When Air Quality Awareness Becomes a Burden

Air quality awareness does not always function as a simple public health good. In the Budapest late adolescent sample, awareness sometimes became a psychological burden in its own right, particularly when it was not paired with realistic ways to act. This article develops that theme by asking when and how air quality awareness becomes emotionally costly for young people, and what that implies for communication and advocacy.

Background

The underlying research by Filip Kopta during an internship at Clean Air Action Group (Levegő Munkacsoport) examined how late adolescents in Budapest perceive air pollution, how far they engage with standard measures such as the Air Quality Index (AQI), how they adapt their behaviour, and how these adaptations affect every day mental wellbeing. A mixed methods design combined eight semi-structured interviews with a questionnaire of 27 respondents, analysed in a Framework Method matrix grounded in the Health Belief Model. The research shows three overarching patterns: a strong awareness behaviour gap, a reliance on cues to action such as apps with recommendations, and a trade-off between protective behaviour and outdoor activities that anchor mood.

This article takes up a more uncomfortable finding that emerged from the same dataset: there are circumstances in which knowing more about air quality can make late adolescents feel worse, even when their behaviour does not change.

Awareness as Anxiety Without Agency

Across interviews and questionnaire responses, awareness of air pollution was rarely neutral. Many participants described it as both stressful and reassuring at the same time, depending on whether they felt they could act. On questionnaire item, which asked whether

“knowing about poor air quality makes me feel more anxious or stressed,” responses were almost evenly split, with a mean exactly at the mid-point. One item, which asked whether “paying attention to air quality and making protective choices helps me feel more in control,” leaned only slightly positive, and almost half of respondents chose the neutral option. The cross references of the responses show that the modest control benefit is concentrated among those who actually adapt their behaviour, whereas those who do not change anything, experience awareness more as background stress.

Interview narratives put texture on these numeric patterns. Several interviewees explicitly stated that thinking about air pollution adds “another burden” or “stress” to their day, even when they did not substantially change their behaviour. Interviewee 3 described the topic as “stressful and maybe a little scary,” while Interviewee 8 reported that just thinking about air quality became an additional cognitive load added to other daily concerns. This is consistent with work on environmental cognition and adolescent mental health, which finds that greater awareness of environmental risks can correlate with distress unless it is accompanied by opportunities for meaningful action (Jacob & Reddy, 2024). It also echoes studies of climate risk communication that warn about “message fatigue,” where repeated exposure to threat messages reduces engagement and increases reactance instead of motivating constructive behaviour (de Graaf et al., 2026; Elhoushy, 2025).

Cognitive Dissonance: Awareness Without Action

A second, more specific burden arises from cognitive dissonance: the discomfort of knowing that pollution is harmful while continuing daily routines unchanged. In the codebook of the research, one of the inductive codes captured “awareness without action,” where interviewees recognised a gap between beliefs and behaviour and actively rationalised it. Interviewee 2, for example, lives and cycles along one of Budapest’s busiest boulevards, fully understands the harms of traffic related pollution through her urbanism studies, and yet

attributes her continued route choice to “laziness” and habit. Interviewee 5 likewise acknowledges that air pollution affects her wellbeing when running but rejects the idea of planning her life around air quality, stating that she will go out “no matter what the weather is like.”

The most explicit case is Interviewee 8, who checks a dedicated AQI app daily and has asthma, yet admits to using bad air readings as a socially acceptable excuse for skipping runs when already feeling unmotivated. He later regrets some of these decisions when the weather turns out to be pleasant, describing a net effect of feeling both protected and “unfulfilled” or “disconnected from the world” after days spent indoors. This pattern is closely aligned with research on cognitive dissonance in environmental behaviour, where individuals reconcile conflicts between high environmental concern and low behavioural change by reframing or justifying inaction rather than altering their habits (Bosone et al., 2022; Bentler et al., 2023). In the Budapest sample, such reframing appears as a micro burden: awareness gives participants new reasons to feel uneasy about existing routines without necessarily giving them sufficient tools or social support to change those routines.

Algorithmic Spirals and Environmental Message Fatigue

A third mechanism through which awareness becomes a burden is informational rather than behavioural. Interviewee 7, who had prior experience with government air quality alerts in her home country, reported that once she clicked on a poor air notification or searched for air quality, her phone “fed” her more content about pollution and environmental problems, creating what she described as a “spiral of information and knowledge.” For her, this spiral increased gloomy thoughts about “the state of the world,” while also strengthening the sense that staying indoors on bad air days was the responsible choice. The questionnaire data complement this by showing that a notable minority of respondents report lower motivation and more time spent in

bed or on phones on days when outdoor activities are reduced, even when they cannot clearly attribute this to specific pollution events.

These experiences resonate with emerging evidence that social media algorithms tend to prioritise emotionally charged environmental content, which can amplify climate or pollution related anxiety among heavy users (Big 3 Africa, 2025; Wamsler & Brink, 2025). Recent analyses of climate communication also suggest that repeated exposure to similar threat focused messages can produce “message fatigue,” where individuals feel worn down and less willing to engage or support policy measures (Resilient Cities Network, 2025). In this context, late adolescents who are already environmentally engaged may find that each additional air quality alert or pollution related post adds marginal worry but little new actionable information. The result is an awareness burden that is informational rather than strictly behavioural: even when people do not change their routines, the issue occupies more cognitive and emotional space in their day.

Wellbeing Trade-offs When Behaviour Does Change

The main report showed that when late adolescents do change their behaviour because of air quality, they rarely withdraw from outdoor life altogether. Instead, they substitute activities, adjust routes and timing, or adopt short episodes of “windowed mitigation” such as closing windows at home. However, even these partial changes come with a wellbeing cost because outdoor exercise, time in green spaces, and outdoor socialising are consistently rated as very important or essential to emotional functioning by most respondents. On questionnaire item D3, 52 percent reported feeling somewhat or much worse on days when outdoor activities were reduced or avoided for any reason, including but not limited to air quality. Interviewees independently emphasised that “rotting in bed” or being confined indoors made them feel flat, low on energy, or disconnected.

The data analysis identified a small number of cases where air quality driven curtailment clearly leads to later mood deterioration. Interviewee 3, for instance, described feeling the impact of reduced outdoor activity “two or three days after,” illustrating a delayed wellbeing effect that may be harder for individuals to recognise and therefore to weigh in their decisions. More typically, interviewees reported same day or same evening effects such as low energy, disrupted sleep, or irritability following inactive days, especially when these days formed a pattern rather than isolated events. These findings align with broader evidence that reductions in physical activity and outdoor time, particularly in green spaces, undermine mental wellbeing, whereas greater green-space exposure is linked to better mood and fewer depressive symptoms in adolescents (van den Bosch & Ode Sang, 2017). In the Budapest context, this means that protective behaviour, even when moderate, competes directly with the activities late adolescents rely on for emotional regulation.

Conditions Under Which Awareness Becomes a Burden

Taken together, the interview data and questionnaire suggest that air quality awareness becomes a burden for late adolescents under three main conditions. First, when awareness increases perceived susceptibility and severity but is not matched by a realistic sense of self-efficacy or control, it produces anxiety without agency. This is visible in low average scores for perceived control over exposure and in the prevalence of barriers such as “I don’t know when air quality is poor” and “people around me don’t take it seriously either.” Second, when awareness highlights a gap between values and behaviour, young people may experience cognitive dissonance and resort to rationalisations that satisfy neither their health concerns nor their need for activity. Third, when awareness is mediated by digital platforms that repeatedly surface pollution and climate content without clear solution pathways, it can contribute to message fatigue and environmental distress that extend beyond specific pollution episodes.

By contrast, awareness tends to feel less burdensome, and sometimes positively valued, when it is paired with concrete cues to action that fit into young people's existing routines. The clearest examples are Interviewee 4's use of in park smiley face landmark as an air quality indicator to calibrate running intensity and Interviewee 8's reliance on an AQI app that offers graded behavioural recommendations rather than just numbers. In these cases, awareness supports limited substitution or threshold-based adaptation rather than indefinite withdrawal, and interviewees report a sense of reassurance or control that partly offsets the added worry. This pattern is consistent with the Health Belief Model's emphasis on cues to action and self-efficacy as crucial links between risk perception and behaviour, and with communication research showing that messages rooted in local realities and linked to clear, achievable actions are less likely to generate fatigue (Alyafei & Easton-Carr, 2024; Resilient Cities Network, 2025)

For more in-depth analysis of the general research question, please refer to the full concise research report.

References

Alyafei, A., & Easton-Carr, R. (2024). The health belief model of behavior change. In *StatPearls*. StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK606120/

Bentler, D., Kadi, G., Maier, Günter W. (2023). Increasing pro-environmental behavior in the home and work contexts through cognitive dissonance and autonomy. *Frontiers in Psychology, 14*, Article 1199363. https://doi.org/10.3389/fpsyg.2023.1199363

Big 3 Africa (2025). Study finds social media is fueling youth unhappiness and climate anxiety. (Research brief, March 22, 2026). Retrieved May 17, 2026, from https://big3africa.org/2026/03/23/study-finds-social-media-is-fueling-youth-unhappiness-and-climate-anxiety/

Bosone, L., Chevrier, M., & Zenasni, F. (2022). Consistent or inconsistent? The effects of inducing cognitive dissonance vs. cognitive consonance on the intention to engage in pro-environmental behaviors. *Frontiers in Psychology, 13*, Article 902703. https://doi.org/10.3389/fpsyg.2022.902703

de Graaf, J., Bal, M., de Wit, J., Stok, M. (2026) Tired of climate change communication: why message fatigue predicts lower sustainability intentions and policy acceptance after climate change threat messages. *Applied Environmental Education & Communication*, *25(1)*, 125–140. https://doi.org/10.1080/1533015x.2026.2628164.

Elhoushy, S. (2025). How climate campaigns can cut through ad fatigue. *The Conversation,* Retrieved May 17, 2026, from https://phys.org/news/2025-12-climate-campaigns-ad-fatigue.html

Jacob, L., & Reddy, K. J. (2024). Exploring the Relationship between Environmental Cognition, Pro-Environmental Behavior, and Mental Health among Adolescents: A Narrative

Review. *Indian Journal of Community Health*, *36*(1), 12–21. https://doi.org/10.47203/IJCH.2024.v36i01.004

Resilient Cities Network (2025). Communicating climate-health risks in an era of fatigue and mistrust. Retrieved May 17, 2026, from https://resilientcitiesnetwork.org/communicating-climate-health-risks-in-an-era-of-fatigue-and-mistrust/

van den Bosch, M., & Ode Sang, Å. (2017). Urban natural environments as nature-based solutions for improved public health: A systematic review of reviews. *Environmental Research, 158*, 373–384. https://doi.org/10.1016/j.envres.2017.05.040