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Educational level and social attitudes: unraveling patterns and methodological considerations

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Keywords

Educational level
Satisfaction with society
Education measurement

Abstract

Educational level is a fundamental variable that has been widely studied in the social sciences. Numerous studies have shown its relevance in explaining different attitudes and behaviors related to both personal and social well-being. However, except for a few exceptions, less attention has been paid to how this variable is measured and operationalized. In this article, we illustrate the effects that the operationalization of education can have on a series of variables relevant to satisfaction with society: attitudes towards immigration (Study 1), technocratic attitudes (Study 2), trust in the police (Studies 3a and 3b), and attitudes toward poverty reduction (Study 4). To do this, we use data from the EVS/WVS 2017-2022, European Social Survey Round 10, and a representative national sample from Spain. In this latter study, we include a novel variable in studies related to education: the subjective perception of educational level compared to the rest of society. Finally, we discuss our results and offer some suggestions and recommendations for those interested in studying the effects of educational level or using it as a control variable in their analyses.

Nivel educativo y actitudes sociales: desentrañando patrones y consideraciones metodológicas

Palabras clave

Nivel educativo
Satisfacción con la sociedad
Medición educación

Resumen

El nivel educativo es una variable fundamental que ha sido ampliamente estudiada en las ciencias sociales. Numerosos estudios han mostrado su relevancia para explicar diferentes actitudes y comportamientos relacionados tanto con el bienestar personal como con el bienestar social. Sin embargo, salvo algunas escasas excepciones, no se ha prestado tanta atención a la forma en la que se mide y operacionaliza esta variable. En este artículo se ilustran los efectos que puede tener la forma de operacionalizar la educación en una serie de variables relevantes para la satisfacción con la sociedad: las actitudes hacia la inmigración (Estudio 1), las actitudes tecnocráticas (Estudio 2), la confianza en la policía (Estudios 3a y 3b) y las actitudes hacia la reducción de la pobreza (Estudio 4). Para ello, empleamos datos de la EVS/WVS. 2017-2022, de la Ronda 10 de la European Social Survey y una muestra nacional representativa española. En este último estudio incluimos una variable novedosa en los estudios relacionados con la educación: la percepción subjetiva del nivel educativo en comparación con el resto de la sociedad. Finalmente, discutimos nuestros resultados y planteamos algunas sugerencias y recomendaciones para las personas interesadas en estudiar los efectos del nivel educativo o introducir este como control en sus análisis.

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There is considerable evidence that differences between people in socioeconomic status (SES) have important psychological and life consequences (Manstead, 2018; Moya y Fiske, 2017). In this paper we focus on consequences related to political life, specifically on satisfaction with society.

When considering these consequences, it is important to keep in mind how SES is conceptualized, having been common to distinguish between objective and subjective SES. Furthermore, for the former, it is common practice to operationalize it as the mean of education and income, in some cases with other variables such as occupation (see Moya & Alcañiz-Colomer, 2023). We focus primarily on the dimension of education. A higher educational level appears associated with greater skills and greater and better employability, which has a positive impact on people's living conditions. Education has also been conceived as one of the most powerful means to reduce differences between classes and facilitate upward social mobility (CRUE, 2019). However, at the same time there is evidence that education strengthens and legitimizes differences between social classes (Batruch et al., 2019 in the European context; Stephens et al. 2014 in the United States context).

Education, social attitudes and satisfaction with society

Regarding social attitudes and satisfaction with society, it has been found that higher levels of education are related to numerous political and social variables, as less prejudice toward migrants (Borgonovi, 2012), less support for anti-immigration policies (Borgonovi & Pokropek, 2019), less radical-right voting (Cordero et al., 2022), or more political interest and engagement (Emler & Frazer, 1999). For instance, Easterbrook et al. (2016), using representative data from the United Kingdom and different countries (mostly from Europe, North America, and Australia), found that education was positively related with higher trust and political interest, and with less political cynicism and less negative intergroup attitudes. According to these authors, most of the education effect appears to be due to the beneficial consequences of having a university education. While education has generally been associated with positive outcomes, as previously mentioned, other authors have suggested negative consequences of education. For instance, higher educated people hold negative attitudes towards the less educated, seeing them as more responsible and blameworthy for their situation (Kuppens et al., 2018).

In this work we do not intend to do an exhaustive review of these variables related to satisfaction with society. Our purpose is to choose some of these variables to illustrate how their relationship with people's educational attainment sometimes depends on how education is conceptualized and measured. Specifically, we will focus on attitudes towards immigration and people from other nationalities, attitudes toward technocracy, trust in the police, and attitudes towards redistribution. As Esses indicates: "Attitudes toward immigrants among members of receiving societies are important because they may influence support for immigration policies within a nation, the treatment and acceptance of immigrants, the success of immigration policies, the life outcomes of immigrants, and, ultimately, the degree of harmony or discord within the nation" (2021, p. 505). Technocracy, or the exercise of political power by an elite of experts legitimized by their competence, efficiency, and neutrality, has been acquiring great importance in recent years, especially because of the COVID-19 pandemic. For instance, Cena and Roccato (2023) found among the Italian population that subjective vulnerability to COVID-19 showed a positive relationship with trust in science and scientists, which, in turn, had a positive relationship with favor for a technocratic government, particularly among participants who had low trust in the Italian parliament. However, it has also been found that a political regime primarily focused on technocratic governance greatly limits the possibilities of citizen participation in democracy and their own status as citizens (e.g., Walzer, 1983). Trust is an important motivation for individual and social functioning. In the case of trust in the police, it implies that the person believes that they will receive fair treatment from this institution and its members (Bradford & Jacskon, 2010). Trust in the police is important because the police have been entrusted with the power of exercising authority and with the right to use force against citizens; trust in the police is also important from the point of view of effective police work. Finally, attitudes toward social protection policies and welfare programs hold significant relevance in our social context, as shown by the continuous political and social debate on these issues.

Conceptualization and measurement of education

The way education is measured is highly dependent on the specific research question posed in studies. For example, some authors have focused on the socialization effects associated with university studies (Gelepithis & Gianni, 2022; Scott, 2022), so they have operationalized it as a dichotomous variable (No university studies vs. With university studies). Other times, researchers have used a categorical variable with different standardized levels of education (Hainmueller & Hiscox, 2007), or measures such as the number of years in the educational system, asked directly or recalculated from the highest qualification that individuals held (Connelly et al., 2016). In sum, there is a wide variety of ways to measure and operationalize education. While each of these forms may address different research questions, there may also have practical implications when interpreting the results and the potential effect of education on socially relevant variables.

The present research

The main objective of this paper is to analyze how the operationalization of educational level influences the obtained results when is included as a predictor of different variables. We only analyze the results of some of the most common ways of operationalizing education: as a quantitative variable, as a categorical variable (with all educational levels), as a dichotomous variable (comparing individuals with university education to those without), or as a categorical variable with

three levels (low, medium, and high). We analyze the effects of education on a series of variables relevant to satisfaction with society: attitudes towards immigration (Studies 1a and 1b), technocratic attitudes (Study 2), trust in the police (Studies 3a and 3b), and attitudes toward redistribution (Study 4). Additionally, in this last study, we include subjective perception of social position in terms of educational level (Navarro-Carrillo et al., 2020). This may be especially relevant given the observed differences, for example, between the effects of objective and subjective socioeconomic status on different variables. All studies have been conducted using databases that include representative samples, most of them from different countries. The codes used in these analyses, as well as links to the databases, supplementary materials and survey materials, can be found on this OSF page: https://osf.io/j7ebq/?view_only=40d98640cd47439292ce313c6fd8d1db

Study 1

Study 1 aims to analyze the influence of education on attitudes towards immigration, specifically examining whether there are differences in this influence depending on how the education variable is operationalized. To do so, we utilized data from the joint 2017-2022 EVS/WVS datafile (EVS/WVS, 2022).

Data and participants

The joint 2017-2022 EVS/WVS results from the joint effort of two large-scale survey research programs across different countries, the World Values Survey (WVS) and the European Values Survey (EVS). The final database comprises 152,501 observations (M_{age} = 45.71, *SD* = 17.19; 46.03% male). However, in the multilevel multiple regression models, the number of observations is lower due to missing values in some variables.

Measures

Our dependent variable was operationalized in two different ways. First, as the *Overall opinion about immigration*, with responses to an item where participants had to evaluate the impact of immigrants on the country's development, using a Likert-type response format ranging from 1 = *Very bad* to 5 = *Very good*. Second, we operationalized it as *Trust in people of another nationality*. Participants indicated the extent to which they trusted people of another nationality, among other groups, using a scale from 1 = *Completely Trust* to 4 = *Do not trust at all*. We recoded the variables so that higher scores indicate greater trust. All details regarding the wording of the questions can be found in the Supplementary materials (Section S1).

We operationalized our independent variable, *Educational level*, in four different ways. Based on the variable present in the database regarding the maximum educational level using the ISCED system for classifying educational level, we operationalized it as: a) a quantitative variable, b) a categorical variable, and c) a dichotomous variable (0 = No university studies, 1 = University studies). Additionally, we also used d) the recoded variable present in the database with three levels (1 = *Lower*, 2 = *Middle,* 3 = *Upper*). We included several control variables in our analyses: gender, age, political ideology, and income. Information on how these variables were measured can be found in the Supplementary materials (Section S1). Descriptive statistics and correlations among variables can be found in the Supplementary materials (Tables S1 and S2, section S1).

Data analysis

For building the multilevel models, both in this study and in the following ones, we utilized the *lmer4* package (Bates et al., 2015) in the R program (R Core Team, 2023). Since we are interested in the individual effects of the variables, we centered the quantitative variables using the country's mean (Enders & Tofighi, 2007). For space reasons and to facilitate the article's readability, in this section we present only the tables of the models including education, although covariates have been included in those models. For the complete models and more information about the multilevel analysis process, please refer to the Supplementary materials (Tables S3 and S4, section S1). We also applied the weights provided by the institution in all our analyses.

Results

First, a brief clarification for the interpretation of both these and the following tables. The first column, with education as a quantitative variable, is interpreted as follows: a positive coefficient indicates that an increase in the education variable is associated with an increase in the dependent variable; conversely, if the coefficient is negative. In other cases, when education is introduced as a factor, the interpretation changes slightly and each level of the factor is compared to the reference category. Thus, a negative coefficient implies that these levels are associated with a decrease in the dependent variable compared to the reference used (indicated in each table). Positive coefficients imply an increase in the dependent variable compared to the reference.

As shown in Tables 1 and 2, education positively predicted both the variable of general opinion on immigration and trust in people of other nationalities. In this case, whether introduced quantitatively, categorically, or comparing different recodifications of educational level, the same effect was observed: higher educational level was associated with a more positive attitude towards immigration in general and greater trust in people of another nationality. This was also true when comparing individuals with university studies to those without. In conclusion, although it may have important implications depending on the research question (e.g., the interest is in examining how university socialization influences attitudes), in this case, it appears that the effect is consistent across different operationalizations of educational level.

Table 1

Multilevel regression models with education predicting overall attitudes toward immigration (N = 78 countries; 102,801 observations)

	Model 1		Model 2		Model 3		Model 4	
	β	*CI*	*β*	*CI*	*β*	*CI*	*β*	*CI*
Education (numeric)	.06***	.06, .07						
Education (factor)[1]								
Less than primary			-.15***	-.19, -.12				
Primary			-.15***	-.18, -.13				
Lower secondary			-.13***	-.16, -.11				
Upper secondary			-.13***	-.14, -.11				
Post-secondary non-tertiary			-.13***	-.16, -.10				
Short-cycle tertiary			-.08***	-.10, -.05				
Master or equivalent			.06***	.04, .08				
Doctoral or equivalent			.06*	.01, .11				
Education (dichotomic)[2]					-.15***	-.13, -.16		
Education (three categories)[3]								
Lower							-.14***	-.15, -.12
Middle							-.13***	-.14, -.11
σ^2	0.55		0.55		0.55		0.55	
τ_{00}	$0.16_{country}$		$0.15_{country}$		$0.16_{country}$		$0.15_{country}$	
ICC	0.22		0.22		0.22		0.22	
Marginal R^2 / Conditional R^2	0.015 / 0.233		0.017 / 0.232		0.014 / 0.212		0.017 / 0.210	

Note. [1]Reference category is "Bachelor or equivalent". [2]Reference category is "University studies". [3]Reference category is "Upper".
*p < .05, **p < .01, *** p < .001.

Table 2

Multilevel regression models with education predicting trust in people from another nationality (N = 78 countries; 102,801 observations)

	Model 1		Model 2		Model 3		Model 4	
	β	*CI*	*β*	*CI*	*β*	*CI*	*β*	*CI*
Education (numeric)	.09***	.09, .10						
Education (factor)[1]								
Less than primary			-.25***	-.29, -.21				
Primary			-.24***	-.27, -.22				
Lower secondary			-.23***	-.25, -.21				
Upper secondary			-.15***	-.17, -.13				
Post-secondary non-tertiary			-.09***	-.12, -.07				
Short-cycle tertiary			-.06***	-.09, -.04				
Master or equivalent			.08***	.05, .10				
Doctoral or equivalent			.12***	.07, .17				
Education (dichotomic)[2]					-.18***	-.17, -.20		
Education (three categories)[3]								
Lower							-.24***	-.26, -.22
Middle							-.15***	-.16, -.13
σ^2	0.37		0.37		0.37		0.37	
τ_{00}	$0.14_{country}$		$0.13_{country}$		$0.14_{country}$		$0.14_{country}$	
ICC	0.28		0.27		0.27		0.27	
Marginal R^2 / Conditional R^2	0.021 / 0.298		0.025 / 0.285		0.019 / 0.288		0.022 / 0.286	

Note. [1]Reference category is "Bachelor or equivalent". [2]Reference category is "University studies". [3]Reference category is "Upper".
*p < .05, **p < .01, *** p < .001.

Study 2

In Study 2, we selected another variable to examine how the operationalization of educational level influences the results. Specifically, we focused on attitudes towards technocracy, using the same database from Study 1 (EVS/WVS, 2022).

Data and participants

As noted, we used the same database as in Study 1 (M_{age} = 45.71, *SD* = 17.19; 46.03% male). The number of observations in the final models differs due to variations in missing values used in one study versus another.

Measures

In this study, we used the same operationalizations of education as in Study 1 and we also included gender, age, political ideology, and income as covariates (refer to section S1 in the Supplementary materials for details on these variables). To capture *technocratic attitudes*, we utilized responses to the following item: "Having experts, not government, make decisions according to what they think is best for the country". This item is part of a broader set with the following header: "I'm going to describe various types of political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad, or very bad way of governing this country?" Participants indicated their level of agreement on a scale from 1 = *Very good* to 4 = *Very bad*. We reversed the responses so that higher scores indicate stronger technocratic beliefs. This item, or similar ones, has been used in previous research analyzing technocratic attitudes (e.g., Bertsou & Pastorella, 2017; Kim, 2024). Descriptive statistics and variable correlations can be observed in the Supplementary materials (Section S2, Tables S5 and S6).

Results

We followed the same analytical procedure as in Study 1, and the tables with the complete models can be found in Section 2 (Table S7) of the Supplementary materials. As seen in Table 3, there are significant differences in the observed effects of educational level depending on how it is operationalized. When included as a numerical variable, there is a small but negative effect on technocratic attitudes. When included as a categorical variable with 9 levels, we only detected differences with the master level of educational attainment. The latter showed less technocratic attitudes in comparison with those with a bachelors' degree. When treated as a dichotomous variable (individuals with university education vs. without university education), there are no significant differences. When the variable was included as a three-level variable (Lower, Middle, Upper, with Upper as the

Table 3

Multilevel models with education predicting technocratic attitudes in Study 2 (N = 78 countries; 102,992 observations)

	Model 1		Model 2		Model 3		Model 4	
	β	*CI*	*β*	*CI*	*β*	*CI*	*β*	*CI*
Education (numeric)	-.01**	-.02, -.00						
Education (factor)[1]								
Less than primary			-.01	-.05, .03				
Primary			.02	-.00, .05				
Lower secondary			.01	-.01, .03				
Upper secondary			-.01	-.03, .01				
Post-secondary non-tertiary			-.01	-.04, .02				
Short-cycle tertiary			-.01	-.04, .01				
Master or equivalent			-.04***	-.07, -.02				
Doctoral or equivalent			-.01	-.07, .04				
Education (dichotomic)[2]					.01	.03, .00		
Education (three categories)[3]								
Lower							-.03***	-.01, -.05
Middle							-.01	-.01, .02
σ^2	0.51		0.51		0.51		0.51	
τ_{00}	$0.10_{country}$		$0.10_{country}$		$0.10_{country}$		$0.10_{country}$	
ICC	0.17		0.16		0.16		0.16	
Marginal R^2 / Conditional R^2	0.006 / 0.170		0.007 / 0.170		0.006 / 0.170		0.006 / 0.170	

Note. [1]Reference category is "Bachelor or equivalent". [2]Reference category is "University studies". [3]Reference category is "Upper".
*p < .05, **p < .01, *** p < .001.

reference), differences are only observed with the lowest educational level. That is, the latter showed more technocratic attitudes compared to those with an upper educational level.

Studies 3a and 3b

In previous studies, we have observed that in some cases, the effect of education is consistent across different ways of operationalizing this variable (Study 1), but in others, there are important nuances (Study 2). In this study, we aim to expand the scope of these results by including another variable: trust in the police.

Study 3a

Data and Participants

We utilized the data previously used in Studies 1 and 2 (EVS/WVS, 2022). The item we used for the dependent variable was not asked in Egypt, hence the final number of observations is lower than in the other studies (N = 151,301, M_{age} = 45.75, SD = 17.21; 53.94% female).

Measures

For both the independent variable (e.g., educational level) and the covariates, we used the same measures and operationalizations as in Studies 1a and 2 (see Section S1 in Supplementary materials). Our dependent variable, *trust in the police*, was measured using an item asking participants how much confidence they have in the police, with a response format ranging from 1 = *A great deal* to 4 = *None at all*. This item was part of a battery of items about trust in different organizations (e.g., the church, the military). This same item has been used in previous research to measure trust in the police (Morris, 2014), although it has also been subject to some criticisms (Schaap & Scheepers, 2014). We reversed the values so that higher scores indicate greater trust in the police. Descriptive statistics and variable correlations can be consulted in the Supplementary materials (Section S3).

Results

We followed the same analysis strategy as in the previous studies. The complete models, including covariates, can also be found in Section S3 of the Supplementary materials. As seen in Table 4, we also found significant differences in this study depending on the operationalization of the educational variable. When operationalized as a numerical variable (Model 1), the effect on trust in the police is negative, meaning that higher educational attainment is associated with lower trust in the police. When introduced as a categorical variable with all ISCED categories, differences are only observed with

Table 4

Multilevel models with education predicting trust in the police in Study 3a (N = 78; 106,322 observations)

	Model 1		Model 2		Model 3		Model 4	
	β	*CI*	*β*	*CI*	*β*	*CI*	*β*	*CI*
Education (numeric)	-.03***	-.04, -.03						
Education (factor)[1]								
Less than primary			.18***	.13, .21				
Primary			.15***	.12, .17				
Lower secondary			.06***	.04, .08				
Upper secondary			.00	-.01, .02				
Post-secondary non-tertiary			-.01	-.02, .03				
Short-cycle tertiary			-.01	-.03, .01				
Master or equivalent			-.00	-.03, .02				
Doctoral or equivalent			-.04	-.09, .01				
Education (dichotomic)[2]					.03***	.04, .02		
Education (three categories)[3]								
Lower							.10***	.09, .12
Middle							.01	-.01, .02
σ^2	0.42		0.42		0.42		0.42	
τ_{00}	$0.15_{country}$		$0.15_{country}$		$0.15_{country}$		$0.15_{country}$	
ICC	0.26		0.26		0.26		0.26	
Marginal R^2 / Conditional R^2	0.010 / 0.264		0.013 / 0.271		0.009 / 0.264		0.012 / 0.268	

Note. [1]Reference category is "Bachelor or equivalent". [2]Reference category is "University studies". [3]Reference category is "Upper".
*p < .05, **p < .01, *** p < .001.

lower educational levels (people with a bachelor's degree or equivalent trust less the police than people with less than primary, primary or lower secondary educational levels), which is consistent with the results when partitioned into three levels (Lower, Middle, Upper): differences are only observed with the lowest level (who trust more the police than those with the highest educational level). When included as a dichotomous variable, there are significant differences between individuals with university education and those without it, with the latter showing greater trust in the police. However, considering the entirety of the models, these results may be due to the stronger effect of individuals with lower educational levels rather than a clear effect (e.g., of socialization) of having attended university.

Study 3b

Data and Participants

For this study, we utilized data from the European Social Survey Round 10 (ESS ERIC, 2023). The ESS is an academically driven cross-national survey conducted every two years, with cross-sectional designs and different modules each year on social issues. Specifically, Round 10 focuses on democracy and digital social contacts. Fortunately for our purposes, the survey includes a standard question about trust in the police, so we used the most recent survey available at the time of writing the article. The sample consists of 37,611 observations (M_{age} = 50.85, *SD* = 18.41; 53.57% female) and covers 31 European countries.

Method

The educational level variable is also slightly different in this case, following the ES-ISCED coding system and providing a recording of educational level into three categories (Lower, Middle, Upper) within the survey itself. In the latter case, we performed the recoding ourselves, considering the equivalences between the measurement in the WVS and that in the ESS. Thus, the number of different operationalizations of educational level is similar to that of previous studies. For the covariates, we used the same than in previous studies, although there are slight differences in the approach and content of these measures. All these details can be found in Section S4 of the Supplementary materials.

The item used to capture trust in the police is similar to that of Study 3a; however, in this case, the response scale ranges from 1 = *No trust at all* to 10 = *Complete trust*. Similarly, participants were asked about trust in the police as part of a battery along with other institutions, with the following header: "Using this card, please tell me on a score of 0-10 how much you personally trust each of the institutions I read out…". This item has been previously used in research about trust in police (Alalehto & Larsson, 2016; Kääriäinen, 2007). Descriptive statistics and correlations among variables can be consulted in section S4 of the Supplementary materials.

Table 5

Multilevel models with education predicting trust in the police in Study 3b (N = 22 countries; 25,888 observations)

	Model 1		Model 2		Model 3		Model 4	
	β	*CI*	*β*	*CI*	*β*	*CI*	*β*	*CI*
Education (numeric)	.03***	.02, .04						
Education (factor)[1]								
Less than lower secondary			-.04	-.10, .02				
Lower secondary			-.06**	-.11, -.02				
Lower tier upper secondary			-.05	-.09, .00				
Upper tier upper secondary			-.03	-.07, .00				
Advanced vocational, sub-degree			-.05*	-.09, -.00				
Higher tertiary education, ≥ Master			.06**	.02, .10				
Education (dichotomic)[2]					-.08***	-.10, -.05		
Education (three categories)[3]								
Lower							-.09***	-.12, -.05
Middle							-.07***	-.10, -.02
σ^2	4.97		4.97		4.97		4.97	
τ_{00}	$1.01_{country}$		$1.00_{country}$		$0.99_{country}$		$1.00_{country}$	
ICC	0.17		0.17		0.17		0.17	
Marginal R^2 / Conditional R^2	0.015 / 0.182		0.015 / 0.180		0.015 / 0.179		0.015 / 0.179	

Note. [1]Reference category is "Lower tertiary education, BA level". [2]Reference category is "With university studies". [3]Reference category is "Upper".
*p < .05, **p < .01, *** p < .001.

Results

As shown in Table 5, the results differ from those of Study 3a: higher educational levels are associated with greater trust in the police, although with some inconsistencies when education is introduced as a categorical variable with all its levels (Model 2). Considering that the ESS includes European countries and the WVS/EVS includes both European countries and those from the rest of the world, this result may be explained by contextual effects. However, we repeated the analyses using only the EVS conducted in European countries, and the results were similar to when the joint database with the WVS was used. Furthermore, we conducted the same analysis only with countries that appear in both the ESS and the EVS. All these analyses can be found in the Supplementary materials (Section S4). This inconsistency may be a symptom of the dependence on how education is measured, as other authors have pointed out previously (Ortmanns & Schneider, 2016b). Other alternative explanations may include the specific wording of the question or the placement of the question within the survey. Additionally, while the ESS Round 10 data were collected between 18/09/2020 and 03/09/2022, the EVS/WVS data were collected between 2017 and 2023. We cannot rule out the possibility that the timing of data collection (e.g., before or after the COVID-19 pandemic) may have influenced these results. However, a more in-depth analysis of this issue is beyond the scope of this article. Complete models and displaying control variables can be found at the Supplementary materials (section S4).

Study 4

In this study, we included a different operationalization of education, which has been little explored in the literature to date: subjective perception of educational level (Navarro-Carrillo et al., 2020). Additionally, we used a variable whose relationship with education has been widely studied: attitudes toward redistribution.

Data and participants

The data used in Study 4 are part of a larger project, and several additional measures were included in the survey besides those reported here. The final sample consisted of 1,541 individuals over 18 years old and living in Spain (M_{age} = 50.99, SD = 18.42; 50.55% female). Data collection was conducted by a specialized survey company, Netquest, using quota stratified sampling to closely match the distribution of the Spanish population.

Method

Educational level was measured using an item asking participants about the highest level of education they had achieved, ranging from 1 = *No education* to 8 = *Doctorate*. Subjective socioeconomic status in terms of education was measured with an adapted item developed by Navarro-Carrillo et al. (2020). Specifically, participants were asked to rate their position on a scale of 1 to 10 in the social hierarchy relative to others in society

Table 6

Multiple regression models with education predicting attitudes toward poverty reduction

	Model 1		Model 2		Model 3		Model 4		Model 5	
	β	*CI*	*β*	*CI*	*β*	*CI*	*β*	*CI*	*β*	*CI*
Education (numeric)	-.12***	-.17, -.07								
Education (factor)[1]										
No Studies			.14	-.34, .62						
First grade (e.g., School certificate)			.34	-.02, .69						
Second grade (first cycle)			.47***	.28, .65						
Second grade (second cycle)			.22**	.09, .36						
Third grade (first cycle)			.08	-.08, .24						
Master			-.04	-.23, .14						
Doctoral			.20	-.23, .53						
Education (dichotomic)[2]					.30***	.15, .34				
Education (three categories)[3]										
Lower							.23	.05, .52		
Middle							.24***	.15, .34		
Education (subjective perception)									-.05**	-.12, -.02
Observations	1541		1541		1541		1541		1541	
R^2 / Adjusted R^2	0.089 / 0.085		0.095 / 0.088		0.089 / 0.085		0.089 / 0.085		0.080 / 0.076	

Note. [1]Reference category is "Third grade (second cycle)". [2]Reference category is "With university studies". [3]Reference category is "Upper". *p < .05, **p < .01, *** p < .001.

in terms of educational level. Attitudes toward redistribution were measured using four items adapted from the Pew Research Center (2014) to capture *attitudes toward poverty reduction* (ω_{ho} = .73). The response format ranged from 1 = *Nothing at all* to 7 = *A lot*). To consult further details about the latter measures and the included covariates, please refer to the Supplementary materials (section S5).

Results

The models presented in Table 6 include covariates in the calculation of coefficients, as in previous cases. The complete models are available in the Supplementary materials (Section S5). As observed in Table 6, something similar occurs to Studies 2, 3a, and 3b. When included as a numerical variable (Model 1), higher educational levels are associated with more negative attitudes toward poverty reduction through government action. When all educational categories are included (Model 2), few differences are observed, with individuals holding second-cycle studies showing a more positive attitude toward poverty reduction compared to university-educated individuals. When introduced as a dichotomous variable (Model 3), it is observed that individuals with university education have a more negative attitude compared to those without, but this is likely because of individuals with middle-level studies. Indeed, when introduced as a categorical variable with three levels (Model 4), differences are only found between individuals with middle-level education compared to those with high-level education. Although this may be due to the low number of participants with low educational levels. Lastly, and interestingly, the same effect of subjective socioeconomic status in terms of education is observed (Model 5): the higher one perceives themselves in terms of education compared to others, the more negative their attitude toward poverty reduction. However, the effect is weaker than that of objective educational level.

Discussion

This research illustrates the importance that people's educational level has for the level of satisfaction they experience with society, an important component of subjective wellbeing. In general, our results show that the higher the educational level of people, the better their attitudes towards immigration, towards people from other countries, and towards government policies that redistribute resources. The results are less clear when it comes to attitudes towards the police and towards technocracy. However, our most important message is that, when analyzing the relationship between education and indices of satisfaction with society, it is important to consider the way education is measured. We empirically verify that, in some cases, the way education is operationalized significantly impacts the results, as well as the consequent interpretations obtained. For instance, when focusing on attitudes toward immigration, measured in two different ways, we find that the relevance of the measure is diminished, as it is generally observed that higher educational levels correlate with more favorable attitudes toward immigration. This is consistent with previous research and reviews on the topic (Ceobanu & Escandell, 2010).

However, how education is measured seems to have greater relevance. Considering the results of Study 3a, higher education is associated with lower trust in the police when looking at the numerical variable. If we focus on the dichotomous variable, it could be said that the distinguishing factor is having a university education, as individuals with university studies show higher trust compared to those without university studies. Finally, when finer categorizations are considered, it becomes evident that this is not entirely true, as differences are found concerning individuals with lower educational levels but not with those at intermediate levels. It is important to note that such reductions, collapsing different educational levels into the same category, while they may make sense for practical research purposes, do not represent the variety of educational levels and their potential effects, artificially increasing variability within the categories themselves (Schneider, 2011). These results could have significant implications for the conclusions drawn from various studies, especially when introduced routinely without thoroughly discussing the analytical decisions made. For example, if a study finds that when comparing individuals with university education they exhibit a different attitude towards variable X compared to those without such education, it might conclude that this is an effect due to university socialization and derive theoretical and practical conclusions based on this. However, it could be that this effect is strongly influenced by those with a lower educational level, causing the nuances to be lost when collapsing the rest of the categories as "Without university education". Hypothetically, in this case, there might be no differences between individuals with university education and those with secondary education, which would have different practical and theoretical implications.

Other relevant contribution of our study is the inclusion of a relatively novel measure that expands the field of possibilities when studying the effects of educational level: the subjective perception of educational level compared to the rest of society (Navarro-Carrillo et al., 2020). Although the results of Study 4 show that both educational level and subjective perception predict attitudes toward redistribution in the same direction, the predictive strength differs, which could imply that they function differently regarding other variables. Future research focusing on the effects of educational level could take this into account and explore the differences and similarities between objective and subjective educational level.

Limitations

This article has some limitations. We have focused solely on a few variables to illustrate our arguments, but there are many others where that could be considered. Additionally, we have not systematically focused, for instance, on the different categorizations used in international surveys to measure educational level and the comparison between them (see Ortmanns & Schneider, 2016), nor on deeper aspects of education measurement,

related to the importance of context or country, for example (see Connelly et al., 2016). We have simply problematized the operationalization of education and shown some potential effects when conducting statistical analyses.

Implications and future research

The way education is operationalized will depend on the specific research question researchers seek to answer. This may not be problematic. However, we do recommend paying more attention to and being more transparent about the purpose and measure of including education in analyses when used as a control. When the main object of research is education itself, we also recommend comparing the proposed model with others where education is operationalized differently. For example, when the interest is to explore whether the socializing effect of university influences a lower sense of anomie, in addition to the main model with education as a dichotomous variable (university vs. non-university education), another operationalization (e.g., in three levels: low, medium, and high) could be included to verify the specific effect of attending university. In conclusion, a good option would be to include a measure of educational level with multiple options (e.g., the ISCED categorization) and subsequently recategorize it based on the specific research question. This way, complementary analyses can be conducted, including different operationalizations, to ensure it is a consistent effect. Furthermore, our results show that the linear or nonlinear effects of education largely depend on the dependent variable being used. Therefore, the aforementioned approach could be an important step to avoid assuming any linear effect of education. In cases where researchers are only interested in including education as a covariate for their analyses (e.g., in a regression analysis), it may be sufficient to include it as a categorical variable with the different levels of a standardized measure.

As suggested in other research (Moya & Alcañiz-Colomer, 2023), the effects of education can vary depending on the national and cultural context. In this regard, our study does not delve into this possibility. In addition to cross-cultural comparisons, an interesting possibility for the future is to longitudinally study this relationship between educational level and psychosocial attitudinal variables, examining in more detail how different educational trajectories may influence these. On the other hand, it would be important to study in greater depth the exact mechanisms that lead to these different attitudes depending on educational level. Future research should delve into these issues.

As we have outlined in the introduction, educational level is a fundamental variable related to a multitude of factors intertwined with social well-being and satisfaction with society. One of the first steps in being able to implement strategies and intervention programs that can increase overall social well-being is to have reliable, clear, and interpretable evidence on the phenomena that influence human behavior.

Author contributions

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Declaration of interests

The authors declare that there is no conflict of interest.

Data availability statement

All the data, questionnaires and codes are openly available at https://osf.io/j7ebq/. We also provide links to access the cross-country databases used in this article.

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Educational level and social attitudes: unraveling patterns and methodological considerations
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