

RESEARCH ARTICLE

Facing a dark future: Young people's future anxiety and political attitudes in the UK and Greece

Olaf Borghi^{1,2*}, Melina Niraki³, Ermioni Seremeta³, Kaat Smets⁴, & Manos Tsakiris^{1,2}

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¹Department of Psychology, Royal Holloway, University of London, UK; ²Centre for the Politics of Feelings, School of Advanced Study, University of London, UK; ³Department of Psychology, Panteion University of Social and Political Sciences, Athens, Greece; ⁴Department of Politics, International Relations and Philosophy, Royal Holloway, University of London, UK.

*Please address correspondence to Olaf Borghi, olaf.borghi@rhul.ac.uk, Royal Holloway, University of London, Egham, Surrey, TW20 0EX, United Kingdom. This article is published under the Creative Commons BY 4.0 license. Users are allowed to distribute, remix, adapt, and build upon the material in any medium or format, so long as attribution is given to the creator.

Amidst multiple crises, converging reports indicate that young people are anxious about the future. Yet, how future anxiety relates to young people's political attitudes and actively open-minded thinking remains unknown, presenting a critical research gap in times of democratic backsliding and political polarisation. In this study, we provide first empirical insights into the associations between future anxiety, political attitudes, and actively open-minded thinking among young people, considering the moderating role of emotion regulation strategies that could affect how future anxiety is cognitively processed and thus alter its implications. Our pre-registered analyses used original cross-sectional data from an online survey of $N = 988$ UK adolescents (aged 16-21), with additional conceptual replications in data from $N = 997$ Greek adolescents that included a subset of the measures from the primary UK sample. Results indicate that future anxiety is most strongly associated with stronger support for democratic principles in our UK sample, an association weaker among adolescents high in cognitive reappraisal. In both the UK and Greece, future anxiety was also associated with higher political participation. Follow-up analyses revealed notable gender differences: only among young men future anxiety was associated with more right-conservative ideological self-classification, a pattern replicated across both countries. These cross-sectional findings provide an important empirical foundation for research on the psychological contributors to and consequences of democratic backsliding and the development of political attitudes in times of multiple crises.

Keywords: adolescence, future anxiety, emotion regulation, political attitudes, ideology

1. INTRODUCTION

Is young people's anxiety about the future associated with their political attitudes and actively open-minded thinking? Converging reports indicate that young people are anxious about what lies ahead and believe they will be worse off in the future than their parents (Barnardos, 2024; The Prince's Trust, 2022). Future anxiety describes such feelings of pessimism and uncertainty about the future (Zaleski et al., 2019). Societal crises—such as climate change, economic turmoil, and war—exacerbate these feelings and might contribute to declines in youth well-being and happiness (Asbrand et al., 2023; Helliwell et al., 2024; Poletti et al., 2023; Schweizer et al., 2023). At the same time, young people appear increasingly dissatisfied with democracy (Foa et al., 2020). Their democratic dissatisfaction may lead them to become more supportive of authoritarian forms of governance or altogether disengaged with politics (Frederiksen, 2024; Mason, 2025; Open Society Foundations, 2023; Zick et al., 2023). Amidst all these, a key question that remains unanswered is how young people's anxiety about what the future holds relates to their political ideology (ideological self-placement), support for authoritarian and democratic principles, and actively open-minded thinking. Could future anxiety help explain observations of democratic backsliding and an increasingly ideologically rigid partisan landscape?

Two studies suggest associations between expectations of socio-economic downward mobility and populist and more extreme ideological self-placement in young adults (Mitrea et al., 2021; Zagórska et al., 2024). Negative economic expectations are one of many factors that can contribute to future anxiety (Kaman et al., 2025; Zaleski, 1996). Young adults who anticipated that they would be worse off economically in the future than their parents tended to identify as more extreme on the left-right political spectrum (Mitrea et al., 2021) and showed stronger preferences for anti-elitist and people-centrist populist attributes of political

parties (Zagórska et al., 2024). Similarly, research on violent extremism suggests that perceptions of relative deprivation—feeling that oneself or one's group is unfairly worse off than others—contribute to extreme political action aimed at countering such perceptions and associated feelings of anger or injustice (Kunst & Obaidi, 2020; Obaidi et al., 2019). These findings point to a structural relationship whereby sociopolitical circumstances of crisis might produce psychological reactions such as perceptions of threat, relative deprivation, or—as we suggest here—future anxiety, which may then lead to the adoption of extreme or antidemocratic political attitudes and behaviours (Kunst & Obaidi, 2020; Obaidi et al., 2025; Zmigrod & Goldenberg, 2021). Indeed, widespread narratives suggest that it is the unaddressed anxieties and concerns of young people about the future that create a fertile ground for ideological appeals (Azmanova, 2024; Henley & Sauer, 2023). Several theoretical frameworks further suggest relations between future anxiety, young people's political attitudes, and open-minded thinking that remain to be empirically investigated.

Inglehart's (1971; 2015) theory of intergenerational value change suggests that experiencing times of societal or economic crises during the formative adolescent years could increase support for conservative and authoritarian values that promise stability over self-expression values (such as democratic rights, gender equality, environmental protection). Future anxiety resulting from the same circumstances of crisis, might similarly lead to a stronger emphasis on conservative and authoritarian values and lower emphasis on democratic principles.

This prediction aligns with additional theories and meta-analytic evidence. Conservative ideology might help individuals manage uncertainty and threat (Jost et al., 2003, 2017), and future anxiety is characterised by perceptions of the future as concerning and uncertain (Zaleski, 1996; Zaleski et al., 2019). Similarly, the



dual-process model of political attitudes suggests that perceiving the world as dangerous and threatening is a key determinant of authoritarianism (Duckitt & Sibley, 2010), and this likely translates to how the world in the future is imagined, and the feelings this evokes. Indeed, experimental studies lend support to this view, where descriptions of the future as threatening resulted in increased right-wing authoritarianism (Duckitt & Fisher, 2003; Jugert & Duckitt, 2009).

Beyond affecting the content of political beliefs, future anxiety may also influence the structure of ideological thinking itself. Mental rigidity and resistance to evidence-based belief updating have been suggested to be general components of ideological thinking irrespective of the content of an ideology (Rokeach, 1960; Zmigrod, 2021, 2022). Classical work suggested that such rigidity might be a defensive reaction in the face of anxiety about the future (Rokeach, 1960). For this reason, we also investigate the association between future anxiety and actively open-minded thinking¹, characterised by "deeply questioning [...] prior beliefs and intuitions according to evidence" (Newton et al., 2023), including the avoidance of ideological biases and overconfidence (Baron, 2019). As actively open-minded thinking represents a general approach to information processing of high political relevance (Baron, 2019; Newton et al., 2023; Ottati et al., 2023), its association with future anxiety could reveal more general effects on ideological, closed-minded thinking beyond the content of political beliefs (Zmigrod, 2021, 2022).

While the reviewed theories and evidence suggest relations, the associations between future anxiety and political ideology, support for authoritarian and democratic principles, and actively open-minded thinking have not yet been directly addressed. This represents a critical

research gap, in particular concerning young people's attitudes. Late adolescence and young adulthood are widely recognised as formative periods for the development of the political identity, and times in which young people are more aware of and responsive to socio-political events (Chryssochoou & Barrett, 2017; Flanagan, 2013; Rekker et al., 2015; Serra & Smets, 2022; Smets, 2021). Therefore, our first pre-registered research aim is to provide insights into the associations between future anxiety and political attitudes in adolescence and young adulthood.

In addition, the extent to which future anxiety affects political attitudes might be moderated by individual differences, particularly in how young people regulate their feelings about the future. The relevance of emotion regulation strategies has been highlighted in both adolescence and politics. Throughout adolescence young people become more adept at regulating their emotions and increasingly draw on adaptive rather than maladaptive emotion regulation strategies (Steinberg, 2005; Ahmed et al., 2015; Gullone & Taffe, 2012; Silvers, 2022). In the political domain, whilst adaptive emotion regulation can help people cope with negative feelings in affectively polarised landscapes (Van Bavel et al., 2024), it might also reduce motivation for political action (Ford & Feinberg, 2020; Zmigrod & Goldenberg, 2021).

According to the (extended) process model of emotion regulation (Gross, 2013, 2015; Gullone & Taffe, 2012), different forms of emotion regulation might have different consequences as they operate at different stages of the emotion-generative process. One prominent strategy commonly viewed as adaptive, cognitive reappraisal, operates by changing how individuals think about emotion-eliciting situations in ways that alter their emotional responses (Gross, 2013). For example, whilst sociopolitical crises might lead to future anxiety—which can

¹ In our pre-registration, we originally referred to "dogmatic attitudes", a construct inversely related to actively open-minded thinking. Following the recommendation of an anonymous reviewer, and to better align our conceptual framework with our measures, we refer to actively open-minded thinking and its literature throughout this manuscript.

be an appropriate emotional response if they threaten young people's future—cognitive reappraisal might help them re-interpret such feelings and their causes in a more optimistic way as opportunities for change (Gullone & Taffe, 2012). Another prominent strategy, the expressive suppression of emotions, is commonly viewed as less adaptive and operates through modulating behavioural responses without changing the underlying emotional experiences or their interpretation (Gross, 2015).

Cognitive reappraisal might therefore moderate the association between future anxiety, political attitudes, and actively open-minded thinking by serving as a coping mechanism to regulate feelings of uncertainty and anxiety about the future. In contrast, expressive suppression should not substantially change these associations, as it primarily modulates emotional responses without changing their underlying experience. In our second pre-registered research question we thus investigated the moderating role of emotion regulation abilities and expected that these associations might be weaker among young people with a greater tendency to engage in cognitive reappraisal, whereas we had fewer expectations for the moderating effects of expressive suppression.

Across our two primary pre-registered research questions, we thus aim to investigate the associations between future anxiety and political ideology, support for authoritarian and democratic principles, and actively open-minded thinking among youth, and whether these associations are moderated by emotion regulation strategies. Our primary analyses focus on a sample of UK adolescents.

In follow-up analyses, inspired by research highlighting an emerging ideological gender gap in young people (Mathisen, 2025; Milosav et al., 2025; Nennstiel & Hudde, 2025), we investigated gender as a potential moderator of associations between future anxiety, political

attitudes, and actively open-minded thinking. We also explored associations between future anxiety and political participation, motivated by research on the potential that feelings might have as motivators of political action (Zmigrod & Goldenberg, 2021). Upon completion of our UK analyses, we identified an opportunity to provide conceptual replications using a dataset from Greece that included a subset of the measures from the primary UK sample, as described in detail in the Methods section.

With these analyses we provide important empirical insights into the political relevance of future anxiety and lay the foundation for longitudinal and experimental work on the emotional and cognitive psychological processes that might contribute to the development of political attitudes.

2. METHODS

We used data from cross-sectional online surveys from two large samples of 16-21-year-old adolescents. Our primary sample and pre-registered analyses were based on a sample of UK adolescents. Upon completion of our UK analyses, we identified an opportunity for conceptual replications of some analyses using data from Greek adolescents that had been collected as part of the same larger multi-national project. The Greek data were originally collected to address different research questions, but they included some shared measures. The addition of the Greek sample, while not pre-registered, was thus planned in communication with the editors to strengthen the robustness and generalizability of our findings. For comprehensiveness, we present the methods and findings from both the UK and Greek samples in parallel, where possible.

2.1 Participants

Our primary sample consisted of $N = 988$ adolescents from the UK (49.1% male, 50.3% female, 0.6% other; interlocked with age: $M = 19.01$, $SD = 1.49$, range = 16 to 21 years). Our secondary sample in Greece included $N = 997$ adolescents (49.9% male, 49.3% female, 0.7% other; age: $M = 4$



19.38, $SD = 1.38$, range = 16 to 21 years). In both samples, participants were stratified by gender, region, locality type (rural village, small town, large city), and education level (primary/lower secondary, upper secondary, and higher education). Detailed demographics are presented in Supplementary Tables 1a and 1b.

2.2 Procedure

The questionnaires were administered online by Gallup International and its local partners in May and June 2024 as part of a larger five-country adolescent panel study (Smets et al., 2024a, 2024b). We developed, piloted, and refined the survey with Gallup International to ensure age-appropriate language and comprehension. The English questionnaires were translated to Greek separately by local native-speaking researchers and professional translators from Gallup International. The final translation was then derived from these two versions by the translators and approved by the research team to ensure linguistic and cultural accuracy. Gallup International provided complete datasets with no missing data. Following data collection, we had to exclude participants under 16 years ($n = 12$ in the UK, $n = 3$ in Greece) due to inability to confirm parental consent under confidentiality agreements, which was an exclusion not foreseen in our pre-registration. Sample sizes were pre-determined at the start of the larger project based on economic considerations. A post-hoc sensitivity analysis indicated that our sample size ($N = 988$) provided high sensitivity to detect standardized effects of $\beta = .10$, with 95% credible intervals excluding zero, with well above 80% of simulations for both main effects and interactions of this magnitude. Detailed simulation results are displayed in Supplementary Figure 3. Ethical approval was obtained from the Research Ethics Committee of Royal Holloway, University of London (REC ProjectID: 4039) and the Research Ethics Committee of Panteion University of Social and Political Sciences (Reference No 2/26-3-2024).

2.3 Measures

The questionnaires administered in the UK and Greece were designed to capture political and psychological variables among adolescents but originally intended for different purposes. The UK survey included all measures relevant for this study. The Greek survey included a subset of the same measures. Below we focus on describing measures used in the UK survey and added information where Greek measures for replication were available. All questionnaire items used in both samples for the present study are available in their full form at <https://osf.io/jchdg>. We also provide the complete administered questionnaires from both countries, including additional scales collected for other research purposes at <https://osf.io/d27rk/files/osfstorage>.

2.3.1 Future Anxiety

We assessed future anxiety using the validated 5-item Dark Future Scale (Zaleski et al., 2019), which captures anxiety and negative expectations about the future. Participants rated statements like "I am afraid that in the future my life will change for the worse" on a 7-point Likert scale ("Strongly disagree" to "Strongly agree"). The UK survey included all five items of the scale, whereas the Greek survey included only four of the five items. In both samples, we calculated the mean across all included items as an index of future anxiety. The five-item scale showed good internal consistency in our UK sample (McDonald's $\omega = .87$, 95% CI [.86, .89]). The four-item scale demonstrated acceptable internal consistency in the Greek sample (McDonald's $\omega = .72$, 95% CI [.69, .76]).

2.3.2 Emotion Regulation

We used the validated Emotion Regulation Questionnaire for Children and Adolescents (Gullone & Taffe, 2012) to measure two emotion regulation strategies in adolescents: Cognitive reappraisal (six items, e.g., "When I want to feel less bad about something, I change the way I'm thinking about it") and expressive suppression (four items, e.g., "I control my feelings by not showing them"). Items were rated on 7-point



Likert scales ("Strongly disagree" to "Strongly agree"). Both subscales demonstrated either good or acceptable internal consistency (McDonald's ω : cognitive reappraisal = .84, 95% CI [.82, .86]; expressive suppression = .75, 95% CI [.71, .78]). Items were only included in the UK survey.

2.3.3 Political Ideology (Ideological Self-Placement)

We asked participants to self-place along two 11-point scales (ranging from "*left*" to "*right*" and "*progressive*" to "*conservative*") to indicate their political ideology (Jost et al., 2009). Following our pre-registration, we used the mean across the two items as a composite score for political ideology (inter-item correlation $\rho = .52$ in the UK sample). The Greek survey included the same two items ($\rho = .44$).

2.3.4 Support for Authoritarian Principles

We assessed support for authoritarian principles using the corresponding three-item subscale from the Adolescent Radicalization Outcomes Questionnaire (AROQ; Reiter et al., 2023), an adaptation and validation of common political panel items for use in adolescent samples. Participants rated characteristics of political systems on 7-point scales (from "*Very bad*" to "*Very good*"). Exemplary items were "Having a strong leader who doesn't accept interference from anyone." The scale showed acceptable internal consistency (McDonald's $\omega = .70$, 95% CI [.66, .74]). This measure was not included in the Greek survey.

2.3.5 Support for Democratic Principles

We used the 3-item subscale from the AROQ to assess support for democratic principles. Items described characteristics of democratic systems, such as "Having elections where every person's vote is equal", which were rated by participants on a 7-point Likert scale ranging from "*Very bad*" to "*Very good*". The subscale showed acceptable internal consistency (McDonald's $\omega = .76$, 95% CI [.72, .79]). This measure was not included in the Greek survey.

2.3.6 Actively Open-minded Thinking

Actively open-minded thinking was measured using the mean of the 6-item actively open-minded thinking scale (Newton et al., 2023). Participants rated statements like "Whether something feels true is more important than evidence" on a 7-point scale ("Strongly disagree" to "Strongly agree"). All items were reverse-scored prior to the calculation of the mean so that higher scores indicate greater actively open-minded thinking, rather than closed-mindedness. The scale demonstrated good internal consistency (McDonald's $\omega = .85$, 95% CI [.83, .87]). Items were again only included in the UK survey.

2.3.7 Political Participation

For follow-up analyses, we measured political participation using a 5-item scale assessing willingness to engage in different political activities such as "Take part in a lawful public demonstration." Items were rated on a 7-point scale ("Not at all willing" to "Very much willing"). The scale showed good internal consistency in the UK sample (McDonald's $\omega = .87$, 95% CI [.86, .89]). The Greek survey included the same five items, with similarly good internal consistency (McDonald's $\omega = .84$, 95% CI [.83, .86]).

2.3.8 Demographic Variables

Following our pre-registration, we included five demographic variables in our main models: age (including linear and quadratic terms), gender, subjective living standard, education level, and migration background. Age was measured by asking participants to indicate their age in years. Gender was assessed by asking participants to identify as "male", "female", or "other". Due to the very small number of participants identifying as "other" ($n = 6$ in the UK, $n = 7$ in Greece), while we include this category in our models, we refrain from making inferences about this group as the estimates were highly imprecise. Subjective living standard was measured with the item "Which of the descriptions below comes closest to how you feel about your household's income nowadays?" with four response options ranging from



"Living comfortably on present income" to "Finding it very difficult on present income". As we expected few participants in the lowest and highest categories, we decided to recode responses into a binary variable ("Stable" and "Difficult"). Education was assessed using detailed items asking about participants' current study level or highest completed education, with responses ranging from primary through tertiary education. These were recoded into three more balanced ISCED categories: primary/lower secondary education (e.g., primary education up to 1-4 GCSEs), upper secondary education (e.g., A-levels), and higher education (e.g., university degrees such as BSc). Migration background was assessed using two items asking whether participants and their parents were born in the UK. Following the glossary of the European Migration Network (2025), we coded participants as having a "migration background" if either they or at least one parent was born outside the UK, and "no migration background" if both the participant and parents were born in the UK.

We included these demographic variables as research suggests relations between age, gender, education, socio-economic status, a history of migration and political attitudes, including political ideology or authoritarian and democratic principles (Conway et al., 2020; Debus et al., 2024; Mathisen, 2025; Rekker et al., 2015; Zmigrod et al., 2021). The same variables may also influence future anxiety, with research indicating gender differences (Zaleski et al., 2019) and, while empirical findings are more limited, age-related differences in adolescence and links between socio-economic conditions, migration experiences, and anxiety about the future are also theoretically plausible (Kaman et al., 2025; Zaleski et al., 2019). Importantly, these demographic variables represent relatively stable background characteristics that are unlikely to introduce collider bias or act as mediators (Rohrer, 2018). We thus deemed that including these demographic variables would improve the robustness of our findings, as they

either control for confounding or improve precision by reducing residual variance in the outcome. For comparison, we also report results from models without demographic variables.

2.4 Statistical Analyses

2.4.1 Primary Analyses

In all our main analyses, we used Bayesian linear regression models fitted using the `brms` package (Bürkner, 2017) in R Version 4.4.3 (R Core Team, 2024). The `brms` package accommodates all models relevant for the present study within one unified interface and is highly integrated within the broader R ecosystem (Bürkner, 2017). We used a Bayesian framework as this provides a more complete characterisation of uncertainty through posterior distributions and direct probability statements about the credibility of estimates. This approach was well-aligned with our focus on estimating the size and direction of effects in this cross-sectional study (Kruschke, 2014; Kruschke & Liddell, 2018).

In our main pre-registered models using the UK data, we used multivariate Bayesian linear regressions to estimate the associations between future anxiety, as well as its interaction with the two emotion regulation strategies cognitive reappraisal and expressive suppression, and the assessed political attitudes and actively open-minded thinking. This approach models residual correlations between outcomes and enables direct comparisons of the associations of future anxiety and multiple political attitudes (Fox & Weisberg, 2018).

For all models, we summarized posterior distributions using the mean and 95% highest density credible intervals (CIs), representing the range within which parameters lie with 95% probability given the data and model. Both predictor and outcome variables were scaled by two standard deviations (2SD) to improve coefficient comparability (Gelman, 2008). We chose 2SD over 1SD standardization because it places binary and continuous predictors on approximately the same scale, while still allowing

coefficients to be interpreted as the expected change in an outcome associated with a one standard deviation change in a predictor, facilitating comparison across different variable types.

We specified weakly informative priors of $N(0, 1)$ for intercept and slope parameters and used brms defaults for other parameters. Weakly informative priors provide some regularisation while making minimal assumptions and allowing the data, if sufficiently large, to speak for themselves. Models were fitted with four MCMC chains (4000 iterations each, including 2000 warm-up iterations). Chain convergence was assessed using R-hat statistics (< 1.05 indicating adequate convergence; Clark, 2021). All models included the demographic control variables.

We based statistical inferences on 95% credible intervals. Intervals far from zero indicate higher probability of credibly non-zero parameters, while intervals including zero suggest lower probability of parameters differing credibly from zero. We also assessed practical equivalence using a Region of Practical Equivalence (ROPE; Kruschke, 2014) of [-0.05, 0.05]. Standardized effects within this range were considered small and not practically relevant, based on general and subfield-specific considerations (Arceneaux et al., 2024; Funder & Ozer, 2019). Large overlaps of posterior distributions with the ROPE indicate high probability of practically negligible effects, while small or no overlaps suggest practically relevant effects.

2.4.2 Conceptual Replications

For our conceptual replications using the Greek data, we first investigated measurement invariance for the multi-item scales available in both samples (future anxiety and political participation; Kline, 2016; Putnick & Bornstein, 2016). We used lavaan (Rosseel, 2012) to fit multigroup confirmatory factor analyses with items loading on a single latent factor and country as the grouping variable. We tested increasingly stringent invariance constraints:

configural invariance (same factor structure), metric invariance (equal factor loadings across groups), and scalar invariance (equal item intercepts across groups). We did not test measurement invariance for political ideology, as this two-item measure would result in a just-identified structural model ($df = 0$), preventing meaningful evaluation of the configural model (Kline, 2016). We evaluated model fit using the following criteria (Chen, 2007; Cheung & Rensvold, 2002; Kenny, 2024): For configural models: $CFI \geq .95$, $RMSEA \leq .08$, and $SRMR \leq .08$. For model comparisons: $\Delta CFI \leq -.010$, $\Delta RMSEA \leq .015$, and $\Delta SRMR \leq .030$ for metric invariance, and $\Delta CFI \leq -.010$, $\Delta RMSEA \leq .015$, and $\Delta SRMR \leq .015$ for scalar invariance.

Our cross-country comparisons were contingent on the level of measurement invariance achieved. If metric invariance could be established, we would compare strengths of associations between the UK and Greece using country as a moderating variable. If scalar invariance could be achieved, we would additionally compare means between countries. If measurement invariance could not be achieved, we would present results from the two countries separately without direct statistical comparisons of associations or means.

Due to the limited availability of measures in the Greek survey, analyses involving Greek data used univariate Bayesian linear regression models for each outcome separately (political ideology and political participation), and models involving interactions with emotion regulation strategies were restricted to the UK data.

2.5 Open Practices

2.5.1 Open Materials

Analysis scripts, data, and questionnaire items are openly available at <https://osf.io/d27rk/>.

2.5.2 Generative AI

During the preparation of this work, the author(s) used Claude to assist with coding tasks and to enhance the clarity and language of the

manuscript. The author(s) have carefully reviewed and edited all code and text, and take full responsibility for the published article's content.

2.5.3 Pre-Registration

We pre-registered our main analyses using the UK data at <https://osf.io/u7a5q>. Our pre-registration outlined analyses for both the presented sample and a secondary convenience sample of younger adolescents. We focus exclusively on the primary sample in this article given that data collection in the convenience sample is ongoing and will primarily be used for other purposes. During the peer-review of this study, we made several deviations from the pre-registration. Following the editors' requests, we added additional non-pre-registered conceptual replication analyses using the Greek data, and we used mean scores for future anxiety instead of sum scores. Following the comments from an anonymous peer-reviewer, we used "actively open-minded thinking" as concept and term rather than what we had originally pre-registered ("dogmatic attitudes"). For this reason, we also reverse-scored the corresponding items, aligned with the scale's standard scoring procedures. These changes were made to improve the interpretability and conceptual clarity of our analyses and do not alter the substantive interpretation of our findings. Other non-registered analyses include the preliminary analyses investigating the association between future anxiety and demographic variables, as well as follow-up analyses on gender differences and political participation, which we refer to as "exploratory".

3. RESULTS

We begin by presenting our measurement invariance analyses for scales included in both samples, which informed our approach to presenting findings from the UK and Greek data in subsequent analyses. We then explored which young people in our sample indicated being most anxious about the future, before presenting our main models on associations between

future anxiety, political attitudes, and actively open-minded thinking. All models showed good convergence ($R\text{-hat} < 1.05$). Supplementary Materials (including zero-order correlations and variable means) are available at <https://osf.io/pfs3y>.

3.1 Measurement Invariance

All fit indices and model comparisons are presented in Supplementary Tables 3a and 3b. For the four-item future anxiety scale, the configural model demonstrated excellent fit ($CFI = .999$, $RMSEA = .017$, $SRMR = .009$), but metric ($\Delta CFI = -.009$, $\Delta RMSEA = .027$, $\Delta SRMR = .026$) and consequently scalar invariance were not supported. For the five-item political participation scale, the configural model again demonstrated adequate fit ($CFI = .991$, $RMSEA = .067$, $SRMR = .016$), and metric invariance could also be established ($\Delta CFI = -.003$, $\Delta RMSEA = -.009$, $\Delta SRMR = .009$). However, scalar invariance was again not supported ($\Delta CFI = -.056$, $\Delta RMSEA = .056$, $\Delta SRMR = .027$).

Given that measurement invariance across countries could not be established for future anxiety (our primary variable of interest) and could not be tested for our 2-item measure of political ideology, we present descriptives and models from the UK and Greek samples separately, without statistical cross-country comparisons of associations or means.

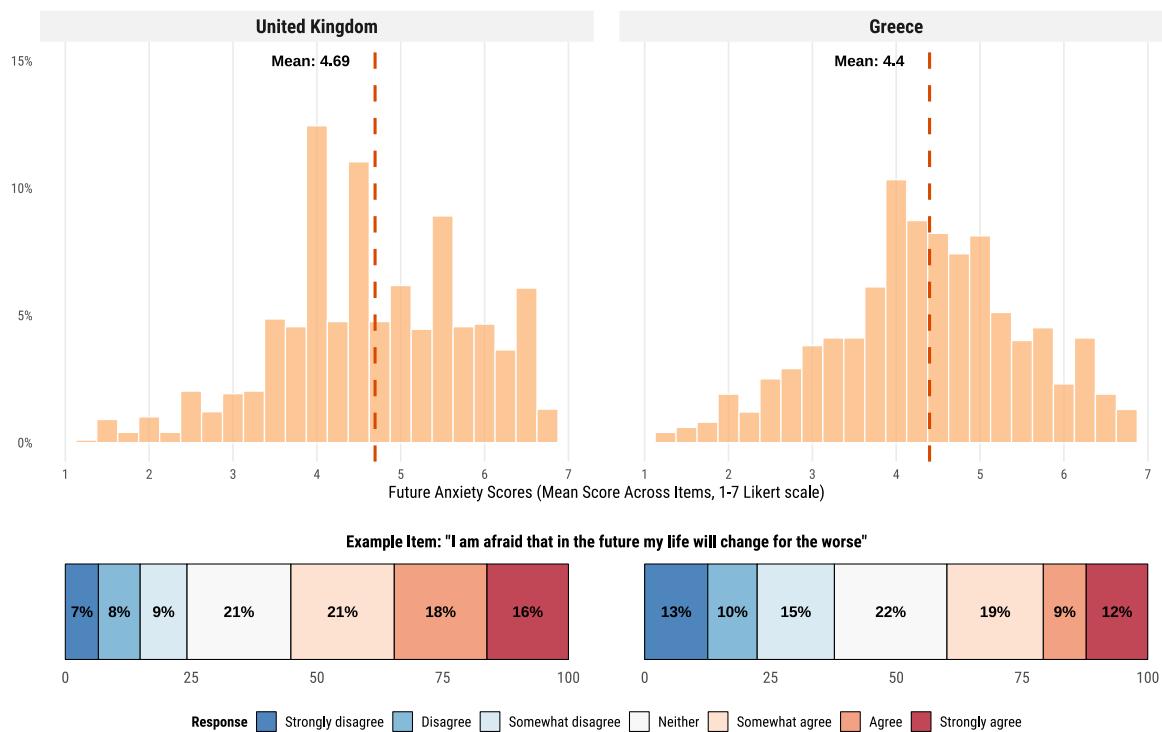
3.2 Future Anxiety Levels (Exploratory)

Among UK adolescents, the mean of the future anxiety scale (measured with 5 items) was $M = 4.69$ ($SD = 1.36$). Among Greek adolescents, the mean of the future anxiety scale (measured with 4 items) was $M = 4.40$ ($SD = 1.31$). Figure 1 displays the distribution of future anxiety scores in both countries.



Figure 1

Response distribution of the Future Anxiety scale in the UK and Greece



Note. Top panel: Histogram displaying the distribution of the mean scores of the future anxiety scale in the United Kingdom (5-item version) and Greece (4-item version) samples. Vertical dashed lines indicate country-specific means. Bottom panel: Stacked bar chart showing the percentage distribution of responses to the exemplary item "I am afraid that in the future my life will change for the worse", which appears in both countries' versions of the Future Anxiety scale.

3.3 Which Young People Are Anxious About the Future? (Exploratory)

Before turning to our main models investigating the associations between future anxiety and political attitudes, we explored the associations between future anxiety and the demographic variables age, gender, subjective living standard, education level, and migration background in our UK and Greek samples. For this purpose, we fitted Bayesian linear regression models in both countries separately with future anxiety as the outcome and the demographic variables as predictor variables (see Supplementary Tables 4a and 4b).

In the UK, young women reported higher future anxiety than young men ($\beta = .13$, 95% CI [.07, .19]), as did participants with higher (i.e., university) education compared to primary/lower secondary education ($\beta = .10$, 95% CI [.01, .19]) and those reporting difficult, compared to stable living standards ($\beta = .16$, 95% CI [.09, .23]). Additionally, participants without any migratory background (both parents born in the UK) reported higher future anxiety ($\beta = .10$, 95% CI [.04, .17]). No credible associations were indicated for age (linear: $\beta = -.01$, 95% CI [-.08, .05]; quadratic: $\beta = .08$, 95% CI [-.04, .20]) or upper secondary compared to primary/lower secondary education ($\beta = .03$, 95% CI [-.05, .11]).

In the Greek sample, a similar pattern emerged, with young women reporting higher future anxiety than young men ($\beta = .17$, 95% CI [.11, .23]). Participants with difficult (compared to stable) living standards also showed higher future anxiety ($\beta = .08$, 95% CI [.02, .14]). No other demographic variables showed credible associations with future anxiety: age (linear: $\beta = -.01$, 95% CI [-.09, .06]; quadratic: $\beta = -.05$, 95% CI [-.17, .07]), upper secondary vs. primary/lower secondary education ($\beta = -.02$, 95% CI [-.11, .07]), higher vs. primary/lower secondary education ($\beta = .01$, 95% CI [-.10, .12]), or migration background ($\beta = -.04$, 95% CI [-.11, .03]).

3.4 Future Anxiety, Political Attitudes, and Actively Open-Minded Thinking

In our main analyses, we first focused on the direct associations between future anxiety, political attitudes, and actively open-minded thinking. In the UK sample, our pre-registered multivariate model revealed a moderate-to-large positive association between future anxiety and support for democratic principles ($\beta = .29$, 95% CI [.23, .35]) when cognitive reappraisal and expressive suppression were at their sample means and controlling for demographic variables. Our model indicated no credible associations of future anxiety with political ideology ($\beta = -.07$, 95% CI [-.13, .01]) or support for authoritarian principles ($\beta = .01$, 95% CI [-.05, .08]), with 95% CIs including zero and posterior distributions substantially overlapping the ROPE (see Supplementary Table 5a). A small negative association was also indicated between future anxiety and actively open-minded thinking ($\beta = -.07$, 95% CI [-.13, -.005]). A robustness analysis without demographic controls (Supplementary Table 6a) yielded similar findings. However, the negative association with political ideology became stronger and credibly different from zero ($\beta = -.10$, 95% CI [-.17, -.04]), and the small negative association with actively open-minded thinking proved to be less robust ($\beta = -.06$, 95% CI [-.11, .01]).

In the Greek sample, where only political ideology was available as a political attitude, our model indicated a small positive association between future anxiety and right-conservative political ideology ($\beta = .11$, 95% CI [.04, .17]), controlling for the same demographic variables as in the UK (see Supplementary Table 5b). However, this model did not include emotion regulation strategies due to the unavailability of this measure. A robustness analysis without demographic controls yielded a smaller association that was not credibly different from zero ($\beta = .06$, 95% CI [-.003, .12]).

In both the UK and Greek samples, using left-right and progressive-conservative ideological self-placement as separate outcomes in the



place of a combined measure of political ideology produced very similar results as those reported here (see Supplementary Tables 7a and 7b).

Overall, the strongest and most robust association between future anxiety and political attitudes was evident for support for democratic principles in our UK sample. Young people who were most afraid of the future, were also most supportive of democratic principles, such as equal political rights and political pluralism.

3.5 Moderation of Emotion Regulation Strategies (UK Sample Only)

We next examined whether associations in the UK sample differed conditional on the two emotion regulation strategies cognitive reappraisal and expressive suppression. Cognitive reappraisal moderated associations with both support for democratic ($\beta = -.23$, 95% CI [-.34, -.12]) and authoritarian principles ($\beta = -.17$, 95% CI [-.29, -.06]; see Figure 2). For support for authoritarian principles, future anxiety showed a positive association when cognitive reappraisal was low, but this association became negative when cognitive reappraisal was high (Figure 2, left panel). The positive association between future anxiety and support for democratic principles was stronger among participants low in cognitive reappraisal (Figure 2, right panel). We found no credible interactions between future anxiety and expressive suppression for any political attitude: political ideology ($\beta = .002$, 95% CI [-.13, .13]), support for democratic principles ($\beta = .02$, 95% CI [-.10, .14]), support for authoritarian principles ($\beta = .09$, 95% CI [-.04, .21]), or actively open-minded thinking ($\beta = .002$, 95% CI [-.12, .13]). Neither did cognitive reappraisal moderate the associations between future anxiety and political ideology ($\beta = -.02$, 95% CI [-.14, .10]) or actively open-minded thinking ($\beta = .08$, 95% CI [-.04, .19]; also see Supplementary Table 5a).

Robustness analyses without demographic controls or with left-right and progressive-conservative ideological self-placement as separate outcomes showed highly similar results

(see Supplementary Tables 6a and 7a).

3.6 Gender Differences (Exploratory)

Recent research has documented increasing ideological polarisation between young women and young men (Mathisen, 2025; Milosav et al., 2025; Nennstiel & Hudde, 2025). In a follow-up analysis, we thus explored gender differences in political attitudes and moderating effects of gender on the associations between future anxiety and political attitudes.

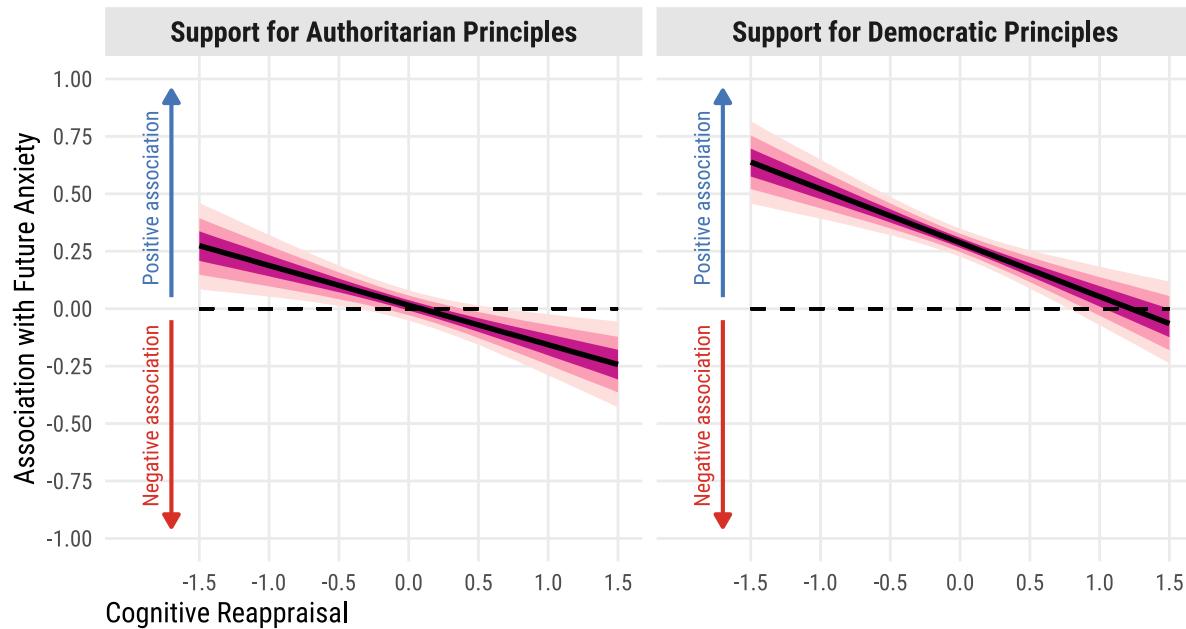
In the UK sample, a multivariate model indicated that young women showed more left-progressive political ideology ($\beta = -.19$, 95% CI [-.25, -.13]), lower support for authoritarian principles ($\beta = -.15$, 95% CI [-.22, -.09]), but also lower support for democratic principles ($\beta = -.12$, 95% CI [-.18, -.06]) compared to young men, with no credible gender difference in actively open-minded thinking ($\beta = .03$, 95% CI [-.02, .10]).

Gender moderated associations between future anxiety and political ideology, support for authoritarian principles, and actively open-minded thinking in UK adolescents (see Figure 3). Only among young men future anxiety was associated with more right-conservative ideology (conditional association: $\beta = .17$, 95% CI [.09, .26]), higher support for authoritarian principles ($\beta = .31$, 95% CI [.23, .40]), and less actively open-minded thinking ($\beta = -.41$, 95% CI [-.49, -.32]). Among young women, these associations were not credibly different from zero: political ideology ($\beta = -.02$, 95% CI [-.11, .08]), support for authoritarian principles ($\beta = .03$, 95% CI [-.06, .12]), and actively open-minded thinking ($\beta = -.09$, 95% CI [-.18, .003]). Gender did not moderate the association with support for democratic principles ($\beta = .008$, 95% CI [-.11, .13]; also see Supplementary Tables 8a and 9a).



Figure 2

Association between future anxiety and support for authoritarian principles (Authoritarianism; left panel) and democratic principles (Democratism; right panel) moderated by cognitive reappraisal



Note. Conditional associations between future anxiety and support for authoritarian and democratic principles (displayed on the y-axis) across different values of the continuous moderator cognitive reappraisal (displayed on the x-axis). Darker to lighter shaded areas indicate 50%, 80% and 95% CIs, respectively. The model controlled for the demographic variables age, gender, subjective living standard, education level, and migration background.

In the Greek sample, young women were also more left-progressive than young men ($\beta = -.28$, 95% CI [-.34, -.22]). Gender again moderated the association between future anxiety and political ideology: Young men who were more anxious about the future were also more right-conservative (conditional association: $\beta = .16$, 95% CI [.08, .25]), while the association was not credibly different from zero for young women ($\beta = .04$, 95% CI [-.05, .13]; see Figure 3 and Supplementary Tables 8b and 9b).

Of particular interest, in both samples, political ideology was similar for young women and young men when future anxiety was low, but ideological gender differences became apparent in participants high in future anxiety (see Figure 3), suggesting that future anxiety might be a relevant correlate of the recently observed ideological gender gap.

These results remained robust in models that did not include demographic controls (see Supplementary Table 10a and 10b). Additional analyses investigating associations with left-right and progressive-conservative ideological self-placement separately indicated that gender differences in political ideology were greater for progressive-conservative ideology (UK: $\beta = -.18$, 95% CI [-.25, -.12]; Greece: $\beta = -.30$, 95% CI [-.36, -.24]) than for left-right ideology (UK: $\beta = -.15$, 95% CI [-.21, -.08]; Greece: $\beta = -.17$, 95% CI [-.24, -.11]), and interactions of gender with future anxiety were also stronger for progressive-conservative (UK: $\beta = -.22$, 95% CI [-.35, -.09]; Greece: $\beta = -.13$, 95% CI [-.25, -.01]) than left-right ideology (UK: $\beta = -.12$, 95% CI [-.24, .02]; Greece: $\beta = -.09$, 95% CI [-.22, .03]; see Supplementary Figure 2 and Supplementary Tables 11a and 11b).

3.7 Future Anxiety and Political Participation (Exploratory)

Finally, follow-up analyses indicated positive associations between future anxiety and willingness to participate in politics in both samples, controlling for demographic variables. In the UK, our model indicated a positive

association between future anxiety and political participation ($\beta = .22$, 95% CI [.15, .28]) when cognitive reappraisal and expressive suppression were at their sample means. Neither cognitive reappraisal ($\beta = .03$, 95% CI [-.09, .15]) nor expressive suppression ($\beta = .08$, 95% CI [-.05, .21]) credibly moderated this association. In the Greek sample, we observed a small positive association ($\beta = .09$, 95% CI [.03, .15]). Robustness analyses without demographic controls yielded substantively similar associations (see Supplementary Tables 13a and 13b). In both the UK and Greece samples, young people who reported being more anxious about the future reported being more willing to engage in political action.

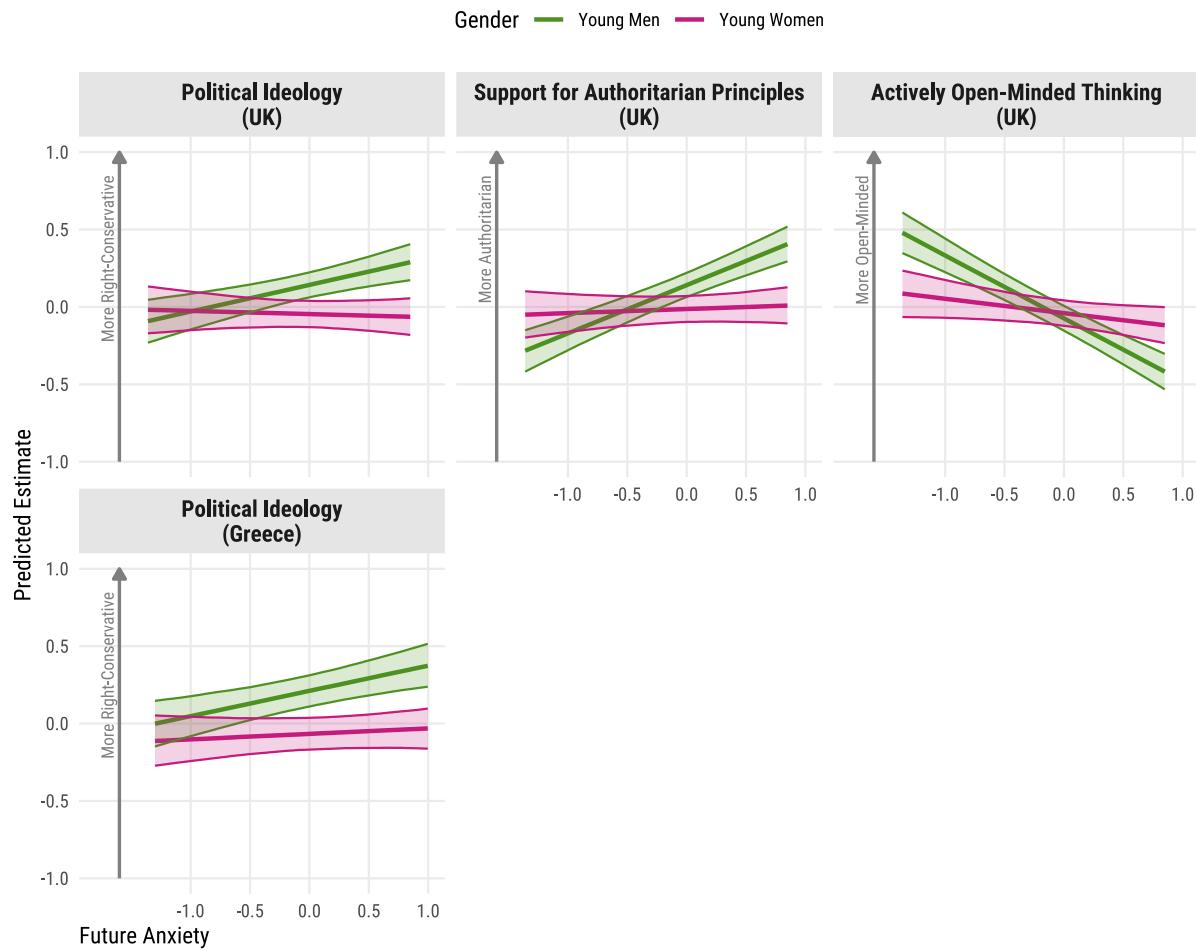
4. DISCUSSION

Young people face an uncertain future amidst multiple crises—from the aftermath of a global pandemic to the rising cost of living, ongoing conflicts, economic downturn, and climate change. Anxiety about what the future holds has gained attention primarily for its impact on youth mental health (Asbrand et al., 2023; Lass-Hennemann et al., 2023; Poletti et al., 2023; Schweizer et al., 2023). We argue that understanding how the future that young people imagine—and how they feel about the future—is also of political interest in times of youth democratic dissatisfaction, authoritarian shifts, and ideological polarisation. In this study we provide the foundation for this important, and yet understudied, line of research, using data from large samples of adolescents from the UK and Greece.

Our primary analyses focused on the UK sample, where we found that higher levels of future anxiety were most strongly associated with stronger democratic attitudes. While this finding may speak against common narratives, it fits well with broader research on the role of anxiety in politics. Anxiety has been linked to increased political information seeking and participation (Romanova & Hutchens, 2024; Valentino et al., 2008; Wagner & Morisi, 2019),

Figure 3

Association between future anxiety and political attitudes conditional on gender in the UK and Greece



Note. Display of associations between (predicted) political attitudes (y-axis) and future anxiety (x-axis) separately for young men (green) and young women (pink) in the UK sample (top row) and Greek sample (bottom row). Shaded areas indicate 95% CIs.

and in contrast to the also negatively valanced emotion anger, was not associated with voting for the populist right (Vasilopoulos et al., 2019). Young people who are more anxious about the future may show stronger democratic attitudes, as they find security within the established democratic system, or because the democratic system gives them a greater sense of agency over their future. This interpretation is also consistent with our secondary finding that in both the UK and Greece, young people who are more anxious about the future also reported to be more willing to participate in politics.

Importantly, given our correlational design, another possible explanation could be that it is not future anxiety that makes people more supportive of democracy or willing to engage in politics, but rather that those adolescents who are more supportive of democracy show greater future anxiety, because they are more worried when observing trends of democratic backsliding and authoritarian shifts. A similar directional relationship has been proposed for climate change, where greater environmental awareness might affect the future planning and mental health of young people (Vercammen et al., 2025). Additionally, there could be unobserved third variables that we were unable to account for in our analyses, despite accounting for demographic variables, such as more general well-being and mental health (Vargas Salfate et al., 2023). Given the parallels between our findings and literature on the role of anxiety in politics, follow-up research should attempt to more precisely isolate the association between future- compared to general anxiety and political attitudes. While it is reasonable to expect that people who are generally anxious are also more worried about the future (Zaleski, 1996), there are theoretical and empirical differences that might result in differential political implications.

First, future anxiety refers to concerns about a more distant future, whereas the mental

location of general anxiety typically focuses on a more proximate timescale (Zaleski et al., 2019). This temporal distinction is important because "in ideological movements, time perspectives appear to be typically future-oriented" (Rokeach, 1960, pp. 367). Second, the longer temporal framework of future anxiety may, in some cases, go hand-in-hand with greater perceived potential for change, which could manifest in increased political engagement, consistent with the association between future anxiety and higher willingness for political participation observed in this study. In contrast, more proximate forms of anxiety and hopelessness, which are common in clinical manifestations of mental disorders (e.g., depression), may reduce willingness to participate in political action due to their overwhelming immediacy (e.g., Ojeda, 2015).

These distinctions should be tested more directly through several approaches. Similar to how political anxiety (i.e., feeling anxious because of the political climate) and general anxiety tap into separate underlying constructs (Weinschenk & Smith, 2024), investigations examining the relations between general-, future-, and political anxiety could provide further conceptual clarity. Observational studies that aim to isolate the effects of future anxiety on political attitudes should include measures of general anxiety and mental health to control for these factors, which we could not do here due to the unavailability of adequate proxy variables. Experimental approaches could also test whether inductions of anxiety with a focus on different temporal scales have distinct effects on political attitudes and behaviour. Overall, given that a core function of political systems is not just to address present concerns but to anticipate future challenges and respond to citizens' anxieties about what lies ahead, there might be a direct link between future anxiety and political attitudes—a causal claim that should be further tested through experimental research.

Such research can build on the insights we provide here. For example, emotion inductions in surveys (Searles & Mattes, 2015) could compare the political implications of different feelings about the distal and proximate future, such as anxiety, but also anger or hope, which may have distinct effects (Wagner & Morisi, 2019). Another valuable comparison would be whether associations between future-oriented feelings and political attitudes differ based on which crisis young people perceive as most important. Our data were collected in Spring 2024 when economic concerns dominated public discourse, yet in the first months of 2025, some of the focus may have started to shift toward defence spending and concerns about national and global security. Future anxiety about war, climate change, or economic instability may show distinct associations with democratic and authoritarian attitudes. For instance, European politics appears not just ideologically polarised but also divided into "crisis tribes": groups primarily concerned about different crises—such as climate change, global economic turmoil, immigration, or the war in Ukraine—each associated with distinct political preferences (Leonard & Krastev, 2024). Different crises may evoke different emotions, but the same emotion about different crises could also have varying political implications. Similar to related research questions on the role of feelings in politics, the relationship between how people feel about the future and politics may be complicated, but solvable (Brandt & Bakker, 2022).

In our UK sample, we also found that associations between future anxiety and political attitudes differed based on young people's general tendencies to regulate their emotions. Specifically, we found that among young people with a greater tendency to regulate their emotions through cognitive reappraisal, the associations between future anxiety and political attitudes were weaker. While again a causal interpretation is not justified given our study design, this finding is aligned with findings in

previous literature suggesting that cognitive reappraisal can moderate relationships between negative emotions and political attitudes (Lee et al., 2013; Zmigrod & Goldenberg, 2021).

Complementing our UK findings, we also provided replication analyses using a sample of Greek adolescents wherever the availability of common measures allowed us to do so. The primary rationale for the inclusion of the Greek sample was the ad-hoc availability of original data to investigate the robustness of our findings. However, while different in many ways, from geography (north vs. south of Europe) to political systems (constitutional monarchy vs. parliamentary republic), the two countries provide an interesting example: previous reports indicate high levels of future anxiety and pessimism about the future in youth in both the UK (Barnardo's, 2024; The Prince's Trust, 2022) and Greece (Hasanovic et al., 2024). Further, in both countries, in more recent years, an ideological gender gap has emerged, with young women becoming more left-leaning than young men (Nennstiel & Hudde, 2025).

This broader context proved relevant to our findings. In both the UK and Greece, future anxiety was higher among young women than young men, and among those with worse living standards compared to those who consider themselves well off. Most notably, we observed distinct patterns in how future anxiety correlates with political attitudes among young women and men across both samples. Only among young men, future anxiety was associated with more right-wing and conservative ideological self-placement. In the UK sample, where additional measures were available, young men with higher future anxiety also showed greater support for authoritarian principles and less actively open-minded thinking. This suggests that future anxiety might be a relevant correlate of the emerging ideological gender gap.

For example, future anxiety could manifest

differently in young women and young men, which—if future anxiety has a causal effect on political attitudes—might lead to ideological differences between young women and young men. For instance, while all young people may worry about economic downturn, young women may experience distinct anxieties about interpersonal relationships, inequality, and health, while young men's anxieties might centre on immigration, economic competition, or changing societal expectations of masculinity (Farhane-Medina et al., 2022; YouGov, 2025). Consequently, the types of political narratives that resonate most strongly with these distinct anxieties could also vary, potentially explaining why future anxiety, in our sample, aligned with more right-wing political stances uniquely among young men. Supporting such an interpretation, Mathisen (2025) found that the widening ideological gap between young women and men primarily reflects increased anti-feminist attitudes among young men.

In summary, given current trends of authoritarian shifts and democratic backsliding, research that sheds light on the psychological and affective factors that could underlie political attitudes, and on strategies that might help people deal with negative emotions and the psychological implications of societal crises, could become of increasing importance. Here we provide first insights into this field of research, highlighting associations between young people's future anxiety and political attitudes. We suggest directions for multiple lines of research that can build on and deepen our cross-sectional findings and help establish a causal understanding.

4.1 Limitations

There are several limitations to this study. First, the cross-sectional design prevented clear inferences about directionality and causality. As extensively discussed, future studies should rule out potential confounds and use designs allowing clearer causal inferences. Second, cross-national replication was limited by measurement differences between samples: the

Greek survey lacked the democratic support measure and used slightly different instruments for other constructs, while the lack of metric measurement invariance prevented meaningful statistical comparisons between countries. The finding that future anxiety was positively associated with democratic support thus requires independent replication. Future studies might also extend the measurement approach to more comprehensive scales or use behavioural outcomes of democratic support (e.g., Claassen et al., 2024; Frederiksen, 2024). Finally, while our sample size was likely adequate to detect small main effects according to common criteria (e.g., Funder & Ozer, 2019), as also indicated by a post-hoc sensitivity analysis, power to detect small moderation effects was likely more limited.

4.2 Constraints on Generality

We presented analyses using large, stratified adolescent samples from two countries, but several factors may still limit the generalisability of our results. Our focus on 16–21-year-olds, while theoretically motivated by this period's importance for political development (Smets, 2021), means findings may not extend to younger adolescents or older adults. The online administration through panel participants may under-represent certain groups despite stratification across socio-demographic indicators. Both samples were European, and whilst the UK and Greece differ substantially across multiple dimensions, broader cross-cultural generalisability requires further samples, particularly given these associations' potential sensitivity to socio-political contexts. Finally, data collection during Spring 2024—when economic concerns dominated public discourse—means associations between future anxiety and political attitudes may differ when other crises are more salient, potentially limiting the temporal generalisability of our findings.

5. CONCLUSION

Our study suggests that future anxiety might be an important correlate of how young people think about and engage with politics. Future



anxiety was associated with greater support for democratic principles (UK sample) and higher willingness to participate in politics (UK and Greek samples), and among young men across both countries, with more right-conservative ideology. Future research should aim to increase our causal understanding of these associations and the differences based on young people's emotion regulation strategies and gender. The focus on young people, who are growing up amidst multiple crises and who will have to live the longest with the consequences of political, societal, and natural crises, is important for two reasons. Firstly, because young people are often the ones most affected by these crises, for example regarding their mental health. Second and perhaps more importantly, today's younger generations are the ones who have the potential to defend democratic values in the future.

6. CONFLICTS OF INTEREST

The authors declare no competing interests.

7. ACKNOWLEDGEMENTS

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8. DATA AVAILABILITY STATEMENT

All materials and data are available at OSF: <https://osf.io/d27rk/>.

9. AUTHOR CONTRIBUTIONS

O.B., M.N., E.S., K.S., and M.T. designed the study

protocol and materials. O.B. analysed the data and created the figures and tables. O.B. and M.T. wrote the first draft of the manuscript. O.B., M.N., E.S., K.S., and M.T. provided critical revisions and edits of the final manuscript.

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