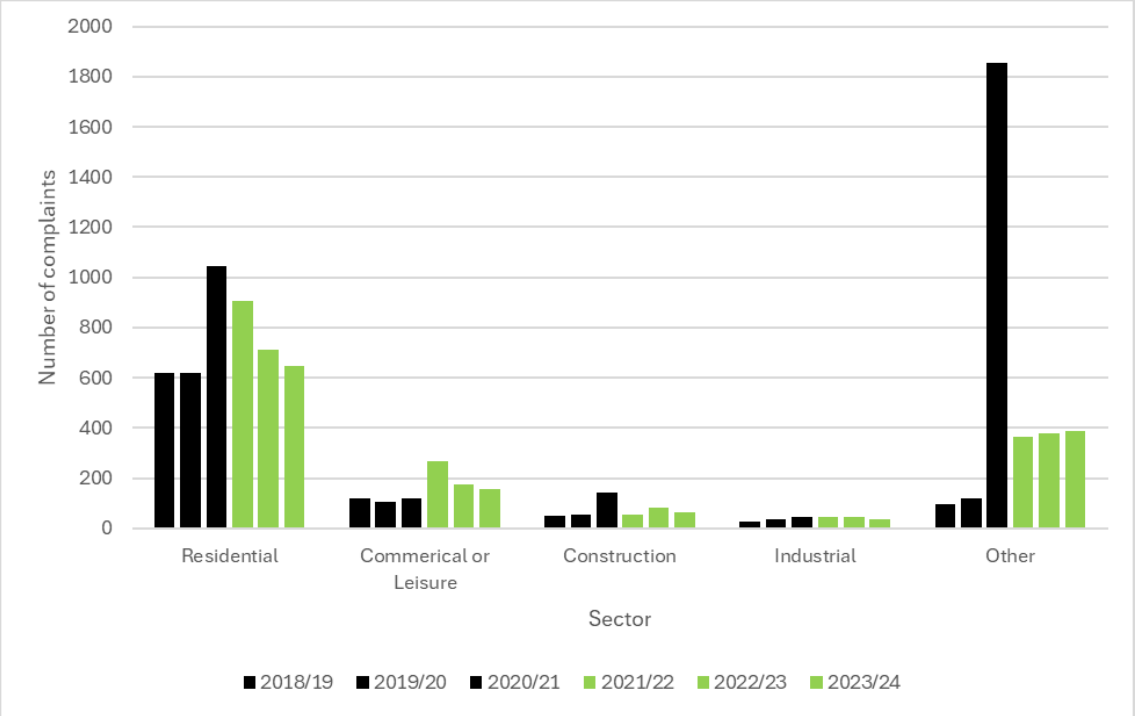

Figure 5.2a: *Sector breakdown of complaints provided by 3 participating LAs, no researcher assumptions made. Authors own figure using information from (CIEH, 2020; CIEH, 2021a; CIEH, 2022)*

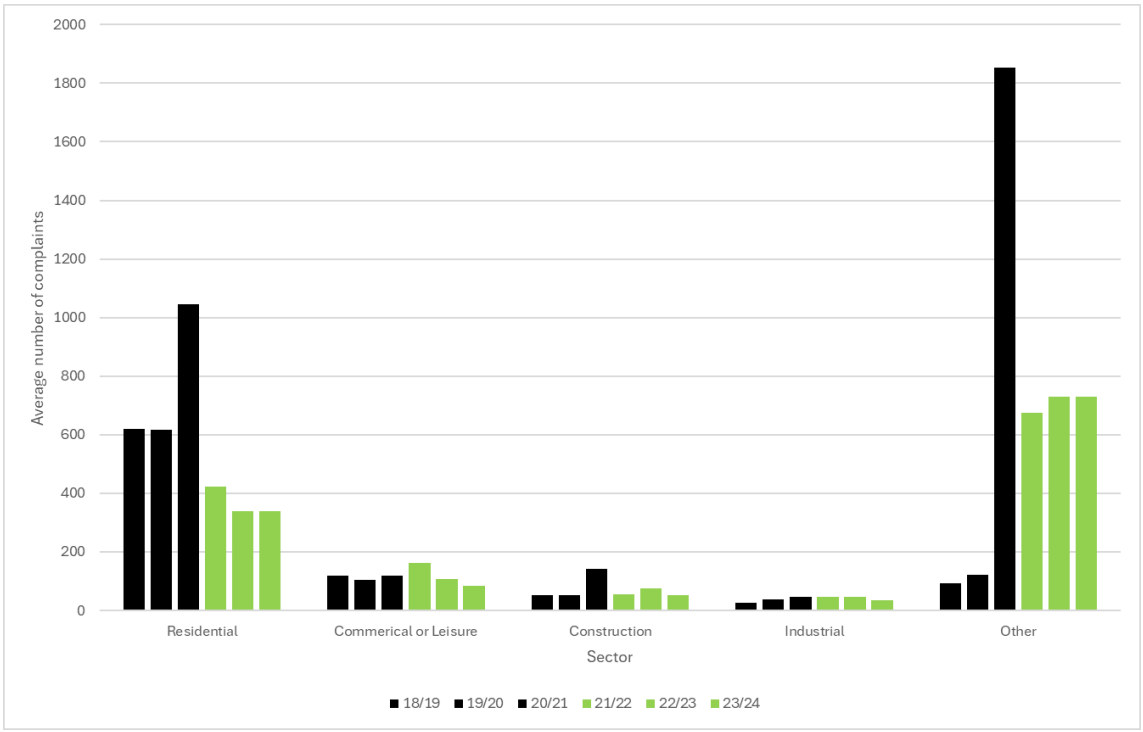

Figure 5.2b: *Sector breakdown of complaints using data from all 7 participating LAs, involving researcher assumptions. Authors own figure using information from (CIEH, 2020; CIEH, 2021a; CIEH, 2022)*

5.2.3: Enforcement action

The number and type of enforcement actions taken are presented in Table 5.3.

Table 5.3: *Number and type of enforcement actions taken. Columns with an asterisk (*) denote data for the North-East region from previous CIEH noise surveys. Authors own table using information from (CIEH, 2020; CIEH, 2021a; CIEH, 2022)*

Type of action	2018/ 19*	2019/ 20*	2020/ 21*	2021/ 22	2022/ 23	2023/ 24
Abatement Notices – Environmental Protection Act 1990	58	21	2	69	76	78
Community Protection Warning – Part 1, Anti-social Behaviour, Crime and Policing Act 2014	-	14	9	397	228	128
Community Protection Notice – Part 1, Anti-social Behaviour, Crime and Policing Act 2014	-	4	1	37	1	14
s.60 notice for construction noise – Control of Pollution Act 1974	-	-	0	0	1	2
Section 77 Silencing of Intruder Alarms Notices – Clean Neighbourhoods & Environment Act 2005	-	1	0	1	0	0
Review of Licence Conditions - Licensing Act 2003	-	-	1	1	2	1
Noise-related prosecutions (any Act)	5	2	0	8	6	4

Regarding abatement notices only, a breakdown of notices served by each LA per 10,000 population and the average for the North-East are presented in Table 5.4. These data indicate a year-on-year increase in the average number of abatement notices served between 2021-2024.

Table 5.4: *Number of abatement notices served per 10,000 population. Authors own table* using information from *(CIEH, 2020; CIEH, 2021a; CIEH, 2022)*

Authority	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Total
A	CIEH data (North-East)	CIEH data (North-East)	CIEH data (North-East)	0.47	0.41	0.45	1.32
B				0.64	0.94	0.44	2.02
C				0.76	0.13	0.86	1.74
D				0.09	0.05	0.14	0.28
E				0.06	0.80	0.46	1.32
F				0.13	0.20	0.07	0.39
G				0.07	0.04	0.00	0.11
Average	**1**	**5**	**0.10**	**0.34**	**0.38**	**0.39**	**-**

5.3: EHP opinions

The below sections present the results of the thematic analysis of EHP interviews. For thematic matrixes, see Appendix B.

5.3.1: Contextual changes

5.3.1.1: Changing use of homes

The pandemic resulted in most people spending significantly more time at home (Parsell and Pawson, 2022). All participants cited this as a major reason for the increase in complaints observed during the lockdown period from 2020-2021 (CIEH, 2022), as people were no longer going out to work 9-5 so were hearing noise they would not usually hear, in addition to carrying out noisy activities like exercise that traditionally took place elsewhere. Similarly, EHPs thought the shift to using homes as a workplace longer-term influenced the sustained increase in complaints between 2021-2024. Two participants made a distinction between homes being used as a place of relaxation as opposed to a workplace, noting WFH requires a greater degree of concentration and quiet than would be necessary in an open plan office, and as such there is a greater need for quiet:

> *"It's the fact that you're there to hear it, the factory next door that never bothered you because it closed at five and you weren't home till half five, you never even noticed it. Or Mrs Jones's dog. She's out during the day working so the dogs left outside, but then the dog is brought in at five. So you never even heard it. So you've never had a problem with it before…I think that was the main reason"* – EHP-A

5.3.1.2: Changes to licensed premises

In June 2020, to enable premises like pubs to remain open during lockdown, licensing regulations were eased to allow premises to use outdoor areas like terraces with their existing license (Ministry of Housing, Communities and Local Government, 2020). Two participants felt these changes were a contributing factor to increased complaint numbers during the pandemic (CIEH, 2022). One EHP from a mixed rural-urban LA felt this was a

temporary change as licensed premises reverted to their original use post-lockdown, therefore complaints reduced. However, another EHP from an urban LA thought there had been a longer-term trend towards the use of outdoor spaces and events as businesses have invested in their outdoor spaces, generating a consistently elevated number of complaints between 2021-2024:

"We had a lot more complaints associated with use of beer gardens from outdoor events from venues that otherwise hadn't had outdoor events before" – EHP-A

5.3.1.3: Changes in background noise

Lockdown reduced outdoor background noise levels (Munoz et al., 2020; Garg et al., 2022, Basu et al., 2021), which was noted as an important contributing factor to the increase in complaints in 2020/21 (CIEH, 2022). This was because the reduced background levels meant noises that under "normal" circumstances would be screened out became audible and, in some cases, impactful. It was highlighted how this is closely related to the planning process for commercial premises, which often requires that in accordance with BS4142 noise emitted from commercial premises should be no more than 5db above the background noise level at any given time to avoid having an adverse impact on noise sensitive premises (e.g., residential dwellings) (British Standards Institute, 2019). This was considered an influencing factor predominantly in urban LAs:

"With 0 background noise level…you could hear a feather drop…[X premises] in [Y location] on their roof have got a humongous amount of plant which in the pandemic suddenly sounded like a jet engine taking off. We were dealing with complaints about a completely false situation. Under normal circumstances, nobody even knew it was there" – EHP-C

One EHP from an urban LA with two universities discussed how in their area, there was a prolonged reduction in background noise levels beyond lockdown which they believed was a contributing factor to the persistently elevated number of complaints they received. They attributed this to having a significant student population, as for a considerable period

beyond the immediate lockdown periods university courses remained online and in turn the night-time economy remained subdued.

5.3.1.4: Ineffective investigations

All participants noted the inability of EHPs to effectively investigate complaints during lockdown. Asking staff to visit a complainant's home to witness noise or install NME when social distancing legislation was in place was not a necessary risk in accordance with workplace risk assessments. This presented a significant barrier to gathering evidence to support enforcement action for all EHPs. LAs approached noise investigations differently, with some facilitating doorstep installations of NME, whereas others were only offering rudimentary investigations to fulfil their statutory obligations (EPA, 1990). However, all participants refrained from entering complainants' homes. Consequently, several EHPs were unwilling to take enforcement action as they had not witnessed the noise:

"What you ended up with was a population of regulators who basically weren't doing home visits or weren't doing visits at all…then you're not going to take enforcement cases" – EHP-C

Secondly, several participants perceived themselves to be mediators and felt most complaints could be resolved effectively through working with both parties to resolve the issue but acknowledged this is not a recorded figure. However, one EHP felt during the pandemic, they had a significantly reduced ability to informally resolve complaints, largely due to the inability to conduct site visits, but also because this revolves around reasonable give and take, which was not considered to be the same during lockdown as it was pre-pandemic (discussed further in section 5.3.2.1 below):

"We mediate between the two parties…we're constantly saying, oh, well, can you do this? Can you change that? Can you see how this goes? Can you reduce your hours?…Through COVID that didn't happen" – EHP-G

Participants felt the inability of EHPs to conduct an effective investigation for the above reasons was likely to explain the reduced number of enforcement actions seen in the 2020/21 noise survey (CIEH, 2022). However, it was not thought to be a contributing factor to the reduced enforcement in the years since, instead it was considered to have impacted on the persistently elevated complaint numbers between 2021-2024. This was thought to be because complaints were not thoroughly investigated, therefore people complained about the same issue multiple times.

5.3.1.5: Resource availability

One LA found the pandemic to be beneficial in terms of increasing resources as they used some of the Contain Outbreak Management Fund ringfenced for enforcement to invest in more NME, increasing investigation capacity (Department of Health and Social Care, 2022). They also found that time saved by EHPs WFH instead of commuting to the office absorbed some of the additional pressure on services. However, this was not a view shared by EHPs at other LAs. Several participants reported having reduced staff availability for noise investigations either due to sickness, or staff needing to self-isolate or shield. Further, one LA's staff were redeployed to enforce social distancing regulations, further reducing capacity:

"We had some reprioritising of staff functions....so there was knock on enforcement that you didn't really associate to our role" – EHP-G

The above issues were thought considerable contributing factors to the shorter-term reduced enforcement during the pandemic (CIEH, 2022). Regarding the longer-term reduced enforcement, several participants acknowledged difficulties with recruiting and retaining experienced staff, as well as training new officers since most LAs had transitioned to remote or hybrid working.

5.3.1.6: Change in type of noise complaints

The high number of complaints from "other" noise sources was largely attributed to dog barking. Although this was partly credited to the changing use of homes discussed in section 5.3.1.1, EHPs perceived there to have been an increased dog population, as well as what one participant termed "antisocial dog behaviour" whereby dogs seem to display more reactive vocal behaviours since the pandemic:

"Dogs are our number one by a considerable distance" – EHP-A

"Lockdown dogs are different to your average dog in the fact that they were brought up in a premises where everybody was around all the time. So, I think there's been an increase in, I'm going to say antisocial dog behaviour since owners have returned to work" –EHP-E

A further point raised by two EHPs was within the category of domestic noise they are now experiencing an increased number of complaints regarding "people noise" which they considered as being ordinary household noise (e.g., internal movement etc.) as opposed to what was deemed "classic" domestic noise complaints (e.g., loud music). This was also thought to be due to changing use of homes, although it was noted this is rarely something that can be formally actioned, which may go some way to explaining the persistently reduced enforcement action post-pandemic.

5.3.2: Attitudinal changes

5.3.2.1: Noise sensitivity and tolerance

A prominent factor raised by all participants was the impact of the pandemic on people's sensitivity to and tolerance for noise, thought to have considerably affected the trends in both complaint numbers and enforcement actions. For instance, all participants stated during lockdown the public seemed to become more affected by noise that in the EHPs opinions, ordinarily would not affect them. EHPs felt due to this increased sensitivity, people were more likely to complain (contributing to the increased complaint numbers), and in turn

these complaints were less likely to be concerning unreasonable noise, so less likely to be actionable, which may in part explain the reduced enforcement. Whilst EHPs suspected this to be highly intertwined with the shift towards WFH (section 5.3.1.1), there was also significant discussion about noise complaints often being a symptom of deeper issues, for example a general decline in the mental health of the population**:**

"People are not having a very good time in their lives, which then ends up with noise complaints because it's a flashpoint…if people feel good about things in their lives, they are more likely to be more tolerant" – EHP-C

"If you are suffering with mental health issues, which a lot of people do now, and I do think that's in part due to lockdown…noise is going to impact you more" – EHP-E

Additionally, complainants had unreasonable expectations. EHPs felt there was a dramatic decrease in expectations of what would be considered acceptable day-to-day living noise, with many individuals now feeling they are entitled to silence. Additionally, EHPs found complainants less willing to play a role in the investigation process, whilst simultaneously increasing their expectations of what the LA should do to resolve the issue:

"People's tolerance for noise reduced to zero…[people] seem to equate WFH as a right to absolute silence" – EHP-C

"[People] don't want to fill in the diaries, they just want to make a complaint to the Council and have the problem fixed" – EHP-G

Interestingly, EHPs also commented that people's tolerance changed over time, which was not in line with their expectations. For instance, one EHP found people were more tolerant of licensed premises utilising outdoor spaces during the pandemic but noted they are not as tolerant of similar activities now. Additionally, several EHPs anticipated people's sensitivity and tolerance for noise to return to pre-pandemic levels after lockdown, however this has not been the case.

5.3.2.2: Communication

One EHP felt the pandemic caused communication to breakdown between neighbours, which in their opinion contributed to increased complaint levels during the pandemic and ever since, as noise issues are unlikely to be resolved informally without involving the LA (CIEH, 2022). The EHP also felt their staff are continuing to manage complaints through "arms-length" communication such as email and letters which, in their opinion, is ineffective at resolving complaints and may lead to them being registered multiple times. Whilst this may seem counterintuitive as lockdown restrictions have ended, it was thought to be because many current staff at the LA were employed in 2020 and had only experienced "covid" noise investigations whereby there was very little "hands on" investigation. Whilst communication issues were a factor raised by only one participant, they strongly felt that this was one of the most significant contributors to the longer-term increase in complaints:

"I think people forgot how to communicate how to go around and knock on the door and say 'can you turn it down' and instead came to us" – EHP-G

"Just sending out letters…it's no substitute for talking to someone on the phone for 20 minutes" – EHP-G

5.3.2.3: Community tension

Two EHPs suggested a minor influence on the increased complaint numbers could be a rise in community tension. In terms of the rise identified in the 2020/21 noise survey (CIEH, 2022), one EHP reported noticing a rise in noise complaints seemingly more about people breaking lockdown restrictions. With regards to the persistently high complaint levels seen post-lockdown, another EHP felt there had been an increase in retaliatory complaints whereby people had complained about their neighbour simply because they had become the subject of a complaint themselves. However, both EHPs noted these were not recorded figures, and as such they had no empirical evidence to support these claims:

"There was more of a likelihood that a neighbour was going to complain because they felt aggrieved, the fact that somebody was having a party or maybe breaching COVID rules" – EHP-A

"I've had more 'well, they're complaining about me, so I'm going to complain about them' than I have in any other previous years" – EHP-E

5.3.2.4: Enforcement culture

Another minor theme was a change in enforcement culture in several LAs. For instance, one LA increased resources investigating complaints of alleged breaches of enforcement notices and prioritised prosecutions. This may, to some extent, explain the trend of an increased number of prosecutions undertaken post-pandemic. Two other EHPs were new to their current role at the start of the pandemic. In both LAs this resulted in a change in enforcement culture which may have contributed to identified trends, as EHP-E considered themselves to have a more enforcement-centric approach than their predecessor, whereas EHP-G favoured a more informal and "business friendly" approach to resolving complaints.

5.3.3: Impact on EHPs

All but one participant felt the changes discussed increased pressure on their service and considerably impacted on their day-to-day role. Since the start of the pandemic, participants felt they spend more time talking to unreasonable complainants or upset subjects of complaints, as well as addressing corporate complaints against service, letters from members of parliament and Councillor enquiries, which was thought to be taking away time for other aspects of their role. Whilst dealing with corporate complaints is nothing new, participants stated that since the pandemic this has become a more prominent part of the job. As no participants had gathered empirical evidence in terms of the numbers of corporate complaints made between 2019-2024, assessing the scale of this issue is beyond the scope of this research:

"I am busier and under more pressure now than I have ever been" – EHP-E

5.3.4: LA coping strategies

5.3.4.1: Education and expectation-setting

As identified in section 5.3.2.1, public tolerance for noise and expectations of what can be actioned by LA's seems to have changed. Therefore, providing a completed diary sheet on LAs websites to set an expectation to the public of the types of noise disturbances EHPs would expect to see when investigating an actionable complaint, or providing sample recordings were discussed with all participants. However, these strategies were largely thought ineffective at deterring complaints where there is a low likelihood of action, as it was thought this would encourage people to exaggerate the noise they are experiencing to produce diary sheets exactly like the example. Due to differences in noise perception, example recordings could serve as a point of contention if people felt their situation is comparable when EHPs could not support enforcement action or deter genuinely impacted people from complaining.

An alternative approach suggested by 3 participants was reviewing LA websites to provide clear information educating the public on what kind of noise can and cannot be actioned, as well as setting clear expectations of the required involvement of complainants in the investigation. Since the pandemic one LA had updated their website, and a further two planned to. One EHP also suggested putting a blank diary sheet online for individuals to complete prior to contacting the LA, as this would reduce EHP time spent explaining the investigation procedure at the start of the complaint:

"We've had to go back through our web pages and our letters and like really reinforce this expectation as to what the service will provide them and what they can expect to contribute" – EHP-G

5.3.4.2: Reviewing procedures

One LA changed their investigation procedure in autumn 2024 to try and deter what they felt were 'disingenuous complaints' and free up EHP time, as discussed in section 5.3.4. EHP-E explained that the subject of the complaint is now only written to advising of the complaint

once diary sheets indicating there is likely a noise issue have been returned to promote impartiality. It was not possible to assess the efficacy of this strategy as at the time of the interview, the procedure had only been recently changed:

"We used to write to the subject of domestic properties when we got the complaint, but then what would happen is we wouldn't get any information back [from the complainant]…once we've got something that we think we can action, then we'll contact your neighbour accordingly" – EHP-E

5.3.4.3: Informal resolution

Two LAs have been more heavily promoting free mediation services, aiming to facilitate an informal resolution to complaints. This has been particularly the case in LA-E as they reported having an increased mediation budget post-lockdown; however, EHP-E was unconvinced of its effectiveness.

5.3.4.4: Technological developments

EHP-A felt the only way to reduce the impact of the identified trends on EHPs would be technological improvements automating elements of the investigation process, as they felt their investigation process was "tested to destruction". Suggested examples included using artificial intelligence (AI) to review noise recordings and highlight key recordings for EHPs to manually review. However, they expressed some scepticism regarding the ability of AI to consider all of the subjective parameters EHPs would consider during an investigation.

5.3.5: Future trends

The Labour government in their Plan for Change intend to build 1.5 million new homes, which has involved mandatory housing targets for LAs and planning relaxations, prioritising the development of less desirable land (Ministry of Housing, Communities and Local Government, 2024). Most participants felt this would likely increase future noise complaint

trends in the shorter-term due to construction noise, but also lead to longer-term domestic noise issues due to high density of housing developments, as well as bringing less desirable land into use:

"We're bringing city centre locations back into occupation, which perhaps may have not been occupied in that way before. It's quite difficult getting the necessary [noise] controls that you need back into the building…also there's a want to put housing next to road traffic sources and rail sources and use land that perhaps wouldn't be considered desirable, but to mitigate end use….that's going to lead to a greater increase in noise complaints" – EHP-G

6: Discussion

This Chapter summarises key findings in relation to literature, before critically evaluating the study, making recommendations to help LAs address the impact of these trends in pursuance of Research Objective 4, and highlighting avenues for further study.

6.1: Summary of findings and comparison to existing literature

This section summarises key findings of the research in relation to existing literature. Note that findings relating to enforcement culture are not discussed in this Chapter as they relate to the individual enforcement preferences of participating EHPs.

6.1.1: Complaint and enforcement trends

This study presents emerging information on current noise complaint and enforcement trends in North-East England since 2020/21. Data collection has taken place for the CIEH's 2023/24 noise survey, though at the time of writing this is yet to be published (CIEH, 2025).

Through data obtained from LAs, this study identified a year-on-year decrease in complaints received compared to the spike noted in the 2020/21 pandemic noise survey, however this remains higher than pre-pandemic levels documented in the 2018/19 and 2019/20 noise surveys (CIEH, 2020; CIEH, 2021a; CIEH, 2022). Despite this, the number of abatement notices served since the pandemic has increased year-on-year, but this remains below pre-pandemic levels (CIEH, 2020; CIEH, 2021a; CIEH, 2022). Although there has been an overall decrease in abatement notices served, the number of prosecutions taken dramatically increased in 2021/22 compared to those taken during the 2020/21 noise survey, and gradually declined in the years since (CIEH, 2022). However, it is challenging to compare this trend to pre-pandemic levels because the number of prosecutions taken in the most recent 2023/24 period lies within the two pre-pandemic values, see Table 5.3 (CIEH, 2020; CIEH, 2021a). In terms of the type of noise complaints received, similarly to the 2020/21

noise survey, this study identified residential noise continues to account for the highest proportion of complaints (CIEH, 2022). However, during the 2020/21 survey, there was a spike in the number of complaints categorised as emanating from 'other' sources (CIEH, 2022). Although a direct comparison cannot be made as the 2018/19, 2019/20 and 2020/21 noise surveys only provide a sector breakdown for England as a whole rather than by geographical region (CIEH, 2021a; CIEH, 2022), it appears there has been a trend towards an increased number of complaints categorised as coming from 'other' noise sources in the North-East post-pandemic.

These findings build on those of Lee and Jeong who noted during lockdown noise annoyance mainly stemmed from residential sources (2021) which has persisted post-pandemic, and support smaller scale research, for example a study identified elevated complaint levels received by LAs in England and Northern Ireland in the 2021/22 financial year (Wheeler, 2022).

6.1.2: Reasons behind identified trends

6.1.2.1: Factor prevalence and participant consensus

This study identified two overarching themes contributing to both increased noise complaints and reduced enforcement actions taken since the pandemic: contextual and attitudinal changes. Within these themes, individual influencing factors were identified, with some factors being more prominent in the data. In general, the more prominent factors were those affecting all LAs, for example changing use of homes, the ability to investigate complaints, and reduced tolerance for noise and the investigation procedure. However, participants opinions sometimes differed as to the extent of which a factor was an influence. This was sometimes due to differences in the geography of LAs or the LAs structure, for example LAs with larger workforces were less affected by staff availability. Factors like community tension were less prominent, and in some cases only raised by one participant. Whilst these may be due to localised issues or workplace culture, for many minor factors there was no discernible reason why they would not affect other LAs.

6.1.2.2: Contextual changes

A key influence on complaint trends was the longer-term shift to WFH as people are at home more to witness noise (Clark, 2024). This finding builds on those identified in studies carried out during lockdown (Yildirim and Arefi, 2021) and support's Tong et al.'s suggestion that the longer-term trend to WFH will likely lead to a considerable and lasting increase in noise disturbance (2021). Similar opinions are held by professionals working in the mediation sector (Bolton, 2022); however, this research presents new perspectives from EHPs.

Whilst relaxation in requirements for licensed premises was thought to affect complaint levels during the pandemic, participants disagreed on whether this was a longer-term trend. Existing literature largely documents persisting noise issues from outdoor spaces permitted during lockdown (Faulkner, 2023; Patterson, 2023; Spereall, 2023); however, information on this topic stems from online local news articles which are potentially sensationalist and vulnerable to media bias (Udeze and Uzuegbunam, 2013).

Reduced background noise levels were thought to influence complaint numbers as plant and machinery became more audible. This builds on Munoz et al.'s finding that reduced background noise levels in France meant noise that had always been present in the environment, but had previously been masked by human activity, became more audible (2020). However, a key difference in these findings is that participants in this study thought this contributed to increased complaint levels, whereas respondents to Munoz et al.'s survey felt it was a positive change due to the increased ability to hear nature (2020). This difference is likely due to variations in the acoustic environment of the study location. This study also suggested a delay in the return of background noise levels, specifically in relation to the night-time economy due to university courses remaining online. This was only raised by one participant despite two of the other LAs having universities within their administrative boundary, albeit with much smaller student populations (UCAS, 2025a; UCAS, 2025b). This is an unexpected and emergent finding from this research, and one which contrasts with studies indicating background noise levels returned to pre-pandemic levels shortly after lockdown (Seidler and Weihofen, 2021; Carfagni et al., 2023). As there is no empirical

evidence supporting the claims of a delay in returning background levels post-pandemic in the North-East, this should be considered cautiously; however, it does to some extent support research documenting the contribution students make to the night-time economy and a reduction in student drinking and clubbing behaviours post-pandemic (Robinson 2022; Gillson, 2024; Cresswell *et al.,* 2024).

A further factor affecting enforcement levels was that investigations during the pandemic were largely ineffective. This was primarily attributed to workplace policies advising against non-essential home visits, making gathering evidence challenging. This corroborates policies regarding pandemic home visits of participating LAs (Lally, 2020). It also supports Everett's findings that many EHPs relied heavily upon triage techniques like diary sheets as the pandemic significantly reduced what steps would be considered "reasonably practicable" when investigating complaints due to staff safety concerns (2023).

Reduced resource availability was an emerging finding from this study affecting enforcement. During the pandemic this was mainly due to illness and shielding requirements. This is consistent with data on the number of people shielding during lockdown (UK Parliament, 2021), and the high numbers of COVID cases (ONS, 2023). Interestingly, 1 in 4 participants stated they were redeployed during lockdown to assist with alternative enforcement, differing from CIEH figures identifying that 8 in 10 EHPs were redeployed (CIEH, 2021b). This difference could be due to recall bias as participants were not directly asked about redeployment (CIEH, 2021b). Longer-term issues related to recruitment and retention. This corroborates the findings of the most recent CIEH workforce survey which reported 58% of vacancies have been unfilled for 6 months or more (CIEH, 2021b). Although this report is from 2021, these findings suggest recruitment remains challenging.

A final emergent finding from this study was that an increased number of dog barking complaints seem to largely account for the identified trend of an increasing number of noise complaints emanating from "other" sources, which was attributed to increased dog ownership and antisocial dog behaviour due to dogs not being adequately socialised and

suffering from separation anxiety when owners started to return to work. This is in line with views expressed by other EHPs (Paton, 2024), supports the documented rise in dog ownership since the pandemic (Wheeler, 2023), and an increase in excessive vocal behaviour (Brand et al., 2022; Harvey et al., 2022; Loftus, 2023; Sherwell et al., 2023; Brand et al., 2024).

6.1.2.3: Attitudinal factors

A prominent influence on identified trends post-pandemic was a perceived reduced tolerance for noise. These findings build on lockdown studies which reported an increase in self-reported annoyance with various noise sources (Şentop Dümen and Şaher, 2020; Lee and Jeong, 2021) and presents emerging information from EHPs indicating this has persisted post-pandemic. These findings also support the opinions of licensing officers (Spereall, 2023). Licensing officers have stated they feel this reduction in tolerance could be due to people getting used to reduced background noise levels during the pandemic, a sentiment supported by venue operators (Maurice-Jones, 2023). However, participating EHPs felt this change was partly due to a shift in mental health outcomes. Research supports a reduction in mental health outcomes during and post-pandemic (WHO, 2022; Dugai et al., 2024; Mind, 2025), and suggests those struggling with their mental health are less able to cope with stressful situations, and consequently may have a reduced frustration tolerance (Mahon et al., 2007; Orzechowska et al., 2013; Mesman et al., 2021; Shin and Brunton, 2024), something which has specifically been linked to chronic noise annoyance (Hahad et al., 2019). This difference in opinion could be because EHPs deal with a wider variety of noise complaints from different sources, not just the entertainment sector, and therefore have a more holistic overview of the factors affecting trends in noise complaints. This study also suggests tolerance has reduced over time, aligning with opinions from mediators (Bland, 2020). Mediators felt at the start of the pandemic people were understanding, but over time this diminished (Bland, 2020); this study builds on these findings and suggests it has persisted post-pandemic.

A further finding is since the pandemic individuals have been less willing to participate in noise investigations and have increasingly unreasonable expectations of EHPs ability to act without evidence. This is an important emerging finding from the research, corroborating findings suggesting that public expectations of government responsibilities are currently at an all-time high (Curtice, 2023; Spurdens and Crabb, 2023).

Communication issues were an unexpected influence on complaint levels. Literature concerning neighbour relationships during and after the pandemic is contradicting, with some initial reports suggesting neighbour relations have deteriorated (Borkowska and Laurence, 2020), although a more recent and large-scale longitudinal study indicated an overall improvement (Fancourt et al, 2022). However, as communication issues were only raised by one LA but thought to be a highly influential factor in this area, this may indicate a localised issue. Borkowska and Laurence suggested highly deprived groups were most likely to experience a perceived lack of social cohesion during the pandemic (2021), and the LA where this issue was identified is the most deprived area out of the included LAs in the study, though only marginally (Sunderland City Council, 2024). Further, the reluctance of EHPs to communicate with complainants may be a product of the LA's workplace culture left over from the pandemic, as this was not raised by other participants at all.

Finally, increased neighbour tension was thought to influence complaint numbers. This was partly attributed to complaints which were seemingly led by lockdown rule-breaking and a perceived rise in retaliatory complaints. Although not supported with empirical evidence, these findings are alike those identified by the Police, who reported a significant increase in calls relating to breaching social distancing restrictions (Dodd, 2020) and expressed that many were "deliberate false reporting" used as a weapon to fuel pre-existing disputes (Townsend and Iqbal, 2020).

6.1.2.4: Impact on EHPs and coping strategies

Identified trends reportedly had a significant impact on the EHPs daily role, with participants spending more time talking to disgruntled individuals and responding to a perceived increased number of corporate complaints. These are emerging findings from the study population, and whilst this contradicts data identifying that Local Government and Social Care Ombudsman (LGO) complaints dipped during the pandemic but have since returned to pre-pandemic levels (LGO, 2019; LGO, 2020; LGO, 2021; LGO, 2022; LGO, 2023; LGO, 2024), this only considers complaints of maladministration to the LGO relating to all LA statutory functions, not internal corporate complaints regarding noise specifically and therefore should be considered cautiously.

Consequently, many LAs are considering measures to lessen this impact on their service. Amending informative materials was considered the best mechanism to do this, by educating the public and setting clear expectations regarding what can and cannot be actioned in layman's terms, and the required input of complainants in the investigation process. Managing expectations, including explaining what is possible and providing information on what the investigation will require, is widely considered to be a principle of good complaint handling (Williams et al., 2018; Legal Ombudsman, 2024; Parliamentary and Health Service Ombudsman, 2025).

Alternative strategies included one LA amending their investigation procedure, so the subject of the complaint is only written to once diaries are returned to lessen the impact on EHPs and promote impartiality. Whilst logical, the legality of this approach has been criticised, as it may give the impression that the LA is trying to avoid their statutory duty to investigate the complaint as imposed by s.79(1) of the EPA 1990, particularly now lockdown restrictions have ended (Everett, 2023). Another strategy included promoting mediation which can be valuable in resolving disputes like noise complaints (Bernicia, 2022; Phillips, 2022; Shelter, 2025), and although its success is largely dependent upon the willingness of affected parties to resolve the issue, many LAs have mediation budgets available (Marshall, 1991; Gov.UK, 2025). Finally, the use of AI to review noise recordings as part of noise

investigations was suggested. AI is currently being incorporated in the investigative tool *The Noise App* (RHE Global, 2024), though at present AI cannot consistently make fair decisions about subjective issues (Steyvers and Kumar, 2023).

6.1.2.5: Future trends

Participants strongly felt that government agendas driving housing developments would increase complaints. Although measures protect new developments and converted use premises from noise (British Standards Institute, 2014), research suggests noise annoyance increases with proximity to road and rail networks (Ragettli et al., 2016), and increasing population density (Benz et al., 2021), meaning the planned development of less desirable land may contribute to a future increase in noise complaints (Ministry of Housing, Communities and Local Government, 2024). There may also be some confounding as new housing developments contribute to increased traffic levels (Homes England, 2023), potentially exacerbating the issue.

6.2: Study evaluation

6.2.1: Limitations

One limitation is the CIEH collect data for the noise survey on a voluntary basis, leaving the survey vulnerable to non-response bias (Elston, 2023). This means the CIEH noise surveys present data from different LAs geographically located within the North-East, rather than just those in the NECA (CIEH, 2020; CIEH, 2021a; CIEH, 2022). Consequently, when comparing the data collected as part of this study to the CIEH data to identify longer-term trends, direct comparisons cannot be easily made. There are also limitations to the data collected in this study, as not all data were provided in the same format. For example, one LA was unable to provide data for CPWs/CPNs regarding noise only, therefore this data was excluded as CPWs/CPNs can be used for a range of anti-social behaviour issues, not just noise (CIEH, 2014); further, one of the two teams responsible for investigating noise

complaints at this LA had implemented a new case management system in September 2021, so no data was provided for this team from April to September 2021. However, it is not anticipated that these limitations significantly affected the study findings, particularly as the excluded data were negligible.

There are also limitations to identified EHP perspectives. For example, only four EHPs were interviewed, two of which investigated complaints from commercial noise sources only (although this only became apparent during the interview). This meant factors affecting the trends specifically relating to domestic noise sources were not explored in as much detail as was originally anticipated; however, the study still obtained rich, emerging knowledge.

6.2.2: Strengths

There are major strengths of this study. Firstly, this is the first research documenting longer-term trends of noise complaint and enforcement data in the UK post-pandemic. Although an up-to-date noise survey is due to be published, data was only collected for the 2023/24 period meaning this study will remain the only account of trends between April 2021 and June 2023 (CIEH, 2025). Additionally, as this study did not rely on voluntary participation to provide complaint and enforcement numbers, it meant data was obtained from previously un-consulted LAs allowing a more accurate understanding of trends in the North-East. Finally, this study is the first to formally consult EHPs on the reasons behind the emergent trends, providing a unique perspective on a previously under-explored area of vital public health importance (Hahad et al., 2024). Understanding the reasons behind the trends is crucial in enabling informed recommendations to be made.

6.3: Recommendations

This study makes 3 recommendations:

1. LAs should review their informative materials including websites to educate the public in layman's terms on what can and cannot be actioned and required involvement from the complainant
2. If LAs have available mediation budgets this should be promoted on their website to raise awareness of the service alongside complaint information
3. A qualitative element should be periodically incorporated to the CIEH's noise survey

Recommendations 1 and 2 are widely considered principles of good complaint management and conflict resolution. Whilst the efficacy of mediation is disputed, neither recommendation would be detrimental to EHPs and may potentially relieve some of the pressure they face due to changes in public expectations. Recommendation 3 would enable contributing factors to noise trends over time to be monitored nationally, which would facilitate longer-term understanding of trends in noise complaints and enforcement, allowing further tailored recommendations to be made to LAs accordingly. This is particularly important considering the potential impacts of government policies encouraging housing development.

6.4: Further study

Opinions of EHPs investigating domestic complaints were not explored in as much detail as originally anticipated in this study and there was some disagreement among participants; therefore, further study should be undertaken in the North-East to improve the validity of these findings (Andrade, 2020). Although recruitment was an issue in this study, this could likely be overcome with snowball sampling. Participants were happy to recommend appropriately placed colleagues within their own LAs and at LAs that were not interviewed who would likely participate, but this could not be facilitated within time constraints.

Further research with individuals who are currently or have in recent years complained to a LA in the North-East about noise should be undertaken to understand why there has been a change in public expectations of what is actionable and what input would be involved in the investigation, as well as identifying trends in corporate complaints to gain an accurate understanding of how much this is affecting EHPs. Finally, to understand the generalisability of these findings outside of the North-East, comparable studies should be undertaken in other regions.

7: Conclusion

This study sought to identify trends in noise complaints and enforcement actions taken in North-East England since 2021 and presents valuable findings identifying the reasons behind these trends, particularly considering the documented public health impacts of environmental noise. It was identified that the number of noise complaints has decreased since the peak documented by the CIEH during the pandemic, though remains higher than pre-pandemic levels, whereas the number of abatement notices served has increased since the pandemic lull but remains lower than pre-pandemic levels. Further, the increasing number of complaints emanating from "other" sources noted during the pandemic appears to have persisted.

This study was the first to consult EHPs who investigate noise complaints and identified several emerging reasons for these trends. Key influencing factors were categorised into contextual or attitudinal changes and included the changing use of homes during the pandemic and longer term, a reduced ability to investigate complaints during lockdown, and longer-term changes in tolerance for both noise and the investigation process. Many findings were congruent with and in some cases built on existing literature. Where departures from literature were noted, they were mainly thought to be due to differences in the study area or population.

Further research would improve the validity of these findings in the North-East, as well as ascertaining the generalisability of these findings outside of the region. However, based on the study's findings, recommendations were made to try and address the impact of these trends, including for LA's to amend their websites to educate the public, set expectations, and raise awareness of mediation where appropriate; and going forwards, for the CIEH to incorporate a qualitative element to the noise survey periodically so future trends can be understood on a national scale.

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9: Appendix A: Data collection tools and supporting documentation

Appendix A.1 – EIR request

Question 1:

Please can you provide the number of noise complaints received by your Authority during the following time periods:

- 6th April 2021 – 5th April 2022
- 6th April 2022 – 5th April 2023
- 6th April 2023 – 5th April 2024

Year	**Total number of complaints received**
6th April 2021 – 5th April 2022	
6th April 2022 – 5th April 2023	
6th April 2023 – 5th April 2024	

Question 2:

Please can you provide the number of noise complaints received by your Authority in the following time periods as you would ordinarily categorise them e.g., loud music, barking dog etc:

- 6th April 2021 – 5th April 2022
- 6th April 2022 – 5th April 2023
- 6th April 2023 – 5th April 2024

	Number of complaints received		
Category of noise complaint	**6th April 2021 – 5th April 2022**	**6th April 2022 – 5th April 2023**	**6th April 2023 – 5th April 2024**

Question 3:

Please can you provide the number of enforcement actions taken by your Authority in relation to noise between the following dates:

- 6th April 2021 – 5th April 2022
- 6th April 2022 – 5th April 2023
- 6th April 2023 – 5th April 2024

Please also provide under what piece of legislation the enforcement action was taken, specifically:

- Abatement Notices - Environmental Protection Act 1990
- Community Protection Warning - Part 1, Anti-social Behaviour, Crime and Policing Act 2014
- Community Protection Notice - Part 1, Anti-social Behaviour, Crime and Policing Act 2014
- s.60 notice for construction noise – Control of Pollution Act 1974
- s.62 action for loudspeakers in the street - Control of Pollution Act 1974
- Section 77 Silencing of Intruder Alarms Notices – Clean Neighbourhoods & Environment Act 2005
- Section 3 or 3A Warning Notice - Noise Act 1996
- Notices under the Firework Regulations 2004

	Number of actions taken		
Type of action	**6th April 2021 – 5th April 2022**	**6th April 2022 – 5th April 2023**	**6th April 2023 – 5th April 2024**
Abatement Notices – Environmental Protection Act 1990			
Community Protection Warning – Part 1, Anti-social Behaviour, Crime and Policing Act 2014			
Community Protection Notice – Part 1, Anti-social Behaviour, Crime and Policing Act 2014			
s.60 notice for construction noise – Control of Pollution Act 1974			
s.62 action for loudspeakers in the street – Control of Pollution Act 1974			

Section 77 Silencing of Intruder Alarms Notices – Clean Neighbourhoods & Environment Act 2005			
Section 3 or 3A Warning Notice - Noise Act 1996			
Review of Licence Condition - Licensing Act 2003			
Notices under the Firework Regulations 2004			

Question 4:

How many noise-related prosecutions have been undertaken in your Authority in the following years;

Year	**Total number of noise-related prosecutions undertaken:**
6th April 2021 – 5th April 2022	
6th April 2022 – 5th April 2023	
6th April 2023 – 5th April 2024	

Appendix A.2 – Participant Information Sheet

Research Project Title: Noise trends in a changing world: perspectives from the regulator

Principle investigator: Chloe Sharp

You are being invited to participate in this research study. Before you decide if you would like to consider taking part, we would like you to understand why the research is being done and what it would involve for you. The investigator would be happy to discuss the study with you and answer any questions you have or clarify anything as needed.

What is the project's purpose?

The project aims to understand the reasons for changes in noise trends from the perspective of Environmental Health Practitioners working in local authorities in North-East England. The research hopes to use your experience in this area to make recommendations for reviewing Local Authority noise investigation policies and/or informative materials.

Why have I been invited to participate?

You have been chosen because you are an Environmental Health Practitioner involved in investigating or overseeing the investigation of noise complaints in North-East England.

Do I have to take part?

No, you do not have to take part. Your participation in this study is entirely voluntary. If you are happy to participate you can retain this document for reference purposes and please complete the attached consent document. If you chose not to take part, you will not be affected in any way.

What do I have to do if I take part?

You will take be asked a series of questions relating to your opinions on changes in trends of noise complaints received by local authorities in North-East England in the form of one interview lasting approximately 30 minutes to 1 hour. This will be conducted either on Microsoft Teams or over the phone in accordance with your preferences. The interview schedule that will be used to

form the basis of the discussion is attached to this document for reference. There are no other commitments or restrictions.

Expenses and payments

There are no expenses or payments associated with taking part in the study.

What are the possible disadvantages and risks of taking part?

It is not anticipated your participation will cause you any risks, disadvantage or discomfort. If at any stage you have any concerns, please contact the researcher to discuss.

What are the possible benefits of taking part?

There is no intended personal benefit to your participation in the study. However, your experiences will provide invaluable contributions to knowledge in this area.

Will my participation in the study be kept confidential?

Information collected for the purposes of this study, such as your opinions on changes in trends of noise complaints received by local authorities in Nort East England, will be kept confidential. The interview will be recorded and transcribed into a written format, anonymised and any identifying information such as names or places removed. The audio files will be stored in password protected files for two weeks then later deleted in accordance with the University's data protection policy.

What if I change my mind about participating?

If you change your mind about participating in this study during the interview, then you can terminate the conversation at any time. If you change your mind about participating after the interview, you can request withdrawal of consent within two weeks of the interview by contacting Chloe Sharp at c.sharp6@unimail.derby.ac.uk. After this period data are anonymised and we will be unable to extract your individual data. This is so the researcher can analyse and prepare the findings. You do not need to give any explanation for withdrawing.

What will happen to the results of the study?

The study will be submitted to the University of Derby for assessment. Disguised extracts of your feedback will appear in study, though you will not be identifiable.

Who is organising and funding the study?

This study is being conducted by Chloe Sharp in relation to her MSc in Environmental Health. There is no funding associated with the study.

Who has ethically reviewed the project?

This study has been ethically approved by the University of Derby.

Contacts for further information

If you have any queries about your participation in this study, please contact the researcher, Chloe Sharp on c.sharp6@unimail.derby.ac.uk, or alternatively you can contact Paul Belcher on p.belcher@derby.ac.uk.

Additional Information

The supervisor of this project, who also has access to the data, is highly qualified and experienced and has been very careful to discuss with the student processes to ensure the security of your data. An Ethics review has been completed on behalf of the University of Derby Online Learning Ethics Committee by the supervisor and an independent reviewer (Reference: ETH2324-5256).

We are obliged to:

- Not seek more information from you than what is essential and necessary for this research;
- Make sure that you are not identified by using ID codes;
- Use your anonymised data for the purposes of this study and for any relevant publications that arise from it;
- Store data safely in password-protected databases to which only the named researchers have access.

Further information about the project can be obtained from the research student (Chloe Sharp – c.sharp6@unimail.derby.ac.uk) or their research supervisor (Paul Belcher – p.belcher@derby.ac.uk), University of Derby, Kedleston Road, Derby, DE22 1GB.

Appendix A.3 – Participant Consent Form

Please tick each box to indicate you have read the statement:

I have read the participant information sheet and understand that I have agreed to participate in an interview as part of this study which involves discussing my opinions and views on the trends in noise complaints received by local authorities in the North-East, and that the interview will be recorded.	
I understand that my participation in the study is voluntary, and that if I no longer wish to participate, I can terminate the interview and/or withdraw my data up to two weeks after the interview has taken place. I do not have to give any reasons or explanations for doing so. I have been provided with details of whom I should contact if I wish to withdraw.	
I understand that all data I provide will be kept confidential and stored securely.	
I understand that my data will always remain anonymous.	
I have read and understood this information and consent to take part in the study.	

Signed: _____ Date:_____

Appendix A.4 – Interview Schedule

Introductory questions:

- Please could you outline your role, including your involvement in noise complaints?
- How long have you been in this role?
- Please can you talk me through your Authority's noise investigation procedure?

Schedule:

- The most recent CIEH noise survey conducted in 2020/21 identified that during the pandemic there was a significantly increased number of noise complaints, yet a decrease in enforcement action compared to pre-pandemic levels. Why do you think this was the case?
  - Which of these reasons do you think was the main contributing factor?
- The most recent noise survey also identified during the pandemic the highest proportion of complaints were due to "residential" noise, although there was a significant increase in the number of complaints emanating from "other" sources. Why do you think this was the case? "Other" noise is defined as noise in the street, vehicles, machinery and equipment, dogs, agriculture, alarms, military, traffic and railways.
- Recent data collected from the North-East Combined Authorities indicates that since the pandemic, the overall number of noise complaints in the North-East has decreased but remains higher than pre-pandemic levels, and the number of enforcement actions has increased, but remained below pre-pandemic levels. Why do you think this has been the case?
- Recent data from the North-East indicates that since the pandemic, the highest proportion of noise complaints still relate to noise from residential sources, and the trend of an increased number of complaints from "other" sources has continued. Why do you think this trend has continued since the pandemic?
- To what extent do you think the pandemic and/or lockdown measures are responsible for the changes and trends that we have discussed?
- How do you think potential future changes in society might impact on future trends in noise complaints?
- Do you think that the changes we have discussed have impacted on your day-to-day tasks and your role? In what way?
  - If yes → has your Authority taken any steps to try and alleviate the impact of these changes? Do you think they have helped? Is there any further action that could be taken that you think would be useful in alleviating the impact of these changes?

- Do you have any final comments, questions or is there anything else you would like to discuss?

Appendix A.5 - Invitation to participate

Dear [redacted]

I have been passed your contact details from [redacted], and I am writing to request a discussion about your thoughts on recent trends in noise complaints, particularly since the pandemic. This will form part of my research project titled "*Noise trends in a changing world: perspectives from the regulator*" as part of my MSc in Environmental Health at the University of Derby.

I am looking to complete interviews with Environmental Health Practitioners who investigate or oversee the investigation of noise complaints in the North East and have worked in a role of this nature in the North East prior to and since March 2020. This is following on from the 2020/21 noise survey published by the CIEH, which identified that the North East experienced the highest increase in noise complaints outside of Greater London. The report can be found here. This project aims to understand the reasons for changes in noise trends in the North East.

In this study you will be asked to participate in a short interview on Microsoft Teams or over the phone. The interview should only take between 30 minutes to 1 hour to complete and will be recorded. Participation is completely voluntary but would be greatly appreciated.

If you choose to participate your response will be kept confidential. Although transcribed excerpts of our conversation may appear in any reports based on the data, no identifiable information will be used.

Alternatively, if you do not wish to participate but know of any other relevant Practitioners who would be interested, I would be most grateful if you could pass this email to them and request that they contact me directly.

If you are interested in participating, please get in touch.

Thank you in advance for your time and consideration,

Chloe Sharp

Appendix A.6 – Debrief Information

Dear [redacted]

Thank you for your participation in this study – your contribution is appreciated and greatly valued. This will allow for a critical evaluation of the reasons behind changing trends in noise complaints in North East England.

You do still have the right to withdraw from the study if you change your mind. To do this, you need to contact the researcher within two weeks of the interview date. If you wish to withdraw outside of this period, you may contact the researcher, but data withdrawal cannot be guaranteed. Following withdrawal, the researcher will not contact you further.

Many thanks once gain for your participation.

Chloe Sharp

10: Appendix B: Thematic Matrix

Appendix B.1: Contextual changes

Changing use of homes	*"During lockdown, the only space that people had to do anything in was within their own home……so I think it's one of those things that there were probably more unusual activities being undertaken at home but equally where whereas we all used to get up and get in our cars at 8:00 in the morning and drive to the office and come home at 6:00….everybody was sat at home realising that you actually have neighbours around you"* – EHP-E *"I think that that's the only explanation for that sort of thing is it's that people are staying at home. So they're there to hear it"* – EHP-A "*We had national work at home year all of a sudden, all of those people that used to be in an office environment are now at home…and then people were allowed back to work, but under very controlled circumstances. And obviously you wanted to ensure maximum ventilation and separation. So as industrial businesses were allowed to go back…they maximised separation, they increased the passive ventilation, so they flung their doors wide, everyone was flinging everything wide…you've then got people working from home who are trying to concentrate, who aren't used to working from home…lovely bright summer, businesses going back to work, doing as the government tells them….then you've got a complete clash. So yes, our noise complaints were going through the roof*" – EHP-C *"We've got the Fordist approach whereby you get up and you go to your place of production, you go to work and you come back, planning applications developments, basically, strategic planning, all of this is premised on that fact that you get up, get to work, come back right?….But then what you had was those two functions coming together and sticking with garages for a minute, we've had a lot of complaints from a resident, we've got somewhere called [X location] and there's a whole row of garages… we never get complaints from them. Pandemic hits. We've got complaints because an individual was working from home and could hear them. You can hear them, but they're there during the day, you're never there during the day. But they were getting very distressed because they said they couldn't concentrate"* – EHP-C *"[When WFH] you want a quiet environment, especially with us all having [Microsoft] Teams. It's very distracting if you've got another noise going on when you're on [Microsoft] Teams or something else in the environment you feel self-conscious, there was a lot of people I spoke to who worked in call centre type jobs…they were very unhappy because they felt that it was having an impact on their performance and their ability to maintain a job*" – EHP-A

Changes to licensed premises	*"I think with licensing through COVID there was a lot more use of outdoor space. So in beer gardens like pop up venues and things like that"* – EHP-G *"You would have seen about all these issues about people having these little garden sheds put in the beer gardens and all these sort of things and you know from what's traditionally not been used in that manner suddenly became used in that manner, so we had a bit of an uplift in complaints associated with those as well"* – EHP-A *"Outdoor events went back to just your summer months and reduced in in their prevalence, pubs using beer gardens went back to how it was before. So the complaints you had in those areas reduced down"* – EHP-A *"We've had a lot of increase in like loud speakers in beer gardens, TV's in beer gardens, and they haven't gone back inside. Unfortunately, they've stayed"* – EHP-G
Changes in background noise	*"I think it probably had a larger effect on more urban authorities as I suspect when there is a significant decline in traffic and air noise people would notice neighbour noise more than they did before as it would probably filter out the internal noise, but we are a mostly rural authority and I didn't notice it having a particular effect on the number of complaints per se"* – EHP-E *"It took a couple of years before boom, the city centre was really coming again in terms of all the what I describe as reveller cacophony, the shrieks the hollers, the boisterous behaviours, all of that noise that makes up what you hear when you go out during the night time economy...it was significantly decreased because...students...they did all their courses online for a long time"* – EHP-C
Ineffective investigations	*"What you ended up with was a population of regulators who basically weren't doing home visits or weren't doing visits at all....and of course if you come back to an [abatement notice under the EPA 1990] whereby you need to be able to witness a statutory nuisance and you're not even putting noise recording equipment in whether it be domestic or commercial or anything. Then you're not going to take enforcement cases"* – EHP-C *"If you have an investigation that's effective, it'll be received and then within six months' time, it'll be closed down. If you've not got effective communication or you've got a bitty process so complaints, come in, disappear, then they come in again, so potentially you could have that one complaint registered three or four times. If you don't have that affirmative, effective investigation process you'll have it registered as four, when really, it's only one complaint, but it hasn't been investigated properly"* – EHP-G
Resource availability	*"Because we have moved to a sort of hybrid working model that has actually helped a soak up the additional complaints because of more efficient ways of working.... we've*

	increased the number of noise equipment we've got....the noise equipment we've got is a little bit better and a little bit quicker at doing things... which has helped us manage that" – EHP-A *"If an officer had COVID, they can't go out. If an officer had designated health issues, then obviously they'd be shielded....we actually had quite a high percentage of officers that were shielding so it reduced your kind of available experienced officers for making decisions"* – EHP-E *"We did have one officer who did actually end up off work for months and months and months because they ended up in intensive care"* – EHP-C *"I think that there were obviously issues surrounding loss of staff during the pandemic. You know, staff moving on, and then you've got an issue around retaining recruiting and training new staff for an enforcement point of view, which is challenging at the moment"* – EHP-E *"I had a new member of staff come after lockdown and that's difficult because normally you learn a lot of these things by osmosis, don't you?...[Training] became difficult to do and manage and get right...it's certainly changed your traditional status quo"* – EHP-A
Shift in type of noise complained about	*"Dogs are our number one by a considerable distance...we've had the quarrel a little bit with some of our [registered social landlords] about this because they have taken more of a shift into allowing pets more so than they used to....we do have issues where they let them have three dogs in a first floor flat"* –EHP-A *"I've actually had a case where we had significantly high levels of dog barking that would be nuisance level if they were coming from one property, but because they were coming from multiple sources, we weren't able to actually take action because...no one dog was causing the issue...it's a tricky situation because how do you fix it?"* – EHP-E *"Dogs are off the charts like dog barking. Yeah, I do the case allocation daily, and it's literally dog barking, dog barking, dog barking"* – EHP-E *"People working from home, they could hear all sorts so complaints about barking dogs through the roof because people let their dogs out in the garden"* -EHP-C *"I think people noise has probably gone up and that's how we'd characterise probably, you know, thumps and bumps from next door, which is, which is what you often get, isn't it, which we very rarely can ever deal with can we" – EHP-A*

Appendix B.2: Attitudinal changes

Noise sensitivity and tolerance	*"People seem to think that they're entitled to silence. So one of my favourite phrases is 'just because you can hear a dog bark doesn't mean it's a nuisance'. Dogs bark, children play in the street. Being alive is noisy. It's what's an acceptable level of noise. I think where we are now is there are a lot of members of the public whose tolerance level for noise has significantly reduced and I think part of that is the trend now for working from home"* – EHP-E "*There have people have reduced tolerance for noise, which means you've got an increased likelihood of complaints"* – EHP-C *"I think there was definitely a bit of an attitude issue…when somebody takes umbrage with something else or they're unhappy about something, they're far more likely to hyper focus on something and then it becomes more prominent to them. So we had a lot of circumstances like that, which I think to some extent can explain [the reduction in enforcement action] but not entirely… I think people's mindset helps to [explain] the fact that people were more prone to complain"* – EHP-A *"People have this expectation is that as soon as I can hear something from next door, it's a problem, isn't it?…People don't accept what reasonable noise might be"* – EHP-A *"How anybody thought that they had that right to sit in utter silence with their windows open, or the patio doors, or sitting in their garden? It's beyond me, but they did"* – EHP-C *"We have to go through a process and they're not wanting to go through that process…and although you explain, you know, it is a legal process, we don't have powers just to stop the noise. They can't really get that into their heads"* – EHP-G *"I regularly get people just ring me up and say, why can't you just go and take the dogs away? It's like, well, if I turned up at your house and took your dog with no prior notification or reasoning, would that not be upsetting for you?"* – EHP-E *"There is an overweening sense of entitlement from many, many, many complainants. They are far more prepared to take corporate complaints, far more prepared to call you a jobs worth…. they think it is perfectly all right to be downright rude"* – EHP-C *"Unfortunately, a lot of [licensed premises utilising outdoor spaces] are next to residential properties. And while [neighbours] were tolerant during COVID they are not as tolerant now"* – EHP-G *"The lack of tolerance in terms of noise, I was hoping that people would return to their jolly selves, and they absolutely have not"* – EHP-C

Communication	*"We had a lot of new officers start during COVID, so it's almost as if their experience of a noise investigation was, you know, just sending out letters, not talking to people, communication through e-mail and it's almost changing their mindset that that's not a noise investigation, that's an investigation based on a risk assessment where we don't get involved we do everything through like arm's length communication…it's no substitute for talking to someone on the phone for 20 minutes"* – EHP-G
Community tension	*"I think there were more complaints due to people breaching the COVID rules as in we were not going out to pubs and clubs any longer, we were having parties in our houses which meant there was an increase in in, in sort of noise from parties, but on the other side as well, there was more of a likelihood that a neighbour was going to complain about that because they felt aggrieved, the fact that somebody was having a party or maybe breaching the COVID rules"* – EHP-A
Enforcement culture	*"So we were putting a lot of time into cases that in essence weren't as serious as those where we'd already served notice and found that there was a problem. So, we started focusing more resources into that area of things and pushing with prosecutions"* – EHP-A

Appendix B.3: Impact on EHPs

Impact on EHPs	*"We'd get a call from the subject saying 'we're upset about this letter which is completely out of the blue' etcetera, which was understandable….but it was happening so much that it was taking up a lot of my time and my officers time, when in actual fact we hadn't received any diary sheets back [from the complainant] to suggest the noise needed further investigation"* – EHP-E *"I'm getting maybe like 12 MP letters a year. I'm getting like 40-50 Councillor enquiries where people are not happy with the service…stage one complaints, stage two complaints, I've dealt with an Ombudsman complaint, and it just takes a huge amount of time"* – EHP-G

Appendix B.4: LA coping strategies

Education and expectation setting	*I wouldn't include an example of a completed log sheet because what we would get there is we would get multiple log sheets that look exactly like the example on our website"* – EHP-E *"[People] would listen to a recording and then in their perception, they would argue that what they what was suffering from was exactly that, "you did something about that, so why won't you do something about this" And then "I'm going to complain because you're not doing your job properly" obviously, so it's a bit of a double-edged sword"* – EHP-C *"It might unfortunately put off those people who are the 'I really don't want to complain, but this is really impacting on me' [kind of people] and....they may a have a problem, but they're talking it down because some people do talk it down because they don't want to be that person"* – EHP-A
Informal resolution	*"We're quite heavily promoting mediation"* – EHP-G *"Another thing that we're doing is promoting mediation where a case lends itself to it, as we've had an increased mediation budget [since the pandemic] and if it's not spent, we lose it. But the thing with mediation is that it can only be arranged when both the subject and the complainant are willing to participate and resolve the issue which isn't often"* – EHP-E
Technological developments	*"I think our improvements are probably going to come from technology and movement to more electronic ways of doing things"* – EHP-A *"The AI approach, which basically will filter through...will drop markers, on to the bits that you need to listen to...if that happens and works, and then that can narrow down to right, you can spend 2 hours on this and just go through the bits you need to. Fantastic, it works"* – EHP-A