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THE IMPACT OF ENVIRONMENTAL STRESSORS ON SUBJECTIVE WELL-BEING: AIR QUALITY, NOISE, AND URBAN HEAT

XinYi Wang[1], ZhenDao Huang[1], ZhiYan Zhu[2], Jun Wu[3*]
[1]*School of Art and Design, Shanghai Institute of Technology, Shanghai 201400, China.*
[2]*School of Design, Zhejiang University, Hangzhou 310000, Zhejiang, China.*
[3]*College of Architecture & Urban Planning, Tongji University, Shanghai 200000, China.*
Corresponding Author: Jun Wu, Email: j.wu2015@tongji.edu.cn

Abstract: This paper examines the impact of environmental stressors—specifically air quality, noise pollution, and urban heat—on the subjective well-being of urban residents. As urbanization and industrial growth intensify, these stressors have become increasingly significant in shaping the quality of life within cities. The study synthesizes existing literature and empirical findings to highlight how poor air quality, chronic noise exposure, and rising urban temperatures adversely affect mental health, life satisfaction, and emotional well-being. The findings reveal that individuals living in areas with high levels of air pollution experience increased rates of anxiety and depression, while noise pollution contributes to stress, sleep disturbances, and cognitive impairments. Additionally, urban heat exacerbates discomfort and social isolation, particularly among vulnerable populations. The paper emphasizes the need for integrated urban planning and public health strategies that prioritize environmental quality to enhance the overall well-being of city dwellers. By fostering community engagement and implementing effective interventions, cities can mitigate the adverse effects of these environmental stressors and promote healthier, more resilient urban environments.
Keywords: Environmental stressors; Subjective well-being; Urban health

1 INTRODUCTION

In the context of rapid urbanization and industrial growth, environmental stressors such as air pollution, noise, and urban heat have become increasingly prominent in shaping the quality of life for urban residents [1]. These stressors not only pose direct threats to physical health but also significantly impact subjective well-being－the self-reported assessment of life satisfaction and emotional experiences. Subjective well-being is a crucial component of public health, influencing social cohesion, productivity, and overall community resilience. As cities expand and populations grow, understanding the interplay between environmental factors and subjective well-being becomes essential for fostering healthier urban environments [2].

Air quality has emerged as a critical determinant of health and well-being, with numerous studies linking exposure to pollutants such as particulate matter (PM), nitrogen dioxide (NO2), and sulfur dioxide (SO2) to adverse health outcomes, including respiratory and cardiovascular diseases [3]. The World Health Organization (WHO) has identified air pollution as one of the leading environmental health risks, contributing to millions of premature deaths annually. Furthermore, the psychological implications of poor air quality are becoming increasingly evident, with research indicating associations between air pollution and increased rates of anxiety, depression, and decreased life satisfaction [4]. The pervasive nature of air pollution in urban settings necessitates a deeper understanding of its broader impacts on mental health and well-being [5].

Noise pollution, another pervasive environmental stressor, has been shown to affect mental health and well-being. Chronic exposure to high levels of noise, particularly in urban settings, has been linked to increased stress, sleep disturbances, and cognitive impairments[6]. The impact of noise on subjective well-being is profound, as it can lead to decreased quality of life and heightened feelings of discomfort and dissatisfaction[7]. Noise can disrupt daily activities, impair communication, and contribute to a sense of urban chaos, further exacerbating the challenges faced by city dwellers. Understanding how noise pollution interacts with other environmental stressors is critical for developing effective interventions aimed at improving life quality in urban areas [8].

Urban heat, exacerbated by the urban heat island effect, presents additional challenges to residents' well-being [9]. Higher temperatures in urban areas not only contribute to physical health risks, such as heat-related illnesses, but also affect mental health by increasing discomfort and stress levels [10]. The urban heat island effect, which results from human activities and modifications to the natural landscape, can lead to temperature differences of several degrees between urban and rural areas. Vulnerable populations, including the elderly and those with pre-existing health conditions, are particularly affected by the compounded effects of heat, pollution, and noise [11]. These populations may experience heightened vulnerability to heat stress, exacerbating existing health disparities.

This paper aims to systematically examine the impact of these environmental stressors－air quality, noise, and urban heat－on residents' subjective well-being. By reviewing existing literature and empirical studies, this research will provide a comprehensive understanding of how these factors interact to influence quality of life [12]. Additionally, the paper will explore potential pathways through which environmental stressors affect mental health, including

physiological responses, behavioral changes, and social dynamics. Ultimately, the findings will inform urban planning and public health strategies aimed at mitigating the adverse effects of environmental stressors and enhancing the well-being of urban populations. By addressing these critical issues, this research seeks to contribute to the development of healthier, more sustainable urban environments that promote the well-being of all residents.

2 LITERATURE REVIEW

The literature on the impact of environmental stressors on subjective well-being is extensive and multifaceted. Studies have consistently demonstrated that poor air quality has detrimental effects on both physical and mental health [13-17]. For example, David found that children living in areas with high levels of air pollution exhibited lower cognitive performance and increased behavioral problems [18]. Chen reported that long-term exposure to PM2.5 was associated with higher rates of anxiety and depression among adults [19]. The evidence suggests that air pollution not only affects respiratory and cardiovascular health but also has far-reaching implications for mental health and cognitive functioning[20-22].

The psychological implications of air pollution extend beyond direct health effects. Research by Clark revealed that individuals living in polluted areas often report lower life satisfaction and higher stress levels [23]. Power highlighted the role of air quality in shaping emotional well-being, noting that even short-term exposure to pollutants can lead to increased feelings of anxiety and irritability [24-28]. These findings underscore the need for public health interventions that address air quality as a means of improving mental health outcomes.

Noise pollution is another critical environmental stressor that has been linked to subjective well-being. A meta-analysis by Stansfeld and Matheson concluded that chronic noise exposure is associated with increased psychological distress and decreased quality of life[29-33]. Basner further emphasized the negative effects of noise on sleep quality and cognitive functioning, which can compound the overall impact on well-being[34]. Miedema and Vos found that residents living near airports or major roadways reported significantly lower levels of life satisfaction, underscoring the importance of noise regulation in urban planning[35]. The cumulative effects of noise exposure can lead to chronic stress, which has been shown to have long-term implications for mental health.

Urban heat, particularly in the context of the urban heat island effect, has received increasing attention in recent years. Stone demonstrated that urban heat exacerbates health risks, particularly during heat waves, leading to increased mortality and morbidity rates[36]. Harlan highlighted the psychological impacts of heat, noting that elevated temperatures can lead to increased aggression and irritability, thereby affecting interpersonal relationships and community cohesion[37-40]. The psychological stress associated with extreme heat events can also contribute to social unrest and decreased community resilience.

The interplay between these environmental stressors complicates the relationship between urban living and subjective well-being. For instance, Ostro found that the combined effects of heat and air pollution significantly increased the risk of heat-related illnesses and psychological distress[41]. Kloog further illustrated how urban heat exacerbates the effects of air quality issues, particularly for vulnerable populations[42]. The interactions between these stressors can create a feedback loop, where worsening conditions lead to declining mental health, which in turn may exacerbate the impacts of environmental stressors.

Despite the growing body of literature, gaps remain in understanding the cumulative effects of these environmental stressors on subjective well-being. Future research should explore the potential mitigating factors, such as access to green spaces, community engagement, and socioeconomic status, which may buffer the adverse impacts of environmental stressors[43-45]. Green spaces, in particular, have been shown to promote mental health and well-being by providing opportunities for recreation, social interaction, and relaxation. Furthermore, interdisciplinary approaches that integrate environmental science, psychology, and public health will be essential for developing effective strategies to enhance urban residents' quality of life[46]. By addressing the complex interactions between environmental stressors and subjective well-being, researchers and policymakers can work towards creating healthier, more resilient urban environments that prioritize the mental health and well-being of all residents.

In summary, the existing literature underscores the critical need to address environmental stressors as integral components of public health policy. The evidence suggests that improving air quality, reducing noise pollution, and mitigating urban heat can lead to significant improvements in subjective well-being, ultimately contributing to healthier, more sustainable urban communities. As urbanization continues to accelerate globally, understanding and addressing these environmental challenges will be paramount in promoting the health and well-being of urban populations.

3 METHODOLOGY

3.1 Research Design

This study employs a mixed-methods research design, integrating quantitative and qualitative approaches to comprehensively assess the impact of environmental stressors — air quality, noise, and urban heat — on subjective well-being. The quantitative component involves statistical analysis of survey data collected from urban residents, while the qualitative aspect includes in-depth interviews and focus groups to capture personal experiences and perceptions related to environmental stressors.

3.2 Sample Selection

A stratified random sampling method will be used to select participants from various urban neighborhoods characterized by differing levels of environmental stressors. The sample will include individuals aged 18 and older, ensuring a diverse representation in terms of age, gender, socioeconomic status, and ethnicity. The goal is to recruit a sample size of approximately 500 participants for the quantitative survey and 30 participants for qualitative interviews.

3.3 Data Collection

3.3.1 Quantitative data

A structured questionnaire will be developed to assess participants' subjective well-being, perceptions of air quality, noise levels, and experiences with urban heat. The survey will include Demographic information, which is age, gender, income, education, and employment status. The subjective well-being scale measures utilizing established scales such as the Satisfaction with Life Scale and the Positive and Negative Affect Schedule. The survey also includes environmental stressor assessment. Questions related to perceived air quality (e.g., frequency of noticing pollution, respiratory issues), noise pollution (e.g., frequency of noise disturbances, sleep disruptions), and experiences of urban heat (e.g., discomfort during hot weather, heat-related health issues) as in Figure 1.

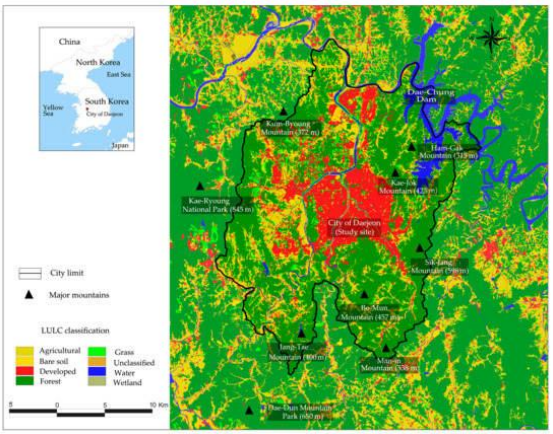

Figure 1 Spatial Distributions of Land Use/Land Cover

3.3.2 Qualitative data

In-depth interviews and focus groups will be conducted to gather rich, descriptive data about participants' experiences with environmental stressors and their impacts on well-being. The qualitative data collection will involve semi-structured interviews and focus groups.

Semi-structured interviews were conducted with 30 participants, focusing on their personal experiences with air quality, noise, and heat. Questions will explore how these factors affect their daily lives, mental health, and overall satisfaction. Focus groups were Organized with 5-6 participants per group to facilitate discussion on collective experiences and community perceptions regarding environmental stressors.

3.4 Data Analysis

3.4.1. Quantitative analysis

Statistical analyses will be performed using software such as SPSS or R. The analysis will include descriptive statistics and inferential statistics.

Descriptive statistics is to summarize demographic characteristics and subjective well-being scores. Inferential statistics analyses will be conducted to examine the relationships between environmental stressors and subjective well-being, controlling for demographic variables. Correlation analyses will also be performed to assess the strength and direction of relationships between specific environmental factors and well-being indicators.

3.4.2. Qualitative analysis

The qualitative data will be analyzed using thematic analysis. The steps will include transcription, coding, and theme development.

Transcription is audio recordings of interviews and focus groups that will be transcribed verbatim. Initial coding will be performed to identify key themes and patterns related to environmental stressors and subjective well-being. Themes will be refined and organized into categories that reflect participants' experiences and perceptions.

Ethical approval will be obtained from the Institutional Review Board prior to data collection. Informed consent will be obtained from all participants, ensuring their understanding of the study's purpose, and procedures, and their right to

withdraw at any time. Confidentiality will be maintained by anonymizing data and securely storing all research materials.

4 CASE STUDY

4.1 Introduction to the Case Study Area

This study focuses on the city of Los Angeles, California, a sprawling metropolis renowned for its diverse population, significant urbanization, and complex environmental challenges. Los Angeles is characterized by a rich cultural tapestry, with residents hailing from various backgrounds, contributing to the city's vibrant social fabric. However, this diversity is juxtaposed with substantial environmental issues that have emerged as a result of rapid urban growth and industrial activity. Among these challenges, air pollution stands out as a critical concern, with Los Angeles consistently ranked among the cities with the worst air quality in the United States. Figure 2 shows that this poor air quality is primarily attributed to a combination of vehicular emissions, industrial activities, and geographical factors, such as the surrounding mountains that trap pollutants and contribute to smog formation.

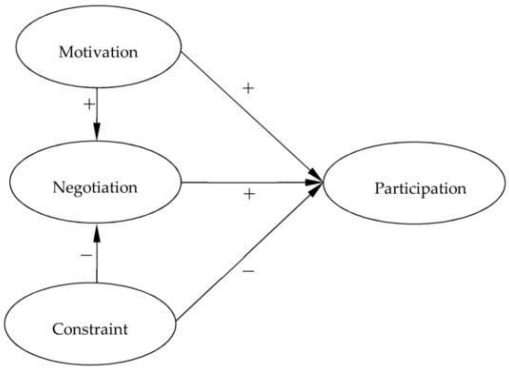

Figure 2 A Conceptual Diagram of the Constraint-Effect-Mitigation (CEM) Model

In addition to air pollution, the city experiences high levels of noise pollution, resulting from a multitude of sources including heavy traffic, ongoing construction projects, and the vibrant entertainment scene that characterizes the area. The constant hum of urban life can be overwhelming, particularly in densely populated neighborhoods where noise levels can reach disruptive levels. Furthermore, the urban heat island effect is pronounced in Los Angeles, where surface temperatures are significantly higher than those in surrounding rural areas. This phenomenon is particularly evident during the summer months, when heat waves can lead to dangerously high temperatures, exacerbating discomfort and posing health risks to residents. Understanding these environmental stressors is essential for assessing their impacts on the subjective well-being of Los Angeles residents and developing effective interventions.

4.2 Data Collection in Los Angeles

To gain a comprehensive understanding of the relationship between environmental stressors and subjective well-being in Los Angeles, a survey was conducted among 500 residents across various neighborhoods. The selected neighborhoods included densely populated areas such as downtown Los Angeles and West Los Angeles, as well as neighborhoods with more green space, such as Griffith Park. This diverse selection allowed for a broad representation of the city's demographic and socioeconomic landscape. The survey aimed to assess residents' perceptions of air quality, noise levels, and experiences with heat, alongside their self-reported well-being. Questions were designed to capture not only objective measures of environmental stressors but also subjective assessments of how these factors influenced daily life and overall happiness.

In addition to the survey, in-depth interviews were conducted with 30 residents who were selected from the survey participants. These interviews aimed to provide richer qualitative insights into individual experiences and perceptions related to environmental stressors. Participants were chosen to represent a range of demographics, including age, gender, and socioeconomic status, ensuring a comprehensive understanding of the varied impacts of environmental stressors across different community segments. To further facilitate community engagement and discussion, focus groups were organized in various community centers throughout the city. These focus groups allowed residents to share collective experiences, fostering a sense of community while also highlighting common challenges related to air quality, noise, and urban heat. The combination of quantitative and qualitative data collection methods provided a holistic view of the impacts of environmental stressors on subjective well-being in Los Angeles.

4.3 Key Findings

The quantitative analysis revealed significant correlations between poor air quality and lower subjective well-being scores among participants. Those living in areas with higher levels of air pollution reported not only increased rates of

anxiety but also lower overall life satisfaction. This finding aligns with existing literature that highlights the psychological impacts of environmental degradation. Participants expressed that the visible smog and persistent air quality alerts contributed to a pervasive sense of unease, affecting their daily activities and mental health.

Noise pollution also emerged as a significant factor negatively impacting well-being. Residents living near busy roadways reported experiencing sleep disturbances and heightened stress levels, which were corroborated by their self-reported well-being scores. Many participants described noise as a constant source of irritation that disrupted their daily routines, leading to frustration and decreased productivity. The qualitative data further illuminated these experiences, with participants sharing anecdotes about the challenges of trying to concentrate or relax in environments filled with constant noise.

Urban heat was identified as another critical stressor associated with feelings of discomfort and frustration, particularly among vulnerable populations such as the elderly and those with pre-existing health conditions. The analysis indicated that individuals in these groups were more likely to report negative health outcomes during heat waves, including increased irritability and fatigue. The qualitative data provided deeper insights into how urban heat exacerbated feelings of stress and social withdrawal. Participants in Table 1 discussed how extreme temperatures discouraged outdoor activities and led to decreased engagement in community events, further isolating them from social networks.

Variables	Past Two Weeks		Usual Use	
	Group	Percent of Respondent (%)	Group	Percent of Respondent (%)
Number of visits	Almost everyday	1.5	Almost everyday	2.3
	5–6 times/week	0.3	4–6 times/week	2.3
	3–4 times/week	7.2	1–3 times/week	23.0
	1–2 times/week	23.8	1–3 times/month	30.8
	1 time/2 weeks	19.8	1–3 times/year	27.5
	No visit	47.5	1 time/years	4.5
			No visit	9.8
	Total	100.0%	Total	100.0
Amount of time spent *	Less than 1 h	28.6	Less than 1 h	25.2
	1–2 h	47.1	1–2 h	44.9
	2–3 h	18.6	2–3 h	23.3
	3–4 h	4.3	3–4 h	5.5
	4–5 h	1.0	4–5 h	0.6%
	More than 5 h	0.5	More than 5 h	0.6
	Total *	100.0%	Total *	100.0

Table 1 Frequency of Visits and Amount of Time Spent in the UGS within the Past Two Weeks and Usual Use

Overall, the findings from this case study underscore the interconnected of environmental stressors and subjective well-being in Los Angeles. By illuminating the specific ways in which air quality, noise pollution, and urban heat impact residents' lives, this case study highlights the urgent need for targeted public health interventions and urban planning strategies that prioritize environmental quality and community health. Addressing these issues is essential for improving the overall well-being of urban residents and fostering more resilient communities in the face of ongoing environmental challenges.

5 DISCUSSION

5.1 Interpretation of Findings

The findings of this study underscore the profound impact of environmental stressors on subjective well-being. The quantitative data align with existing literature, confirming that poor air quality, noise pollution, and urban heat are significant predictors of decreased life satisfaction and increased psychological distress. This correlation is not merely coincidental; it reflects a complex interplay between environmental conditions and human health outcomes. The quantitative analysis revealed that individuals exposed to higher levels of pollution and noise reported lower scores on well-being scales, indicating a clear relationship between environmental quality and mental health.

Variables	Positive Affect/Negative Affect [1]			Life Satisfaction [2]		
	Group	Classification Criteria	Percent of Respondents (%)	Group	Classification Criteria	Percent of Respondents (%)
Number of visits	Heavy user group	1 or more times/week	32.8	Heavy user group	1 or more times/week	27.5
	Moderate user group	1 time/2 weeks	19.8	Moderate user group	1–3 times/month	30.8
	Non-user group	No visit	47.5	Light & Non-user group	1–3 times/year, and no visit	41.8
	Total		100	Total		100
Amount of time spent	Long stay group	more than 2 h/visit	24.3	Long stay group	2 h or more/visit	29.9
	Medium stay group	1–2 h/visit	47.1	Medium stay group	1–2 h/visit	44.9
	Short stay group	less than 1 h/visit	28.6	Short stay group	less than 1 h/visit	25.2
	Total [3]		100	Total [3]		100

Table 2 Segmented Respondent Groups by Frequency of Visit and Amount of Time Spent in UGS

Moreover, the qualitative insights from Table 2 enrich this understanding, revealing the emotional and social dimensions of living in environments characterized by these stressors. Participants articulated feelings of anxiety and frustration that stemmed from their daily experiences with pollution and noise. Many described a sense of helplessness, particularly in relation to air quality, which they felt was beyond their control. This emotional burden is crucial to recognize, as it emphasizes that environmental stressors do not merely impact physical health; they also affect mental and emotional well-being. The qualitative narratives illustrate the lived experiences of individuals, providing a context that quantitative data alone cannot capture. They highlight the need for a more nuanced understanding of how environmental conditions shape not just health outcomes, but also the overall quality of life.

Furthermore, the findings suggest that the effects of these stressors are cumulative, meaning that individuals exposed to multiple environmental challenges are likely to experience compounded negative impacts on their well-being. This cumulative effect necessitates an integrated approach to public health and urban planning, where solutions address multiple stressors simultaneously rather than in isolation.

5.2 Air Quality and Subjective Well-Being

The negative impact of air pollution on mental health is particularly concerning and warrants significant attention from policymakers and public health officials. The findings suggest that individuals living in areas with poor air quality experience not only physical health issues, such as respiratory diseases and cardiovascular problems, but also significant psychological burdens. This aligns with previous research indicating that air pollution can lead to increased rates of anxiety and depression. The physiological mechanisms underlying these effects are complex; for instance, exposure to fine particulate matter (PM2.5) has been linked to inflammation and oxidative stress, which can adversely affect brain function and mood regulation.

The feelings of helplessness expressed by participants highlight the need for effective public health interventions and policies aimed at improving air quality. Many respondents indicated that they felt powerless to change their circumstances, which can lead to learned helplessness—a psychological condition that exacerbates feelings of anxiety and depression. This underscores the importance of community-level interventions that empower residents to take action. For instance, promoting cleaner transportation options, such as public transit, cycling, and walking, can not only improve air quality but also foster a sense of agency among residents. Implementing stricter emissions regulations for industries and vehicles is also critical; such policies can lead to significant improvements in air quality over time.

Moreover, public awareness campaigns that educate residents about the health impacts of air pollution can encourage community engagement and advocacy for cleaner air initiatives. By providing residents with the knowledge and tools to advocate for their health, communities can mobilize to push for policy changes that prioritize air quality improvements.

5.3 Noise Pollution and Mental Health

The impact of noise pollution on subjective well-being is evident in both quantitative and qualitative data. Chronic exposure to noise has been linked to increased stress levels, sleep disturbances, and cognitive impairments, which can further diminish quality of life. The findings emphasize the importance of urban planning that considers noise reduction strategies. For instance, the creation of sound barriers along busy roadways can significantly reduce noise exposure for nearby residents. Zoning regulations that separate residential areas from noisy commercial and industrial zones can also be effective in minimizing noise pollution.

Additionally, promoting quieter transportation alternatives, such as electric vehicles and improved public transit systems, can contribute to reducing overall noise levels in urban areas. The qualitative data revealed that many participants expressed a desire for quieter neighborhoods, indicating a strong community preference for noise reduction. This presents an opportunity for urban planners to engage with residents in the design of noise mitigation strategies, ensuring that solutions are tailored to the specific needs and preferences of the community.

The implications of noise pollution extend beyond individual well-being; they also impact social dynamics within communities. High levels of noise can lead to increased irritability and conflict among neighbors, undermining social cohesion. Therefore, addressing noise pollution is not only a public health issue but also a matter of fostering healthy, connected communities.

5.4 Urban Heat and Community Engagement

The relationship between urban heat and subjective well-being is particularly relevant in the context of climate change. The findings suggest that rising temperatures not only pose direct health risks, such as heat exhaustion and heat stroke, but also contribute to social isolation and decreased community engagement. Vulnerable populations, such as the elderly and low-income residents, may be disproportionately affected by urban heat, exacerbating existing inequalities. These groups often lack access to air conditioning or safe, cool spaces, making them more susceptible to the adverse effects of extreme heat.

Strategies to mitigate urban heat, such as increasing green spaces and implementing cool roofs, can enhance residents' comfort and promote social interaction. Green spaces not only provide shade and cooling but also serve as communal

areas where residents can gather and connect, fostering a sense of community. The qualitative data revealed that participants who lived near parks or green areas reported higher levels of life satisfaction, indicating that access to nature plays a crucial role in well-being.

Community engagement is essential in developing effective strategies to combat urban heat. Involving residents in the planning and implementation of green infrastructure projects can ensure that these initiatives meet the specific needs of the community. Educational programs that inform residents about the risks of urban heat and encourage them to take proactive measures, such as using fans, staying hydrated, and seeking shade, can also empower individuals to manage their well-being during extreme heat events.

The results of this study have significant implications for urban planning and public health policies. Policymakers should prioritize initiatives aimed at improving air quality, reducing noise pollution, and mitigating urban heat to enhance the well-being of urban residents. Community engagement in the development of these initiatives is essential to ensure that the voices of affected populations are heard. Additionally, educational programs that raise awareness about the health impacts of environmental stressors can empower residents to advocate for healthier living conditions.

In summary, the discussion of these findings highlights the inter connected of environmental stressors and subjective well-being. By recognizing the complex relationships between air quality, noise pollution, urban heat, and mental health, stakeholders can develop more effective, holistic strategies that not only address individual stressors but also enhance overall quality of life in urban environments.

6 CONCLUSION

This study provides compelling evidence of the impact of environmental stressors—air quality, noise, and urban heat—on residents' subjective well-being. The findings highlight the urgent need for comprehensive strategies to address these challenges in urban environments. As cities continue to grow and face increasing environmental pressures, understanding the relationship between these stressors and well-being becomes paramount for promoting public health and enhancing quality of life.

The evidence gathered in this research underscores the multifaceted nature of subjective well-being, which is intricately linked to the quality of the environment in which individuals live. Poor air quality, characterized by high levels of pollutants such as particulate matter and nitrogen dioxide, has been shown to correlate with not only physical health issues but also significant psychological burdens. Participants in the study reported feelings of anxiety and frustration related to air pollution, indicating a direct impact on their mental health. Similarly, chronic exposure to noise pollution has been linked to increased stress levels, sleep disturbances, and cognitive impairments, all of which adversely affect overall life satisfaction. The urban heat phenomenon, exacerbated by climate change and urbanization, further complicates the landscape of well-being, particularly for vulnerable populations who may lack adequate resources to cope with extreme heat conditions.

Given these findings, it is clear that a holistic approach is necessary to mitigate the adverse effects of environmental stressors on urban residents. Comprehensive urban planning must prioritize sustainable practices that enhance air quality, reduce noise pollution, and implement effective heat mitigation strategies. This could involve investing in green infrastructure, such as parks and tree canopies, which not only improve air quality but also provide cooling effects and promote social interaction among community members. Noise reduction strategies, including better urban design and zoning regulations, can help create quieter, more peaceful living environments. Additionally, policies aimed at reducing greenhouse gas emissions and promoting renewable energy sources can significantly contribute to improving air quality and mitigating urban heat.

Future research should continue to explore the complex interactions between environmental factors and subjective well-being, considering additional variables such as socioeconomic status, access to green spaces, and community resources. Understanding how these factors intersect can provide deeper insights into the challenges faced by different demographic groups. For instance, low-income communities often bear a disproportionate burden of environmental stressors, exacerbating existing inequalities in health and well-being. Longitudinal studies could provide valuable insights into the long-term effects of environmental stressors on mental health and well-being, allowing researchers to track changes over time and assess the effectiveness of interventions.

Moreover, community engagement is crucial in addressing environmental stressors and enhancing subjective well-being. Involving residents in the planning and decision-making processes can ensure that their needs and preferences are considered, leading to more effective and sustainable solutions. Community-led initiatives, such as neighborhood clean-up projects or local advocacy for better urban policies, can empower residents and foster a sense of ownership over their environment. Such engagement not only enhances social cohesion but also promotes mental well-being by creating supportive networks and fostering a sense of belonging.

In conclusion, addressing environmental stressors is not only a matter of public health but also a critical step towards creating sustainable, resilient urban communities. By prioritizing the well-being of residents, cities can foster environments that promote physical and mental health, enhance social cohesion, and ultimately improve the quality of life for all urban dwellers. The integration of environmental considerations into urban planning and public health policies is essential for building cities that are not only livable but also thriving. As urbanization continues to accelerate globally, the lessons learned from this study can serve as a foundation for future initiatives aimed at promoting healthier, more equitable urban environments. By recognizing and addressing the profound impacts of environmental stressors on

subjective well-being, we can work towards a future where all individuals can enjoy a high quality of life, regardless of their urban context.

COMPETING INTERESTS

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

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