

Review

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Review

Individual Variables Related to Ideological Open-Mindedness: A Scoping Review

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Abstract

With contemporary social movements related to civil rights, personal freedoms, and tensions in higher education institutions around academic freedom, ideological open-mindedness has become an increasingly popular research topic in recent decades. Such openness has been defined as a disposition to engage meaningfully with novel ideas that may conflict with one's own, and to accommodate or disregard such views with delicacy, precision, and care (Cormier et al., 2026; Kwong, 2023). Findings on effective interventions to reduce ideological polarization remain limited, highlighting the need for a cohesive review. This review catalogued and analyzed findings on individual differences related to ideological open-mindedness through an exploratory research question: Are there measured individual differences (psychological and demographic variables such as personality traits, political beliefs, and gender) that relate meaningfully to ideological open-mindedness? The search process retained 152 records. Results showed associations between ideological open-mindedness and personality traits, age, gender, sexual orientation, culture, language, political standing, socioeconomic status, religious beliefs, education level and type, personal past experience, competence, personal beliefs and interests, and emotional tendencies. Considering varied associations between individual characteristics and differences in ideological open-mindedness, this review serves as a guide towards better understanding this complex construct as precursor to informing effective interventions.

Keywords: openness; individual variables; ideology; polarization; political psychology; moral psychology; ideological open-mindedness; open-mindedness; scoping review

1. Introduction

Globalization has led societies to become in turns both more culturally homogenous (e.g., through shared consumer practices), yet also more heterogeneous (e.g., through cross-continental travel and multiculturalism). As interactions between people of diverse backgrounds and ideological beliefs has increased dramatically over the past several decades, many multicultural and intercultural societies have observed ideological tensions and conflicts among their members (Anderson & Paskeviciute, 2006; Fenton & Smith, 2019). Current political divides, ideological echo chambers magnified by social media algorithms, and even the global pandemic have exacerbated socio-political polarization both societally and on university campuses (Cinelli, 2021; Etzioni, 2019; Fenton & Smith, 2019; Karami & Parra-Martinez, 2021; Stephens, 2021; Sugarman & Martin, 2018). Prior to

implementing effective, evidence-based interventions for addressing such tensions, a better understanding of concepts such as ideological open-mindedness is crucial—as well as a greater understanding of how individuals differ in their responses to polarizing topics, and whether such differences can be measured.

Ideological open-mindedness (IOM), or the appreciation of the complexity of diverse perspectives, ideas, and cultural viewpoints in society (Cormier et al., 2026; Shim & Perez, 2016), is an important concept in education that serves both as a function and goal of learning. Openness to ideas varies from person to person via individual differences, and variables such as age (Berg et al., 2002), personality (Song & Shi, 2017), and political beliefs (Newman & Sargent, 2021) are thought to influence levels of this construct.

Researchers in sociology and anthropology have been interested in the topic of individual differences and IOM. Campbell and Manning (2018), for example, have proposed that there is an ongoing cultural shift in the ways moral concepts are defined, and have argued that an emphasis on individual identity contributes to a new moral era coined as “victimhood culture,” that encourages both self-victimization and the victimization of others, and is often predicated on conformity in the expression of ideas. Meanwhile, in the field of psychology and on university campuses, there have been debates on freedom of expression such as who (e.g., based on their political or other identities) should be allowed to have a speaking platform (Elford, 2023), the merits of “trigger warnings” for potentially offensive ideas (Bridgland et al., 2024) as a means of protecting those with lived experience or identities impacted by graphic or challenging topics, and whether it is helpful or harmful to prevent a new generation of students from interacting with opinions that are considered unsafe. Some authors state that this stance hinders academic freedom and personal growth while exacerbating marginalized communities’ vulnerability (Bridgland et al., 2022; Haidt & Lukianoff, 2019). Others argue that the protective stance helps people of marginalized communities to engage in academic settings without adverse emotional consequences (Carter, 2015; Stokes, 2014). Openness to the ideas of others and to different ideologies, in either case, seems to lie at the core of many of these issues, wherein personal identities, identity groups, and other demographic variables also seem to play a role.

While research in moral psychology has grown in recent years, few studies have focused on measuring and defining IOM or on examining overarching patterns of IOM traits and individual differences. This paper reports literature review findings from interdisciplinary studies dealing with what individual differences are associated with ideological open-mindedness. Namely, these differences as reported in the literature include participants’ personality traits, age, gender, sexual orientation, culture, language, political standing, socioeconomic status, religious beliefs, education level and type, personal past experience, competence, personal beliefs and personal interests, and emotional tendencies.

2. Materials and Methods

2.1. Protocol, Registration, and Research Question

This scoping review was designed as a structured approach to identifying, screening, and synthesizing relevant literature, and was developed in consultation with a research librarian. The protocol was informed by established methodological frameworks for scoping reviews, including those outlined by Arksey and O’Malley (2005), as well as subsequent guidance from Tricco et al. (2016) and Horey et al. (2018). These frameworks describe a five-stage process comprising: (1) defining the research question, (2) identifying relevant studies, (3) selecting studies, (4) charting the data, and (5) collating and summarizing the results.

Scoping reviews are intended to map key concepts, patterns, and gaps within a body of literature, typically emphasizing comprehensive coverage rather than detailed appraisal of study quality (Pham et al., 2014). This approach was selected given the breadth and ongoing expansion of research related to ideological open-mindedness.

The present review addressed the following research question: *Are there measurable individual differences (e.g., psychological or demographic variables such as personality traits, political beliefs, or gender) that are meaningfully associated with ideological open-mindedness?* The protocol for this review was preregistered on the Open Science Framework (OSF) and is accessible at: https://osf.io/q7tjv/overview?view_only=95b35b28a7304cbe9d2205d206ef3211

2.2. Eligibility Criteria

Studies were considered eligible for inclusion if they met the following criteria: (1) were published in any disciplinary field represented within the selected databases, provided they were relevant to the topic; (2) employed qualitative, quantitative, or mixed-methods designs; (3) included any population, age group, or research design; and (4) were published in formats other than conference proceedings or full dissertations. Studies were retained if they addressed the research question and examined individual-level variables in relation to ideological open-mindedness or closely related constructs (see Cormier et al., 2026, for a review of related constructs).

The literature search was conducted on May 4, 2022, across four electronic databases: PsycINFO, ERIC, Web of Science, and MedLine. Search terms were developed based on the research question and included core concepts such as “openness” and “openness to experience,” combined with additional keywords (e.g., “divergent views,” “ideology,” “worldview,” “identity politics,” and “perspective taking”). Boolean operators were used to structure the search strategy, with “AND” linking primary and secondary concepts and “OR” used to combine related terms within keyword groups. Database-specific features were applied where appropriate, including title and abstract field restrictions (e.g., “.ti,ab.”), subject heading expansion (e.g., “explode” in PsycINFO), and inclusion of all subheadings in MedLine. A full list of search terms is provided in Appendix A (OSF).

This strategy was designed to capture a broad range of relevant literature and to support the identification of individual variables associated with ideological open-mindedness across diverse contexts.

2.3. Study Selection Process

All records retrieved from the database search were first imported into EndNote reference management software for deduplication. The resulting set of records was then uploaded to Rayyan, a web-based platform designed to facilitate systematic screening.

Study selection was conducted in two stages. In Stage 1, titles and abstracts were screened independently by three trained undergraduate reviewers using a blinded process to reduce potential bias. Prior to full screening, a pilot phase was conducted on 15% of the dataset ($n = 548$) to assess inter-rater agreement, with a target threshold of 75%. When this level of agreement was not initially achieved, discrepancies were discussed and resolved in consultation with the first author, and inclusion criteria were clarified before proceeding. Articles were advanced to full-text review when at least two of the three reviewers agreed on their eligibility.

In Stage 2, full-text screening was carried out by a team of nine reviewers (undergraduate and graduate students) who were trained specifically for this project. Articles were excluded at this stage only when two reviewers reached agreement on exclusion. To ensure consistency in screening decisions, post-hoc quality assurance checks were performed on a random subset of 50 records spanning all reviewers. Any disagreements identified during this process were resolved through discussion and, when necessary, adjudicated by the first author. No reviewer exceeded two discrepancies following this process. The study selection process is illustrated in the PRISMA flow diagram (Figure 1).

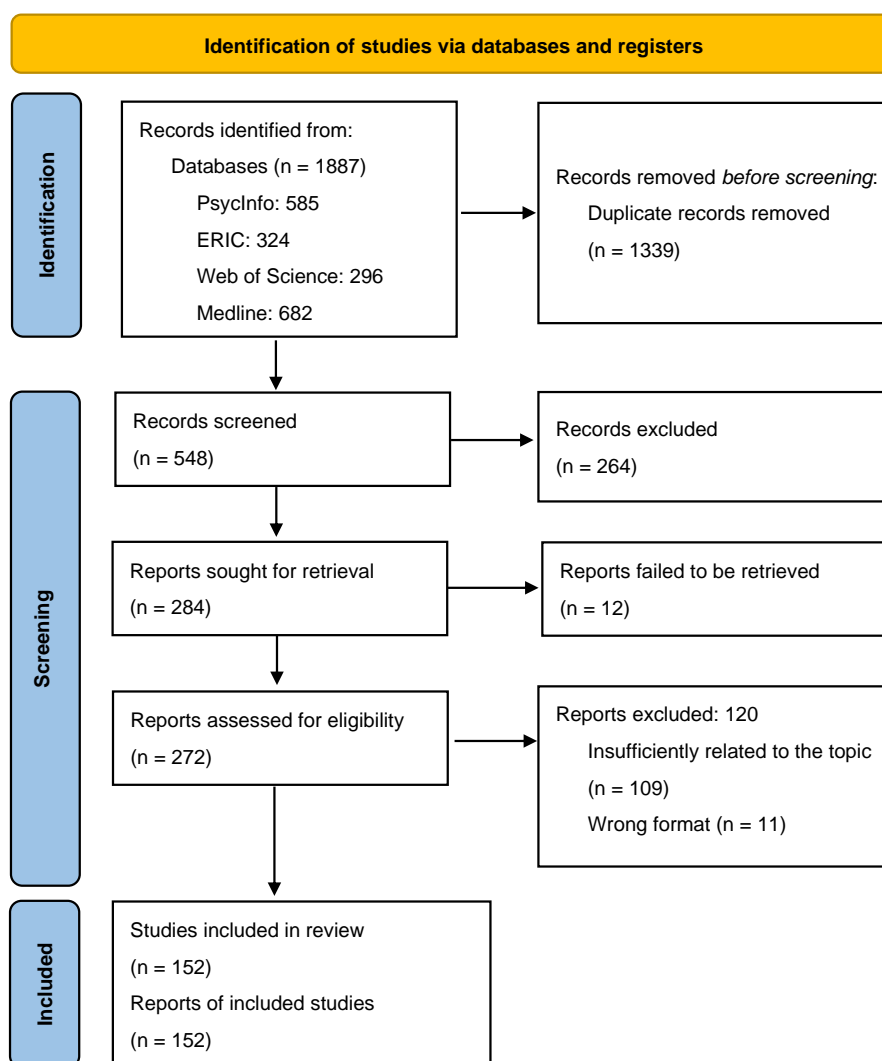


Figure 1. Flow diagram – Screening and Selection Process.

2.4. Data Collection Process

Data extraction was guided by principles of summative content analysis as described by Hsieh and Shannon (2005), which combines quantitative and qualitative analytic elements. This approach involves initially identifying and quantifying key terms or constructs within the data, followed by a more interpretive examination of how these constructs are used and contextualized within the literature.

For each included study, relevant information was extracted and organized according to predefined categories, including study characteristics and key variables (see Appendix B on OSF). Reviewers independently charted the data using a standardized extraction framework. Both conceptual and empirical studies were included, and information was recorded regarding theoretical perspectives, intervention approaches, and implications for education where applicable.

This method allowed for both the identification of frequently occurring constructs and a deeper understanding of how these constructs were defined and discussed across studies.

2.5. Data Synthesis

The synthesis of findings incorporated both quantitative and qualitative approaches. Descriptive statistics (e.g., counts and percentages) were used to summarize key characteristics of the included studies such as study design, participant demographics, and data sources.

In parallel, a qualitative thematic analysis (Kiger & Varpio, 2020) was conducted to identify recurring patterns among individual variables associated with ideological open-mindedness. This process involved examining how variables were conceptualized and interpreted within their respective study contexts, and identifying any commonalities across the dataset.

3. Results

Our searches in PsycINFO, Web of Science, ERIC, and MedLine with no yearly limits revealed a final total of 152 citations (Figure 1). The excluded records were: 109 texts not relevant to the research questions; 11 ineligible format texts, and 12 unavailable texts. A full list of excluded citations following the second round of screening is available upon request. For a full search log of the included citations, see Appendix C via OSF.

The 152 publications varied widely by discipline, time of publication, data source, research type, study design, reporting style, and aim. Most of the included publications were published in journals in the fields of psychology, political science, education, and philosophy. We analyzed the resulting publications both quantitatively and qualitatively to report the characteristics of the studies in terms of frequencies, percentages, ranges, and the key emerging individual variables that were studied in these publications by using thematic content analysis (Kiger & Varpio, 2020). The results below are reported first according to the descriptive characteristics of the included studies, and second according to the data analysis performed on these studies for this scoping review.

3.1. Description of Included Studies

The general characteristics of the 152 included publications are reported in Table 1. The majority (138; 90.8%) took the form of journal articles, while the rest were newsletter articles (3; 2.0%), reports (3; 2.0%), magazine articles (3; 2.0%), book chapters (2; 1.3%), essays (2; 1.3%), and news articles (1; 0.7%). Though we did not set any limit on the year of publication, the resulting publications after duplicate removal were published between 1978 and 2022. The majority of the literature was published between 2001 and 2022 (137; 90.1%), with the topic of ideological open-mindedness being increasingly popular throughout the years. More than half (106; 69.7%) of the current literature on ideological open-mindedness was published between 2010 and 2022, and 21 articles (13.8%) were published in 2021 and 2022 alone.

In total, the included records were conducted in more than 39 different countries or regions. While most of the publications were conducted in one country only, ten were conducted in two different countries (6.6%) and four were conducted in three or more countries (2.6%). Among all included records, about half of the records (77; 50.7%) were conducted in the United States; 13 in the United Kingdom (8.6%); and 8 in Germany (5.3%; see Table 1 for a full list of countries). Note that two of the studies were conducted in ten or more countries within Europe (Jung & Tavits, 2020; Maurissen et al., 2018), so Europe is reported as the studied region.

Table 1. Characteristics of Included Records.

Study Characteristics (N=152)	Count	Percentage
Type of publication		
Journal article	138	90.8%
Newsletter article	3	2.0%
Report	3	2.0%
Magazine article	3	2.0%
Book chapter	2	1.3%
Essay	2	1.3%
News article	1	0.7%

Year of publication

1978-1981	3	2.0%
1982-1985	1	0.7%
1986-1989	0	0.0%
1990-1993	5	3.3%
1994-1997	4	2.6%
1998-2001	2	1.3%
2002-2005	7	4.6%
2006-2009	24	15.8%
2010-2013	25	16.4%
2014-2017	20	13.2%
2018-2021	54	35.5%
2022	7	4.6%

Location

United States	77	50.7%
United Kingdom	13	8.6%
Germany	8	5.3%
Canada	7	4.6%
Australia	7	4.6%
Italy	7	4.6%
China	5	3.3%
Turkey	5	3.3%
Israel	4	2.6%
Netherlands	4	2.6%
Poland	4	2.6%
Sweden	4	2.6%
Belgium	3	2.0%
Denmark	3	2.0%
Japan	3	2.0%
Norway	3	2.0%
Europe*	2	1.3%
Indonesia	2	1.3%
Iran	2	1.3%
New Zealand	2	1.3%
South Korea	2	1.3%
Switzerland	2	1.3%

	Other (Afghanistan, Austria, Czech Republic, Kazakhstan, Morocco, United Arab Emirates, Romania, Serbia, South Africa, Peru, Argentina, Brazil, the Philippines, Russia	16	10.5%
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Data source			
	Student	56	36.8%
	Undergraduate	27	17.8%
	High school	8	5.3%
	Graduate	5	3.3%
	Secondary school	5	3.3%
	Primary school	2	1.3%
	University (unspecified level)	11	7.2%
	General public	34	22.4%
	Past literature	19	12.5%
	Author's experience	13	8.6%
	Expert views	9	5.9%
	Teachers	7	4.6%
	Children/Adolescents	6	3.9%
	Other (parents, military, farmers, manufacturers, seniors, youth mentors, politicians, workers, etc.)	25	16.4%
<hr/>			
Type of study			
	Quantitative	87	57.2%
	Qualitative	58	38.2%
	Mixed-method	5	3.3%
	n/a	2	1.3%
<hr/>			
Data collection			
	Total		
	Survey	78	51.3%
	Interview	28	18.4%
	Literature	25	16.4%
	Experiment	15	9.9%
	Observations	8	5.3%
	Narrative inquiry	7	4.6%

		Field study	4	2.6%
		Focus group	4	2.6%
		Quasi-experiment	2	1.3%
		Q-sort	1	0.7%
		n/a	14	9.2%
	Quantitative (<i>n</i> =87)	Survey	70	80.5%
		Experiment	15	17.2%
		Interview	5	5.7%
		Literature	2	2.3%
		Quasi-experiment	2	2.3%
		Observations	1	1.1%
		Field study	1	1.1%
		Focus group	1	1.1%
		Q-sort	1	1.1%
		n/a	1	1.1%
	Qualitative (<i>n</i> =58)	Literature	23	39.7%
		Interview	19	32.8%
		Observations	7	12.1%
		Narrative inquiry	7	12.1%
		Survey	5	8.6%
		Focus group	3	5.2%
		Field study	2	3.4%
		n/a	11	19.0%
	Mixed-methods (<i>n</i> =5)	Interview	4	80.0%
		Survey	3	60.0%
		Field study	1	20.0%
<hr/>				
Study design				
	Total	Cross-sectional	96	63.2%
		Theory development	24	15.8%
		Longitudinal	16	10.5%
		Case study	6	3.9%
		Pre-post design	5	3.3%
		Content analysis	2	1.3%
		Scale validation	2	1.3%
		Mathematical model	1	0.7%
		Q-methodology	1	0.7%
		Systematic review	1	0.7%
		n/a	14	9.2%
	Quantitative (<i>n</i> =87)	Cross-sectional	74	85.1%
		Longitudinal	10	11.5%

	Pre-post design	5	5.7%
	Case study	2	2.3%
	Scale validation	2	2.3%
	Theory development	1	1.1%
	Content analysis	1	1.1%
	Mathematical model	1	1.1%
	Q-methodology	1	1.1%
Qualitative (<i>n</i> =58)			
	Cross-sectional	17	29.3%
	Longitudinal	5	8.6%
	Theory development	23	39.7%
	Case study	4	6.9%
	Content analysis	1	1.7%
	Systematic review	1	1.7%
	n/a	12	20.7%
Mixed-methods (<i>n</i> =5)			
	Cross-sectional	5	100.0%
	Longitudinal	1	0.2

3.1.1. Data Sources

The two main primary data sources of the included records were 1) Students and 2) the general public. In total, 56 records (36.8%) employed students as participants in their sample, and the level of study varied from record to record. The second main primary data source consisted of participants from the general public; 34 publications (22.4%) recruited from the general population for their sample. Another data source was past literature, a secondary data source. Out of the 152 included records, 19 (12.5%) employed past literature as their primary data source. Past literature as a data source was particularly widely used in qualitative research (39.7%) as opposed to quantitative research (2.3%). Apart from these main data sources, the records on ideological open-mindedness also relied on author experience (13; 8.6%) or expert views (9; 5.9%) as their sources of information. Fifteen (9.9%) of all the included records employed two or more types of data sources in their studies (see Table 1).

3.1.2. Data Collection Method and Study Design

The type of research was relatively balanced across the publications on the topic of ideological open-mindedness and individual differences. For instance, 87 records (57.2%) used quantitative methods; 58 records (38.2%) used qualitative methods; and five records (3.3%) used mixed methods. The most common data collection method used by the included records was surveys (78; 51.3%), followed by interviews (28; 18.4%), past literature (25; 16.4%), and experiments (15; 9.9%).

When looking at qualitative entries separately from quantitative (for which the main data collection method was surveys), we found that the most common data collection method was retrieving secondary data from the literature, rather than survey distribution, with 23 of the total 58 qualitative entries (39.7%) employing this method, while only five records (8.6%) used surveys. As for the study design, cross-sectional studies were the most common amongst included records both quantitatively and qualitatively (see Table 1).

3.1.3. Demographics

The sample demographics differed greatly across the included records as shown in Table 2. Whereas adults between the ages of 19 to 45 were the most commonly studied age groups (54; 76.0%),

the age range was from 7 to 99. Some articles recruited more than one age group across multiple studies. Among all reported records, 75 (49.3%) mentioned the age composition of their sample and 35 records (23.0%) did not provide information on participants' age. More than half of the records (82; 53.9%) reported the gender composition of their sample, and the gender composition was generally balanced across the records; for instance, ten of the 82 records (12.2%) that mentioned gender of participants reported samples composed of more than 80% of female participants, and four (4.9%) reported having more than 80% male participants in their sample.

Participant ethnicities were reported in 64 (42.1%), and methods of reporting participant ethnicity varied greatly; some authors used participant nationality as ethnic identity (e.g., American, British, Chinese), others used participant native geographic region (e.g., European, Pacific Islander) as ethnicity, etc., so the data here is in keeping with these author usages. Among all records, Americans were included as participants for 25 of the 64 records (39.1%). The second most studied ethnic population was Europeans, with 24 of the records (37.5%) reporting having Europeans in their sample. Asians constituted part of the samples for 23 (35.9%) of the included records. Black/African Americans (21; 32.8%) and Latinx/Hispanic/Latin American (15; 23.4%) participants were also included in the records. Other ethnic terms used in reporting participants' ethnic composition were Indigenous/Aboriginal peoples (7; 10.9%), Pacific Islanders (5; 7.8%), Chinese (5; 7.8%), British (5; 7.8%), Multiracial (4; 6.3%), and person of color (3; 4.7%). Twenty-one of the publications (32.8%) that reported ethnicity reported having included two or more ethnicities in their sample.

Religious affiliations were rarely reported in the included records and were mentioned mainly when religion was relevant to the research topic or question; only 16 of the 152 publications (10.5%) mentioned participants' religious affiliation. Among these, Christianity was the most studied, where 12 of the 16 records (75%) reported having included Christians (including Catholic, Protestant, Mormon, Lutheran, Orthodox, Baptist, Presbyterian, Secular, Evangelical, etc.) in their samples. Muslims (6; 37.5%), Jews (6; 37.5%), atheists (6; 37.5%), and other denominations including agnostics, Buddhists, Hindus, and individuals with other spiritual beliefs (7; 43.8%) were also studied (see Table 2).

Table 2. Sample Demographics.

Demographic variables	Count	Percentage
Age (<i>n</i>=75)		
7 to 12 (childhood)	5	6.7%
13 to 18 (adolescence)	14	18.7%
19 to 45 (adulthood)	54	72.0%
46 to 65 (middle age)	11	14.7%
66+ (old age)	1	1.3%
Gender (<i>n</i>=82)		
More than 80% female in the sample	10	12.2%
More than 80% male in the sample	4	4.9%
Ethnicity (<i>n</i>=64)		
American	25	39.1%
European	24	37.5%
Asian	23	35.9%
White/Caucasian	22	34.4%
Black/African American	15	23.4%
Latinx/Hispanic	14	21.9%
Indigenous person	6	9.4%
British	6	9.4%

	Chinese	5	7.8%
	Pacific Islander	5	7.8%
	Multiracial	4	6.3%
	Person of Color	3	4.7%
<hr/>			
Religion (<i>n</i> =16)			
	Christian (Catholic, Protestant,	12	75.0%
	Muslim	6	37.5%
	Jewish	6	37.5%
	Atheist	6	37.5%
	Other (agnosticism, Buddhism,	7	43.8%

3.1.4. Reporting Style

The included records varied in reporting styles for demographics as well as for their research questions and findings, with a summary provided in Table 3. Less than half of the total entries explicitly reported both a research question and hypothesis (69; 45.4%). Of the 78 records that explicitly mentioned a hypothesis, 53 (67.9%) found complete support for their hypothesis, 24 (30.8%) found partial support, and 1 (1.3%) failed to confirm their hypothesis. Most records did not state a funding source (105; 69.1%). Of the total studies, 39 (25.7%) declared having received funding for their study, and regarding proposed further research or real-world applications of findings, 97 of the 152 records (63.8%) suggested concrete next steps.

The sample sizes ranged from 27 participants (Kowert, 1996) to more than 500,000 participants (Ruck et al., 2020). Qualitative sample sizes were much smaller compared to quantitative studies, and ranged from two (Wahl, 2019) to approximately 80 (Eisikovits & Karnieli, 1992) participants.

Table 3. Reporting Style of Included Records.

Elements reported		Count	Percentage
<hr/>			
(N=152)			
<hr/>			
Sample age	Provided	75	49.3%
	Not provided	35	23.0%
	n/a	42	27.6%
<hr/>			
Sample gender	Provided	82	53.9%
	Not provided	28	18.4%
	n/a	42	27.6%
<hr/>			
Sample ethnicity	Provided	64	42.1%
	Not provided	49	32.2%
	n/a	39	25.7%
<hr/>			
Sample religion	Provided	16	10.5%
	Not provided	98	64.5%
	n/a	38	25.0%
<hr/>			
Research question/Hypothesis			

	Both Research question & Hypothesis	69	45.4%
	Research question only	35	23.0%
	Hypothesis only	9	5.9%
	Neither Research question nor	23	15.1%
	n/a	16	10.5%
<hr/>			
Limitation	Provided	91	59.9%
	Not provided	41	27.0%
	n/a	20	13.2%
<hr/>			
Funding source	Yes	39	25.7%
	No	8	5.3%
	Not provided	105	69.1%
<hr/>			
Knowledge integration / Suggested next steps	Provided	97	63.8%
	Not provided	52	34.2%
	n/a	3	2.0%
<hr/>			
Sample size	Quantitative ($n=87$)	86	98.9%
	Qualitative ($n=58$)	20	34.5%
	Mixed-methods ($n=5$)	5	100.0%

3.2. Individual Variables Related to Ideological Open-mindedness

Similar research to the current study has found that multiple psychological constructs are related to ideological open-mindedness (Cormier et al., 2026), so these must be taken into some consideration when understanding the related individual variables. For instance, empathy, tolerance, and cognitive flexibility—and their related subconstructs, respectively, of empathic concern, epistemic empathy, ethnocultural empathy, perspective-taking; tolerance of ambiguity, political tolerance; critical thinking, intellectual humility, and curiosity—have been associated with ideological open-mindedness, among others. Such constructs were considered alongside ideological open-mindedness, openness to ideas, or open-mindedness more broadly in the current study, and individual variables that were related to any of these were reported and included in the results, with IOM serving as the broader umbrella term. The personality trait of openness to experience was also used interchangeably with the concept of ideological open-mindedness due to high co-occurrence in the literature and because one of this trait's subconstructs is openness to ideas (Di Fabio & Kenny, 2018; Osborne et al., 2022).

This study identified several key emergent individual variables that were related, sometimes with mixed results, to IOM and its co-constructs within this sample of the literature: an individual's personality traits, age, gender, sexual orientation, culture, political standing, socioeconomic status, religious belief, education level and type of education received, personal past experience, competence, personal beliefs and interests, and emotional tendencies. Below, we provide a detailed summary of the key individual variables found to be related to ideological open-mindedness.

3.2.1. Personality Traits

Many of the studies addressed personality trait variables as constructs such as agreeableness, authoritarianism, trust, creativity, and curiosity, for example. In some cases, these constructs correlated with ideological open-mindedness, and in other cases, the constructs were associated with other traits identified as co-constructs of IOM. Among all included records, the Big Five personality model was the most studied framework of personality for the topic of ideological open-mindedness. Research on the Big Five personality traits (neuroticism, conscientiousness, agreeableness, extraversion, and openness; McCrae & Costa, 1987) led to results indicating a complexity of nuanced and sometimes contradictory interactions between personality traits and IOM or openness co-constructs. For example, neuroticism was found by Song and Shi (2017) to be positively associated with empathic concern and perspective-taking abilities, but was also found by Leng and colleagues (2020) to be negatively related to online prosocial behaviors. While some articles reported conscientiousness as positively associated with perspective-taking abilities (Bętkowska-Korpała et al., 2021; Song & Shi, 2017), it was also reported as a predictor of conservative ideology (De Neve, 2015) which was generally associated with lower openness (see 3.2.5. Political Standing). Agreeableness was consistently found to be positively associated with openness to diversity and ideas (Ackermann & Ackermann, 2015), and this relationship was mediated by empathy (Di Fabio & Kenny, 2018; Grünhage & Reuter, 2020). Extraversion, in addition to conscientiousness and agreeableness, was found to be positively associated with online prosocial behaviors (Leng et al., 2020), higher empathic concern (Bętkowska-Korpała et al., 2021), and higher cognitive flexibility (Baas et al., 2013). In sum, Big Five traits of extraversion and agreeableness appeared more related to IOM traits, and conscientiousness and neuroticism showed mixed results.

Apart from the Big Five model, personality traits negatively associated with IOM included authoritarian personality (Berg et al., 2002); antisocial tendencies (Finnigan, 1971); foolishness, which was defined as a sense of grandiosity and egocentric views that may lead to fixating on an ideological position (Karami & Parra-Martinez, 2021); tough-mindedness (Akrami & Ekehammar, 2006); and defensive personality including a tendency to refuse to listen to others (Arnold & Brennan, 2013). Other personality traits that were positively associated with openness to ideas and its related constructs were higher humility (Mulhall et al., 2016; Weissman, 2007)—including both intellectual humility (Leary et al., 2017) and limitations-owning intellectual humility—(Haggard et al., 2018), curiosity (Karim & Saroglou, 2022), and flexibility (Cropley & Cropley, 2008; Van Der Zee & Van Oudenhoven, 2000).

3.2.2. Age

Several articles discussed the relationship between age and individual differences in IOM, with a possible trend being that age led to reduced openness. For example, Acerbi and colleagues (2009) suggested that older individuals tended to be more conservative than their younger counterparts, which was associated with lower openness (see 3.2.5. Political Standing). In one example, Osborne and colleagues (2022) found that older age was related to lower support for the legalization of abortion, an issue with moral implications that (for those in favor) may imply a degree of openness to modernity, women's rights, and/or medical technology. Another study investigating the differences between Afghani Dari and Pashtun speakers found that older Pashtun participants were lower in perspective-taking skills compared to younger participants (Kaviani & Ahmadi, 2021). Other findings suggested that younger participants tended to have higher empathy (Sommerlad et al., 2021) and were more accepting of homosexuality (Overby & Barth, 2002), also a morally implicated topic that implies a degree of openness (though views may be mediated or moderated by other factors such as religion, background, or personality). While articles such as these argued that older age was associated with lower openness, Berg and colleagues (2002) found contradictory evidence, and suggested that older age was associated with lower dogmatism, in particular among aviators. On the other hand, Song and Shi (2017) found no relationship between age, empathy, and perspective-taking in their study. These mixed findings suggest that as with many of the other variables examined

herein, the relationships between IOM and age may be impacted by a number of co-variates, possibly including cognitive capacity, religion, lifestyle, and even profession.

3.2.3. Gender and Sexual Orientation

The relationship between gender, sexuality, and ideological open-mindedness still warrants further research given that results from some of the included articles were mixed or contradictory. For instance, two studies found that gender was not related to the degree of empathy and perspective-taking (Muradova & Arceneaux, 2021; Song & Shi, 2017) whereas others suggested that, compared to males (Pilkington, 2017), females tended to be more open to diversity (Göncz, 2018; Lermen et al., 2022), had higher empathic concern (Heller et al., 2006), engaged more in perspective-taking (Metz et al., 2020; Sommerlad et al., 2021), and expressed higher tolerance (Al Majali & Al Khaaldi, 2020). Sutin and colleagues (2009) also found that the neural activities underlying individual differences in openness differed between women and men. While areas in the prefrontal lobe associated with cognitive flexibility underlay individual differences in openness in women, areas of the anterior cingulate cortex, which were linked to monitoring processes, underlay individual differences in openness in men (Sutin et al., 2009). A study by Ben-Zeev and colleagues (2012) also found that sexual orientation (bisexuality in this case) was associated with higher creativity, a trait sometimes found to relate to IOM.

3.2.4. Culture

Publications on the relationships between culture and openness found that individuals with more than one cultural identity (Rothman & Melwani, 2017) and with greater cross-cultural interaction experiences such as study abroad programs (Tebbett et al., 2021) may be associated with higher openness to diversity. For instance, Kaviani and Ahmadi (2021) found that among the Afghan population, Dari speakers tended to have higher empathy, perspective-taking ability, and openness compared to Pashtun speakers. This difference could be explained by the cultural implication of the languages, with Dari speakers interacting more frequently with people of other cultural origins compared to Pashtun speakers (Kaviani & Ahmadi, 2021). Being bicultural (Rothman & Melwani, 2016) or multilingual (Göncz, 2018) was also found to be associated with greater openness to different perspectives or improved cultural dialogue. Regarding the cultural system in which people lived, Toh (2017) suggested that living in cultures which promote high conformity could hinder openness to diversity. As such, culture and IOM seem to be related by one of the requisite features IOM itself; an exposure to new or novel ideas and experiences—without which, the development of IOM may be limited.

3.2.5. Political Standing

It was consistently found that more right-wing political standings were associated with higher dogmatism, while more left-wing political standings were linked to higher openness to diversity and new ideas. Conservatism and right-wing authoritarianism were correlated with higher intolerance of differing attitudes (Bloom & Bagno-Moldavsky, 2015) and sexual orientations such as homosexuality (Overby & Barth, 2002), more rule-enforcing attitudes (McAdams et al., 2008), more conventional points of view (Caprara et al., 2010; Carney et al., 2008; Osborne et al., 2022), more opposition to change (Passini, 2020), less openness to diversity (Aichholzer & Zandonella, 2016; Grünhage & Reuter, 2020), and higher likelihood to engage in prejudice (Akrami & Ekehammar, 2006). On the other hand, tendencies to support political, social, or economic liberalism, or leftist political ideology, were associated with higher openness to experience and diverse ideas (Amsalem & Sheffer, 2022; Caprara et al., 2010; Gerber et al., 2011; Grünhage & Reuter, 2020; Jung & Tavits, 2020), lower ambivalence to differing ideas (Newman & Sargent, 2021), higher empathy (McAdams et al., 2008), higher intellectual curiosity (Grünhage & Reuter, 2020), and higher creativity (Carney et al., 2008). These opposing qualities of political right- versus left-wing individuals could perhaps be best

explained by the definition of conservatism versus liberalism. Conservatism is, by definition, a political philosophy that advocates for social stability and prefers gradual development over abrupt changes in society (Merriam-Webster, n.d.), implying a measure of resistance to the new and novel; whereas, liberalism is defined as a political philosophy that emphasizes individual freedom and social progress (Merriam-Webster, n.d.), implying more openness to the new and novel.

3.2.6. Socioeconomic Status (SES)

Interestingly, both more vulnerable and more powerful individuals (in relation to socioeconomic status) were reported to express low ideological open-mindedness. Lazere (1992) pointed out in their article that students of ethnic minorities and of lower socioeconomic status were in this instance less receptive of progressive teaching methods that were developed to make English courses more accessible for minority and low SES students. The author suggested that the development of such programs might be inherently patronizing from the students' standpoint in that they imply necessary conformity to the dominant culture, among other issues (Lazere, 1992). Thus, individuals of more vulnerable groups might resist new ideas due to the feeling of being patronized or required to assimilate by the proposing party. On the other hand, Caprara and colleagues (2010) suggested that people in positions of power, such as politicians or those in higher SES groups, could be less open to diversity due to firmly held convictions that were closely tied to their reputations or originally expressed standpoints. These findings brings up an important consideration: that IOM can be impacted by individual or group positions, approaches, and a particular context or personal "state" during exposure to newness; and, again, that the relationship between SES and IOM is likely impacted by complex co-variate relationships.

3.2.7. Religious Belief

Having high religiosity or being a religious believer was found by some researchers to be associated with dogmatism (Karim & Saroglou, 2022; Osborne et al., 2022). However, Lubias and Sianipar (2022) suggested that degrees of intellectual humility and cognitive flexibility mediated the relationship between religiosity and religious tolerance, suggesting that someone who is highly religious but who is intellectually humble and cognitively flexible would be more tolerant towards people who hold dissimilar religious beliefs. In this regard, personality constructs were more determinant of open-mindedness than religious affinity per se. Also, some religious practices such as the commitment to tikkun olam, a concept in Judaism that refers to taking actions intended to repair and improve the world, were associated with greater perspective-taking skills (Hagai et al., 2017). People who were agnostic were found to be less dogmatic than both Christians and atheists (Karim & Saroglou, 2022). These results provide further support for co-variate models; in particular, that the relationship between IOM and religiosity is mediated by personality and cognitive traits, and mode of religious practice.

3.2.8. Education Level and Type

Findings on the association between level of education and IOM were also mixed. While some articles reported no correlations found between participants' level of education and their empathic (Song & Shi, 2017) and perspective-taking abilities (Al Majali & Al Khaaldi, 2020), others reported that higher education levels were associated with better perspective-taking abilities (Sommerlad et al., 2021) and that more years of education were linked to a higher acceptance of homosexuality, for example (Overby & Barth, 2002). Type of education was also found to impact student IOM within findings that those who had received multilingual education were more open to cultural diversity (Elboubekri, 2013), and that students who had received education on diverse religions had expressed more tolerance and openness towards other traditions (Nicolaisen, 2012). In contrast, learning environments that involved more humiliating or punishing attitudes and behaviors, such as towards

non-conformity, were associated with students' loss of (or failure to develop) critical thinking abilities (Burkhalter & Shegebayev, 2012).

3.2.9. Personal Past Experience

Different personal experiences were found to be related to differences in individual degrees of IOM. The impact of personal experiences starts as early as childhood, and experiences of childhood trauma were found to be related to a tendency to adopt liberal political views (which was significantly predicted by openness to experience) later in life (De Neve, 2015). This tendency could be explained by a wariness of authority figures, or a preference for social programs and government intervention (De Neve, 2015). During adolescence, parental styles were found to have profound impacts on open-mindedness. Goodman and colleagues (1978) found that parents who engaged in constructive parental coping during crisis periods of their adolescent children (such as a criminal arrest of their children) tended to foster open-mindedness in their children. In contrast, parents who adopted destructive parenting coping strategies tended to foster dogmatist tendencies in their children. It was also found that, throughout a lifetime, more diverse and more frequent social interactions can foster open-mindedness (Wicklund, 1999). By having more interactions with people from different ethnic, religious, or cultural backgrounds, individuals tended to develop higher perspective-taking abilities, empathy, religious openness, cultural openness, openness to attitude change, and openness to experience and diversity in general (Abbott & Cameron, 2014; Ackermann & Ackermann, 2015; Bloom & Levitan, 2017; Damian et al., 2020; Dinesen et al., 2014; Mallinckrodt et al., 2014; Sriprakash et al., 2014; Tebbett et al., 2020). These findings are in keeping with Allport's (1954) foundational intergroup contact theory. Mayhew and colleagues (2008) further pointed out that only positive interactions with diverse peers promoted perspective-taking, while negative interactions showed opposite effects. Experiences of bullying (whether as victim or perpetrator), ostracism, conformity, and high competition were found to be characteristics of closed-minded learning environments (Toh, 2017) and presumed to foster the same.

Having participated in volunteer activities was also related to IOM and perspective-taking skills. Bourke and colleagues (2012) suggested that this relationship might be due to participants' belief in equality and increased interactions with more diverse people while participating in volunteer activities. Furthermore, intergroup contact (such as exposure to the "moral exemplars" of another culture) was found to be effective in fostering openness to contact even between historical adversaries. Witkowska and colleagues (2018) observed that exposing Polish adults to narratives of heroic German individuals who had helped Polish people during World War II promoted Polish individuals to be more willing to interact with Germans. Furthermore, while increased social interactions were usually linked to higher openness to diversity, Anderson (1996) suggested that having participated in fraternities, sororities, or athletic programs was instead associated with lower openness to cultural diversity, which is potentially due to more within-group homogeneity. Overall, findings on past personal experience seem to suggest that correlates of IOM are greatly impacted by role models of authority throughout the lifetime, and by exposure to a variety of narratives or experiences from groups different from our own—when these are within a positive learning approach or context.

3.2.10. Competence

Competence in different cognitive, social, and emotional abilities was also associated with IOM. Studies found that higher cognitive flexibility was related to higher political tolerance (Rasmussen & Ludeke, 2021), higher creativity (Chen et al., 2022), higher problem-solving skills (Cho & Morris, 2015), and less prejudice towards other racial or ethnic groups (Menadue et al., 2021). Others found that cognitive rigidity was associated with lower ideological openness and less open-mindedness (Van Der Zee & Van Oudenhoven; Womick & King, 2021, 2000), and lower openness to experience (Silvia et al., 2022). Interestingly, higher intelligence as measured by IQ scores or problem-solving

abilities predicted an increased tolerance of differing political ideologies (Rasmussen & Ludeke, 2021) and greater openness to experience (Woodley, 2010).

Social competencies such as decision-making skills were also associated with openness to experience (Weller et al., 2018), whereas a lack of independent thinking was linked to lower critical thinking abilities among students (Burkhalter & Shegebayev, 2012).

Emotional competence, defined as the ability to understand and respond to the emotions of oneself and others, was found to be consistently positively correlated with ideological open-mindedness. For instance, the adaptability to others' needs, wants, and experiences was associated with higher perspective-taking skills, empathy, and openness (Spencer et al., 2020). Active and high-quality listening abilities were related to lower prejudicial attitudes, higher openness to change (Itzhakov et al., 2020), and ideological openness (Mulhall et al., 2016). This pattern of emotional empathy was also found in a narrative setting, where participants who were able to identify with fictitious characters in literary works such as books, plays, and films tended to have higher openness to experience (Mlcak & Zaskodna, 2008). On the other hand, Schwarzenthal and colleagues (2019) proposed that individuals with higher cultural intelligence, or the ability to interact effectively with people of diverse cultural backgrounds, tended to express higher Openness to Experience and positive attitudes towards cultural diversity. Not only were empathy and perspective-taking related to higher IOM, higher emotional management abilities were also correlated with a more open personality (Lermen et al., 2022). Relatedly,

3.2.11. Emotional or Contextual Tendencies

Individuals with certain emotional tendencies tended to be less able to engage in perspective-taking. Wicklund (1999) proposed that individuals who tended to feel insecure, uncertain, threatened or deprived, or stressed and anxious were less likely to engage in entertaining multiple perspectives—suggesting a further impact of context, anxiety, and threat perception factors.

3.2.12. Personal Beliefs and Personal Interests

Personal beliefs (about oneself, others, or society in general) and personal interests were found to be related to IOM. In terms of personal beliefs about oneself, higher self-esteem (Chen et al., 2022), self-efficacy (Pruneau et al., 2012), optimism (Pruneau et al., 2012), perceived behavioral control (Beciu et al., 2020), and sense of personal freedom (Goodman et al., 1978) were all found to be linked to higher openness to experience, openness to novelty and change, cognitive flexibility, and creativity. Positive beliefs and more accepting attitudes towards others were generally associated with higher open-mindedness. For instance, not only valuing respect for others was associated with higher openness (Mulhall et al., 2016), but also the perceived respect (Maurissen et al., 2018), openness (Lubbe, 2008), tolerance (Lubbe, 2008), and responsiveness (Maurissen et al., 2018) of others were related to higher openness. Personal beliefs about society in general differed across individuals. The tendency to identify with diverse other social groups (Granow & Asbrock, 2021) and to be critical of one's own in-group (Hagai et al., 2017) were both linked to higher perspective-taking and openness to diversity. People who had more positive attitudes towards cultural diversity (Liu et al., 2020) and towards gender equality (Overby & Barth, 2002) tended to be higher on Openness to Experience. In contrast, high perceived immigrant threat (Alchholzer & Zandonella, 2016) and high social dominance orientation (Akrami & Ekehammer, 2006), or the belief in hierarchy versus equality, were found to be negatively related to openness to experience.

Different interests were also related to participants' attitudes towards openness. An interest in learning new and challenging things was related to higher openness to novelty and change and lower dogmatism (Karim & Saroglou, 2022; Pruneau et al., 2012). Tolerance of ambiguity was found to be associated with higher openness to new experiences and to creativity (Cropley & Cropley, 2008) whereas individuals who were more intolerant of uncertainty, by contrast, tended to be more dogmatic and less open to new experiences (Silvia et al., 2022). Interestingly, artistic preferences were found to predict open-mindedness in some instances; here, preferring aesthetic and dark media

genres, such as classical, blues, and heavy metal music, was linked to higher openness to experience and liberal beliefs, while preferences for popular media genres, such as pop music, was related to relatively lower openness (Xu & Peterson, 2015). More open individuals also reported preferring reading books about literature, culture, and science as opposed to romance books (Xu et al., 2015). These results show that an array of unique individual characteristics including personal interests can associate with or impact IOM.

4. Discussion

We identified 152 records on the topic of individual variables related to ideological open-mindedness and its associated co-constructs through systematic literature searches.

Quantitatively, the records identified in this scoping review were mainly journal articles published in journals in the fields of psychology, political science, education, and philosophy. While attempts were made to include records regardless of their publication time, the majority of the records were published after 2001. Included records were conducted in 39 different countries/regions, with half of the records conducted in the United States. Just over half of the studies were quantitative, and surveys were the most used data collection method. As for data sources, students, and more specifically university students, were the most commonly studied populations, with many records also having recruited from the general public. Sample demographics of the included publications mostly represented adults aged 19 to 45. The gender composition of the samples was relatively balanced, and while records differed greatly in methods of reporting ethnic compositions of their samples, Americans, Europeans, White/Caucasians, Black/African Americans, Asians, and Latinx/Hispanics/Latin Americans were the most studied populations (since there were potential overlaps between Americans, Europeans, and White/Caucasians, samples were composed of a majority of Caucasians, so other ethnicities were somewhat underrepresented in the samples). Participant religious affiliations were rarely reported in the records and were reported only when the information was relevant to the research topic. The vast majority of such samples included Christians, though Muslims, Jews, atheists, and individuals of other religious beliefs were also represented across the records.

Qualitatively, we reported results elaborating on key emergent individual variables related to ideological open-mindedness and its co-constructs. To summarize findings, we discuss here some of the themes or patterns that may be inferred from these results. First, the findings support conceptualizing ideological open-mindedness as a dynamic, evolving, and context-based orientation (i.e., rather than as a single stable trait) that involves an ability to engage critically and meaningfully with conflicting or different perspectives in values-laden interactions (Cormier et al., 2026), and that can be impacted by and associated with a number of characteristics including development, disposition, environment, and relationships. While many informative associations were found demographically, it was difficult to depict a clear pattern; rather, these results were frequently inconsistent, context-dependent, and/or involved additional co-variables. Thus, perhaps unsurprisingly, we cannot reduce tendencies towards IOM to any single demographic traits or markers. Instead, it may be more accurate to depict relationships between individual characteristics and IOM as complex combinations of dispositions and traits that may also interact with competencies, behaviors, or tendencies such as those of cognitive flexibility, perspective-taking, intellectual humility, emotional competence, and quality listening skills. Several traits, dispositions, or demographic variables may interact with these competencies or abilities (e.g., such as religiosity and intellectual humility, or age and cognitive flexibility). In other words, our construct of interest—a dynamic style of engaging with difference—appears to depend less on demographic categories alone and more on combinations of traits interacting with competencies, contextual factors, and experiences; these include type of education, nature and history of intergroup experiences, social and economic positions, tolerance of ambiguity, perception of threat, and even information processing capacity. Furthermore, we did find support that IOM may still be shaped by both identity and experience—that it is not static.

Contact with differences, different others, and different or novel experiences was found to play an important role in IOM. Some studies found that studying abroad, speaking more than one language, volunteering, or being part of more than one culture—and any related positive interactions between different groups—were associated with high openness. Results also cautioned that negative intergroup exposures can be contraindicative to openness such as within environments of high conformity or high peer homogeneity, or education settings that were punitive or humiliating. These findings suggest that repeated encounters with differences—when characterized by respect, due consideration of complexities, trust, and/or and freedom from threat or coercion—may foster or cultivate ideological open-mindedness.

Some of the more consistent findings were related to political ideology in that right-leaning or conservative orientations were more associated with lower openness, and vice versa for left-leaning or liberal orientation. While these patterns align with theoretical associations between conservatism and resistance to change, and liberalism and openness to diversity, care should be taken as such relationships may partly reflect construct definitions and measurement overlap.

Findings on both religiosity and socio-economic status were mixed. For example, religiosity was in some cases associated with more closed-mindedness, yet it also appeared to depend on co-factors of intellectual humility or cognitive flexibility, and some religious practices were associated with perspective-taking. Relationships between religion and openness may be moderated or mediated by other qualities such as intellectual humility and cognitive flexibility, in keeping with the importance outlined above of individual cognitive or dispositional characteristics over identity categories when quantifying IOM. Thus, religiosity is not uniformly associated with openness; rather, its relationship with IOM seems contingent on how beliefs are held (e.g., rigid versus reflective or prosocial orientations). As in other categories, the style in which the beliefs are held appears more important than their content.

Regarding social position, a marginalized individuals' resistance to dominant ideas may be a reflection of legitimate distrust or resistance to assimilation, and for those in positions of power, lower openness may be related to becoming entrenched in ones' ideologies, or be part of an investment in reputation; thus, these findings suggested that ones' social location can impact the pathways from which openness (or lack thereof) may emerge. That said, as with the findings regarding religion and other categories, individual qualities related to IOM (e.g., humility, cognitive flexibility) as well as contextual factors (such as one's approach to an interaction) may hold more importance in determining openness than social position alone, for example.

Finally, and perhaps unsurprisingly, the *type* of education was more associated with ideological open-mindedness compared to the amount of time spent receiving an education. In other words, receiving multilingual, pluralistic, and non-punitive education experiences was more reliably supportive of openness traits than was higher educational attainment—suggesting that encouraging meaningful engagement with differences along with intellectual humility, critical dialogue, and tolerance of ambiguity, for example, may foster greater ideological open-mindedness in educational systems.

Together, these findings support conceptualizing ideological open-mindedness as a multilevel, context-sensitive cognitive style emerging from interactions between individual dispositions, acquired competencies, and environmental conditions.

5. Conclusions

The increasing popularity of the topic over the years indicates the relevance of research in this area, and the importance of continued research that can synthesize and elaborate on themes found. To conclude, several individual variables were found to relate meaningfully to ideological open-mindedness and its related constructs as depicted above. For instance, participants' personality traits, age, gender, sexual orientation, culture, language, political standing, socioeconomic status, religious beliefs, education level and type, personal past experiences, competence, personal beliefs and interests, and emotional or contextual tendencies were all found to be related to differences in their

degrees of openness and IOM more broadly. Findings were remarkably mixed regarding how gender, age, culture, and personality variables impacted openness—indicating both the need for further study, and the nuance of the topic and construct. The individual differences in IOM were evidently the result of combinations of variables or co-variables whether specific to the person, their background, or the context of a given situation. Furthermore, the literature suggests that IOM may be more of a context-sensitive capacity, impacted by both disposition and environments which either reward or punish engagement with differences. Throughout the studies, it was more often found that IOM emerged within contexts of (perhaps co-occurring) humility, flexibility, safety, and meaningful exposure to difference rather than being associated with any single demographic.

Regarding the review process, we employed stringent and open procedures to ensure validity and transparency, and consulted with research and topic experts in the design of the protocol and search strategies for PsycINFO, MedLine, Eric, and Web of Science databases. Three reviewers were involved in the initial screening stage and were blind to each others' choices of inclusion/exclusion of the records to avoid bias of inclusion/exclusion, and a fourth reviewer resolved any conflicts of opinion with the three reviewers; later full-text screenings employed nine reviewers and required agreement from two prior to exclusion, and post-hoc quality assurance checks were completed on included articles.

Despite aiming to be as accurate and as comprehensive in our report as possible, there were still several limitations to the current study. First, we employed nine reviewers in our screening stages due to time constraints. This approach might lead to potential inconsistencies in charting the articles across the reviewers, but also allowed us to minimize the bias that may come with having too few reviewers. Our quality assurance step allowed us to verify and standardize any inconsistencies in the chart before conducting our research analyses to avoid potential issues caused by such inconsistencies. We had aimed to include all types of publications (i.e., beyond journal articles), but for feasibility could include mainly journal articles from academic databases, excluding magazines, news articles, and grey literature or other sources from the media. This limitation inevitably reduced the scope of the literature included in this study, and it might be important to incorporate grey literature in subsequent similar reviews given the increasing popularity of this topic in news media. Since this study consisted of a scoping review that attempted to capture as many relevant records as possible, it did not assess the quality, strength, biases, nor validity of included publications and data, and did not distinguish correlational from causal studies—nor did our team either perform or assess statistical analyses. Although we attempted to include both literature in English and in French, the database searches resulted in a vast majority of English literature. We also did not include the literature written in other languages, and this exclusion could lead to an underestimation of the review on this topic in countries that do not have English as official language. By focusing on English and French literatures, we are inevitably overlooking potentially relevant literatures in other languages, which may explain why most of our retained articles were from the US/UK. Future research would ideally recruit more ethnically diversified participants.

Considering characteristics of included records, and these limitations, we first recommend that more research be done on ideological open-mindedness correlates including individual differences given the variety of mixed results found in the literature. This topic might benefit from different study designs such as more longitudinal studies and experiments. We would also recommend that future reviews on this topic specify the correlational or causal nature of the associations between individual variables and forms of ideological open-mindedness, and take into account statistical analyses and effect sizes such as performing meta-analyses to compare strength of relations for select specific constructs and IOM, if available. Finally, greater importance should be placed on the explicit reporting of clear research questions and methods; the demographic composition of samples including age, gender, ethnicity-related information, and religion (particularly as it may be relevant to ideology and open-mindedness); the limitations of the study, the funding sources, and the concrete next steps or directions for future research. Furthermore, it should be noted that a literature on this topic may not be completely neutral in its conceptualizations or measures of openness—as some

constructs (e.g., social change, tolerance of nontraditional identities) may be more readily aligned with some ideological or political orientations over others. Future research should consider aiming to further refine and measure IOM as a willingness to engage across different without inherently associating it with any one political or ideological viewpoint. Furthermore, given that ideological open-mindedness appears to be shaped by several interacting layers of individual and contextual variables, it may be useful to refer to Bronfenbrenner's ecological systems framework, a model for which development is situated within nested environmental systems (e.g., micro- and macro-systems; Bronfenbrenner & Morris, 2006) as applied to IOM. For example, ideological open-mindedness emerges across levels ranging from individual traits and skills to broader experiential, cultural, and environmental contexts.

In conclusion, some of the findings are relevant to social and political conflicts and tensions in both specific educational contexts and regions, or globally—particularly if we consider the effects that threat perception and uncertainty intolerance can have on IOM; that we are more open to others when we perceive a sense of safety or trust, that dialogical counterparts are also open to *our* ideas, and when we are free from living within systems of major instability or uncertainty. In the absence of such preconditions to reduce an individual or group's sense of threat and uncertainty, closed-mindedness and anxiety remain, and IOM becomes inherently inaccessible. Given that a core feature of anxiety is uncertainty intolerance, and that this mental health condition is among the most prevalent globally with evidence indicating increasing levels across many regions (Santomauro et al., 2021; World Health Organization, 2022), findings which link tolerance of uncertainty and open-mindedness are also timely and relevant to psychology. This review emphasizes the potential for advancing understanding of ideological open-mindedness and informing the development of more comprehensive interventions.

Supplementary Materials: There are three appendices with supporting information that can be downloaded at: OSF Link, Appendix A: Search Terms; Appendix B: Dataset; Appendix C: APA Search Log of Included Citations.

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Abbreviations

The following abbreviations are used in this manuscript:

IOM	Ideological Open-Mindedness
OSF	Open Science Framework
JARS	Journal Article Reporting Standards
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
SES	Socio-economic Status

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