

Effect of social class on personal control beliefs

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Abstract

Objective: This research investigated the effect of social class on personal control beliefs.

Background: Differences in personal control beliefs serve as a central theoretical explanation for social class differences in cognition, emotion, and behavior. However, prior empirical research has not yet conclusively demonstrated that personal control beliefs differ between social classes.

Method: Across four studies (total $N = 138,417$), we investigated the link between social class and personal control beliefs with well-established measures of social class (e.g., ISEI, McArthur Scale), representative samples, and data that allow for causal conclusions (e.g., experimental, and longitudinal data).

Results: We found that (a) higher social class was associated with higher personal control beliefs across 60 countries. Furthermore, we observed that (b) higher social class of parents was associated with higher personal control beliefs in their children, and that (c) experimentally induced higher (vs. lower) social class led to increases (vs. decreases) of personal control beliefs.

Conclusions: Individuals from lower social classes consistently have weaker personal control beliefs than individuals from upper social classes. Social class differences in this fundamental personality characteristic are bound to have important consequences in various life domains (e.g., psychological and physical well-being, and academic success).

KEYWORDS

locus of control, personal control beliefs, social class, social status

1 | INTRODUCTION

What separates individuals from different social classes? This question has been present in centuries of theoretical and scientific discourse (Bourdieu, 1985; Durkheim, 1802; Fiske & Markus, 2012; Ganzeboom & Treiman, 1996; Marx & Engels, 2017; Smith, 1583; Weber, 1958). At first sight, people on the top and bottom

of the social ladder differ in wealth, education, power, and prestige in society (Ganzeboom & Treiman, 1996). They often live in different neighborhoods, go to different schools, and befriend and marry members of their own social class (Kalmijn & Flap, 2001; McPherson et al., 2001; Tammaru et al., 2020). Thus, social class is one of the most powerful social categories that hierarchizes and divides societies.

Melvin John and Lucia L.-A. Boileau contributed equally to the writing of this manuscript.

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However, social class differences go far beyond socioeconomic and structural disparities. Kraus et al. (2012) argued that differences in subjective social rank and in “absolute” material resources (including education and income) are linked to different social class contexts (e.g., job insecurity, neighborhood safety). Due to these differences, upper class individuals are more likely to experience freedom, control, and choice whereas lower class individuals are more likely to experience threat, uncertainty, and constraints. This, in turn, leads to social class differences in a fundamental personality characteristic: personal control beliefs. Whereas upper class individuals are likely to believe to have rather strong personal control over their lives and occurring events, lower class individuals are likely to have weaker beliefs in their personal control (Kraus et al., 2009, 2012).

According to Kraus et al. (2012), social class differences in personal control beliefs, in turn, elicit different cognitive, emotional, and behavioral tendencies, which are described in the *social-cognitive model of social class*: Upper class individuals are characterized by solipsism in that they think, feel, and act in a more independent and self-directed manner. Lower class individuals, in turn, are characterized by contextualism, that is, they think, feel, and act in a way that is more dependent on and interrelated to the social environment. The model allows for numerous hypotheses on psychological differences between upper and lower class individuals and many of these hypotheses have received substantial empirical support (for overviews, see Kraus et al., 2012; Manstead, 2018).

Empirical research consistently supported the hypothesis that upper class individuals have stronger personal control beliefs than lower class individuals. Individuals from upper social classes report greater personal control in different life domains (e.g., being in control over one's work situation, or the well-being of others), stronger sense of personal control in general (e.g., “I can do just about anything I really set my mind to”), and more daily experiences of personal control (e.g., “could change current activity if wanted to”) compared to individuals from lower social classes (Chen et al., 2021; Fritsche et al., 2017; Gallo et al., 2005; Johnson & Krueger, 2005, 2006; Kraus et al., 2009; Lachman & Weaver, 1998). Moreover, research suggests that upper class individuals actually have higher control abilities than lower class individuals (e.g., emotion regulation abilities; Côté et al., 2010).

Social class differences in personal control beliefs have far-reaching consequences on other psychological outcomes. For example, lower class individuals attribute causes of societal conditions (e.g., income inequality) more to the external context and less to internal dispositions (e.g., inheritance, economic structure of society vs hard work, ability) due to their lower personal control beliefs

(Kraus et al., 2009). Similarly, less personal control beliefs is a central reason for poorer physical and mental health outcomes, less positive affect, and lower life satisfaction among lower class individuals (Bailis et al., 2001; Gallo et al., 2005; Johnson & Krueger, 2006). Finally, lower class individuals transfer their convictions about climate change to a lesser extent into pro-environmental behavior (Eom et al., 2018), perceive the impact of their voting to be lower (Krosnick, 1990), and show stronger hostility towards foreigners (Fritsche et al., 2017) because they perceived to have less control in their lives. In sum, extensive and consistent evidence is available for social class differences in personal control beliefs and the far-reaching consequences for cognition, well-being, behavior, and attitudes.

1.1 | The present research

Despite extensive empirical research on the link between social class and personal control beliefs and its theoretical centrality for explaining other social class differences, empirical research so far lacks important aspects that we addressed in the present study.

Perhaps most importantly, prior research reported rather limited evidence on the causal relation between social class and personal control beliefs. On the one hand, social class may affect personal control beliefs. On the other hand, however, one may argue that individuals with stronger personal control beliefs might be more likely to reach higher social classes (see Côté et al., 2010). To address this issue, we extended prior research that has exclusively relied on cross-sectional evidence and we drew on longitudinal survey data (Study 2). Relying on longitudinal data allows for investigating whether within-person changes in social class from t_1 to t_2 lead to changes in personal control beliefs. Similarly, addressing the so far not examined link between parents' social class and children's personal control beliefs can provide additional indirect evidence on the causal relationship (Study 3). To further address the causality aspect, we experimentally manipulated the subjective perception of social class and investigated short-term consequences of such manipulations on individual personal control beliefs (Study 4).

Besides providing the first longitudinal and experimental evidence on the link between social class and personal control beliefs, the present work addresses several other points. First, prior studies have often focused only on single facets of social class (e.g., only income), and left out others that also pertain to social class (e.g., education). To account for the multifaceted nature of social class, it is important to implement measures that include different facets (i.e., income, education, type of occupation, occupational prestige). We, therefore, used comprehensive and well-established

objectified indices of social class (see Ganzeboom et al., 1992; Ganzeboom & Treiman, 1996) in Study 2 and 3.

Second, past research has mainly focused on either “absolute” material resources or subjective social rank when investigating psychological consequences of social class. However, considering both aspects of social class is important as theoretical contributions suggest that both contribute to class-specific psychological outcomes (Kraus et al., 2012). Some research suggests that how individuals subjectively perceive their relative standing in society might have social-cognitive effects independent of, or even different from, those of objective status (Adler et al., 2000; Kraus et al., 2009, 2012; Li et al., 2020; Manstead, 2018). We, therefore, included both objective and subjective measures of social class in Study 4. We additionally disentangled effects of absolute, rank-independent (changes in) social class from effects of relative rank by disentangling within- from stable between-person differences in Study 2.

Third, many studies relied on student samples and, therefore, likely oversampled middle and upper social classes. Especially with regards to the generalizability of prior findings it is crucial to test effects outside the laboratory with samples that include the entire spectrum of social classes in a given society. We, therefore, used representative samples in Study 1, 2 and 3 and a nonstudent sample in Study 4.

Fourth, research on the relation between social class and personal control beliefs lacks studies that include multinational samples, and particularly, non-Western samples. In Study 1 we draw on a large cross-national sample to exclude the possibility that effects are specific to a limited set of countries.

Finally, to our knowledge, the present research is unique with regards to the combination of survey data (Study 1, 2 and 3) and experimental data (Study 4). This combined approach allows for a test of our hypothesis with high external and high internal validity and thus provides a valuable addition to past research. We report all manipulations, measures, and exclusions in these studies.

Addressing these issues in four studies, we hypothesized that individuals from upper social classes have stronger personal control beliefs than individuals from lower social classes.

2 | STUDY 1

Interestingly, most prior research on the relation between social class and personal control beliefs has predominantly relied on samples from Western cultures. Thus, rather little is known whether the assumed relation generalizes across different cultures. Addressing this gap, we examined the relation between social class, relying on

subjective social status, and personal control beliefs in 60 countries. We hypothesized a positive relation between social class and personal control beliefs.

2.1 | Method

2.1.1 | Sample and data

In Study 1 we investigated the relationship between social class and personal control beliefs in an international, nationally representative sample from the sixth wave of the World Value Survey (WVS; Inglehart et al., 2014). The WVS is an international research program that started in 1981. As part of the program, multiple social surveys have been conducted on a global scale every five years. The sixth wave of the WVS was conducted from 2010 to 2014. Information on our variables of interest was available for 85,179 respondents (52% Female, $M_{\text{age}}=42$, $SD_{\text{age}}=16$) from 60 countries. Data are publicly available and can be accessed [here](#).

2.1.2 | Measures

2.1.2.1 | Personal control beliefs

To operationalize personal control beliefs, we used a single item measure. Respondents indicated how much freedom of choice and control they have over their own life on a 10-point scale from 1 (*no choice at all*) to 10 (*a great deal of choice*) ($M=7.07$, $SD=2.25$).

2.1.2.2 | Social class

We operationalized social class as subjective social status. Specifically, respondents were asked which of five classes they feel they belong to (i.e., *Upper class*, *Upper middle class*, *Lower middle class*, *Working class*, or *Lower class*). We recoded the scale so that higher values correspond to a higher social class ($M=2.69$, $SD=1.00$).

2.1.2.3 | Covariates

We included respondents' gender (0=*male*), age, and subjective state of health (*poor*, *fair*, *good*, *very good*) as covariates as these variables have been associated with both social class and personal control beliefs (e.g., Corbett & Hill, 2012; Greenaway et al., 2015; Lachman & Weaver, 1998; Sierminska et al., 2008; Specht et al., 2013).

2.1.3 | Analysis strategy

We conducted a multilevel analysis in R (3.6.1), using the lme4 package (Bates et al., 2015) to account for the fact

that in our sample individuals were nested in countries. We included random intercepts and random slopes for social class. We centered all level 1 variables around the respective country mean, as is recommended when focusing on the effect of a level 1 predictor (in our case, individuals' social class; Enders & Tofghi, 2007). We subsequently standardized all level 1 variables to obtain standardized point estimates of the fixed effects coefficients, akin to the standardization of coefficients in OLS regression (Snijders & Bosker, 2012). This facilitates interpretation and comparison of effect sizes. To test our hypothesis that higher social class is related to stronger personal control beliefs, we first predicted participants' personal control beliefs via their social class, and, second, included the covariates as a robustness check. The analysis code has been made publicly available and can be accessed [here](#).

2.2 | Results and discussion

As hypothesized, individuals who felt they belong to a higher social class perceived themselves as having more choice and control over their lives than those who felt they belong to a lower social class, $zPE=0.10$, 95% CI [0.09, 0.12] (see Table 1). The results did not conceptually change when including the covariates. Compared to other results obtained with large-scale data, the effect can be considered medium in size (Entringer et al., 2021). Interestingly, the effect of gender, which has been shown to be related to personal control beliefs (e.g., Specht et al., 2013), was weaker in our sample than the effect of social class. We additionally tested the link between social class and personal control beliefs in each country separately. In all cases, the link pointed in the expected direction, and in the vast majority, the link was significant, $p < 0.05$ (i.e., in 88% and 82% of the cases when excluding and including the covariates, respectively).¹

Study 1 supports the hypothesis that social class is positively associated with personal control beliefs. As the

pattern was observed across a wide range of countries, the present data extend previous research that was usually restricted to a small set of (Western) countries. The results clearly indicate that the positive link between social class and personal control beliefs generalizes across a wide spectrum of nations.

3 | STUDY 2

While Study 1 extends the generalizability of the link between social class and personal control beliefs, the obtained findings, in line with prior research, do not allow for causal conclusions due to the correlational nature of Study 1. For instance, the assumed effect of social class on personal control beliefs could also be reversed so that individuals who have stronger personal control beliefs are more likely to reach higher social classes (see Côté et al., 2010). Moreover, although the results proved robust to the addition of covariates, it remains unclear whether some unobserved confounding variables biased our results.

Causality can be addressed more or less directly in various ways, for example with longitudinal or experimental evidence—both coming along with advantages and disadvantages (see Bless & Burger, 2016a). We relied on both options. In a first step, in Study 2 we conducted a longitudinal analysis of large-scale representative survey data. The longitudinal design allows us to model the hypothesized cause as preceding the hypothesized effect and, thus, to draw more precise conclusions about the nature of the relationship (Cole & Maxwell, 2003), while maintaining a high degree of external validity—thus serving as a first crucial test. However, we readily admit that this approach does not completely solve the causality problem, as it cannot eliminate effects of potential confounding variables (an issue we explicitly addressed with an experimental design in Study 4 and thus, high internal validity).

TABLE 1 Fixed effects from multilevel model predicting personal control beliefs.

	Model 1		Model 2	
	zPE	95% CI	zPE	95% CI
Intercept	0.02	[−0.05, 0.09]	0.03	[−0.05, 0.10]
Social class	0.12***	[0.11, 0.14]	0.10***	[0.09, 0.12]
Gender (0 = male)			−0.03***	[−0.04, −0.02]
Age			0.02***	[0.01, 0.03]
Health			0.13***	[0.13, 0.14]

Abbreviations: CI, confidence interval; zPE = standardized point estimate of fixed effect.

*** $p < 0.001$.

3.1 | Method

3.1.1 | Sample and data

We relied on a representative German sample from the Socioeconomic Panel (SOEP; Goebel et al., 2019) for which around 30,000 people from 15,000 households have been interviewed every year since 1984. Variables relevant to our research question were included in 2005, 2010, and 2015. The combined sample over all three waves comprised 45,277 individuals (52% Female, M_{age} in 2005 = 47, SD_{age} = 18). Data are publicly available and can be accessed [here](#) (note that a signed data distribution contract with the DIW Berlin is needed for access).

3.1.2 | Measures

3.1.2.1 | Personal control beliefs

To operationalize personal control beliefs, we used an item that was included in the waves 2005, 2010 and 2015 of the SOEP. Respondents indicated on a scale from 1 (*does not apply at all*) to 7 (*applies completely*) whether they have little control over their lives. We recoded this item so that higher values correspond to stronger personal control beliefs ($M_{2005} = 4.86$, $SD_{2005} = 1.73$, $M_{2010} = 4.90$, $SD_{2010} = 1.70$, $M_{2015} = 4.96$, $SD_{2015} = 1.70$).

3.1.2.2 | Social class

To operationalize social class, we used the international socioeconomic index of occupational status (ISEI; Ganzeboom et al., 1992). This index is derived from the international standard classification of occupations (ISCO; International Labour Office, 1990) and combines information on respondents' occupation, education, and income to measure their socioeconomic status in society.² The ISEI ranges between 16 and 90 ($M_{2005} = 44.92$, $SD_{2005} = 16.54$, $M_{2010} = 45.41$, $SD_{2010} = 16.85$, $M_{2015} = 45.21$, $SD_{2015} = 20.80$).

We again included gender (0 = *male*) and age as covariates.³

3.1.3 | Analysis strategy

We conducted the analysis in R (3.6.1), using the lavaan package (Rosseel, 2012). We used random intercept cross-lagged panel model (RI-CLPM) analyses to test if higher social class leads to stronger personal control beliefs as hypothesized (and not vice versa). We standardized our variables within each wave. To keep the model simple, we did not include the covariates directly in the model but estimated it in a two-step approach. We first conducted multiple regression

analyses in which we regressed personal control beliefs and social class of each wave onto respondents' age and gender, and, secondly, used the residuals (standardized within wave) from these analyses as the input in the RI-CLPM. Through this approach any shared variance of personal control beliefs and social class with the covariates is removed, which keeps the model (and the underlying variance-covariance matrix) simple and the comparative fit of the model compared to the null model informative. A loss of informative value can occur because the fit of the null model is increased when variables are included that are not correlated with the other included variables (i.e., $r=0$; Kenny & McCoach, 2003).

The random intercepts in an RI-CLPM capture stable trait variance shared across all waves and thereby disentangle stable between-person differences from the longitudinal within-person processes (Hamaker et al., 2015). Thus, the autoregressive and cross-lagged estimates derived from the RI-CLPM indicate within-person effects, that is, effects of intraindividual changes in social class in absolute terms (i.e., independent of rank order) on intraindividual changes in personal control beliefs, whereas the correlation of the random intercepts reflects the relation of stable between-person differences. In the past, researchers have argued that a standard CLPM without random intercepts could be used to also estimate prospective between-person effects (e.g., Orth et al., 2021). However, more recent research using both simulations and real-world data discourages the use of these models because they confound within-person changes with stable between-person differences, which typically leads to strong biases in the autoregressive and cross-lagged coefficients (Littlefield et al., 2022; Lucas, 2023). Consequently, in Study 2, we only used RI-CLPM analyses to estimate prospective within-person effects and only refer to between-person effects in terms of temporally stable differences. Based on the theoretical reasoning that both relative rank and "absolute" (i.e., rank-independent) resources contribute to class-specific psychological outcomes (Kraus et al., 2012) we expected to observe both within- and stable between-person effects.

We constrained the cross-lagged and autoregressive coefficients of the RI-CLPM to be equal across waves, as the time lags between the three waves had the same length (i.e., five years), and as we had no theoretical reason to expect coefficients to vary across time. This approach led to a stricter test of our hypothesis and facilitated the interpretation of the model (since fewer coefficients were estimated). The analysis code has been made publicly available at the OSF and can be accessed [here](#).

3.2 | Results

As can be seen in [Table 2](#), the model fitted the data well, with a comparable fit index (CFI) larger than the

TABLE 2 Results from the random intercepts cross-lagged panel model.

	Estimate	SE	95% CI	β
Control → status	0.012	0.009	[−0.006, 0.029]	0.020
Status → Control	−0.042	0.031	[−0.103, 0.020]	−0.024
Control → Control	0.063***	0.016	[0.031, 0.096]	0.064
Status → Status	0.288***	0.026	[0.238, 0.338]	0.282
$r_{\text{intercepts}}$	0.148***	0.016	[0.116, 0.180]	
RMSEA	0.041		[0.037, 0.044]	
CFI	0.986			

Note: Structural equation modeling was used for the analysis. Cross-wave equality constraints were used on cross-lagged and autoregressive coefficients.

Abbreviations: CFI, comparative fit index; CI, confidence interval; Control, personal control beliefs; $r_{\text{intercepts}}$, correlation of random intercepts; RMSEA, root mean square error of approximation; Status, socioeconomic status.

*** $p < 0.001$.

recommended 0.95, and a root mean square error of approximation (RMSEA) smaller than the recommended 0.05 (Hu & Bentler, 1999). Contrary to our hypothesis, individuals who experienced an increase in their socioeconomic status over the three waves did not report a subsequent increase in personal control beliefs, $z = -1.338$, $\beta = -0.024$, $p = 0.181$ (i.e., nonsignificant prospective within-person effect). The reverse effect was also not significant, $z = 1.323$, $\beta = 0.020$, $p = 0.186$. However, we found that stable between-person differences in personal control beliefs were positively related with stable between-person differences in social class, $z = 8.994$, $r = 0.15$, $p < 0.001$ (i.e., significant correlation of random intercepts).

3.3 | Discussion

Study 2 did not find any prospective relationship between social class and personal control beliefs and instead only found that stable differences in social class between people are related to stable differences in personal control beliefs. Nevertheless, the present findings go beyond prior research that has primarily relied on cross-sectional correlational data and has interesting implications, which might provide some theoretical insights into how social class relates to personal control beliefs. Past theoretical reasoning suggests that both “absolute” (i.e., rank-independent) resources and relative rank contribute to class-specific psychological outcomes (Kraus et al., 2012). However, the absence of prospective within-person effects might suggest that absolute resources are psychologically less relevant than relative rank. In other words, even if individuals earn more money and achieve higher levels of education in absolute terms over time, this might not lead to stronger personal control beliefs if it is not simultaneously accompanied by an increase in individuals' social rank relative to others. This implication requires further

investigation. A first step in this direction offers Study 4 that addresses the aspect of changes in relative rank more explicitly by manipulating (i.e., changing) participants' relative rank in an experimental setting and testing subsequent effects on personal control beliefs.

4 | STUDY 3

Study 3 was designed to further address the relation between social class and personal control beliefs and to provide some indirect evidence on the direction of this relationship. Specifically, we investigated whether personal control beliefs of adolescents are positively predicted by the social class of their parents. We argue that demonstrating that parents' social class is related to children's perception of control supports the causal direction suggested by prior theorizing (Kraus et al., 2009, 2012) because parental social class is likely to influence personal control beliefs of children whereas the reverse effect is rather unlikely. Moreover, looking at different persons (parents vs. adolescents) eliminates some—though of course not all—potentially confounding third variables. In addition to the causality aspect, this approach broadens the perspective. Specifically, empirical evidence on this relation would contribute to a better understanding of how different levels of personal control beliefs develop, for example, through socialization—and this would, in turn, again indirectly address the causality issue.

4.1 | Method

4.1.1 | Sample and data

We relied on a representative German sample from the SOEP (Goebel et al., 2019). Specifically, we used data from

the SOEP youth questionnaire, which have been collected annually since the year 2000. The dataset included individuals who turned 17 in the year of the survey and whose parents also took part in SOEP surveys. For our analysis we matched the social class of the parents to data from their children. The final sample included 7711 adolescents (50% Female). Data are publicly available [here](#) (note that a signed data distribution contract with the DIW Berlin is needed for access).

4.1.2 | Measures

4.1.2.1 | Social class

To operationalize social class of the parents we again relied on the ISEI as in Study 2 ($M=49.30$, $SD=18.65$) (Ganzeboom et al., 1992). As before, we used the ISEI scores based on the ISCO-08 whenever possible and substituted missing values with the ISCO-88. If the ISEI values of mother and father differed, the higher of the two values was used, which is a common approach (Agirdag et al., 2011, 2012; Geven et al., 2016).

4.1.2.2 | Personal control beliefs

To operationalize personal control beliefs, we used an item asking adolescents to indicate how much they agree with the statement “I have little control over my life”. Before 2006 answers were given on a 4-point scale ($M=3.11$, $SD=0.75$), afterwards on a 7-point scale ($M=5.39$, $SD=1.46$), ranging from 1 (*Do not agree at all*) to 4 or 7 (*Agree completely*).

4.2 | Results

We used a multiple regression analysis to test our hypothesis that adolescents whose parents belong to a higher social class perceived more personal control. Due to the different answer formats of the two questions on personal

control beliefs, we standardized the two variables and then combined them before entering them into the model. Furthermore, we included a dummy variable indicating the answer format to control for a possible confounding effect. Additionally, we included adolescents' gender as a covariate.⁴ The analysis code has been made publicly available and can be accessed [here](#).

As can be seen in Table 3, adolescents' personal control beliefs increased significantly with their parents' social class, $\beta=0.074$, $p<0.001$. This result did not change when adolescents' gender was included in the model.

To assess the robustness of the results we conducted a secondary analysis with several further covariates which are likely both related to parents' social class and children's personal control beliefs. The results did not change conceptually and can be found in the online [supplementary materials here](#).

4.3 | Discussion

Study 3 shows that the social class of parents affects the personal control beliefs of their children. By addressing the transfer of parents' social class to their children's personal control beliefs, we eliminated a potential impact of personal control beliefs on social class (see results of Study 2), as it is rather unlikely that children's perceptions of control affected their parent's social class. Though addressing the causality aspect, we readily admit that the evidence of Study 3 is indirect as it addresses the direction of effects but does not solve the (unknown) issue of potential confounding variables (an issue we explicitly address in Study 4 with an experiment).

Study 3 further replicates the association between social class and personal control beliefs with a representative sample and demonstrates that the effect generalizes beyond individuals to familial relationships. Even though the children all belonged to a similar social class in terms of their “individual” (compared to household) income and

	Model 1		Model 2	
	<i>b</i>	95% CI	<i>b</i>	95% CI
Intercept	0.005	[−0.039, 0.048]	−0.011	[−0.059, 0.038]
ISEI	0.074***	[0.052, 0.096]	0.074***	[0.052, 0.096]
Scale format	−0.002	[−0.052, 0.049]	−0.002	[−0.052, 0.049]
Gender (0 = male)			−0.031	[−0.075, 0.014]

Note: ISEI = international socioeconomic index of occupational status of the parents; Scale format = Answer format with which personal control beliefs was assessed (0 = 4-point scale, 1 = 7-point scale).

Abbreviation: CI, confidence interval.

*** $p<0.001$.

TABLE 3 Regression results for personal control beliefs in children.

profession they differed in terms of the social reality in which they grew up and lived. In line with our theoretical reasoning, the result, therefore, suggests that social class affects personal control beliefs through the social reality it entails and outlines the relevance of socialization processes.

5 | STUDY 4

To further investigate the causal relationship between social class and personal control beliefs, we used an experimental design in Study 4 that allowed for more direct causal conclusions. At first sight, the idea to evoke short-term psychological effects of social class in an experimental setting seems at odds with Study 2, which revealed no prospective within-person effect of changes in social class on changes in personal control beliefs. However, one can distinguish between chronically accessible aspects of social class and aspects that are temporarily accessible.

When thinking about one's control over life, both chronically and temporarily accessible information may come to mind. While the chronic information contributes to the stability of judgments, the temporarily accessible information causes context effects (for general assumptions on the interplay of chronically and temporarily accessible information see Bless & Schwarz, 2010). Indeed, evidence from many domains demonstrate that it is no contradiction to observe stable individual differences that exert long-term chronic influences (e.g., through socialization) *and* to observe situational context dependency. For example, people may differ in their aggressiveness and may do so relatively stable over time, but nevertheless situational aspects (including experimental manipulations) may influence aggressiveness (Anderson & Bushman, 2002). Thus, assuming long-term chronic influences of social class does not conflict with assuming that situational aspects of social class exert an (additional) influence, and experimental manipulations of social class have already been used to investigate the consequences of social class on, for example, interpersonal goals (Aydin et al., 2019) and pro-social behavior (Piff et al., 2010). In light of these considerations, it is important to note that Study 2 modeled within-person changes in *absolute* terms (i.e., independent of rank order), whereas the manipulation in Study 4 explicitly aims at changing individuals' perceptions of *relative* rank.

To address the influence of social class on personal control beliefs experimentally, we relied on prior research (Aydin et al., 2019; Piff et al., 2010) and manipulated individuals' perceived social class within the experimental situation by eliciting either downwards or upwards

comparisons. In particular, we expected this comparison to affect the perceived rank order of social class rather than change participants' absolute perception of their social class. Furthermore, we extended the range of personal control beliefs by assessing different facets of personal control beliefs. Specifically, we investigated external locus of control, internal locus of control, and self-efficacy. Study 4, therefore, complements the preceding studies as well as prior research that has typically not disentangled these aspects from each other or investigated only some of these aspects. External locus of control is conceptually close to what has been assessed in the representative samples of Studies 1, 2, and 3. Consequently, we hypothesized that belonging to a higher (lower) social class would lead to a weaker (stronger) external locus of control. Furthermore, we investigated whether this effect generalizes to internal locus of control and self-efficacy. We preregistered the design, all materials, and our analysis strategy on aspredicted.org (https://aspredicted.org/BHM_3PF).

5.1 | Method

5.1.1 | Participants and procedure

We collected data from 250 English-speaking participants in the UK (183 female, $M_{\text{age}} = 32$, $SD_{\text{age}} = 12$) on the online recruitment platform prolific (www.prolific.co). Participation was only possible for those who had at most participated in ten other studies on prolific before.⁵ All participants received £0.50 for their participation (£6 per hour). We determined the sample size with an a priori power analysis. Expecting a small to medium effect size ($d \approx 0.3$) and using one-sided tests with a type I error probability of 5%, the recruited sample size was required to keep the type II error probability below 20%.

Participants were randomly assigned to one of two experimental conditions (i.e., low vs. high social class condition) and completed a five-min online survey. The online survey comprised (1) a manipulation of participants' subjective perceptions of their social class, (2) a manipulation check, (3) an assessment of various facets of personal control beliefs, and (4) an assessment of demographic variables. Finally, participants were debriefed.

5.1.2 | Manipulation of social class

Participants were presented with a ten-rung ladder (MacArthur scale; Adler et al., 2000). They were told that at the very top of the ladder would be those people with the most money, the best jobs, and the best education in

the UK, while the opposite would be true for those people at the very bottom of the ladder. Participants assigned to the low (high) social class condition were asked to compare themselves to the people at the very top (bottom) of the ladder (Adler et al., 2000; Aydin et al., 2019; Piff et al., 2010) and to write down how they differ from these people in a few sentences. These diverging comparison standards are meant to induce differences in participants' subjective perceptions of their own social class across conditions. To check whether the manipulation was successful we subsequently asked participants to indicate their own rung on the ladder (i.e., their subjective social status).

5.1.3 | Objective social class

We also included income and level of education as measures for objective social class in the questionnaire. To arrive at a summary score of objective social class, we computed mean scores of respondents z -standardized income and level of education (Kraus et al., 2009). This addition allowed us to disentangle *absolute* resources (i.e., objective information on income and education) from *relative* rank (i.e., self-reports on the social ladder), and to further disentangle chronic effects of social class from temporary effects exerted by the experimental manipulation of social class.

5.1.4 | Personal control beliefs

We assessed participants' personal control beliefs in three ways to cover a broader range of personal control beliefs than in Study 1, 2, and 3. Specifically, we measured participants' (1) external locus of control, (2) internal locus of control, and (3) self-efficacy with three items each (Doll et al., 2021; Jakoby & Jacob, 2001). The items for external locus of control correspond most to the operationalization for personal control beliefs from Study 1, 2, and 3, and refer to more generalized beliefs about control (e.g., "I often have the feeling that I have little influence over what happens to me"). The items for internal locus of control and self-efficacy cover personal control beliefs that are more related to specific situations and problem-solving (e.g., "I can rely on my own abilities in difficult situations"). Participants indicated their answers on a 7-point scale from 1 (*I disagree completely*) to 7 (*I agree completely*). We calculated scale values for the three scales by calculating the respective mean of the included items (external locus of control: $M = 3.64$, $SD = 1.06$, $\alpha = 0.56$; internal locus of control: $M = 5.46$, $SD = 0.87$, $\alpha = 0.63$; self-efficacy: $M = 5.39$, $SD = 0.96$, $\alpha = 0.82$). The questionnaire,

data, and analysis code for this study have been made publicly available and can be accessed [here](#).

5.2 | Results

A one-sided t -test revealed that, as expected, participants in the low social class condition reported a significantly lower subjective social status than participants in the high social class condition, $t(248) = -3.04$, $p = 0.001$, $d = -0.39$, 95% CI $[-0.14, -0.64]$, reflecting a successful manipulation of social class.

We used linear regression analyses to test our hypothesis that participants in the high social class condition indicate stronger personal control beliefs than those in the lower social class condition. We included the grouping variable (low vs. high social class condition) as a dummy-coded predictor. Due to our directional hypothesis and preregistration, we used one-sided tests.

As expected, participants in the high social class condition reported a weaker external locus of control than participants in the low social class condition; $M_{\text{high}} = 3.49$ vs. $M_{\text{low}} = 3.79$, $t(248) = -2.27$, $p = 0.012$, $d = -0.29$, 95% CI $[-0.54, -0.04]$. However, in contrast, no differences were obtained for internal locus of control, $M_{\text{high}} = 5.47$ vs. $M_{\text{low}} = 5.45$, $t(248) = -0.11$, $p = 0.454$, $d = -0.01$, 95% CI $[-0.26, 0.23]$, or self-efficacy $M_{\text{high}} = 5.42$ vs. $M_{\text{low}} = 5.37$, $t(247) = 0.38$, $p = 0.352$, $d = 0.05$, 95% CI $[-0.20, 0.30]$.

Going beyond our preregistration, in a second step, we included our measure for objective social class into the analyses (i.e., a combination of participants' education and income). This addition allowed us to disentangle absolute vs relative, and chronic vs temporary effects of social class. We found that including objective social class into the analysis did not alter the effects of our experimental manipulation, and that participants with a higher objective social class reported a weaker external locus of control (just as participants in the high social class condition), and additionally, higher self-efficacy. Again, we found no significant effect on internal locus of control (see Table 4). In sum, these additional analyses support the reasoning that absolute resources and relative rank are both psychologically relevant aspects of social class (Kraus et al., 2012), and that temporarily accessible information is impactful beyond chronic influences (Bless & Schwarz, 2010).⁶

5.3 | Discussion

Study 4 further supports the assumption that higher social class is associated with stronger personal control beliefs. Going beyond prior research, the present data offer the

TABLE 4 Regression results for internal and external locus of control (LoC) and self-efficacy.

	Internal LoC		External LoC		Self-efficacy	
	<i>b</i>	95% CI	<i>b</i>	95% CI	<i>b</i>	95% CI
Intercept	5.46***	[5.31, 5.61]	3.78***	[3.60, 3.96]	5.38***	[5.21, 5.55]
Condition (0=low class condition)	0.00	[-0.22, 0.22]	-0.28*	[-0.54, -0.02]	0.02	[-0.22, 0.26]
Objective social class	0.07	[-0.04, 0.18]	-0.14*	[-0.27, -0.01]	0.13*	[0.01, 0.25]

Abbreviations: CI, confidence interval; LoC, locus of control.

* $p < 0.05$; *** $p < 0.001$.

first direct experimental evidence on the causal relationship of this link. By experimentally manipulating subjective social status (in line with prior research, see Adler et al., 2000; Aydin et al., 2019; Piff et al., 2010), it was possible to eliminate the potential influence of confounding variables and to draw causal conclusions. Interestingly, the effect was restricted to those facets of personal control beliefs that were captured by external locus of control, which were the focus of prior research, whereas no effect was observed for participants' internal locus of control or self-efficacy. One speculative explanation for this might be that reflections on one's social class induce rather general reflections on one's life and consequently influence generalized beliefs about personal control rather than affecting personal control beliefs for specific situations and problem-solving (captured by internal control and self-efficacy).

In addition to the situational influence of the experimental manipulation, we observed that participants' objective social class (in terms of income and education) still influenced participants' personal control beliefs. Research in other domains suggests that the relative contributions of chronic versus situational influences depend on the relative size and importance of the chronically and temporarily accessible information (e.g., Wänke et al., 1998). Though experimental manipulations are helpful to address the causal relationship between social class and personal control beliefs, we do not assume that such experimental manipulations exert a long-term effect (at least not unless the manipulation itself is kept active).

6 | GENERAL DISCUSSION

The present work supports and substantially extends prior research on the link between social class and personal control beliefs. Across a set of four studies with different methodological approaches (cross-sectional, longitudinal, and experimental data) the results suggest a clear relation between individuals' social class and this fundamental personality characteristic. Though prior research (cf., Kraus et al., 2012) has already documented this link, the

present findings are important as they extend prior research in various aspects.

First, addressing the role of generalizability, we observed the link between social class and personal control beliefs in representative samples (Study 1, 2, and 3) or in nonstudent samples with a broad range of represented social classes (Study 4). In particular, overcoming the reliance on student samples seems crucial as student samples are unlikely to reflect the full range of social class. Moreover, generalizability was further supported by the finding that the association between social class and personal control beliefs was observed when analyzing the results of 60 countries (Study 1). This finding eliminates the possibility that the link between social class and personal control beliefs is restricted to Western countries.⁷

Second, the link between social class was reliably observed both when predicting personal control beliefs on the basis of absolute, objective resources (Study 2, 3, and 4) and on the basis of individuals' subjective relative standing (Study 1 and 4). Given that objective aspects of social class do not fully determine subjective aspects—and that in fact different effects might be observed (Li et al., 2020)—this pattern emphasizes the importance of considering both aspects when theorizing about the psychological consequences of social class (Adler et al., 2000; Kraus et al., 2009, 2012; Li et al., 2020; Manstead, 2018).

Third, unlike prior research, the present findings empirically address the causal link between social class and personal control beliefs. In Study 4 we temporarily manipulated subjective social class (see Aydin et al., 2019; Piff et al., 2010). When participants were in a situation that elicited the perception of belonging to a high (low) social class, they believed to have higher (lower) control over their lives. These experimental findings address and support the assumed causal mechanisms conceptualized in prior theorizing (for overviews, see Kraus et al., 2009; Manstead, 2018). Indirectly, the observation in Study 3 that parents' social class affects personal control beliefs of their children further contributes to causal conclusions (and additionally, provides insights into the early onset of social class differences).

The present findings strongly support prior theorizing on the link between social class and personal control beliefs. More specifically, the social-cognitive model of social class (Kraus et al., 2012) postulates that individuals' access to and possession of resources (e.g., income, education) as well as individuals' perceptions of their relative position in the social hierarchy influence the degree of personal control they believe to have in life. Thus, both objective and subjective aspects of social class should be linked to personal control beliefs. The results of our multimethodological approach support this theorizing. On a more general level, the results thus further contribute to the assumption that social class has pronounced consequences on individuals' social-cognitive tendencies (Kraus et al., 2012).

6.1 | Caveats and future research

The present findings come along with some interesting caveats. First, we did not find prospective within-person effects in the longitudinal setting of Study 2. One reason might be that psychologically relevant social class differences manifest during childhood, and that later changes in social class do not lead to substantial psychological changes anymore. Study 3 supports the assumption that social class differences in personal control beliefs already occur among adolescents. This is in line with the conception of personal control beliefs as a trait which might be malleable especially in young people (Jerusalem & Mittag, 1999). However, the experimental setting in Study 4 suggests that manipulating social class among adults can still lead to short-term changes in personal control beliefs. Another explanation might be that absolute, rank-independent changes in social class might not be as psychologically relevant as changes in relative rank. Future research should address this issue by modeling rank-order changes or by considering changes in subjective social status. In this context, it would be additionally interesting to investigate whether downward mobility leads to as much decline in personal control beliefs as upward mobility leads to increases.

Second, in the experimental setting of Study 4 we found effects of our social class manipulation on external locus of control—which was most similar to the global measures of personal control beliefs in the other studies—but not on internal locus of control and self-efficacy. One might argue that the experimental approach made social class very salient to the participants at the time they reported their personal control beliefs (see Bless & Burger, 2016b). This salience may have led to compensation effects in domains that are more tied to

the self and specific situations (i.e., covered by the items of internal locus of control and self-efficacy) rather than to general evaluations of one's life circumstances (i.e., covered by the items of external locus of control). However, this explanation is only speculative and should be addressed in future research. Nevertheless, the diverging findings point to the importance of addressing personal control beliefs in a more nuanced way, as different aspects of personal control beliefs might not be equally affected by social class.

Third, one may argue that social class is related to features that differ between social classes and that these features are driving the observed differences in personal control beliefs. Prior research has documented several differences between social classes. For example, such differences have been reported for self-esteem (Twenge & Campbell, 2002), agentic versus communal self-concepts (Kraus et al., 2012), happiness and life satisfaction (Tan et al., 2020) and the “Big Five” personality traits (Buccioli et al., 2015). We readily acknowledge this caveat, that is, in its general form, inherent of all correlational approaches. In admitting that the present data cannot fully rule out this issue, the present research tackles this issue in at least two ways: (a) Perhaps most importantly, the experimental design employed in Study 4, eliminates the third-variable issue. Admittedly, the experimental approach is restricted to the subjective social class as objective social class cannot be manipulated. (b) Moreover, from a theoretical perspective, the assumed link between perceived control and social status is directly derived from the underlying theoretical assumptions and is in accordance with prior research (Kraus et al., 2012). In combination, these two aspects rather strongly suggest that social class is the key driver of the observed effects.

7 | CONCLUSION

The present research extensively demonstrates that individuals from lower social classes have weaker personal control beliefs in their lives than individuals from upper social classes. Social class differences in this fundamental personality characteristic are bound to have important consequences in various life domains. For example, they contribute to poorer physical and psychological health and well-being among lower social classes (Chen et al., 2021; Johnson & Krueger, 2005, 2006; Lachman & Weaver, 1998). They further reduce the readiness of lower social classes to show certain behaviors such as voting (Krosnick, 1990), or pro-environmental behavior (Eom et al., 2018), and lead to stronger susceptibility to social threats (Chen & Matthews, 2001), and thus, to

more hostility towards other groups (Fritsche et al., 2017). Finally, social class differences in personal control beliefs might in fact reduce aspirations of lower social classes to move up the social ladder and thereby perpetuate social inequalities.

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AUTHOR CONTRIBUTIONS

Melvin John and Lucia L.-A. Boileau wrote the paper with input from Herbert Bless. Melvin John, Lucia L.-A. Boileau, and Herbert Bless conceived and designed the studies and collected the data. Melvin John analyzed the data and created the supplemental materials.

CONFLICT OF INTEREST STATEMENT

None of the authors have a conflict of interest to disclose.

DATA AVAILABILITY STATEMENT


All data collected by the authors themselves and all materials are available in an OSF repository and can be accessed [here](#). Study 4 was preregistered on aspredicted.org. The preregistration can be accessed [here](#).

ETHICS STATEMENT

We have complied with the APA ethical principles regarding research with human participants and/or care and use of animals in the conduct of the research presented in this manuscript.

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ENDNOTES

¹ In the supplemental materials we provide a table with the effects for the different countries, which can be accessed [here](#). Furthermore, aggregating subjective social class and personal control beliefs within each country revealed that social class was associated with personal control beliefs not only on the individual but also on the country level ($\beta=0.35$, $p=0.005$).

² The SOEP contains two slightly different ISEIs, one based on an older and one based on an updated version of the ISCO (i.e., ISCO-88 and ISCO-08, resp.). We used the ISEI based on the ISCO-08 whenever possible. In cases where the ISCO-08 was missing, we substituted the missing values with ISEI scores based on the ISCO-88.

³ We did not include subjective health as a covariate, as this variable was not available for each timepoint.

⁴ We did not include age as a covariate as all participants were around 17 years old.

⁵ We conducted the same experiment once before without this selection criterion, and the manipulation of social class proved unsuccessful based on the results of the manipulation check. Messages from several participants indicated that they have been asked questions about their social class on a regular basis by other researchers on prolific. We, therefore, suspected that our manipulation of social class was not successful because participants were already too familiar with the manipulation or because they had been asked questions about their social class so frequently that it became very difficult to manipulate social class in an experimental context.

⁶ Interestingly, the manipulation check item reflected a stronger effect of the subjective social class manipulation for individuals with a low objective social class ($b=-0.23$, $p=0.004$). Importantly, however, this moderation was restricted to the manipulation check item. The effect of the experimental manipulation of social class on personal control beliefs was not moderated by objective social class (internal locus of control: $b=-0.06$, $p=0.284$; external locus of control: $b=0.01$, $p=0.881$; self-efficacy: $b=-0.04$, $p=0.512$).

⁷ We explicitly refrained from looking at the strength of the relation between social class and personal control beliefs as a function of country characteristics as our main focus of Study 1 rested on the generalizability aspect.

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SUPPORTING INFORMATION

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

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