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Health inequality attributions and support for healthcare policy

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ABSTRACT

This article examines popular explanations of health inequality and introduces a typology distinguishing between behavioural, biological, environmental, and healthcare attributions. Using data from an original survey among 6000 individuals in Germany, the findings reveal that explanations for the social gradient in health vary by income and political ideology. Lower-income groups primarily attribute health inequality to the healthcare system, whereas higher-income groups attribute them to behavioural factors. Similarly, right-wing individuals tend to view income-related health disparities as a consequence of individual behaviour, while left-wing individuals primarily attribute them to environmental health risks. Furthermore, the study shows that such health inequality attributions are associated with citizens' support for government responsibility for healthcare provision and willingness to pay higher taxes to improve healthcare. These findings suggest that health inequality attributions play an important role in the democratic legitimacy of healthcare policies. Divergent views on the causes of health disparities may undermine solidarity within healthcare systems.

1. Introduction

Despite rising life expectancy over recent decades, health inequalities remain deeply entrenched, even in the most developed welfare states (de Gelder et al., 2017; Lampert et al., 2019; Mackenbach, 2019; Tetzlaff et al., 2020). Health inequalities tend to manifest themselves as a 'social gradient', whereby health deteriorates gradually with every step down the social ladder (Lynch, 2020). Accordingly, people with a lower income, education or occupational class live shorter lives, and within those shorter lives, they spend more years with disability and other health problems. While extensive research has examined the mechanism underlying these disparities (Barnes et al., 2023; Beckfield et al., 2015; Davey Smith et al., 1994; Goldman, 2001; Lynch, 2020; Marmot, 2022; van Doorslaer and Koolman, 2004), much less is known about how the general public explains these inequalities.

Existing studies show that people widely acknowledge the link between income and health (Abdalla et al., 2024; Blaxter, 1997; Bridger, 2023; Debbeler et al., 2021; Macintyre et al., 2006; Kahissay et al., 2017; Reutter et al., 2005; Shankardass et al., 2012; von dem Knesebeck et al., 2018). However, these studies largely examine broad beliefs about the causes of health and illness, rather than beliefs about the causes of income-related health disparities specifically. Other research has focused on explanations of regional health inequalities (Bernard et al., 2024; Garthwaite and Bambra, 2017; Popay et al., 2003), while studies investigating lay explanations for income-related health disparities often remain limited to specific communities and subgroups of the population (Davidson et al., 2006; Lundell et al., 2013; Lofters et al., 2014; Reutter et al., 2005; Smith and Anderson, 2018) or small-scale samples (Bridger et al., 2023). As a result, we lack a comprehensive understanding of how citizens perceive the causes of health inequalities between rich and poor.

This research gap is particularly important because public attributions of health inequalities can shape policy preferences and political debates. How people explain these disparities – whether as a result of individual behaviour, biological factors, environmental conditions or healthcare services – can influence their willingness to support redistributive healthcare policies. Moreover, diverging interpretations of the social gradient in health may contribute to political polarization, making collective action to reduce health inequalities more difficult. Despite these stakes, little research has systematically examined how income position and political ideology shape causal attributions for the social gradient in health. Nevertheless, income position and political ideology may shape these attributions most profoundly; income determines individuals' direct exposure to health risks, while ideology serves as a lens through which individuals interpret social inequalities.

This article addresses this gap by investigating two key research questions: (1) How do health inequality attributions vary across income and political ideology? and (2) How are health inequality attributions

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associated with support for healthcare policy? To answer these questions, the study draws on data from a large-scale survey of the German population and introduces a typology distinguishing between behavioural, biological, environmental and healthcare attributions. While this typology does not capture the full range of potential explanations, it provides a structured approach to understanding how people explain health disparities. This study focuses specifically on income-related health inequalities, a key dimension of the broader social gradient in health.

2. Towards a typology of health inequality attribution

How do citizens explain income-related health inequalities? According to attribution theory, individuals make sense of social phenomena – such as poverty and unemployment – by attributing their causes to either internal or external factors (Heider, 1958; Lofters et al., 2014). While internal factors are linked to individual disposition and actions, external factors are related to forces beyond the individual's control. Extending this framework to health inequality as a social phenomenon that persists across countries, this article proposes a typology that incorporates both internal and external explanations. While not exhaustive, this typology focuses on four key factors aligned with major theories of health inequalities: behavioural, biological, environmental and healthcare attribution.

2.1. Behavioural attribution

The first explanation for income-related health inequalities aligns with the behavioural health risk attribution, which draws from extensive medical research emphasizing the significant role of lifestyle in determining health outcomes. It is well-established that health-damaging behaviours – such as smoking, alcohol consumption, poor diet, and lack of physical activity – are more prevalent among lower socioeconomic status (SES) groups and contribute to the social gradient in health (Landon et al., 2023; Pampel et al., 2010; Petrovic et al., 2018; Sun et al., 2022). While individuals may attribute health inequality to these behavioural factors, they do not necessarily hold those of lower SES personally responsible for their health outcomes. The notion that behavioural risks such as smoking, exercise and diet are solely matters of free will has been critically challenged (Marmot, 2005). This is because socio-economic disparities in health behaviours reflect more than individual lifestyle choices. For instance, dietary habits, while personal, are shaped by factors such as food availability, costs, access to health information, and cultural norms, all of which are closely tied to income (Barosh et al., 2014; Powell et al., 2007). In addition, health-harming behaviours can pose greater health harm to individuals with low SES than to those with high SES, even when their behaviours are similar to those of more advantaged groups (see for instance Bloomfield (2020) on the alcohol-harm paradox). Despite these nuances, there remains a common assumption that (un)healthy behaviours are within an individual's control, thereby framing them as matters of personal responsibility.

2.2. Biological attribution

A second explanation considers biological health risks. This perspective suggests that differences in health outcomes between socioeconomic groups may, in part, stem from genetic or biological predispositions. This reasoning aligns with the health selection theory, which posits that an individual's health status influences their SES rather than the reverse (Kröger et al., 2015). Accordingly, individuals with good health – and thus genotypes with lower health risks – are more likely to attain favourable positions in society, whereas those with poorer health may experience constrained opportunities and downward social mobility (Hoffmann et al., 2018; Kröger et al., 2015). Yet, studies on biological determinants of income-related health inequalities remain limited. While biological mechanisms can contribute to health disparities (Barker et al., 1989), they are not considered the primary explanation of the persistent social gradient in health (Mackenbach, 2019). Nevertheless, in the realm of public perceptions, individuals may still attribute health inequalities primarily to biological differences, making this explanation a relevant component of a broader typology of popular health inequality attributions.

2.3. Environmental attribution

A third explanation for health inequalities focuses on exposure to physical environmental health risks where people live and work. However, exposure to health-damaging physical environments is unevenly distributed across society, with lower-income groups disproportionately affected. Individuals from lower-income households are more likely to be exposed to natural or built environments that are not conducive to good health and longevity, for instance when it comes to poor housing conditions, occupational hazards, pollution, extreme heat and a lack of green space (Hajat et al., 2015; Nesbitt et al., 2019; WHO, 2019), while they may be more sensitive to these conditions and have lower adaptive capacities (Osberghaus and Abeling, 2022). By contrast, individuals with greater resources can exercise more choice over where they live, or what type of work they do, which can have profound impacts on their health. Hence, individuals may attribute income-related health inequalities to differences in the exposure to physical environmental health risks.

2.4. Healthcare attribution

A fourth explanation of health inequality focuses on the healthcare system as a core institution through which health inequalities manifest and persist. Access to medical care plays a crucial role in determining whether and when an illness is detected, how it is treated (if treatable), and, to an extent, a patient's prognosis. Institutional barriers – such as unequal access to healthcare services, differences in treatment decisions by healthcare providers, and variations in the quality of care – can profoundly shape health outcomes. Research consistently shows that access to health care and the quality received vary significantly across income groups. For example, studies reveal income-based inequalities in access to both preventive (Carrieri and Wübker, 2013; Jemna et al., 2024) and curative care (Moscelli et al., 2018). Low-income groups also experience longer waiting times for inpatient (Laudicella et al., 2012) and outpatient care (Landi et al., 2018), report higher levels of unmet healthcare needs (WHO, 2023) and are less likely to receive life-saving treatments (Landon et al., 2023). Accordingly, health inequalities may be attributed to institutional barriers and risks within the healthcare system.

3. Income, political ideology and health inequality attribution

To what extent do individuals with different income levels and left-right ideologies vary in how they attribute the causes of the social gradient in health? Attribution theory suggests that individuals tend to explain problems either to personal or situational factors (Heider, 1958). However, research highlights a fundamental attribution error where individuals often overemphasize individual factors while underestimating contextual influences in explaining others' actions or characteristics (Jones and Harris, 1967; Ross, 1977). In other words, people tend to focus too much on the individual actor and too little on the situation. This bias may similarly influence how individuals perceive the causes of health inequality between the rich and the poor. However, the degree to which individuals are prone to the fundamental attribution error likely varies according to their income and political orientation.

First, different income groups are likely to explain income-related health inequalities from distinct perspectives, shaped by ingroup/outgroup dynamics. For lower-income groups, these explanations involve

'in-group' attributions, as they are forming opinions about a group to which they belong. In contrast, higher-income individuals are making 'out-group' attributions about a group to which they do not belong. Consequently, lower-income respondents may be more inclined to emphasize situational factors as causes of the social gradient in health as they view themselves as members of the lower-income group. These situational factors may correspond with the biological, environmental and healthcare attributions; causes perceived as beyond one's control. Conversely, higher-income groups may be more susceptible to the fundamental attribution error, overemphasizing personal factors – particularly behavioural health risk – as explanations of this health gap. Differences in lived experiences may partially account for this attribution bias. Because higher-income groups are less likely to encounter specific health-damaging conditions – such as discrimination within the healthcare system or occupational hazards like excessive UV exposure – they may underestimate the impact of situational factors on health inequality.

A few empirical studies have explored how lay attributions of income-related health inequality may differ among income groups. First, Lofters et al. (2014) and Reutter et al. (2005) find supportive evidence for the fundamental attribution error in Canada since higher income groups were less likely to agree with situational explanations. For example, higher income groups are less likely to believe that the rich are healthier because they live in better houses in better neighbourhoods (i.e. environmental attribution) and that the rich get more out of the healthcare system than the poor (i.e. healthcare attribution) (Lofters et al., 2014). However, they did not find a significant difference in behavioural attribution. Second, Davidson et al. (2006), drawing on focus groups in England, find that lower socio-economic status groups often talked vividly about the impact of their environment on their own illnesses and life expectancy. They recognized the impact of living conditions – including housing conditions, street violence, and criminal behaviour in the neighbourhood – and spontaneously referred to inequalities in healthcare provision and resources as well as the duality of the public/private system. By contrast, higher socio-economic status participants tended to explore a narrower range of causes, focusing on lifestyle choices rather than social conditions. For example, some of them blamed health inequalities on poorer people's self-abuse (especially illegal drugs) or poor consumer choices. Hence, based on these theoretical arguments and previous findings, the following hypothesis can be derived.

Hypothesis 1. Individuals with a higher income are less likely to attribute health inequality to biological (H1a), environmental (H1b) and healthcare (H1c) factors relative to behavioural factors compared to individuals with a lower income.

Second, individuals with different political orientations may attribute health inequality differently because they view it from a different perspective. It has been established that political ideology shapes one's attributions of various social problems, including poverty (Kallio and Niemelä, 2014; Lepianka et al., 2010) and homelessness (Vázquez and Panadero, 2022). For example, those with more rightist political attitudes more often attribute poverty to individual failings such as laziness and lack of effort, while those with more leftist political attitudes are more likely to draw on external poverty attributions such as structural inequalities and injustices (Lepianka et al., 2010). These ideological differences may also be present with respect to health inequalities. Accordingly, right-wing individuals will perceive existing health inequalities through an attributional lens focused on personal responsibility, consistent with a worldview that gives strong weight to individual agency. By contrast, left-wing individuals may see health inequalities as outcomes of broader socio-economic conditions and structures beyond individual control, fitting an attributional lens that emphasizes external factors.

A few studies have investigated ideological differences in how people attribute health inequalities in general (Gollust and Lynch, 2011; Lundell et al., 2013) and income-related health inequalities in particular (Bridger et al., 2023; Lofters et al., 2014; Reutter et al., 2005; Traina et al., 2019). Lofters et al. (2014) found in their study among Ontarians that those who support the most left-wing party are less likely to believe that the poor are less healthy due to lifestyle choices. Instead, they are more likely to attribute better health among the wealthy to greater access to high-quality food and better navigation in the healthcare system. These findings are consistent with earlier Canadian research in Alberta establishing a negative relation between conservativism and structural explanations for the link between poverty and health (Reutter et al., 2005). Likewise, Bridger et al. (2023) found among US and UK respondents that those who identified as further to the right were less likely to endorse situational attributions (discrimination and prejudice, wages) while being more likely to endorse dispositional attribution (self-control, ability or effort) for why the rich live longer. Similarly, Gollust and Lynch (2011) found that in the United States, conservatives and Republicans are more likely to attribute health inequalities (across income, gender and race) to individual behaviours and – among conservatives – to biology rather than systemic factors. In Norway, Traina et al. (2019) found that those who vote for right-wing parties are more supportive of increasing co-payments for self-inflicted diseases compared to left-wing voters, suggesting that right-wing voters may view health outcomes – especially those among lower-income individuals – as largely a matter of personal responsibility. Based on these findings, the following hypothesis can be derived.

Hypothesis 2. Left-wing individuals are more likely to attribute health inequality to biological (H2a), environmental (H2b) and healthcare (H2c) factors relative to behavioural factors compared to right-wing individuals.

4. Health Inequality attribution and support for healthcare policy

The pooling of risks and resources in healthcare systems distributes the costs of patients' disease and medical care across members of society (Prainsack and Van Hoyweghen, 2020; Wendt, 2019). As such, healthcare systems institutionalise solidarity between people with low- and high-risk profiles. However, diverse health risks can be perceived as more or less worthy of collectively financed healthcare. In this regard, an extensive number of studies shows that individuals who engage in risky health behaviour are perceived as less deserving of collectively financed healthcare (Baute and Bellani, 2024; Gollust and Lynch, 2011; Jensen and Petersen, 2017; Knotz et al., 2021; Reeskens et al., 2021; Schaeffer and Haderup Larsen, 2023). Other studies have investigated how health inequality attribution predicts support for diverse policies addressing health inequalities in particular (Bridger et al., 2023; Kirst et al., 2017; Rigby et al., 2009; Smith et al., 2021).

However, research on the link between health inequality attributions and diffuse support for the healthcare system remains scarce. This study integrates two dimensions of diffuse support: support for government responsibility in providing healthcare and willingness to pay higher taxes to improve healthcare. While the first dimension reflects a normative stance on the role of government in society, the second dimension captures a concrete financial commitment. Some may endorse government responsibility but hesitate to contribute financially. However, healthcare systems rely on both ideological endorsement and practical support. As such, both dimensions are measures of diffuse support for the healthcare system, as they reflect general attitudes rather than opinions about specific policies or reforms. Diffuse support is crucial for institutional stability and legitimacy because it endures even when specific policies are contested.

One can expect that behavioural health inequality attributions erode support for collectively financed healthcare and reduce willingness to pay higher taxes for system improvements. The perception that lower-income groups engage in more health-damaging behaviours challenges

the very idea that healthcare systems should be based on both rights and obligations (Davies and Savulescu, 2019). If healthcare is seen as a right, one may expect individuals to minimize risky behaviours to deserve access. Consequently, the belief that behavioural risks are unequally distributed across society may weaken the solidaristic foundation of the entire system.

In contrast, if people believe that low-income groups are suffering from worse health because of factors beyond their control – be it biological, environmental or institutional – they may perceive low-income groups as more deserving of collectively financed healthcare and be more willing to pay higher taxes to improve healthcare for all. For example, when people attribute health inequalities to unequal access to healthcare or differences in quality of care, they are more likely to view these disparities as unfair and unjust, reinforcing the belief that healthcare should be equally accessible, regardless of income. Research confirms that people often view it as unfair when higher-income individuals can afford better healthcare (Immergut and Schneider, 2020; Lynch and Gollust, 2010; von dem Knesebeck et al., 2016). One can expect a similar to apply to biological and environmental attributions, which can heighten perceptions of injustice and strengthen the public backing of the healthcare system.

In this regard, Gollust and Lynch (2011) found that the type of explanation that US respondents provide for health inequalities – across income, educational, gender and racial groups – is an important predictor of policy preferences. Compared to behavioural attribution, they find that systemic attribution is associated with stronger support for government-financed health insurance. Based on these arguments and findings, the following hypotheses can be derived.

Hypothesis 3. Individuals who attribute health inequality to biological (H3a), environmental (H3b) or healthcare (H3c) factors are more supportive of government responsibility for healthcare compared to individuals who attribute it to behavioural factors.

Hypothesis 4. Individuals who attribute health inequality to biological (H4a), environmental (H4b) or healthcare (H4c) factors are more willing to pay higher taxes to improve healthcare for all compared to individuals who attribute it to behavioural factors.

5. Data and methods

5.1. Sample

This article draws on original survey data collected among a large sample in Germany between 14 November and December 2, 2022. The data was collected by the survey company Verian through their online access panel of the German-speaking resident population aged 18 and over. In total, 6319 individuals participated in the survey, corresponding to a response rate of 40 % (see Table A3 for a detailed overview). Quota sampling was used to ensure that the final sample closely reflects the population's structure based on age, gender, education, and region, with cross-quotas applied for age, gender, and education. Appendix Tables A1 and A2 provide a detailed comparison of the quota targets and the achieved sample. The panellists were actively recruited among over 31 million Payback members, one of the largest card communities in Germany. In most cases, the targets were fully met; only in a few groups were they slightly undershot but remained within an acceptable range (95.7 %–99.8 %). Deviations from the structure of the population, which may arise due to differences in response rate, are corrected by using survey weights. In total 301 respondents were removed from the dataset based on Verian's quality checks for interview duration and item nonresponse. Specifically, respondents who completed the survey in less than 40 % of the median duration and those with more than 30 % item nonresponse were deleted. These procedures resulted in a net sample size of 6018 respondents. Germany presents an interesting case for the study of health inequality attribution. It has the highest level of healthcare spending as a percentage of GDP of all EU27 member states (Eurostat, 2023) and ranks among the lowest in out-of-pocket payments in the EU, at 12 % of overall health expenditure in 2021 (OECD, 2023). However, its healthcare system is divided into a public and private system, whereby high-income individuals can opt out of the public system and choose to be insured in the private system instead.

5.2. Variables

To measure *health inequality attribution,* an original item was designed that allows the development of a typology. To ensure that respondents are aware and have the same understanding of the magnitude of prevailing health inequalities between the low- and high-income groups in German society, a statistic was provided to them in the survey question. Specifically, respondents were informed that the average difference in life expectancy between Germans with low and high incomes amounts to about six years. This statistic is based on data from the German Socio-Economic Panel (SOEP) (Lampert et al., 2019), which is the largest longitudinal survey of the German population. Respondents were subsequently asked what they think is the main reason for this shorter life span among lower-income groups, hereby presenting them with the following categories in randomized order.

(1) 'Because their own behaviour damages their health'
(2) 'Because of inborn characteristics (genetic or biological)'
(3) 'Because of the environmental conditions they are exposed to at work or where they live'
(4) 'Because of unequal treatment in the healthcare system'

These four categories correspond with the constitutive components of the typology developed above, namely behavioural, biological, environmental, and healthcare attribution, respectively. A non-response category was allowed for this question, which is discussed in the descriptive analysis.

Support for the healthcare system is measured by both the ideological acceptance of government responsibility for healthcare and the practical willingness to support it financially. First, support for government responsibility for providing healthcare is measured by the following item: "Please indicate to what extent the following should be the responsibility of the state: … to ensure adequate health care for the sick?" Responses range from 1, indicating 'Should not be governments' responsibility at all' to 11 'Should be entirely governments' responsibility'. Second, the willingness to contribute financially is measured by the following item: "To what extent would you be willing to pay higher taxes to improve healthcare for all people in Germany?". Responses range from 1 'Very unwilling' to 5 'Very willing'. These two items correlate very weakly (Pearson correlation coefficient = 0.04), indicating that they are conceptually different from one another and should be treated separately in the analysis.

Income is measured by the net monthly household income. Respondents were informed that this is the total income of all household members – including, for instance, wages, pension, child benefit, rend, interest, regular private money transfers, etc – and from which taxes and contributions to health and long-term care, unemployment, and statutory pension insurance are deducted. To increase the response rates, income was first asked as an open question and, in case of non-response, a follow-up question that presented the income deciles of the German population. Respondents answering the open question were recoded into the population income deciles so that a harmonized question could be used in the analysis.

Political ideology is measured by a standard item that measures respondents' left-right self-placement on an 11-point scale ranging from left (1) to right (11). To test robustness across different measures of political ideology, two alternative items are included: support for income redistribution (11-point scale) as an economic ideology measure and prospective vote choice as a party preference indicator.

Finally, a number of *control* variables are included to account for factors likely to influence health inequality attributions and health policy preferences. These include socio-demographic variables: age, gender, education (in three categories for low, medium and high based on ISCED), migration background (being born or having at least one parent being born outside Germany), and region (former East- or West-Germany). Further, self-reported health is included on a 5-point scale, (ranging from 'very bad' to 'very good') as well as the type of health insurance (public, public with private top-ups, and private). The operationalizations and descriptive statistics for all variables are reported in Appendix Table A4-5.

5.3. Statistical modelling

To test hypotheses 1 and 2, multinomial regression analyses are performed using health inequality attribution as the dependent variable. Hereby, the behavioural attribution serves as the reference category to which the biological, environmental and healthcare attribution are compared. Stepwise regression models are presented in Appendix Table A6, providing very similar findings. To test hypotheses 3 and 4, ordinary least square (OLS) regressions are performed using the support for government responsibility for healthcare and willingness to pay higher taxes to improve healthcare for all as dependent variables. Weights are applied in all analyses to correct for potential non-response bias. The unstandardized results are reported below to provide a more intuitive interpretation of effect sizes. In addition, Appendix Fig. A8 presents results with standardized dependent variables to facilitate comparisons of effect sizes between the dependent variables.

6. Results

6.1. Descriptive results

Fig. 1 shows the weighted distribution of the health inequality attribution in the sample. Results show that the public is clearly divided on this issue. The most popular attribution is the behavioural one, with 31.4 percent of the respondents believing that the shorter life expectancy of lower income groups is mainly because they behave in a way that damages their health. However, the behavioural attribution is closely followed by the environmental attribution – with 28.9 percent of the respondents believing that the environmental conditions to which lower income groups are exposed at work or at home are primarily causing their shorter lifespan – and 27.8 percent adhering to the healthcare attribution, corresponding with the belief that unequal treatment in the healthcare system is the most important cause of the social gradient in health. Only 4.8 percent believe that biological factors are the source of existing health inequalities between rich and poor, whereas about 7.3 percent of item nonresponse is observed for this question.

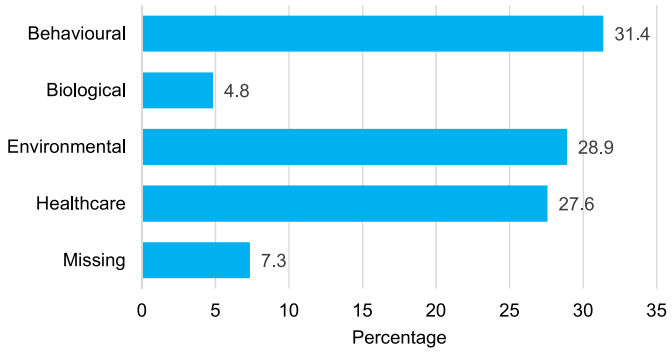

Fig. 1. Health inequality attribution: Main reason for shorter life expectancy of lower income groups in Germany (N = 6018). *Note*: Weighted percentages.

6.2. Income, political ideology and health inequality attribution

To provide the first insights into how groups with different income levels and political orientations attribute the social gradient in health, Fig. 2 shows the health inequality attribution by respondents' income position (left panel) and left-right ideology (right panel). This figure reveals that individuals belonging to higher income quartiles of the population are relatively more likely to attribute the social gradient in health to behavioural factors (blue bars) and less likely to attribute it to the healthcare system (red bars). Moreover, the ranking order of the most popular health inequality attributions changes when moving up the income ladder. Among the lowest income quartile, individuals are most likely to indicate healthcare (37 percent), followed by environmental (29 percent) and behavioural (21 percent) factors. By contrast, among the highest income groups, individuals are most likely to indicate behavioural factors (44 percent), followed by environmental (27 percent) and healthcare (20 percent). All income groups are least likely to highlight biological factors as the main cause of income-related health inequalities. Fig. 2 further indicates that lower income groups are slightly more likely to have item nonresponse on this question. Potentially, the information of low-income groups as being disadvantaged six years in their life expectancy is perceived as more sensitive among low-income respondents, causing higher item nonresponse among this group. In this regard, previous research suggests an apparent paradox whereby those most at risk of ill health are less likely to acknowledge the social gradient in health (Blaxter, 1997; Macintyre et al., 2005; Popay et al., 2003; Smith and Anderson, 2018). Respondents with missing values on this item are omitted in the regression analysis.

Since these descriptive findings do not account for other variables, Table 1 presents the results of a multinomial regression predicting beliefs about the causes of health inequality. The estimates can be interpreted as follows: a one-unit increase in the variable income (e.g. an increase from the first to the second income decile) is associated with a 0.141 decrease in the relative log odds of choosing the biological attribution compared to the behavioural attribution. Similarly, the relative log odds of being in the environmental attribution group versus the behavioural attribution group decreases by 0.073 when moving from the first to the second income decile. Likewise, a one-unit increase in income decile is associated with a 0.129 decrease in the relative log odds of choosing the healthcare attribution compared to the behavioural attribution. These findings confirm hypotheses 1a, 1b and 1c.

To facilitate the interpretation of the results, Fig. 3 plots the predicted probabilities of the four health attribution types by respondents' income level. These present the predicted probabilities of choosing a specific health inequality attribution at each income decile, holding all other variables in the model at their means. The steep line in the behavioural panel indicates that individuals with a higher income are much more likely to belong to this particular health attribution type. Ceteris paribus, the likelihood of belonging to the behavioural attribution group is 0.24 for the lowest income decile and increases to 0.44 for the highest income decile. Further, the biological panel shows that higher income groups are slightly less likely to belong to this group although the differences are small (0.07 for the lowest income decile versus 0.04 for the highest income decile). Interestingly, the flat line for the environmental attribution type suggests a shared recognition of environmental health risks across income groups among the German population. Finally, the healthcare panel illustrates that the likelihood among the lowest income decile to select this attribution is 0.37 and drops to 0.22 among the highest income decile. Altogether, these findings support the attribution theory, which suggests that external factors resonate more with low-income groups while internal factors resonate more strongly with high-income groups.

Furthermore, Table 1 indicates that political orientation is a significant predictor of health inequality attribution. Fig. 4 illustrates the differences between individuals across the left-right spectrum, showing that individuals who position themselves at the extreme left of the scale

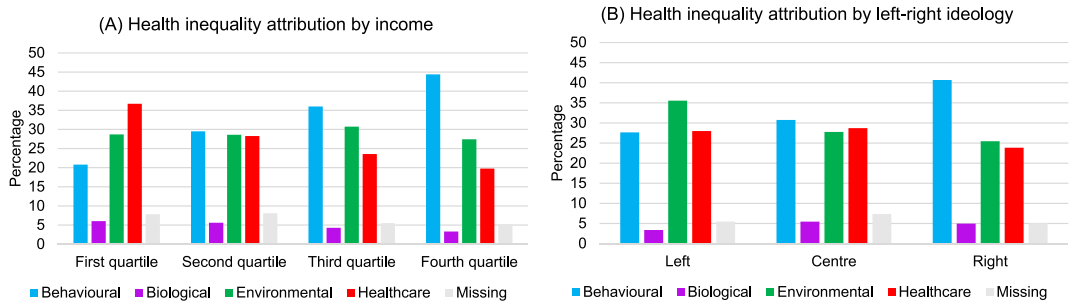

Fig. 2. Health attribution by income (N = 5681) and left-right ideology (N = 5552). *Note*: Weighted percentages. Left = 1–5; centre = 6; right = 7–11.

Table 1
Multinomial regression model predicting health inequality attribution (N = 4900).

	Biological vs Behavioural	Environmental vs Behavioural	Healthcare vs Behavioural
Income decile	−0.141***	−0.073***	−0.129***
	(0.028)	(0.015)	(0.015)
Left-right ideology	−0.019	−0.138***	−0.108***
	(0.039)	(0.021)	(0.022)
Education			
Low educated	Ref.	Ref.	Ref.
Middle educated	−0.665***	−0.216*	−0.294**
	(0.173)	(0.101)	(0.099)
High educated	−1.151***	−0.145	−0.610***
	(0.195)	(0.102)	(0.105)
Male	0.130	−0.016	−0.046
	(0.140)	(0.073)	(0.076)
Age	−0.012**	−0.008***	−0.007**
	(0.004)	(0.002)	(0.002)
Health insurance type			
Public	Ref.	Ref.	Ref.
Private top-up	−0.296	−0.147	−0.060
	(0.193)	(0.091)	(0.094)
Private	0.267	−0.062	−0.250
	(0.217)	(0.113)	(0.128)
Subjective health	−0.054	−0.216***	−0.327***
	(0.085)	(0.045)	(0.047)
Migration background	0.320	0.228*	0.135
	(0.185)	(0.101)	(0.107)
Former East-Germany	0.103	−0.041	−0.153
	(0.193)	(0.102)	(0.107)
Constant	0.284	2.425***	3.079 ***
	(0.474)	(0.259)	(0.265)

Standard errors in parentheses. ***p < 0.001, **p < 0.01, *p < 0.05. Pseudo R^2 = 0.035.

have a likelihood of 0.23 to attribute income-related health inequalities to behavioural factors, compared to 0.47 for those at the extreme right end of the scale. However, leftist individuals are not significantly more likely to attribute health inequality to biological factors relative to behavioural factors, rejecting hypothesis 2a. Further, those at the left end are more likely to attribute health inequality to the environmental conditions where low-income people live or work compared to those at the extreme right end of the political spectrum (0.41 versus 0.22 respectively). These findings confirm hypothesis 2b. Finally, leftist individuals are indeed more likely to attribute the health gap to the healthcare system relative to behavioural factors compared to rightist individuals, corroborating hypothesis 2c. These findings are similar when using income redistribution as a measure of economic left-right ideology (see Appendix Fig. A2), which provides further evidence of the robustness of the findings. Additionally, analyses using party preferences provide further insight into the role of political ideology (Appendix Table A8, Fig. A3).

Although not the focus of this article, Table 1 and Appendix Fig. A4-7 further provide insight into the relation between social-demographic variables on the one hand and health inequality attribution on the other hand. A few significant differences are noteworthy. The likelihood of attributing the social gradient in health to non-behavioural factors relative to behavioural factors decreases with age and education (with the exception of environmental factors). Further, the better one's self-reported health, the less likely one is to attribute health inequality to the environment or healthcare system relative to behavioural factors. By contrast, citizens with a migration background are more likely to attribute health inequality to environmental factors – relative to behavioural factors – compared to those without a migration background. Finally, Appendix Table A6 illustrates that individuals with private health insurance are less likely to attribute health inequality to the healthcare system, however, this effect becomes insignificant once left-right ideology and subjective health are controlled for.

6.3. Health inequality attribution on health policy preferences

Fig. 5 displays the results of a linear regression analyses explaining citizens' attitudes towards government responsibility for providing healthcare and their willingness to pay higher taxes to improve healthcare for all (see also Appendix Table A7). Given the minor differences in estimates when control variables are included, the discussion centers on these models. First, consider preferences regarding government responsibility for healthcare, displayed in the left panel. In contrast to hypothesis 3a, those attributing health inequality to biological factors are less supportive of government responsibility compared to the behavioural attribution group (0.31 points on the 11-point scale). This finding might seem counterintuitive, especially if biological causes of health inequality are viewed as unfair and beyond individual control, warranting government intervention. Yet, it may reflect a deterministic perspective, where biological disparities appear inevitable, diminishing the perceived need for government intervention. While the large confidence intervals suggest caution, this result is consistent with previous research (Gollust and Lynch, 2011; Rigby et al., 2009). Further, individuals who attribute health inequality to the environment or healthcare system score 0.33 and 0.45 points higher on support for government responsibility compared to those attributing health inequality to behavioural factors, confirming hypotheses 3b and 3c.

Second, consider individuals' willingness to pay higher taxes, displayed in the right panel. Those belonging to the biological attribution group are more willing to pay higher taxes than those in the behavioural group (0.21 points on the 5-point scale), confirming hypothesis 4a. Further, respondents who attribute health inequality to environmental factors (hypothesis 4b) and the healthcare system (hypothesis 4c) are indeed more willing to pay higher taxes to improve healthcare as compared to the behavioural attribution, namely 0.24 and 0.15 points on the 5-point scale.

Overall, these findings confirm that the belief that health inequality is driven by behavioural factors erodes diffuse support for the healthcare system. Note that these results hold when controlling for other individual factors that are found to correlate with health policy preferences. In this regard, Fig. 5 and Appendix Fig. A9 show that income, left-right

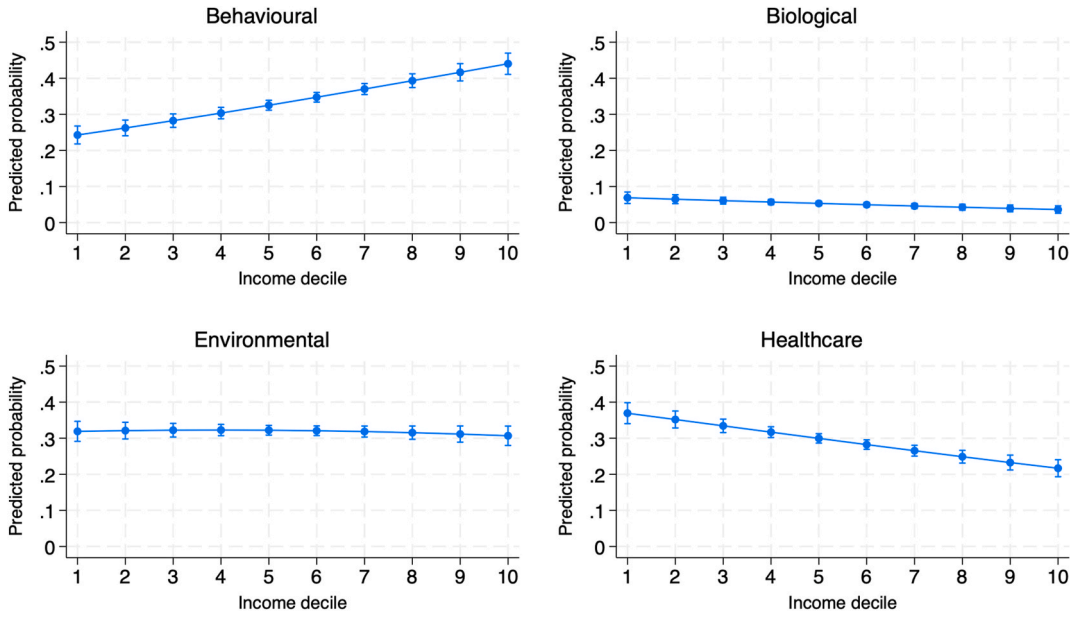

Fig. 3. Predicted probabilities for health inequality attribution types by respondents' income decile (N = 4900).

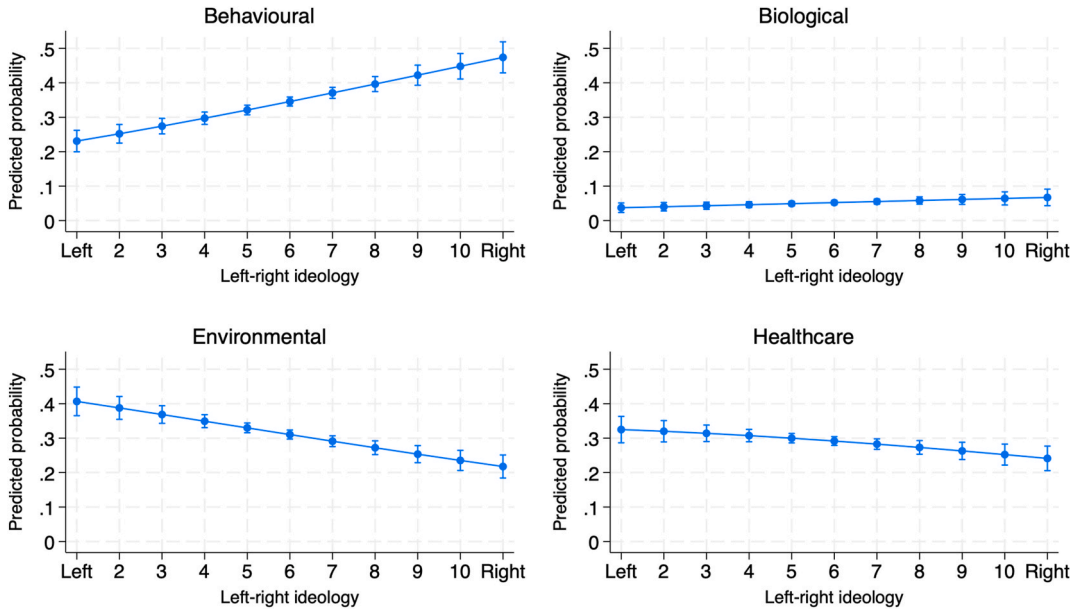

Fig. 4. Predicted probabilities for health inequality attribution types by respondents' left-right ideology (N = 4900).

ideology, education, age, health insurance type, subjective health, and region are relevant predictors of support for healthcare policy, although their impact is not consistent across the two dependent variables. For instance, while individuals in former East-Germany are significantly more supportive of government responsibility for healthcare, they are somewhat less willing to pay higher taxes compared to individuals in former West-Germany. These differences in the direction of the effects highlight that healthcare attitudes are indeed multidimensional and can be driven by different rationales.

7. Discussion and conclusions

Against the backdrop of persistent health inequalities in developed welfare states, this article advances our understanding of how citizens explain the social gradient in health and how these explanations shape their health policy preferences. To this end, it introduces a novel typology of health inequality attributions, distinguishing between behavioural, biological, environmental and healthcare explanations. Empirically, it draws on an original large-scale survey fielded among the German population. Three major findings emerge from this research.

First, the study identifies diverging beliefs about the causes of health inequality across income groups. As hypothesized, higher-income groups are less likely to attribute the six-year gap in life expectancy to biological, environmental or healthcare factors relative to behavioural factors. While the lowest income decile primarily attributes shorter life expectancy to unequal treatment in the healthcare system, the highest income decile points to behavioural factors. These diverging 'ingroup' and 'outgroup' attributions align with previous qualitative research (Davidson et al., 2006) but contrast with surveys that found no income differences in behavioural attribution (Lofters et al., 2014; Reutter et al., 2005). This discrepancy may stem from different survey designs. Unlike these previous studies, the current study required respondents to

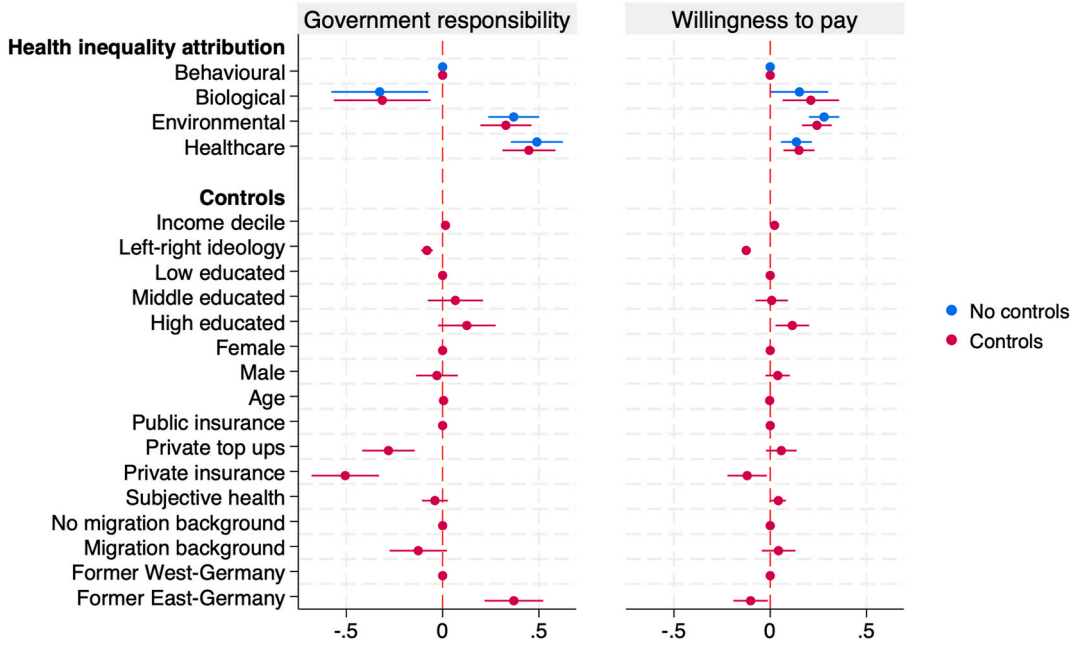

Fig. 5. Linear regression predicting support for government responsibility for healthcare and willingness to pay higher taxes to improve healthcare for all (N = 4823).

prioritize a single explanation, making primary attribution patterns more visible. Overall, the findings support the fundamental attribution bias (Jones and Harris, 1967; Ross, 1977), where individuals tend to overemphasize individual factors while underestimating contextual factors in explaining others' behaviour.

Second, the study shows that health inequality attributions also differ significantly by political ideology. Right-wing individuals primarily attribute the health gap to behavioural actions, consistent with a worldview that gives strong weight to individual agency. By contrast, left-wing individuals are more likely to attribute it to environmental and healthcare factors relative to behavioural factors, compared to their right-wing fellows. These findings resonate with opinion studies in other Western countries (Bridger et al., 2023; Gollust and Lynch, 2011; Lofters et al., 2014; Reutter et al., 2005) and support a wider body of research showing that political ideology provides the lens through which citizens perceive and explain various social problems (Kallio and Niemelä, 2014; Lepianka et al., 2010; Vázquez and Panadero, 2022).

Third, the study highlights the implications of causal attributions for the legitimacy of the healthcare system. While previous research showed that health inequality attributions explain support for policies targeted at reducing health inequality (Bridger et al., 2023; Kirst et al., 2017; Rigby et al., 2009; Smith et al., 2021), the current study reveals even wider implications as it uncovers significant associations between causal attributions and diffuse support for the healthcare system. Individuals who see health inequalities as a result of harmful individual behaviours among the poor prefer significantly less government responsibility for healthcare provision and resist higher taxation to improve the healthcare system for all. The widespread belief of behavioural explanations among higher-income and right-leaning members of society could undermine the foundations of solidarity on which contemporary healthcare systems are based as they redistribute resources from people with low-to high-risk profiles. Therefore, policymakers should take into account that a strong focus on personal responsibility for health could increase stigmatization of those with health-damaging behaviours. Recognizing and raising awareness of the barriers to adopting healthy lifestyles may help secure solidarity between low- and high-risk profiles within the healthcare system.

Finally, several limitations should be acknowledged. First, a conceptual limitation is that the proposed typology is not exhaustive, as it does not include the full range of possible theoretical explanations for health inequality. For example, it does not include psychosocial factors (e.g. chronic stress, social networks), institutional factors beyond the healthcare system (e.g. the education and legal system) or broader systemic factors (e.g. government, capitalism). Hence, the typology offers a focused framework that can serve as a starting point for exploring alternative categorizations in future research. Second, the intersectionality between income and gender, which affects the social gradient in health (Lampert et al., 2019), warrants further investigation to understand whether individuals attribute income-related health inequalities differently across genders and how these attributions determine citizens' policy preferences. Third, a methodological limitation concerns the survey's non-probability sampling strategy. While quota sampling ensures representativeness based on key demographics, it may provide biased estimators due to the self-selection bias of the respondents. However, the offline recruitment base of the panel and its active invite-only recruitment strategy can be expected to limit this potential bias. Future research could nevertheless explore probability-based sampling strategies to enhance external validity. Fourth, the study design does not establish causality, which is a key limitation in drawing causal conclusions about the associations found between health inequality attribution and health policy preferences. Expanding this research with experimental or longitudinal designs could validate the causal effects. Finally, since this study focused on Germany, future research should examine whether its findings hold in other national contexts. Cultural factors likely influence how people attribute health inequalities, with variations in individualism and collectivism shaping perceptions of responsibility. Additionally, differences in healthcare systems (Beckfield et al., 2015; Bertin et al., 2021; Reibling et al., 2019) may affect the salience of certain attributions. In Germany, where low-income groups rely primarily on public health insurance while higher-income groups can access private health insurance, inequalities in healthcare may be particularly prominent. This could explain why unequal treatment in the healthcare system emerged as a key attribution for income-related health disparities among individuals with a lower income. The COVID-19 may have further reinforced these perceptions. Comparative studies are needed to examine whether similar patterns appear in other countries with different healthcare and social protection systems.

Ethics

This research was approved by the Ethics Committee of the University of Konstanz (IRB Statement 41/2022).

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Declaration of competing interest

The author declares no competing interest.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2025.117946.

Data availability

The data underlying this article will be shared on reasonable request to the corresponding author.

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