

# Dispositional and situational attributions for why the rich live longer than the poor

Emma K. Bridger<sup>1</sup>  | Angela Tufte-Hewett<sup>1</sup> | David A. Comerford<sup>2</sup>

<sup>1</sup>Department of Psychology, Faculty of Business, Law and Social Sciences, Birmingham City University, Birmingham, UK

<sup>2</sup>Stirling Management School, Economics Division, University of Stirling, Stirling, UK

## Correspondence

Emma K. Bridger, Department of Psychology, Faculty of Business, Law and Social Sciences, Birmingham City University, Birmingham B4 7BD, UK.

Email: [emma.bridger@bcu.ac.uk](mailto:emma.bridger@bcu.ac.uk)

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## Abstract

Despite considerable focus on predictors of attitudes towards economic inequality, there is less psychological research into attitudes towards other unequal outcomes between the rich and poor, including differences in health and life expectancy. Two studies examine whether causal attributions for these socioeconomic health inequalities predict attitudes towards them. A cross-sectional study of 332 UK and US respondents showed that most respondents indicate a preference for some degree of income inequality but no life expectancy inequality between the richest and poorest in society. These preferences for equal life expectancy for the rich and poor were significantly less likely for respondents who viewed health inequalities to be caused by dispositional factors (e.g., self-control, ability or effort). In a second pre-registered cross-sectional study ( $n = 602$ ), dispositional attributions negatively predicted self-reported concern about health inequality, whilst endorsing situational attributions (e.g., discrimination and prejudice, wages) was positively associated with concerns on this issue. Moreover, situational attributions positively predicted support for six policy proposals for reducing health inequality, while dispositional attributions were associated with increased support for some of these interventions and decreased support for others. Despite very distinct distribution preferences for income and life expectancy outcomes, causal attributions continue to predict attitudes towards health inequality and associated policy interventions.

## 1 | INTRODUCTION

Individuals from higher socioeconomic backgrounds have consistently better health and life expectancy outcomes than their less well-off counterparts (Bartley, 2017). An expanding arm of the literature on these socioeconomic health inequalities is the examination of public attitudes to them, following the assumption that public opinion informs political decision-making (Smith et al., 2021). In the UK, it is often argued that public concern about health inequalities is hampered by the fact that people's conceptions of health are overly

focused on individual behaviors and access to health care at the expense of wider social determinants of health (e.g., Kane et al., 2022). Academic studies of lay explanations of health, however, provide evidence that the lay populace in fact appreciate the complexities of social and environmental factors for health (Smith & Anderson, 2018) and support corresponding macrosocial solutions (Smith et al., 2021). Beyond the UK, analysis of international survey data from 29 countries shows that a multicausal view of health is widespread (Schnitker, 2015). While tracking cross-national variations in the general public's position on socioeconomic health inequalities is

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important, this was not the aim of the current work. Rather, the contribution of the current studies is to examine for the first time whether psychological appraisals of reasons for inequality known to predict redistributive attitudes in the economic domain also relate to views on socioeconomic health inequalities. This is important for characterizing for whom and under which conditions support for action on health inequality is strongest.

## 2 | PREDICTING ATTITUDES TOWARDS INEQUALITY

Some people and cultures appear to tolerate inequality more than others (Alesina et al., 2004) and there is considerable interest across the social sciences on uncovering factors to explain this (Steele & Breznau, 2019), including political ideology (Alesina & Giuliano, 2009), (mis)perceptions of existing inequality (Dawtry et al., 2015; Gimpelson & Treisman, 2017) as well as ecological factors such as luck and war (Nettle & Saxe, 2020). According to one influential view, an important factor is whether or not a distributive outcome is viewed as fair (Starmans et al., 2017). Unequal distributions are more likely to be viewed as legitimate and fair, for example, when they are seen to be the product of meritocratic forces (Heiserman & Simpson, 2017) or because they arise in a “just world” (Benabou & Tirole, 2006; García-Sánchez et al., 2019). A key ancillary of this is that a person's beliefs about the causal reasons for inequality influences their views of whether and how much inequality should exist.

The study of judgments of causal attributions has a long research tradition in psychology. Perceiving someone to be at least partially responsible for their own misfortune diminishes sympathy, willingness to help and help-giving itself (Rudolph et al., 2004; Weiner, 1985). While causal beliefs are diverse, attribution research typically identifies beliefs that locate causes as internal to an individual and under their control (*dispositional* attributions) and those that are external and beyond the individual's control (*situational* attributions). There is now a rich body of work examining dispositional and situational attributions for a range of social problems including both poverty (e.g., Shirazi & Biel, 2005) and economic inequality (e.g., Flanagan et al., 2014), but also incarceration (e.g., Dunlea & Heiphetz, 2020), criminal activities (e.g., Cochran et al., 2003), and unemployment (e.g., Furnham, 1982). Studies often report an emphasis on dispositional relative to situational attributions, particularly in US or Western populations (Schneider & Castillo, 2015) and when attributions relate to poverty (Cozzarelli et al., 2001; Feagin, 1975). This pattern is consistent with the fundamental attribution error, in which situational explanations are discounted or overlooked relative to dispositional traits (Ross, 1977). However, it is not always reported even in US studies. Kraus et al. (2009), for example, find that US samples endorsed situational explanations for rising economic inequality to a greater extent than dispositional attributions.

Situational and dispositional attributions are not opposing dimensions: both can be endorsed simultaneously (Schneider & Castillo, 2015) and attributions on one dimension can be shifted

without corresponding influence on the other (Piff et al., 2020). Developmental studies find that, whilst individual attributions for social phenomena are readily available for younger children, the use and understanding of situational attributions grows with developmental age (Shutts & Kalish, 2021). Flanagan et al. (2014) for instance, report older adolescents to be more likely to invoke situational than dispositional attributions for poverty than their younger counterparts. This later development of situational causes is consistent with the emergence of a more “reflective” or nuanced understanding of social phenomena (Shutts & Kalish, 2021).

Of key relevance here is the observation that attributions motivate concerns about and support for solutions to societal issues. Across cultures, situational explanations for poverty positively predict the view that the government is responsible for need provision, whilst dispositional explanations decrease such positions (Shirazi & Biel, 2005). These attributions also mediate cultural, gender, and political differences in views of the role of government. Kornbluh et al. (2019) report that adolescents who explain poverty in structural terms are more likely to apply need rather than merit as a basis for distributing goods. Other recent work shows that those who attribute poverty to situational factors are more opposed to economic inequality, are more likely to support egalitarian policies and that shifting situational attributions increases support for such policies (Piff et al., 2020). Attributions may also partly explain another robust predictor of attitudes towards redistribution: an individual's subjective perception of how they rank relative to others (Adler et al., 2000), often referred to as subjective socioeconomic status (SES), which has consistently been shown to negatively predict support for redistributive policies (Brown-Iannuzzi et al., 2015, 2017, 2021). One explanation for this is that higher rank persons are more motivated to view their relative status to be a product of their own internal merits as opposed to external factors (Kraus et al., 2012) and therefore that inequality which is to their advantage is justified or deserved (Brown-Iannuzzi et al., 2021).

## 3 | IS HEALTH SPECIAL OR SACRED?

Might these same attributional styles also predict concern for socioeconomic health inequalities? This seems a reasonable proposition and one that presumably drives efforts to educate the public on social determinants of health (Kane et al., 2022; Smith et al., 2021). Yet there are reasons to caution against automatically assuming that what operates in the economic domain applies comparably for health. This begins with evidence that aversion to inequality differs systematically for health compared to income, such that inequality aversion is often steeper for health (Costa-Font & Cowell, 2019) and that in contrast to economic distributions, many people indicate there should be no inequality for health. Whilst direct comparisons across the two domains are rare, some have been made. Howarth et al. (2019), for example, asked a sample of 1667 British people to choose options relating to different levels of equality across domains of economics, health and politics. 37%–46% of the sample chose the

most egalitarian option for health equality, while only 5%–8% of the sample chose the most egalitarian option for economic equality. In a Canadian study, Hurley et al. (2020) used a distributional, binary-choice experimental design to directly compare inequality aversion for income, health and income-related health. Average inequality aversion was greater for income than health, but parameters for the latter were bimodal such that some participants either displayed very low and others very high aversion. Inequality aversion was highest for income-related health than for income or health alone, leading the authors to conclude that public concerns about health inequalities are substantially greater when these are related to socioeconomic differences (see also McNamara et al., 2021 for a direct test of this).

That distinct principles of distribution should apply to different societal arenas or “spheres of justice” is a key tenet of leading perspectives in both economics (Tobin, 1970) and justice (Walzer, 1983). Medical and bioethicists have repeatedly debated the claim that concerns around health inequality are particularly acute because health is “special” in some way (Daniels, 2007; Wilson, 2009). Anand (2002) argues that inequality aversion should be greater for health than income because unequal income is instrumental in incentivising others, whereas good health is both necessary to achieve outcomes in other domains and is a special good with intrinsic value. Such arguments are resonant both with the empirical data reviewed above as well as with “sacred value” thinking, which distinguishes between secular values (e.g., money) and values that have such special moral importance that people are very reluctant to trade them off (Tetlock, 2003; Tinghög & Västfjäll, 2018). If health is viewed as sacred this might explain why people are much more likely to indicate an egalitarian preference for it than for monetary outcomes. Crucially, if health is sufficiently special or sacred that everyone has the right to it (i.e., good health and long lives), then these consistent egalitarian preferences might prevail regardless of whether a person understands the causes of existing health inequality to be dispositional or situational.

## 4 | STUDY 1

We set out to examine whether situational and distributional attributions for existing socioeconomic health inequality predict views on health inequality in samples from the United Kingdom (UK) and United States (US). In Study 1, we examine this using data we had previously collected to indirectly examine revealed perceptions and preferences of health inequalities between the richest and poorest 20% in the UK and US. We adapted Kiatpongsan and Norton's (2014) paradigm for assessing preferences for income inequality for CEOs and “unskilled” workers. Respondents are asked to judge what they think annual income (economic domain) and typical life expectancy (health domain) are and should be for the richest and poorest in society, known to differ both in income and life expectancy. This then allows perceived and preferred ratios to be calculated for each domain, by dividing responses given for the richest 20% by responses given for the poorest 20%. This indirect paradigm has some

advantages over previous approaches to directly comparing preferences across domains, beginning with the fact that participants' responses are not constrained by the question design and choice options (c.f., Hurley et al., 2020). The approach also minimizes the potential effect of self-presentational biases because participants are not alerted to the fact that inequality perceptions and preferences are being assessed (c.f., Howarth et al., 2019). In line with prior published findings (e.g., Howarth et al., 2019), we anticipated that preferred ratios would be smaller than perceived inequality ratios, and that preferences for full equality would be more common for life expectancy than income.

We also asked respondents to rate a number of situational (e.g., job opportunities, wages) and dispositional (e.g., self-control or ambition) explanations for these differences. Comparable measures have previously been used to investigate psychological variables relating to perceptions of economic inequality (Kraus et al., 2009) and many of these items overlap with original items employed by Feagin (1975) and Feather (1974) in seminal studies examining attributions for poverty. We were interested in the extent to which dispositional and situational attributions would be used to explain differences in life expectancy for the richest and poorest. We also conducted analyses to examine likely predictors of dispositional and situational attributions for socioeconomic health inequality based on previous literature, including income, self-rated health, political orientation (Shirazi & Biel, 2005), subjective SES (Kraus et al., 2009) and a measure of sense of control over one's own life (Lachman & Weaver, 1998) which is related to attributional style. Finally, we examine whether situational and dispositional attributions for existing health inequality predict preferences for equal life expectancy for the rich and poor.

## 4.1 | Methods

### 4.1.1 | Participants

These were 145 UK respondents (91 female; 54 male; mean age 34.90, standard deviation [SD] = 12.03; range = 18–65) recruited via Prolific.co and 187 US participants (95 female, 91 male and 1 person who did not identify with either category; mean age 39.55, SD = 12.94, range = 20–72) who were recruited using MTurk. These details along with descriptions of key demographic variables for the final sample of 332 are reported in Table 1. Data were collected in June (US) and September (UK) 2019. Participants were routed out of the survey if they failed to respond correctly to an initial attention check. Data were excluded from additional participants who failed to provide an interpretable numerical response (e.g., a value that could be interpreted as income or life expectancy) for at least one of the 8 judgments ( $n = 21$ ) or gave at least one very low life expectancy judgment ( $<50$  years;  $n = 6$ ). Ethical approval was provided by the corresponding ethical review committee at the corresponding author's institution. A sensitivity power analysis was conducted to determine the effect size detectable with the given sample size

**TABLE 1** Means (M), standard deviations (SD) and zero-order correlations between all principal variables in Study 1 ( $n = 332$ )

	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. UK respondent	332	0.44	0.497									
2. Age	332	37.52	12.74	-0.181**								
3. Female	332	0.56	0.497	0.119*	0.106							
4. Self-rated Health	332	3.37	1.037	-0.077	-0.061	-0.079						
5. Subjective SES	332	5.27	1.72	0.172**	-0.035	-0.005	0.381***					
6. Income bracket	331	4.07	1.64	-0.237***	0.037	-0.101	0.331***	0.500***				
7. Political orientation	327	3.48	1.61	0.063	0.120*	-0.093	0.060	0.124*	0.159**			
8. Sense of control	332	54.69	13.51	-0.058	-0.008	-0.029	0.342***	0.320***	0.322***	0.051		
9. Dispositional attributions	332	4.39	1.51	0.113*	-0.097	-0.048	-0.055	0.028	0.019	0.262**	0.103	
10. Situational attributions	332	5.16	1.24	0.083	-0.045	0.127*	-0.143**	-0.075	-0.127*	-0.363**	-0.106	0.269**

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

( $n = 326$ ), standard assumptions (80% power,  $\alpha = 0.05$ ) and eight predictors (listed in Supporting Information: Table S1). This was calculated using G\*Power (Faul et al, 2007) and indicated the linear regression analyses would be sensitive to a small-medium effect of  $f^2 = .047$  (where  $f^2 = .02$  and  $f^2 = .15$  are small and medium effect sizes, respectively).

#### 4.1.2 | Design and materials

Participants were told the study was designed to learn about their perceptions of people in the richest and poorest 20% (as measured by household income) in America/the UK. For income, participants were asked "What do you think the typical household income (in \$/£ each year before taxes) of the richest/poorest 20% of Americans/people in the UK is?", before comparable questions about what they thought the income for each should be. For life expectancy, typical income (in \$/£ each year before taxes) was replaced with typical life expectancy (in years). Respondents were asked all questions but the order in which income and life expectancy judgments were encountered was counter-balanced (50.3% completed income questions first; 49.7% completed life expectancy judgments first). Questions about the richest 20% always preceded those about the poorest 20% and estimates were always given before ideal judgments.

Participants were next informed about the life expectancy gap between the richest and poorest 20% of the population. They were then asked to indicate how important they thought the contribution of each of the following factors was to these differences in life expectancy (using a scale where 1 = not at all important to 7 = very important): ambition, hard work, ability/talent, money management, self-control, educational opportunities, job opportunities, wages, prejudice and discrimination, economic structure of society and inheritance. To independently determine the number of factors to be extracted to reduce the dimensions of these data, parallel analysis

was conducted and identified two factors to be extracted in each sample. Exploratory Factor Analysis using varimax orthogonal rotation (following Kraus et al., 2009 approach) revealed two-factor solutions that accounted for 56.83% in the US and 53.05% of the variance in the UK sample. Five items (ambition [loading, US = 0.87; UK = 0.76], ability/talent [US = 0.81; UK = 0.65], self-control [US = 0.74; UK = 0.73], hard-work [US = 0.71; UK = 0.78] and money management [US = 0.67; UK = 0.79]) loaded onto factor one, which accounted for 36.3% of the US and 35.6% of the UK variance (eigenvalues; US = 4.41; UK = 4.36). The remaining six items loaded onto factor 2 (economic structure of society [US = 0.82; UK = 0.64], wages [US = 0.73; UK = 0.66], job opportunities [US = 0.69; UK = 0.75], prejudice [US = 0.67; UK = 0.61], educational opportunities [US = 0.67; UK = 0.78], and inheritance [US = 0.66; UK = 0.61], which explained 20.53% of the US variance and 17.4% of UK variance (eigenvalues; US = 2.26; UK = 2.39). These two-factor solutions correspond very well with that reported by Kraus et al. (2009) for assessing explanations of income inequality and reliability for the two factors was good (dispositional items  $\alpha = .872$ ; situational items  $\alpha = .848$ ). The items for each factor were averaged to create factors that represent dispositional (Factor 1) and situational (Factor 2) explanations.

Participants also completed the 12-items of Lachman and Weaver (1998) sense of control scale, comprised of four items relating to personal mastery (e.g., *When I really want to do something, I usually find a way to succeed at it*) and eight items relating to perceived constraints (e.g., *I often feel helpless in dealing with the problems of life*). Participants responded on a scale from 1 = Strongly Agree to 7 = Strongly Disagree. To enable comparison with previous use of these measures in association with subjective SES and social explanations (Kraus et al., 2009), items were consolidated to a single measure of sense of control by reverse scoring the four personal mastery items and summing all 12 items ( $\alpha = .919$ ), where higher scores reflect higher sense of control.

Participants indicated their general level of health on a scale where 1 = poor, 2 = fair, 3 = good, 4 = very good and 5 = excellent. Participants indicated their subjective socioeconomic status on a scale of 1–10 (Adler et al., 2000). This scale is illustrated as a ladder characterizing where people stand in the country, with those who are best off in terms of money, education and jobs at the top (rung 10) and those who are worst off at the bottom (rung 1). Participants were asked where they usually stand on political issues (1 = Far left, 2 = Left, 3 = Left-leaning, 4 = Moderate, 5 = Right-leaning, 6 = Right, 7 = Far Right) and which income category best represents their yearly family household income (before tax): less than \$/£15,000; \$/£15,000–25,000; 3 = \$/£25,001–35,000; \$/£35,001–50,000; \$/£50,001–75,000; \$/£75,001–100,000; over \$/£100,000. Further questions on participants' ethnicity, occupational status and parental education were also included, however, these were not analyzed because they were not collected in both samples or not obviously harmonizable.

## 4.2 | Results

### 4.2.1 | Situational and dispositional attributions

Participants in both countries were significantly more likely to endorse situational (UK:  $M = 5.28$ ,  $SD = 1.10$ ; US:  $M = 5.07$ ,  $SD = 1.34$ ) than dispositional (UK:  $M = 4.59$ ,  $SD = 1.42$ ; US:  $M = 4.24$ ,  $SD = 1.57$ ) explanations for health inequalities between the richest and the poorest 20% (both  $t(>143) > 5.42$ ,  $ps < .001$ ). Table 1 reports the zero-order correlations between attributions and other respondent characteristics.

Separate simple OLS regression models were employed to explore whether key characteristics differentially predicted situational and dispositional attributions for socioeconomic health inequalities (see Supporting Information: Table S1). For both models, residuals were normally distributed and there was no evidence of heteroscedasticity in standardized residual plots. The mean of variance inflation factors was 1.299 in both models indicating that multicollinearity was not a concern. Residual terms were not correlated (Durbin Watson  $_{dispositional} = 2.005$ ; Durbin Watson  $_{situational} = 1.978$ ). Both models were significant (dispositional,  $F(8,317) = 5.75$ ,  $p < .001$ ,  $R^2 = .127$ ; situational,  $F(8,317) = 7.84$ ,  $p < .001$ ,  $R^2 = .165$ ).

Political orientation negatively predicted situational attributions such that participants who identified as further to the right were less likely to endorse situational attributions ( $\beta = -.354$ ,  $t = -6.69$ ,  $p < .001$ ). Dispositional attributions were significantly more likely for those who identified as further to the right ( $\beta = .274$ ,  $t = 5.05$ ,  $p < .001$ ), as well as for younger participants ( $\beta = -.131$ ,  $t = -2.39$ ,  $p = .017$ ), participants with lower levels of self-reported health ( $\beta = -.124$ ,  $t = -2.08$ ,  $p = .038$ ) and participants with a higher sense of control ( $\beta = .165$ ,  $t = 2.81$ ,  $p = .005$ ). In the current sample, there were no detectable differences in situational or dispositional attributions for socioeconomic health inequality as a function of country, income-level, subjective SES or gender.

### 4.2.2 | Estimated and ideal levels of income and health inequality

Table 2 shows the median estimates and ideal judgments of annual income and life expectancy for the richest and poorest 20% for the two samples. Income judgments were higher for the richest compared to the poorest 20%, both when they were estimates (US,  $T = 2$ ,  $z = -11.824$ ,  $p < .001$ ; UK,  $T = 99.50$ ,  $z = -10.250$ ,  $p < .001$ ) and when they were ideal judgments (US,  $T = 0$ ,  $z = -11.571$ ,  $p < .001$ ; UK,  $T = 171$ ,  $z = -9.706$ ,  $p < .001$ ). Estimated life expectancy judgments were higher for the richest versus poorest 20% (US,  $T = 393.50$ ,  $z = -11.160$ ,  $p < .001$ ; UK,  $T = 76.50$ ,  $z = -10.313$ ,  $p < .001$ ). Ideal life expectancy judgments were also significantly higher for the richest versus poorest 20% in both samples (US,  $T = 190$ ,  $z = -4.982$ ,  $p < .001$ ; UK,  $T = 7.50$ ,  $z = -5.072$ ,  $p < .001$ ). Respondents indicated a preference for a lower level of income and life expectancy inequality than they perceived.

Supporting Information: Table S2 reports the proportion of the samples who gave estimated or ideal judgments that were greater, equal or lower for the richest 20% compared to the poorest 20%. The overwhelming majority of the samples from the two countries indicated an awareness that the richest 20% live longer than the poorest 20% (97.93% of UK and 93.58% of US sample). Similarly, the considerable majority indicated that the rich *should* typically earn more than the poor (91.7% of UK and 95.2% of US sample). At the same time, the majority also indicated the richest and poorest 20% should have the exact same life expectancy (75.9% of UK and 70.1%

**TABLE 2** Median (interquartile range in parentheses) estimated and ideal judgments of annual income and life expectancy in Study 1 (UK = 145, US = 187)

		Estimated Richest 20%	Poorest 20%	Ideal Richest 20%	Poorest 20%
Income	UK	£120,000 (£160,000)	£15,000 (£8,000)	£100,000 (£125,000)	£25,000 (£15,000)
	US	\$300,000 (\$800,000)	\$20,000 (\$10,000)	\$250,000 (\$400,000)	\$40,000 (\$20,000)
Life expectancy	UK	85 (7)	70 (10)	85 (5)	85 (10)
	US	83 (9)	69 (5)	85 (10)	80 (15)



of US sample); in other words that inequalities in life expectancy for the richest and poorest 20% should be eliminated.

### 4.2.3 | Attributions and preferences for health equality

We next examine whether situational and dispositional attributions predict preferring equal lifespan between the richest and poorest 20%. Box-Tidwell tests were conducted to ensure that data meet the key logistic regression assumption that continuous predictors share a linear relationship with the logit (log odds). Tests indicated that all continuous variables met this assumption with the exception of self-reported health. Comparisons of models with and without this continuous predictor revealed only marginal differences. For completeness, models including self-reported health are reported but the corresponding coefficients and odds ratios for that predictor should be interpreted with caution. In a first step multivariate logistic regression, covariates of age, gender, country, income, self-reported health, political orientation, subjective socioeconomic status and sense of control ( $n = 326$ ) were included to examine which factors predict indicating the rich and poor should live equally long. In a second step, dispositional and situational attributions were added to this model (see Table 3). Being further to the right on the political spectrum (odds ratio [OR] = 0.604,  $p = .001$ , 95% CI = 0.446–0.819) and endorsing dispositional explanations (OR = 0.640,  $p = .007$ , 95% CI = 0.463–0.884) were significantly associated with decreased likelihood of choosing equal life expectancy between the richest and the poorest. Sense of control was associated with increased

likelihood of choosing equal life expectancy (OR = 1.454,  $p = .018$ , 95% CI = 1.066–1.984). No other predictors were significant.

### 4.3 | Discussion

A different pattern of preferences for distribution between the rich and poor arose depending upon whether these related to life expectancy or income: whilst there was a consistent preference for some degree of inequality in income, most respondents preferred full equality in life expectancy. Participants endorsed both situational and dispositional explanations for existing life expectancy inequality between the rich and poor, although dispositional explanations were less strongly indicated on average than situational explanations. This is consistent with previous work examining attributions for economic inequality with these measures (Kraus et al., 2009). We find that both kinds of attributions vary with political orientation and that dispositional attributions were more likely in younger, less healthy participants and participants who have a greater sense of control. We also find that endorsement of dispositional attributions for health inequality was associated with a reduction in the likelihood of indicating that the poor and the rich should have the same life expectancy. Situational attributions for health inequality were more consistent across characteristics and did not relate to preferences for equal life expectancy. On this basis, Study 1 confirmed a pattern of diverging inequality preferences for health compared to economic outcomes but revealed only limited evidence of a link between causal attributions and preferences on this issue. In a second study we explore the link between attributions and attitudes towards health

**TABLE 3** Outcome of logistic regression models assessing the association between covariates (Model 1), dispositional and situational attributions (Model 2) and the likelihood of indicating the richest and poorest 20% should have equal life expectancy in Study 1 ( $n = 326$ )

	Model 1 B (SE)	OR (95% CI)	Model 2 B (SE)	OR (95% CI)
UK Respondent	0.246 (0.304)	1.279 (0.71–2.32)	0.285 (0.309)	1.329 (0.73–2.44)
Age (z-score)	0.002 (0.139)	1.002 (0.76–1.32)	–0.046 (0.142)	0.955 (0.72–1.26)
Female	–0.020 (0.273)	0.98 (0.57–1.68)	–0.058 (0.278)	0.944 (0.55–1.63)
Self-rated health (z-score)	0.020 (0.151)	1.02 (0.76–1.37)	–0.014 (0.155)	0.986 (0.73–1.34)
Subjective SES (z-score)	0.127 (0.171)	1.136 (0.81–1.59)	0.118 (0.171)	1.125 (0.80–1.57)
Political orientation (z-score)	–0.664*** (0.139)	0.515 (0.39–0.68)	–0.504** (0.155)	0.604 (0.45–0.82)
Income bracket (z-score)	–0.103 (0.170)	0.902 (0.65–1.26)	–0.113 (0.173)	0.893 (0.64–1.25)
Sense of control (z-score)	0.276 (0.151)	1.318 (0.98–1.77)	0.375* (0.158)	1.454 (1.07–1.98)
Dispositional attributions (z-score)			–0.447** (0.165)	0.64 (0.46–0.88)
Situational attributions (z-score)			0.225 (0.162)	1.253 (0.91–1.72)
Constant	1.023*** (0.233)	2.782	1.070*** (0.239)	2.917
<i>n</i>	326		326	

Note: 95% Confidence Intervals (CI) in parentheses.

Abbreviations: SE, Standard errors; SES, socioeconomic status.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

inequality further, using self-report measures of concerns on this issue.

## 5 | STUDY 2

Study 1 employed an indirect method of assessing participant views on health inequality by contrasting judgments of what current inequality is with what it should be. This has the advantage of providing a quantifiable measure that can be used to infer a person's perspective without directly intimating the question is about their views on inequality per se. However, in cases such as this where most respondents indicate a preference for equal life expectancy this yields a particularly blunt measure: do you think there should be life expectancy inequality or not? This does not capture any degree of upset or outrage about this issue: both people who care very vividly as well as those who simply view that the same life expectancy should be obtained regardless of income category, would be coded comparably. Similarly, it does not capture attitudes towards policies and interventions for actively addressing health inequality such as is typically investigated in studies on attitudes towards economic redistribution (e.g., Alesina & Giuliano, 2009).

In Study 2 we report a preregistered cross-sectional study designed to test whether situational and dispositional attributions for existing socioeconomic life expectancy inequality predict attitudes on this issue when the latter are measured directly, as in recent public opinion work on this issue (Smith et al., 2021) as well as studies on attitudes towards other kinds of inequality (e.g., Brown-Iannuzzi et al., 2021; Piff et al., 2020). Rather than indirectly assessing perceptions and preferences using the Kiatpongsan and Norton approach, we reminded participants of existing socioeconomic health inequalities between the richest and poorest before going on to measure their attributions for this as well as self-reported concerns about and perceived fairness of this issue. We also asked the extent to which participants viewed different policies for action on health inequalities to be effective and which policies they support. We preregistered predictions that dispositional attributions would negatively predict concern about health inequalities as well as effectiveness ratings and support for interventions, while situational attributions would positively predict these same responses. We also conducted exploratory analyses to examine whether relationships varied in strength or direction according to whether interventions were characterized as "macro-social," improving living or working conditions or strengthening the individual (Whitehead, 2007).

### 5.1 | Methods

Study 2 was preregistered before data collection: (<https://osf.io/mbkrj>). For ease of interpretation, the preregistered predictions and whether they were supported are listed in Supporting Information: Table S3. Ethical approval was again sought and obtained from the corresponding institutional review committee before the collection of any data.

#### 5.1.1 | Participants

All data were collected over 2 weeks at the end of May 2022 using Prolific.co and were reimbursed at a rate equivalent to £14.23/h for a 5–10 min study. In line with the preregistration, we collected data from approximately 300 participants from each country. The final sample was 602, with 302 UK participants (210 female; 89 male; 1 nonbinary; 1 genderqueer; 1 preferred not to say; mean age 37.47, SD = 13.82, range = 18–80) and 300 US participants (143 female; 155 male; 1 nonbinary; 1 preferred not to say; mean age 43.59, SD = 13.28; range = 20–77). Sensitivity analyses indicated that linear regression analyses with a sample size of 602, standard assumptions and eight predictors would be sensitive to a small effect size ( $f^2 = .025$ ).

#### 5.1.2 | Materials and procedure

After successfully completing the attention check, participants were briefly reminded that "In industrialized Western nations, it is well known that income is associated with differences in life expectancy. On average, the richest 20% tend to have a longer life expectancy than the poorest 20%." They were then asked to rate the same 11 attribution items exactly as was the case in Study 1. Participants were next presented with three items designed to assess self-reported concern with health inequalities: how concerned they are about differences in life expectancy between richest and poorest 20% (1 = *not at all concerned*, 7 = *extremely concerned*), how much of a problem they think this is (1 = *not at all problematic*, 7 = *extremely problematic*) and how fair they think differences are (1 = *not at all fair*, 7 = *very fair*). The order in which participants were presented with these 3-items was randomly determined for each participant.

Next, participants were asked to indicate their support for six health inequality-reducing policies. These 6 policies were selected from amongst 12 evidence-informed policy responses known to be supported by health inequalities specialists (Smith & Kandlik Eltanani, 2014) and previously employed to assess public support for such policies (Smith et al., 2021). Following the latter paper, we used Whitehead's (2007) typology to ensure policies covered a range of upstream and behavioral-level interventions. We selected two policies that fell into Whitehead's category of "strengthening individuals" (spend more money on services to help people stop smoking; provide the public with more information about how to be healthier, for example, through stopping smoking, drinking less alcohol, exercising and eating more healthily), two that fell into the category of "improving living and working conditions" (spend more money on social housing, provide more support for unemployed people to get jobs) and two that fell into "promoting healthy macro-policies" (increase the national minimum wage; introduce higher taxes for richer people). For each of the six policies, we first asked participants to indicate the extent to which they agree that each of the following policy proposals would reduce health inequalities (where 1 = *strongly disagree would reduce health inequalities* and 7 = *strongly agree would reduce health inequalities*) and then to indicate how much they support each (where 1 = *would not support at all* and 7 = *would support strongly*). Participants then completed the 12-items to assess sense of control, followed by

measures of subjective status, political orientation and income identical to those employed in Study 1.

## 5.2 | Results

### 5.2.1 | Situational and dispositional attributions

Supporting Information: Table S4 shows the zero-order correlations for key Study 2 variables. As in Study 1, respondents from both countries on average endorsed situational explanations (UK:  $M = 5.51$ ,  $SD = 0.90$ ; US:  $M = 5.33$ ,  $SD = 1.18$ ) more than dispositional attributions (UK:  $M = 4.13$ ,  $SD = 1.31$ ; US:  $M = 4.28$ ,  $SD = 1.61$ ; both  $t(>299) > 8.42$ ,  $p < .001$ ).

Tests of linear regression assumptions indicated that assumptions were met. Residuals were uncorrelated (Durbin-Watson values varied from 1.961 to 2.112) and mean variance inflation factors did not exceed 1.407. Visual analysis of the distribution of residuals indicated these were normally distributed with slight negative skew for the models predicting situational attributions and average support for solutions. Scatter plots of standardized residuals and predictors indicated homoscedasticity for all models, although there was some heteroscedasticity for standardized residuals  $> 1$  for models predicting concerns about inequalities and support for solutions.

Our first preregistered hypothesis (H1) was that dispositional attributions would be predicted by political orientation and sense of control, as was the case in Study 1. Supporting Information: Table S5 shows the outcome of the OLS regression model test of this adjusting for all key variables, as well as comparable models for predicting situational attributions for comparison. The hypothesis that dispositional attributions would be predicted by political orientation ( $\beta = .413$ ,  $t = 10.98$ ,  $p < .001$ ) and sense of control ( $\beta = .103$ ,  $t = 2.52$ ,  $p = .012$ ) was supported. Effects of age and self-reported health on dispositional attributions did not replicate in Study 2. Although we did not preregister predictions for situational attributions, we include a model for these attributions to enable comparisons and find that these were negatively predicted by political orientation ( $\beta = -0.373$ ,  $t = -9.57$ ,  $p < .001$ ) and sense of control ( $\beta = -0.141$ ,  $t = -3.33$ ,  $p < .001$ ).

### 5.2.2 | Concerns about socioeconomic health inequalities

We reverse-scored participants' responses to the question on how fair they viewed health inequalities to be, so that higher values on all three items reflects more negative views of health inequalities. On average, participants had negative views ( $> 4$ ) of health inequalities; they were most likely to indicate they thought health inequalities were (un)fair (UK:  $M = 5.93$ ,  $SD = 1.35$ ; US:  $M = 5.53$ ,  $SD = 1.73$ ) but they also indicated they saw health inequalities as problematic (UK:  $M = 5.50$ ,  $SD = 1.33$ ; US:  $M = 5.27$ ,  $SD = 1.74$ ) and were more concerned than not concerned (UK:  $M = 4.88$ ,  $SD = 1.46$ ; US:  $M = 4.80$ ,  $SD = 1.90$ ). In line with the preregistration, we created a

single measure of concern about health inequalities by averaging across the three responses ( $\alpha = .835$ ). Average self-reported concern about socioeconomic health inequalities was higher in the UK than in the US sample (UK:  $M = 5.44$ ,  $SD = 1.13$ ; US:  $M = 5.20$ ,  $SD = 1.60$ ).

### 5.2.3 | Ratings of policies to address health inequalities

We initially created composite measures of ratings of effectiveness and support for interventions for health inequalities by averaging across the six policies (Effectiveness  $\alpha = .805$ ; Support  $\alpha = .831$ ). As with concerns about health inequalities, ratings of support for interventions were higher on average than ratings of effectiveness and for UK (Effectiveness:  $M = 5.13$ ,  $SD = 1.03$ ; Support:  $M = 5.36$ ,  $SD = 1.03$ ) than US respondents (Effectiveness:  $M = 4.73$ ,  $SD = 1.39$ ; Support:  $M = 5.05$ ,  $SD = 1.48$ ).

Table 4 reports the main regression analyses employed to test the remaining preregistered predictions, while adjusting for other key variables. The twin predictions that dispositional attributions would negatively predict (H2a) and situational attributions would positively predict (H2b) concern for socioeconomic health inequalities were both supported. The association was approximately twice as large for situational ( $\beta = -.212$ ,  $t = -6.17$ ,  $p < .001$ ) than dispositional attributions ( $\beta = .406$ ,  $t = 12.25$ ,  $p < .001$ ). Between-country differences were no longer prevalent in the regression model, although gender, political orientation and self-reported health were associated with concern.

The hypotheses that attributions would predict ratings of the effectiveness and support for interventions on socioeconomic health inequalities were less consistently confirmed. Predictions that situational attributions would positively predict effectiveness (H3b,  $\beta = -.346$ ,  $t = 9.45$ ,  $p < .001$ ) and support (H4b,  $\beta = .325$ ,  $t = 9.13$ ,  $p < .001$ ) were both supported. However, there was no evidence that dispositional attributions negatively predicted effectiveness ratings (H3a): in fact, we observed a positive association  $\beta = .081$ ,  $t = 2.15$ ,  $p = .032$ . There was no significant association between dispositional attributions and support for solutions overall (H4a,  $\beta = -.002$ ,  $t = -0.056$ ,  $p = .955$ ). Supporting Information: Table S3 presents an overview of the outcomes for all preregistered predictions.

As indicated in our preregistration, we explored whether associations between key predictors and participant views of policies varied according to whether the interventions corresponded with the "strengthening individuals," "improving living/working conditions" and "macro-social policies" categories codified by Whitehead (2007). Situational attributions predicted support for all six policies and ratings of effectiveness for all but providing information on how to be healthier (see Supporting Information: Tables S6 and S7). Dispositional attributions positively predicted support for providing health information ( $\beta = .139$ ,  $t = 2.976$ ,  $p = .003$ ) but negatively predicted support for provision of social housing ( $\beta = -.113$ ,  $t = -2.986$ ,  $p < .001$ ). These models also reveal that the UK sample rated the increase of minimum wage and provision of social housing as consistently more effective than the US sample, even when adjusting for all other variables.



**TABLE 4** Outcome of OLS regressions predicting overall concerns about health inequalities, ratings of effectiveness, and support for solutions in Study 2 ( $n = 593$ )

	Concerns about health inequalities $\beta$ (SE)	Ratings of effectiveness of solutions $\beta$ (SE)	Support for solutions $\beta$ (SE)
UK Respondent	0.010 (0.071)	0.122 (0.078)	0.060 (0.076)
Age (z-score)	0.024 (0.032)	-0.012 (0.035)	-0.035 (0.035)
Female	0.140* (0.062)	-0.031 (0.069)	0.006 (0.067)
Self-rated health (z-score)	0.070* (0.034)	0.033 (0.038)	0.038 (0.037)
Subjective SES (z-score)	-0.032 (0.040)	0.067 (0.044)	0.018 (0.043)
Political orientation (z-score)	-0.291*** (0.037)	-0.355*** (0.041)	-0.386*** (0.040)
Income bracket (z-score)	-0.074 (0.039)	-0.146*** (0.043)	-0.100* (0.042)
Sense of control (z-score)	-0.043 (0.034)	-0.085* (0.038)	-0.079* (0.037)
Dispositional attributions (z-score)	-0.212*** (0.034)	0.081* (0.038)	-0.002 (0.037)
Situational attributions (z-score)	0.406*** (0.033)	0.346*** (0.037)	0.325*** (0.036)
Constant	-0.087 (0.055)	-0.043 (0.061)	-0.034 (0.059)
$n$	593	593	593

Note: Standard errors (SE) in parentheses.

Abbreviation: SES, socioeconomic status.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

### 5.3 | Discussion

In line with predictions, both dispositional and situational attributions predicted self-reported concerns about life expectancy inequalities between the rich and the poor, albeit in opposing directions. The association between concern and attributions was nearly twice as great for situational than dispositional factors. Situational attributions were much more consistent and robust in positively predicting ratings of the effectiveness and support for solutions. In contrast to the preregistered predictions, dispositional attributions did not predict overall support for solutions and positively predicted ratings of effectiveness. Further analyses indicated, however, that this pattern depended very much on the specific intervention: dispositional attributions did not relate to support for macro-social solutions, but negatively predicted support for social housing and positively predicted support for smoking cessation and the provision of education on how to be healthier.

## 6 | GENERAL DISCUSSION

Using an indirect measure of perceptions of existing and preferred level of inequality, participants in Study 1 showed inequality aversion (smaller ideal ratios relative to perceived ratios) for both income and life expectancy. Consistent with the normative view that inequality for health should be valued differently from inequality for income (Anand, 2002) as well as previous survey research (Howarth et al., 2019), most participants in both samples indicated a preference for some degree of economic inequality but no life expectancy inequality between the rich and the poor. Given these distinct

distribution preferences for the two domains, we were interested in whether situational and dispositional attributions for existing life expectancy gaps between the rich and the poor would still predict views towards health inequality, as is the case for economic inequality (Kornbluh et al., 2019; Piff et al., 2020).

Despite the overall pattern of greater egalitarianism for life expectancy than income, how people viewed the causes of these differences predicted their responses to this issue. This remained the case when controlling for key variables known to predict distributive preferences including political orientation, income level, and subjective SES (Alesina & Giuliano, 2009; Brown-Iannuzzi et al., 2021). While most people in Study 1 indicated that socioeconomic health inequalities should not exist between the rich and the poor, this was less likely to be the case for those who agreed these inequalities were due to dispositional characteristics. In Study 2, the extent to which a person viewed the reasons for health inequality to be located at the dispositional versus societal level mattered for how much they see these inequalities as concerning, problematic and unfair. These results show not only that people vary in the extent to which they see unequal health to be a consequence of the same dispositional and situational factors that cause unequal income and wealth, but that these causal attributions predict their perspectives on inequalities in health. These findings validate the approach of those who seek to educate the public on the role of wider, structural determinants of health inequalities. As has been argued for economic inequality (Piff et al., 2020), shifting attributions towards the societal level may be a potent psychological lever for addressing these inequities.

Understanding attributions for unequal health is particularly interesting, we think, in the context of theories of justice and how they apply

to health. One approach to distributive justice in health is the position of luck egalitarianism, a key proposition of which is that any variation in outcomes between people should not be driven by luck but by the choices people make (Ekmekci & Arda, 2015). A luck egalitarian would argue that health care should act to prioritize those whose ill-health arises for reasons that are not their fault, but that society does not owe a person any help or care if ill-health arises because of imprudent choices or behavior. It is beyond the current scope to cover ethical debates on models of distributive justice, but it is valuable to supplement the intuitions of moral philosophers with an understanding of the psychology of how people actually think about these kinds of questions. Previous work on trade-off measures of health care allocation indicate that some people desire to give reduced health care priority to those who are seen to be responsible for their ill-health (e.g., smokers, Dolan et al., 2004), as is consistent with a luck egalitarian approach. The current findings, in particular from Study 1, broaden this pattern by demonstrating that such preferences can be revealed not only in the allocation of scarce health resources but also in judgments about how long people should live. Moreover, they reveal that a key source of variation for why some people have these preferences arises from the attributions they make about the causes of differences in health.

While making dispositional attributions was associated with less concern about health inequalities overall as anticipated in our pre-registered predictions, this relationship did not extend to reduced support for actions to address them or ratings of effectiveness, which we also predicted. Further analyses revealed that the specific nature of the proposed interventions was crucial to understanding this: dispositional attributions were associated with reduced support for social or public housing but increased support for provision of information on how to be healthier. These attributions were not systematically linked to views on increasing the minimum wage or raising taxes. Conversely, agreeing that health inequalities are the product of structural reasons such as job opportunities, wages, and discrimination was predictive of support for all six interventions (see Supporting Information: Table S7). This leads to some useful insights. First, it reinforces the view that encouraging focus on situational causes (Kane et al., 2022; Piff et al., 2020; Stewart et al., 2021), rather than reducing dispositional attributions, is a fruitful path for increasing public support on this topic, particularly support for interventions. Second, it might help explain the relatively greater focus on health inequality interventions that address individualized health behaviors rather than tackling upstream factors (Douglas, 2016): these individualized, education-based interventions are endorsed by those who view health inequality to be a consequence of individualized and structural factors, and so therefore have broader appeal. Finally, it highlights some interventions that may be particularly unpopular for certain attributional styles. For example, social housing was significantly less likely to be supported by those who endorsed distributional causes. Why this intervention should be particularly resisted and not say, greater taxation for the rich, is a topic worthy of further study.

We can also draw some comparisons with psychological attributes that have previously been examined in the context of political attitudes. Subjective SES did not robustly predict views on the topic of health inequalities, in contrast to its role predicting attitudes towards economic

distribution (Brown-Iannuzzi et al., 2017). One explanation is that for subjective ranking to predict redistribution attitudes it must capture a person's view of themselves within the to-be-redistributed domain. Although there are indications that respondents sometimes base their responses to the MacArthur question on a wide range of factors, including health and spirituality (Antonoplis, 2022) we view this to be less likely here because we specifically asked participants about their ranking in financial, occupational and education terms. The closest available comparator we measured was participants' view of their self-rated health. Although this measure was not designed to capture ratings of a person's view of their health relative to broader society, it is feasible that self-reported health responses might in part comprise comparisons with others. Contrary to predictions derived from work on subjective SES and distribution attitudes, however, participants reporting better health reported being more concerned about health inequality. We tentatively conclude that relative status along an unequally distributed domain does not always negatively predict concerns about inequality in that same domain. That this may not be the case for health inequality is consistent with studies showing that judgments about health are less sensitive to concerns about positionality than non-health domains (Wouters et al., 2015).

Consistent with models that assume attributional styles are stable individual difference traits, sense of control co-varied with attributions about health inequalities in the current study. In other words, people who felt they had control over their lives were more likely to view dispositional traits to be the causes of health inequality and less likely to view situational factors as relevant. Perhaps more interesting is the finding that sense of control negatively predicted support for interventions to address health inequality, even when attributions were adjusted for. It is well established that a related construct, health locus of control—the extent to which a person views their health to be driven by their own actions as opposed to external forces—is associated with engagement in health-reinforcing behaviors (Wardle & Steptoe, 2003) and better health outcomes (e.g., Barker et al., 2005). Not only does perceived control predict an individual's health and health behavior therefore, but it also decreases perceptions of the effectiveness of interventions to address unequal health outcomes at a societal level.

## 6.1 | Limitations and future research

It is not appropriate on the basis of these findings to make any claims about views on this topic beyond the UK or US. It is feasible that both overall endorsement of dispositional attributions as well as the slope of the relationship between attributions and policy views differs in less Western or individualized national contexts (cf. Schneider & Castillo, 2015) or as a function of different health care systems and overall levels of poverty (Jacques & Noël, 2022). Indeed, previous work indicates considerable cross-national variation in endorsement of different determinants of health (Schnittker, 2015). It remains to be established therefore, whether attributions of this kind continue to predict views on health inequality in other national contexts. It is also not appropriate to

interpret the current findings to be the opinion of the general populace of either the UK or US, as the samples drawn upon were not nationally representative. This was not, however, the purpose of these studies and complementary work that was designed to achieve this should be consulted to answer such questions (e.g., Smith et al., 2021). Rather the objective here was to address for the first time whether naturally occurring variation in judgments about why the rich live longer relative to the poor in the UK and US related to views on whether and how this can be addressed. Whilst not immune to sampling and selection bias, both Prolific and MTurk samples are more socioeconomically diverse than typical undergraduate samples (see Table 1 and Supporting Information: Table S4). Nonetheless, future research should seek to establish that these findings continue to replicate in other samples and countries.

It is also advisable for future work to establish these findings to be robust across measurements of attributions. The factor analytic approach in work on poverty has been shown to sometimes yield three rather than two main factors (Lepianka et al., 2009). This third factor perhaps best represents luck or fatalism, a non-internally attributable cause that also lies beyond societal or structural factors. It would be valuable in future to determine whether such attributions dissociate from structural attributions but perhaps also lead to less support or concern if they induce a feeling of fatalism about societal inequality. Another caveat of the current attribution measure is that it elides dispositional judgments about the rich and the poor. In other words, we cannot make any clear interpretations about whether dispositionally inclined participants viewed differences to arise because of the perceived strengths of the rich, weaknesses of the poor or both (cf. Flanagan et al., 2014). Further work is needed to unpack this. Similarly, further studies might examine whether situational and dispositional attributions intersect with dehumanizing attributions shown to dissociate for those who are high versus low in socioeconomic status (Sainz et al., 2019).

Finally, it is not possible to establish any causal relationships between attributions and views on health inequalities due to the cross-sectional nature of the current study design. Experimental intervention studies are needed to make the claim that attributions causally relate to views on structural interventions and policies. In line with previous work on shifting situational attributions on views on economic redistribution policies (Piff et al., 2020), such interventions might include writing prime exercises or more immersive simulations that provide participants with direct experience of how structural or nondispositional forces can impact on and constrain an individual's health.

## 7 | CONCLUSION

Although participants indicated very distinct distributive preferences for income and life expectancy outcomes between the richest and poorest in society, views on how much longer the rich *should* live than the poor and what should be done to address this, were associated with the same dispositional and situational explanations linked to views on economic inequality (Flanagan et al., 2014). The findings support assumptions made in distinct public health and biomedical ethics literatures regarding normative stances on health

inequality yet show for the first time that causal attributions for why the rich tend to live longer is a key factor in explaining variation in views on this topic.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available on the Open Science Framework at <https://osf.io/huy5c>.

## ORCID

Emma K. Bridger  <http://orcid.org/0000-0002-4726-4068>

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Additional supporting information can be found online in the Supporting Information section at the end of this article.

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