



# Americans harbor much less favorable explicit sentiments toward young adults than toward older adults

Stéphane P. Francioli<sup>a,1</sup> , Angela Shakeri<sup>b</sup> , and Michael S. North<sup>b</sup>

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Public and academic discourse on ageism focuses primarily on prejudices targeting older adults, implicitly assuming that this age group experiences the most age bias. We test this assumption in a large, preregistered study surveying Americans' explicit sentiments toward young, middle-aged, and older adults. Contrary to certain expectations about the scope and nature of ageism, responses from two crowdsourced online samples matched to the US adult population ( $N = 1,820$ ) revealed that older adults garner the most favorable sentiments and young adults, the least favorable ones. This pattern held across a wide range of participant demographics and outcome variables, in both samples. Signaling derogation of young adults more than benign liking of older adults, participants high on SDO (i.e., a key antecedent of group prejudice) expressed even less favorable sentiments toward young adults—and more favorable ones toward older adults. In two follow-up, preregistered, forecasting surveys, lay participants ( $N = 500$ ) were generally quite accurate at predicting these results; in contrast, social scientists ( $N = 241$ ) underestimated how unfavorably respondents viewed young adults and how favorably they viewed older adults. In fact, the more expertise in ageism scientists had, the more biased their forecasts. In a rapidly aging world with exacerbated concerns over older adults' welfare, young adults also face increasing economic, social, political, and ecological hardship. Our findings highlight the need for policymakers and social scientists to broaden their understanding of age biases and develop theory and policies that ponder discriminations targeting all age groups.

ageism | age prejudice | age stereotypes | youngism | metascience

Although young adults represent the future of society, the future of young adults looks rather bleak. The United States provides a striking example: Saddled by two of the worst economic crises of the century, rising housing costs, unparalleled student debt, and lower income, young Americans face the largest intergenerational wealth gap in history (1); and, rubbing salt in the wound, they will be the first to bear the steep ecological costs of decades of unrestrained consumption and economic growth that largely benefited their predecessors (2).

This grim outlook has led some to advocate for more generational equity, according to which societies should strive to guarantee equal opportunities for future generations (e.g., refs. 1, 3, and 4). This course of action, however, is partly contingent upon the goodwill of older generations, who hold a large share of the economic and political power needed to steer change (5). Thus, collective sentiments toward young adults could play a key role in shaping their future: Positive views could spawn the empathy required to support actions needed to address the plight they face; negative views could lead people to dismiss their struggle.

Yet, surprisingly, little is known about people's views of young adults (people aged 18 to 30; 6–8). Social scientists' growing interest in age-based perceptions and ageism (i.e., the stereotyping, prejudice, and discrimination of people based on their age) has shown that negative views of older adults can have detrimental effects on their social lives, economic prospects, subjective well-being, health, and quality of care (e.g., refs. 9–17). This work, in turn, has shaped discrimination laws, public policies, organizational practices, educational programs, and patient engagement, to reduce biases against older adults.

Despite a boom in ageism research, however, attention has focused almost exclusively on plights targeting older adults, the proportionally growing segment of the population. When coining the term ageism in 1969, gerontologist Robert Butler discussed how age bias could also apply to younger age groups (18). Yet, much less work has examined perceptions of young adults and how said perceptions shape their lives (6, 19–21). Implicit in this ageism attention is the assumption that, by and large, society is primarily biased against older adults. Common depictions of older age tend to back up this claim. Aging is frequently associated with death, decay, and poor health (22); the caricature of older

## Significance

Older adults are often assumed to bear the brunt of age-based prejudice. By contrast, two large crowdsourced online samples matched to the US adult population consistently report the least favorable sentiments toward young adults and the most favorable ones toward older adults. Two follow-up studies reveal that, although laypeople are quite accurate at forecasting these results, social scientists are less so, especially ageism experts. In an aging world with heightened concerns for older adults' well-being, young adults also confront mounting economic, social, political, and ecological challenges. Our findings emphasize the necessity for policymakers and social scientists to expand their view of age prejudice and formulate inclusive theories and policies to address discrimination toward all age groups.

Author affiliations: <sup>a</sup>Management Department, The Wharton School, University of Pennsylvania, Philadelphia, PA 19148; and <sup>b</sup>Management and Organizations Department, Leonard N. Stern School of Business, New York University, New York, NY 10012

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<sup>1</sup>To whom correspondence may be addressed. Email: [sfrancio@wharton.upenn.edu](mailto:sfrancio@wharton.upenn.edu).

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adults as slow, grumpy, and forgetful is familiar to all (23), even children (24); and older generations are sometimes portrayed as a burden to society (16, 17). In contrast, youthfulness is often synonymous with beauty, athleticism, and mental acuity; and people across the globe try to look—and see themselves as— younger than they are (25–28).

Although research on implicit (i.e., unconscious) age attitudes supports the idea that young adults are seen more favorably than older ones (29, 30), our understanding of societies' explicit (i.e., conscious) age sentiments is murkier. While the most comprehensive meta-analysis on explicit age attitudes—covering 40 y of research—revealed that older adults are perceived less favorably across a wide range of measures (31), methodological limitations common to empirical investigations on the topic constrain the generalization of these findings. First, ageism research has relied disproportionately on younger participants, such as undergraduates, young professionals, and medical personnel in training—more than 60% of the samples in the above-cited meta-analysis fall into this category (31). Given a median age of the US adult population between 42 in the 1960s and 46 in the 2010s, the generalization one can reach from undergraduate samples is likely circumscribed (32). Second, a large stream of ageism research has examined people's sentiments toward older adults without comparing them against sentiments toward other age groups (e.g., refs. 9, 13–15, 24, and 33). Although this work is helpful in demonstrating the wide variance in sentiments toward older adults, the mechanisms underlying said variance, and its impact on outcomes relevant to older people's lives, it provides limited insights as to how these sentiments compare with those of other age groups. Third, studies that do include younger targets often use them as a baseline against which to contrast sentiments toward older adults in domains stereotypically unfavorable to the latter (e.g., memory, health, attractiveness, tech-savviness, adaptability at work; 9, 11, 22, 34). Unfortunately, these choices of study domains limit the scope of conclusions one can reach about society's broader age sentiments.

Finally, calling into question the belief that older adults are the sole, or even the primary targets of unfavorable sentiments, a growing body of work suggests that aging societies might entertain particularly unfavorable views of young adults (6–8, 19, 20). Recent studies have shown that young adults report being consistently the target of condescension, stereotyping, prejudice, and discrimination (19–21, 35). In fact, some studies indicate that young-focused ageism might be even more pronounced than old-ageism (19, 20). However, since this work has primarily relied on self-reported experiences, it is unclear how society's explicit sentiments toward young adults compare to those toward other age groups.

The purpose of the present research is twofold. First, we advance our understanding of this issue by assessing Americans' explicit sentiments toward *all* age groups in the adult spectrum in a single study design, using samples matched to the US adult population to evaluate age groups in a target-neutral setting (general impressions). Looking at sentiments toward all age groups helps build a more comprehensive map of age prejudice; relying on samples that match the US adult population ensures that the idiosyncratic views of a given subpopulation (e.g., young, liberal undergraduates) do not steer the results away from the population's consensus; favoring general impressions reduces the risk that the sentiments expressed by respondents be bound to a context or domain unfavorable to one age group in particular; and focusing on others' age attitudes rather than self-reported experiences of ageism provides a more objective measure of age-based prejudice. We also examine how social dominance orientation (SDO) shapes participants' attitudes toward these

different age groups. SDO captures people's disposition to tolerate, justify, and sometimes promote social hierarchies and inequalities (36, 37). A large body of work has shown that SDO is a powerful predictor of prejudices, including racism, sexism, homophobia, classism, Islamophobia, and ableism (e.g., refs. 36–42). Building off this work, we aim to uncover how the age attitudes of people with a higher proclivity for prejudices (high SDO) compare with the age attitudes of people with a low proclivity for prejudices (low SDO) and better understand the prejudicial nature of attitudes toward adults across the entire age spectrum.

Our second goal in this research is to explore potential explanations for why ageism targeting young adults has been largely absent from public and academic debates, particularly in a context where ageism targeting older adults has received growing attention. One possibility is that society harbors rather positive views of young adults. It would then stand to reason that collective attention focuses on other, more stigmatized age groups. An alternative explanation is that society holds unfavorable views of young adults, but people are unaware or underestimate their extent. To test for this possibility, we asked laypeople and social scientists with various degrees of expertise in age-based prejudice to forecast the responses of our samples. Forecasting surveys have grown in popularity in recent years (43–54). They constitute a useful tool to assess whether and how people's intuitions about a social phenomenon deviate from reality (47, 51–53, 55). More recently, they have also proven particularly valuable to test the fundamental assumptions and potential biases that experts hold about their own field of study (43–50, 52, 54, 56). If our forecasters have a good sense of Americans' attitudes toward various age groups, their forecasts should match the results obtained with our samples. Conversely, deviations might indicate that forecasters misjudge how Americans feel toward certain age groups.

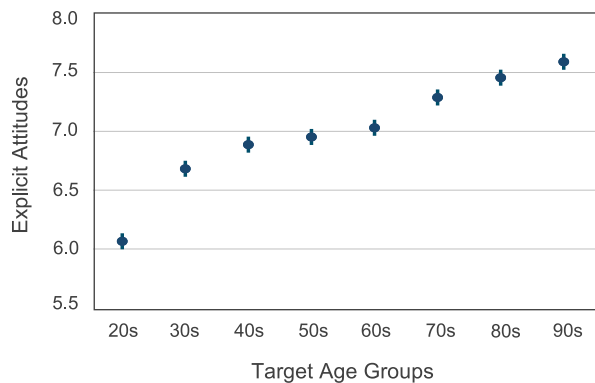
## Results

We present our results in two separate sections. In the first section, we report how our samples matched to the US adult population felt toward various age groups. In the second, we compare these results against the estimations of our forecasters.

### Sentiments toward Younger, Middle-Aged, and Older Adults.

To gauge American sentiments toward various age groups, we conducted two large, quasi-identical studies using crowdsourced online samples matched to the US adult population (i.e., Sample A & B). The two samples were collected 7 mo apart. The second data collection allowed us to test the replicability of our results, assess the robustness of our findings to minor methodological variations (e.g., the labels of our attitude thermometers), and complement our original quantitative measures with open-ended responses. That said, since the recruiting process, demographic composition, overall procedures, sample size, and results for the two studies were highly consistent, we report findings combining the two samples together ( $N_{\text{sample A + B}} = 1,820$  participants; separate analyses per sample available in *SI Appendix, Samples and Recruiting*).

To capture sentiments reflective of the population as a whole and maximize the ecological validity of our findings, participants for both samples were pulled from the online crowdsourcing platform Prolific Academics using a stratified sampling approach with proportionate allocation (see *SI Appendix, Samples and Recruiting* for more details). Our stratification criteria included age, gender, and race but also political ideology, a factor known to correlate with age attitudes (57) and a source of bias among online crowdsourcing pools, which are generally liberal-leaning (58, 59).



**Fig. 1.** Mean plot of explicit attitudes toward different age groups for a large, crowdsourced online sample matched to the US adult population. Error bars represent 95% CI. Explicit attitudes toward age groups follow an upward trend with a plateau between 40 and 60. People in their 20s experience the least favorable attitudes, people in their 90s, the most favorable ones.

To compare sentiments toward all age cohorts, participants reported how they felt toward people in their 20s, 30s, 40s, and so on, up to people in their 90s. We used explicit attitudes as our primary outcome variable. Explicit attitudes are widely used across social sciences (e.g., refs. 60–65) and constitute a proven predictor of prejudicial beliefs and discriminatory behaviors (66, 67). To capture explicit attitudes, we used feeling thermometers, a decontextualized, single-item measure that facilitates comparisons across target groups (60; see also American National Election Studies).

However, what feeling thermometers provide in convenience, they lose in depth and nuance. To address this limitation, we also asked participants in our second sample (Sample B) to share their sentiments toward younger and older adults in two short essays. We used these essays to develop a complementary measure of attitudes and examine the stereotype content of younger and older adults. Finally, participants in both samples completed a measure of SDO (36; detailed procedures in *SI Appendix, Procedures*).

To guarantee both the transparency and impartiality of our approach, we preregistered our research questions, sample size, study design, variables, and analytical plan but did not preregister—nor formulate—any hypotheses. This approach allowed us to remain agnostic as to the direction of our potential findings (see preregistrations in *SI Appendix, Preregistrations*).

**Feeling thermometers.** How did respondents feel toward young, middle-aged, and older adults, overall? Focusing first on feeling thermometers, we observed an upward trend with a plateau between 40 and 60 (Fig. 1; see also *SI Appendix, Table S1 and Fig. S1*). Respondents harbored the least favorable attitudes toward people in their 20s ( $M = 6.07$ ,  $SD = 2.34$ ), below those toward people in their 30s ( $M = 6.68$ ,  $SD = 1.96$ ),  $P < 0.0001$ . Attitudes toward people in their 30s were lower than those toward people in their 40s ( $M = 6.88$ ,  $SD = 1.81$ ),  $P < 0.0001$ . Attitudes toward people in their 40s were not significantly different from those toward people in their 50s ( $M = 6.95$ ,  $SD = 1.97$ ),  $P = 0.183$ , and those toward people in their 50s, not significantly different from those toward people in their 60s ( $M = 7.03$ ,  $SD = 2.15$ ),  $P = 0.112$ . Attitudes toward people in their 60s were lower than those toward people in their 70s ( $M = 7.29$ ,  $SD = 2.17$ ),  $P < 0.0001$ , attitudes toward people

\*Of note, feedback during the crafting of this article pointed to instances where some preregistered models could be improved, some were redundant, and others didn't easily fit within the word limits required for publication. We provide a detailed reporting of our preregistered models in *SI Appendix, Confirmatory Analyses* and a summary of deviations from preregistered models in *SI Appendix, Preregistration*. Taken together, the results of our confirmatory analyses converge with those presented in the main text and corroborate the conclusions presented here.

in their 70s were lower than those toward people in their 80s ( $M = 7.46$ ,  $SD = 2.14$ ),  $P = 0.0001$ , and attitudes toward people in their 80s were lower than those toward people in their 90s ( $M = 7.59$ ,  $SD = 2.21$ ),  $P = 0.0006$ . In terms of effect size, the highest-rated group (i.e., people in their 90s) enjoyed [(7.59 – 6.07)/6.07] 25.0% more favorable attitudes than the lowest rated group (i.e., people in their 20s).

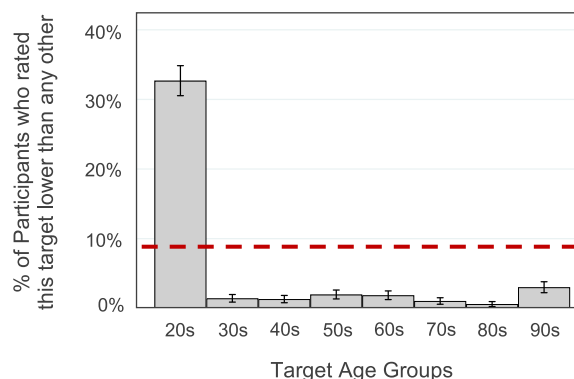
Considerable agreement also emerged across participants. A third (32.7%) rated people in their 20s lower than any other target age group, about four times higher than chance (i.e., chance = 8.7%),  $t(1,819) = 21.81$ ,  $P < 0.0001$  (Fig. 2). In contrast, at most, only 3.0% rated people in their 60s, 70s, 80s, or 90s the lowest—3 to 14 times lower than chance,  $P$ s  $< 0.0001$ . The above-reported results were highly consistent across samples, further attesting to the robustness of our findings (details in *SI Appendix, Additional Results*, see also *SI Appendix, Fig. S2 and Table S2*).

Taken together, our two large samples matched to the US adult population overwhelmingly harbored the least favorable explicit attitudes toward young adults and most favorable ones toward older adults.

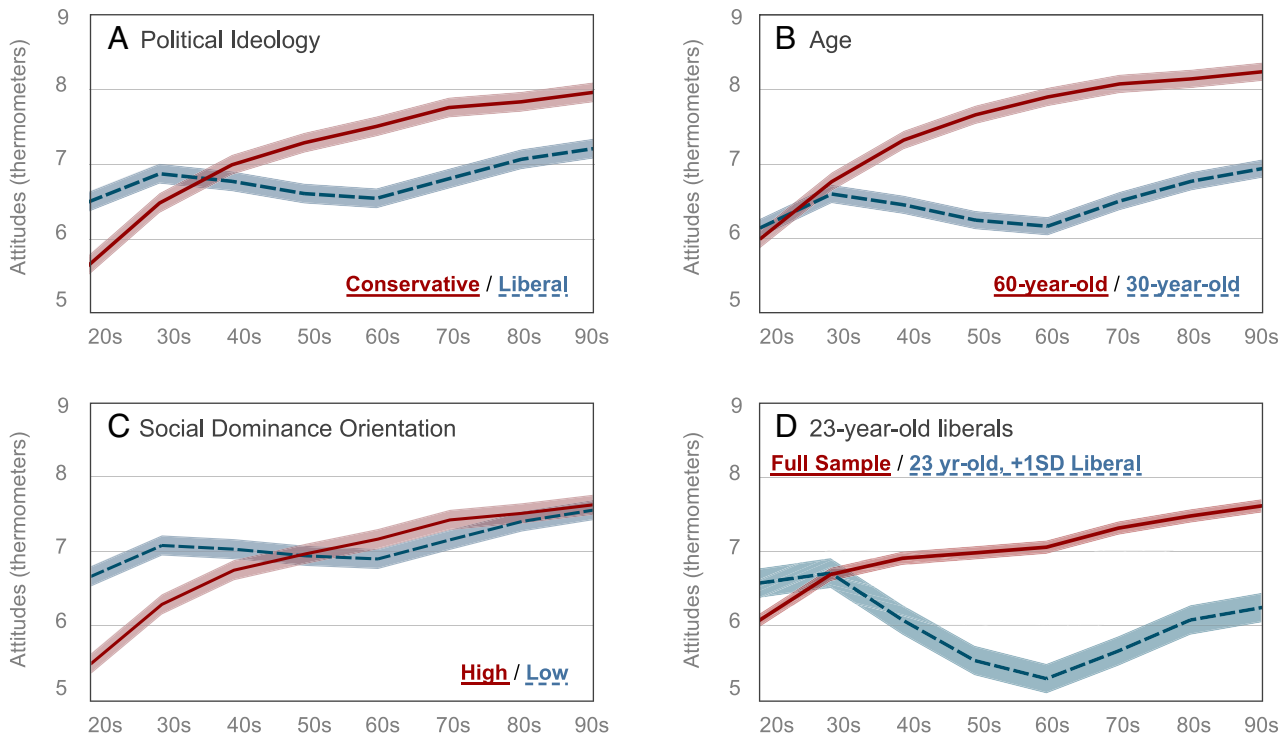
**Moderation by participant demographics.** We ran a series of models to examine whether participant demographics moderated the general attitudinal pattern reported above (detailed results in *SI Appendix, Additional Results*). Participant gender, level of education, and income did not moderate this attitudinal preference (*SI Appendix, Fig. S3 A–C*). White participants showed a stronger preference for older adults than did their non-White counterparts, but the latter still evaluated people in their 20s less favorably than those in their 60s and 90s (*SI Appendix, Fig. S3D*; detailed analyses by racial group in *SI Appendix, Additional Results*). Similarly, conservative-leaning participants showed a stronger preference for older adults than did their liberal counterparts, but the latter still evaluated people in their 20s less favorably than they did people in their 90s (Fig. 3A).

Predictably, participant age moderated attitudes toward different age groups, albeit not quite in the way classic intergroup conflict theories might predict. While older participants did show a marked ingroup–outgroup bias, young adults did not (Fig. 3B). For instance, estimates of main effects for a 30-y-old participant (1 SD below mean participant age) suggest that the latter tended to rate people in their 20s ( $M = 6.14$ ,  $SE = 0.06$ ) similarly to those in their 60s ( $M = 6.17$ ,  $SE = 0.06$ ),  $P = 0.699$ , and lower than those in their 90s ( $M = 6.94$ ,  $SE = 0.06$ ),  $P < 0.0001$ .

To summarize, men, women, Whites, racial minorities, people of higher social class, people of lower social class, conservatives, liberals, older adults, and, to some extent, even younger ones, all expressed



**Fig. 2.** Percentage of participants who rated a given target group lower than any other. Error bars represent 95% CI. The red dotted line indicates the likelihood that the event occurs by chance (8.7%). A third of participants rated people in their 20s lower than any other target age group, close to four times the probability that such an event occurs by chance. In contrast, 3.0% or less rated any other group the lowest, way below chance.



**Fig. 3.** Mean plots of explicit attitudes toward different age groups for a large crowdsourced online sample matched to the US adult population, as a function of participant's political view, age, and social dominance orientation. Mean plots based on mean estimates derived from simple slopes. High/low =  $\pm 1$  SD away from the mean. Shaded areas represent 95% CI. Panel (A and B): Conservatives and older participants show an even stronger attitudinal preference for older—over younger—adults. Panel (C): Consistent with the notion that less favorable attitudes toward young adults reflect a form of prejudice, people with a strong proclivity for prejudice (high SDO) tend to view young adults even less favorably than those with no such proclivity (low SDO); Panel (D): Young liberal participants were among the rare demographic groups to express a preference for younger over older target age groups. This latter result further cautions against the generalizations of ageism findings based on undergraduate samples.

an explicit preference for older adults—particularly for people in their 80s and 90s—over young adults. Finally, it is worth noting that liberal participants in their 20s were among the rare demographic groups to express a preference for younger over older target age groups (Fig. 3 D). This latter finding further cautions against the generalizations of ageism findings based on undergraduate samples.

**Moderation by social dominance orientation.** Does this attitudinal pattern reflect a benign liking of older adults or a form of prejudice toward younger ones? To address this question, we compared the responses of participants with a higher proclivity for prejudice (people high on SDO) with those of people with a lower proclivity for prejudice (people low on SDO).<sup>†</sup> If unfavorable attitudes toward young adults reflect a form of prejudice, we would expect people with a high inclination for prejudice to show even less favorable sentiments toward young adults than the rest of the sample. Conversely, if comparatively favorable attitudes toward older age groups signal only a benign liking of older adults, people's general inclination for prejudice should not underlie this attitudinal preference. Consistent with the former proposition, SDO moderated attitudes toward the different age groups,  $\chi^2(7) = 423.55$ ,  $P < 0.0001$ , such that participants with a strong proclivity for prejudice (high SDO) expressed sentiments even more unfavorable toward young adults and even more favorable toward older adults than did the rest of the sample (Fig. 3 C).

To gauge the magnitude of the prejudice targeting young adults, we also compared correlations between SDO and attitudes toward these age groups with correlations between SDO and

attitudes toward US racial groups (Table 1; non-preregistered exploratory analysis; details in *SI Appendix, Additional Results*; see also *SI Appendix, Table S4*). The correlation between SDO and attitudes toward people in their 20s,  $r = -0.25$ , most closely matched that between SDO and attitudes toward Black people (a disadvantaged, racial minority),  $r = -0.25$ ,  $z = 0.01$ ,  $P = 0.9944$ . Conversely, the correlation between SDO and attitudes toward people in their 60s,  $r = 0.24$ , most closely matched that between SDO and attitudes toward White people (the advantaged, dominant racial group),  $r = 0.22$ ,  $z = 0.20$ ,  $P = 0.8383$ .

**Open-ended responses.** Although feeling thermometers offer a convenient way to compare explicit attitudes, they can mask potential nuances about people's sentiments. To address this issue, we asked participants in sample B ( $N = 967$  participants) to write a short essay on their perceptions of people in their 20s and 30s ( $n = 966$  complete essays) and another on their perceptions of people in their 80s and 90s ( $n = 965$  complete essays; full essays available in our *Online Repository*; sample in *SI Appendix, Table S5*).

**Attitudinal measure.** Each essay was coded by research assistants to assess the overall valence of participant's sentiments toward younger and older adults. Consistent with the findings reported with feeling thermometers, the content of essays about younger adults was significantly less positively valenced than was that of essays about older adults,  $t(964) = 14.89$ ,  $P < 0.0001$  (Fig. 4 and *SI Appendix, Fig. S4*). In fact, the valence of essays about younger adults scored below the midpoint (neutral valence),  $t(965) = 3.27$ ,  $P = 0.0011$ , and those about older adults, significantly above,  $t(964) = 21.34$ ,  $P < 0.0001$ . Finally, also corroborating the thermometer findings, a non-preregistered analysis shows that SDO correlated negatively with the valence of essays about younger adults,  $r = -0.32$ ,  $P < 0.0001$ , and positively with that of essays about older adults,  $r = 0.09$ ,  $P = 0.0081$ . Overall, using open-ended essays—which

<sup>†</sup>While the most recent iteration of SDO splits the construct into two distinct subscales (36), our moderation analyses using the two subscales yielded virtually identical results. To remain parsimonious and simplify the forecasting task, we decided to operationalize SDO as a single, unitary measure. This approach is consistent with our preregistration plan and the historical measurement of SDO.

**Table 1. Relationship between SDO and attitudes toward age groups, and SDO and attitudes toward racial groups**

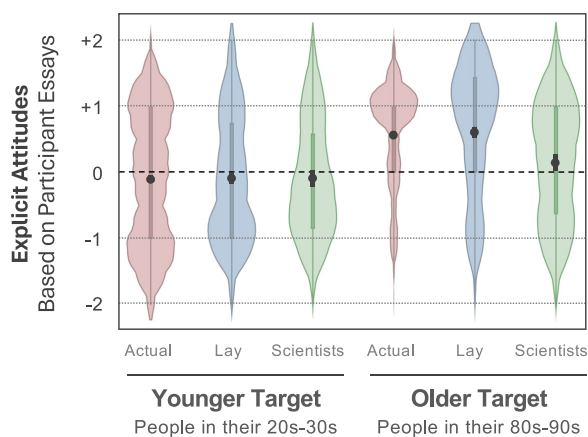
Age groups			Ethnicity & race		
Target group	Correlation	Sig.	Target group	Correlation	Sig.
20s	-0.25	$P < 0.0001$	Asian	0.06	$P = 0.4394$
30s	-0.22	$P < 0.0001$	Black	-0.25	$P = 0.0005$
40s	-0.05	$P = 0.0199$	Latino	-0.08	$P = 0.2703$
50s	0.12	$P < 0.0001$	White	0.22	$P = 0.0017$
60s	0.24	$P < 0.0001$			
70s	0.23	$P < 0.0001$			
80s	0.14	$P < 0.0001$			
90s	0.11	$P < 0.0001$			

Note: The correlation between SDO and attitudes toward young adults was akin to that of SDO with attitudes toward Black people (nondominant, racial minority), and that between SDO and attitudes toward the “young older adults” (people in their 60s to 70s) akin to that between SDO and attitudes toward White people (dominant, majority group).

offered participants an opportunity to provide a nuanced view of younger and older adults—we found results highly consistent with those obtained with feeling thermometers.

**Stereotype contents.** One way to examine social perceptions associated with a group is to look at the stereotype content associated with this group. To this end, we extracted attributes associated with younger and older adults from participant essays and coded them for valence as well as warmth/communality and competence/agency, widely considered the two fundamental dimensions of social cognition (68, 69). Warmth/communality refers to group members’ perceived concern for others, sociability, and emotional sensitivity. Competence/agency refers to their ability to influence the environment to achieve goals and relates to group members’ perceived independence, instrumental competence, leadership skills, and assertiveness. All the attributes were rated for valence by a team of research assistants. Attributes mentioned at least twice were coded for warmth/communality and competence/agency by the first two authors (details in Materials and Methods, Procedure, Sample B).

Close to two-thirds of the attributes associated with older adults were positive (66%) and only one-quarter were negative (26%). In contrast, only one-third of those associated with young adults were positive (35%) and more than half were negative (58%; summary in *SI Appendix*, Table S6 and Fig. S5; list of the most frequently cited items for each cohort in *SI Appendix*, Table S7; full list with frequencies available in our *Online Repository*).



**Fig. 4.** Violin plots of actual and forecasted means of attitudes toward younger and older adults, based on open-ended responses of our crowdsourced online sample matched to the US adult population. Actual attitudes in red, lay forecasts in blue, and scientist forecasts in green. Black dots represent means with 95% CI. Actual attitudes toward young adults were trending negatively while those toward older adults were positive. Social scientists greatly underestimated attitudinal ratings for the older target group; lay forecasters did not.

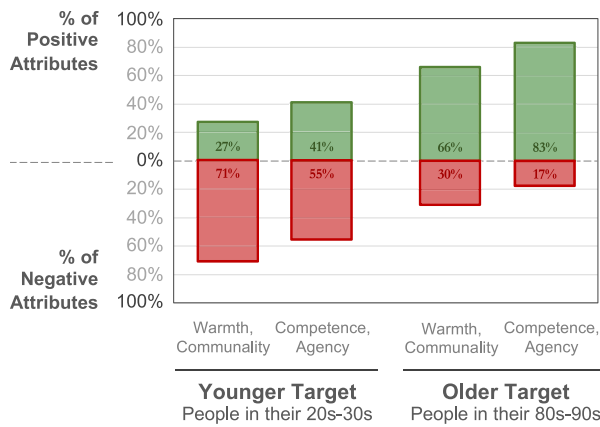
The stereotype content of young adults was particularly negative for the warmth/communality dimension (71% of negative attributes) and negatively trending for the competence/agency dimension (55% of negative attributes; Fig. 5). The most frequently mentioned attributes suggest that, from a competence/agency standpoint, young adults were seen by some as energetic, smart, and hard-working and by others as lazy, immature, and stupid (Table 2). From a warmth/communality standpoint, although young adults were sometimes described as fun and positive, they were more frequently depicted negatively (e.g., entitled, disrespectful, spoiled, arrogant, self-centered). Overall, these sets of adjectives corroborate recent efforts to unearth the stereotype content associated with young adults (6).

In sharp contrast, the stereotype content of older cohorts tended to be more consistently positive, for both warmth/communality (66% of positive attributes) and competence/agency (83% of positive attributes; Fig. 5). Per attributes’ frequency (Table 2), from a competence/agency standpoint, older adults were overwhelmingly described as wise, experienced, and hard-working. From a warmth/communality standpoint, while seen by some as mean, grumpy, negative, or racist, older adults were more often described favorably (e.g., sweet, kind, positive, happy, respectful).<sup>‡</sup>

**Forecasting Surveys.** Americans in our online samples expressed the least favorable sentiments toward young adults and most favorable ones toward older adults. This pattern emerged consistently across a wide range of measures and participant demographics. Furthermore, participants with a higher proclivity for prejudice were more likely to express unfavorable sentiments toward younger cohorts and favorable ones toward older cohorts, suggesting that the overall pattern captured with our samples reflects a derogation of young adults more than a benign preference for older adults.

Surprisingly, however, age bias targeting young adults has been largely absent from both public and academic debates. One potential explanation is that the public and scientific community are unaware that people harbor such unfavorable feelings toward young adults. To test this proposition, we asked a new crowdsourced online sample matched to the US adult population ( $N = 500$ ) and a sample of social scientists ( $N = 241$ ) to forecast the results of the study presented above

<sup>‡</sup>These results contrast sharply with the stereotyping literature suggesting that older adults are perceived as warm but incompetent (33). This discrepancy may stem from methodological differences: Stereotype contents are commonly measured using a short list of predefined attributes, whereas we coded participants’ unconstrained responses in open-ended essays. Furthermore, the attributes that our participants ascribed to older adults seem to reflect in part the values epitomized by the target age groups (e.g., hard-working) more than the actual skills they currently display (most people in their 80s and 90s are not “working hard” anymore). It is also worth noting that much of the formative “doddering but dear” research was conducted around two decades ago (33). Today’s older generation are healthier, living longer, and more well-off than prior older generations; stereotypes toward this group may have changed. Finally, some work has also suggested that some apparently positive stereotypes about older adults (e.g., sweet, kind) can reflect a form of benevolent ageism that can also negatively impact the daily life experience of older adults (82).



**Fig. 5.** Stereotype content of younger and older adults, based on percentages of positive and negative attributes associated with each target cohort in participant essays, for attributes mentioned at least twice ( $n = 2,791$  attributes). Overall, the stereotype content of younger cohorts was particularly negative for the warmth/communitality dimension and negatively trending for the competence/agency dimension. In contrast, the stereotype content of older cohorts was highly positive for both dimensions.

(details about the samples in *SI Appendix, Samples and Recruiting and Table S8*). We were particularly interested in seeing whether forecasters would accurately predict that young adults are seen less favorably than other age groups and whether social scientists' familiarity with the academic literature on ageism would influence their response.

The social scientists recruited for our forecasting survey came from a wide range of disciplines and career stages, and included ageism experts; diversity, equity, and inclusion (DEI) experts; and researchers with expertise in neither domain. We actively recruited DEI experts to isolate the effects of ageism expertise on forecasting accuracy from familiarity with the literature on prejudice and intergroup conflict at large (e.g., racism, sexism, homophobia). Importantly, since our sample of social scientists was relatively small, we favored a continuous measure of DEI and ageism expertise in our analyses to maximize statistical power.

**Feeling thermometers.** Overall, forecasters tended to overestimate how our sample felt toward younger/middle-aged groups (people in their 30s and 40s) and underestimate how they felt toward

young older adults (people in their 60s and 70s), an effect more pronounced for social scientists than for lay forecasters (Fig. 6 *A* and *B*). For instance, social scientists overestimated attitudes toward people in their 30s ( $\Delta_{\text{actual vs. scientist forecast}} = 0.54$ ,  $P = 0.0001$ ) more so than lay forecasters ( $\Delta_{\text{actual vs. lay forecast}} = 0.20$ ,  $P = 0.0551$ ;  $\Delta_{\text{lay vs. scientist forecast}} = 0.33$ ,  $P = 0.0283$ ) and underestimated attitudes toward people in their 70s ( $\Delta_{\text{actual vs. scientist forecast}} = 0.55$ ,  $P = 0.0001$ ) more so than lay forecasters ( $\Delta_{\text{actual vs. lay forecast}} = 0.17$ ,  $P = 0.1063$ ;  $\Delta_{\text{lay vs. scientist forecast}} = 0.38$ ,  $P = 0.0129$ ; see also *SI Appendix, Table S9*). Taken together, therefore, the overall map of age attitudes forecasted by lay participants tended to match much more closely that of our original sample.

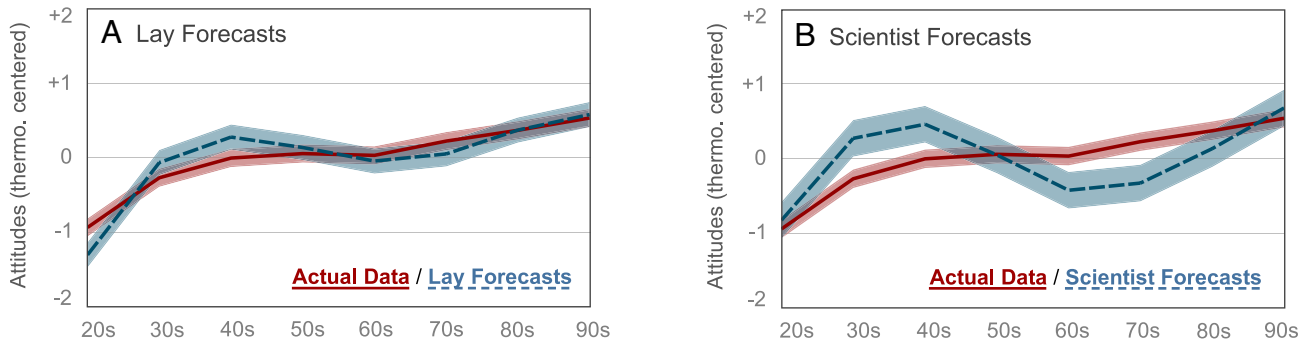
Moderation analyses for scientist forecasters reveal that familiarity with DEI research did not influence their forecasts,  $\chi^2(7) = 4.08$ ,  $P = 0.7710$  (Fig. 7*A*). However, familiarity with ageism research did,  $\chi^2(7) = 63.14$ ,  $P < 0.0001$ . The higher their familiarity with ageism research, the more social scientists tended to overestimate positive attitudes toward younger age groups and underestimate those toward older age groups (Fig. 7*B*). Additional simple slope analyses suggest that social scientists at +1 SD in ageism expertise expected people in their 40s to be viewed the most favorably and people in their 20s to be perceived as favorably as people in their 60s, 70s, and 80s. In comparison, social scientists at -1 SD in ageism expertise overestimated favorable attitudes toward middle-aged and oldest adults, but still anticipated people in their 20s to receive the least favorable attitudes and people in their 80s and 90s to receive the most favorable ones.

**Attitudes in open-ended responses.** We ran similar models to examine how accurately participants forecasted attitudes toward younger and older adults based on sample B's essays. Lay forecasts of attitudes toward younger and older adults did not differ significantly from the actual attitudes coded in these essays (Fig. 4). In contrast, social scientists significantly underestimated attitudes toward older adults,  $\Delta_{\text{actual vs. scientist forecast}} = -0.42$ ,  $P < 0.0001$ . Once again, DEI expertise did not moderate social scientists' forecast,  $\chi^2(1) = 0.07$ ,  $P = 0.7918$ , but ageism expertise did,  $\chi^2(1) = 8.65$ ,  $P = 0.0033$ . More ageism expertise led to greater underestimations of favorable attitudes toward older adults,  $B = -0.17$ ,  $SE = 0.06$ ,  $P = 0.0033$ .

**Table 2. Top 10 warmth/communitality and competence/agency attributes associated with younger and older adults in participants' essays**

Younger target People in their 20s to 30s						Older target People in their 80s to 90s					
Warmth/Communitality			Competence/Agency			Warmth/Communitality			Competence/Agency		
Freq.	Attribute	Val.	Freq.	Attribute	Val.	Freq.	Attribute	Val.	Freq.	Attribute	Val.
89	Entitled	-	54	Lazy	-	31	Positive	+	156	Wise	+
43	Positive	+	38	Hard-working	+	24	Sweet	+	115	Experienced	+
37	Disrespectful	-	36	Immature	-	21	Kind	+	113	Respectable	+
32	Self-centered	-	26	Inexperienced	-	16	Nice	+	74	Hard-working	+
29	Selfish	-	22	Energetic	+	16	Racist	-	53	Knowledgeable	+
27	Know-it-all	-	12	Irresponsible	-	12	Respectful	+	21	Set in their ways	-
25	Spoiled	-	12	Stupid	-	10	Happy	+	15	Admirable	+
21	Annoying	-	11	Mature	+	8	Caring	+	13	Vulnerable	-
20	Fun	+	11	Smart	+	8	Friendly	+	11	Hard-workers	+
19	Arrogant	-	10	Naïve	-	8	Grumpy	-	10	Slow	-
						8	Mean	-			
						8	Negative	-			

Note: Freq. = Frequency. Val. = Valence. Analysis based on 351 unique attributes cited at least twice (total number of attributes: 2,791), extracted from 1,931 essays about younger and older targets. Attributes associated with older adults are much more positive than those associated with young adults, for both Warmth/Communitality and Competence/Agency.

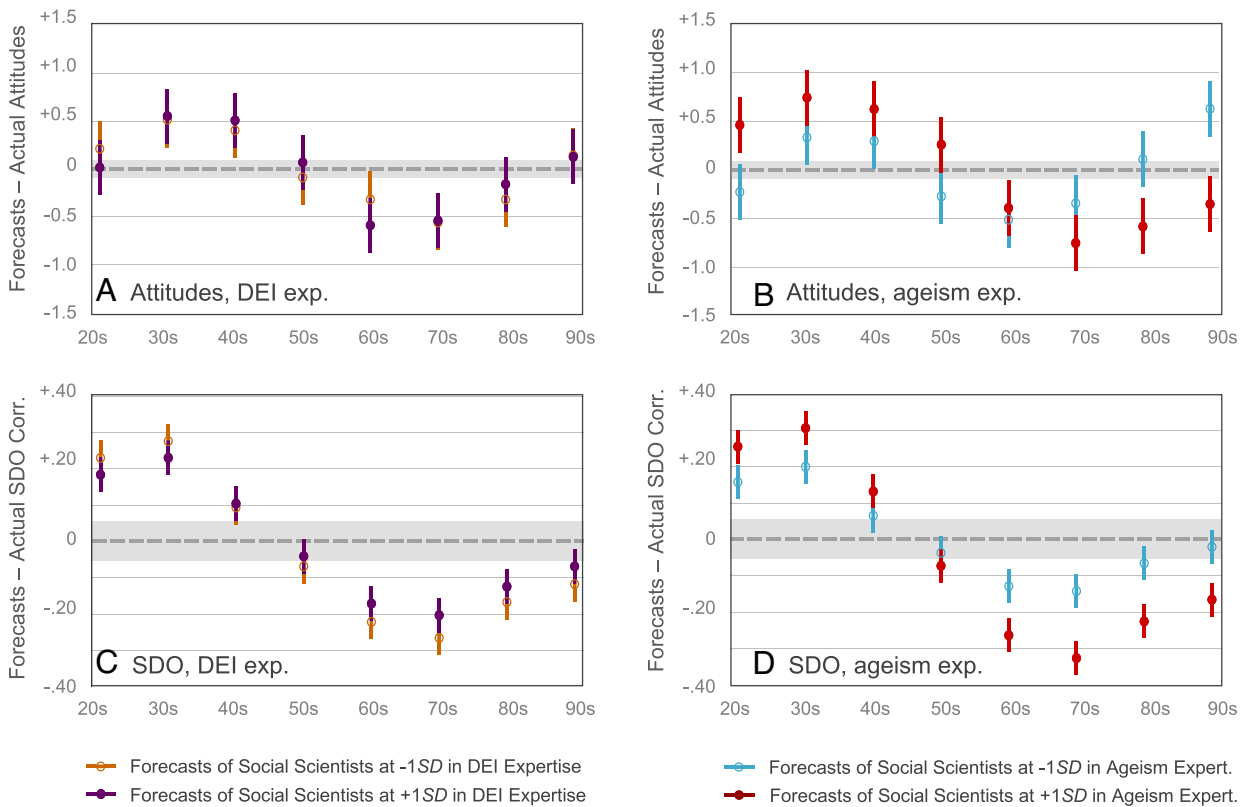


**Fig. 6.** Mean plot of actual vs. lay forecasts (Panel A) and scientist forecasts (Panel B) of attitudes toward different age groups. Shaded areas represent 95% CI. Social scientists were more likely than lay forecasters to overestimate attitudes toward younger targets and underestimate attitudes toward people in their 60s and 70s.

**Valence of the stereotype contents.** Forecasts of the stereotype contents yielded similar results. Social scientists expected younger adults to receive 4.2 percentage points fewer positive attributes than older adults, a younger-older adult gap four times smaller than that predicted by lay forecasters (i.e., 19.2 percentage points) and seven times smaller than the actual gap (i.e., 30.9 percentage points; *SI Appendix, Fig. S5*). Consistent with our other findings, ageism—but not DEI—expertise increased the likelihood that social scientists overestimate the percentage of positive attributes

associated with young adults and underestimate that associated with older adults,  $B = -6.58$ ,  $SE = 1.68$ ,  $P = 0.0001$ .

An additional analysis offers perhaps a better sense of the magnitude of the impact of ageism expertise on forecasting accuracy. Social scientists who self-identified as ageism experts were 54% less likely than nonageism experts to accurately predict that the stereotype content of young adults would be more negative than that of older adults,  $B = -0.78$ ,  $SE = 0.31$ ,  $P = 0.010$ ,  $OR = 0.457$  (95% CI: 0.251, 0.832).



**Fig. 7.** Deviations of social scientists' forecast away from our sample's responses, for attitudes toward target age groups (Panel A and B) and correlations between SDO and attitudes toward target age groups (Panel C and D), as a function of expertise in DEI (Panel A and C) and ageism (Panel B and D). Actual responses were subtracted from social scientists' forecasts. 0 = forecast matches actual data; >0 reflect overestimations; <0 reflect underestimations. Error bars represent 95% CI. Areas shaded in light gray represent the 95% CI for actual responses. Per Panel (A), DEI expertise had no effect on scientists' accuracy at forecasting age attitudes. In contrast, per Panel (B), the more scientists were familiar with the ageism literature, the more they tended to overestimate attitudes toward younger target groups and underestimate attitudes toward older target groups. Per Panel (C), DEI expertise had no effect on scientists' accuracy at forecasting correlations between age attitudes and SDO. In contrast, per Panel (D), the more scientists were familiar with the ageism literature, the more they tended to underestimate how negatively correlated SDO is with attitudes toward younger age groups and how positively correlated it is with attitudes toward older age groups.

**Relationship between SDO and age attitudes.** We also tested whether social scientists anticipated that people high in SDO would harbor more negative attitudes toward younger age groups and more positive attitudes toward older age groups. To do so, we asked them to estimate the correlations between SDO and the feeling thermometer of each age group obtained in our original study. To guide them, we provided a definition of SDO and included the correlations between SDO and attitudes toward racial groups (Table 1, columns on the right side). The latter piece of information was meant to provide forecasters with a sense of the direction and magnitude of correlations between SDO and attitudes toward advantaged and disadvantaged groups in a domain other than age.

Overall, social scientists greatly underestimated the magnitude of the correlation between SDO and age attitudes. The range of forecasted correlations  $[-0.08, 0.07]$  was more than three times narrower than the actual one  $[-0.29, 0.25]$  (*SI Appendix, Table S10*). Because the correlations between SDO and race were provided in the instructions (i.e., range:  $[-0.25, 0.22]$ ), these forecasts suggest that social scientists erroneously expected SDO to be a much weaker predictor of age attitudes than of race attitudes and that people with a high proclivity for prejudice would not feel very differently about younger and older adults than would people with a low proclivity for prejudice. Taken together, social scientists greatly underestimated how negative the correlations between SDO and attitudes toward younger target groups were (e.g., people in their 20s,  $\Delta_r = -0.21$ ,  $z = -2.95$ ,  $P = 0.0031$ ) and how positive correlations between SDO and attitudes toward older target groups were (e.g., people in their 60s,  $\Delta_r = 0.20$ ,  $z = 2.77$ ,  $P = 0.0056$ ; *SI Appendix, Table S10*). Again, this forecasting bias was exacerbated by ageism expertise,  $\chi^2(7) = 105.3$ ,  $P < 0.0001$ , but not DEI expertise,  $\chi^2(7) = 12.2$ ,  $P = 0.0944$  (Fig. 7 C and D).

## Discussion

Public and academic ageism discussion focuses predominantly on prejudices targeting older adults, implicitly assuming that this age group experiences the most age bias. Challenging this assumption, two large, preregistered surveys with online samples matched to the US adult population suggest that Americans overwhelmingly harbored the least favorable sentiments toward young adults and most favorable ones toward older adults, a pattern that held across a wide range of measures and participant demographics. Furthermore, consistent with the idea that this pattern reflects a derogation of young adults rather than a benign preference for older adults, bias against young adults appeared to be exacerbated by SDO. That is, people with a proclivity for prejudice (high SDO) tended to see young adults even less favorably and older adults even more favorably than did the rest of the population. Indicative of the extent of this bias, the correlation between SDO and sentiments toward young (older) adults was similar in direction and magnitude to that between SDO and sentiments toward Black (White) people.

While these findings might contradict the prevailing older focus within ageism research, they resonate with more recent work examining attitudes toward young adults (6, 7, 19–21, 57). The robust pattern observed in our surveys questions the belief that older adults face the highest level of age prejudice and helps quantify the magnitude of youngism (i.e., age-bias targeting young adults).

Given the extent of American society's unfavorable sentiments toward young adults captured here, it is worth pondering why youngism has been largely absent from public and academic debates so far. One possibility, explored in our two forecasting

surveys, is that laypeople and social scientists hold an inaccurate map of Americans' age sentiments, thus being unaware of the unfavorable views afflicting young adults. Contradicting this proposition, lay participants were quite accurate in forecasting the sentiments expressed by our online samples matched to the US adult population. Lack of awareness, therefore, is unlikely to explain the absence of public debates around youngism. Future research should thus explore alternative explanations. In this regard, evidence suggests that ageism might be more condoned than other forms of prejudice such as racism, sexism, and homophobia (70). Hence, people might be aware of the extent of unfavorable sentiments toward young adults but might not consider it morally problematic and, thus, not worthy of substantial debate. This impunity of unfavorable sentiments toward young adults might be compounded by the fact that everyone has once been young: Just as having a "Black friend" is sometimes used to deflect suspicions of racism (71), the experience of having once been young might make everyone feel entitled to hold prejudices against younger people without experiencing any guilt or need for self-reflection.

Contrasting with lay respondents' relatively accurate map of Americans' age sentiments, social scientists in our survey tended to underestimate the extent of Americans' unfavorable sentiments toward young adults—and favorable sentiments toward older adults—across all measures (i.e., feeling thermometers, valence of essays, valence of the stereotype content, and SDO correlations). Importantly, this bias was even more pronounced for ageism experts. This finding contributes to a growing body of work examining how expertise influences social scientists' understanding of the phenomena they study (43–50, 54, 56). In this regard, our results document a rare case where expertise reduces forecasting accuracy. Of note, our data doesn't speak directly to the causes of experts' greater inaccuracy. However, availability bias is a likely culprit. Availability bias occurs when people rely too heavily on easily accessible information when making judgments or decisions (72). In the present case, the hegemony of research on age prejudice targeting older adults—and the paucity of academic work on youngism—might weigh heavily on experts' mind when pondering Americans' age attitudes.

Ageism experts' biased map of explicit age attitudes might also help explain why youngism has been largely absent from academic debates. The tendency of ageism researchers to underestimate unfavorable sentiments toward young adults might narrow their understanding of who is victim of age prejudice and whose circumstances warrant further academic investigation. This might also create a reinforcing loop: A preponderance of ageism research focused on older adults distorts experts' understanding of lay people's age attitudes, which, in turn, perpetuates a concentration of ageism research on older adults. To address this issue, below, we present promising research avenues on youngism which, combined with more traditional work on older-age stigma, should contribute to building a more comprehensive, accurate, and fair picture of ageism in contemporary societies.

**Future Research.** First, more research is needed to understand the causes of youngism. Recent work offers some leads. Contrary to ageism targeting older adults, which tends to focus on the fear and discomfort with the process of aging, evidence suggests that ageism targeting young adults represents a form of generational scolding (6, 7, 57). That is, people claim to like young adults in general but dislike today's young in particular (6), what some have labeled the "kids these days" effect (7). These less favorable views of younger generations seem rooted in symbolic fears, an impression that younger generations hold values, habits, and



worldviews both different from those of previous generations and dangerous for the future of society (57). Importantly, however, these unfavorable sentiments toward young adults are likely not new. Plenty of historical anecdotes display members of older generations scolding younger ones and judging them as more decadent, disrespectful, shallow, and entitled than previous generations at the same age (6, 7, 51). In this regard, systematic archival studies would be useful for understanding the evolution, degree, and content of youngism over time, and what factors contribute to it.

A second area of research, mostly unexplored, concerns the consequences of youngism. The recent “OK Boomer” movement has brought to light the growing resentment that today’s young feel toward older generations, including the perceived lack of concern for young’s economic, social, political, and ecological predicaments (73). Prior work has shown that negative views of young adults reduce people’s inclination to address young generations’ issues such as mounting student debt (6). In this regard, the higher level of unfavorable sentiments expressed by older participants in the present study (Fig. 3B) raises concerns as to older adults’ willingness to attend to the plight faced by today’s young adults. Future work should further investigate how youngism shapes society’s willingness to address the major challenges faced by today’s younger generations.

A third future research direction in this realm is cross-cultural. Our work has focused exclusively on the United States. However, younger generations across the globe might face similarly unfavorable sentiments. Prior work has documented variances in age attitudes across cultures (74, 75). Recent evidence has also shown that young adults’ experience of ageism varies across countries (19, 20). We encourage future work to use methods similar to ours to disentangle how explicit sentiments toward all age groups vary across cultures and identify what factors drive said variance.

Intersectionality also constitutes a domain worthy of further examination. Prior work has shown that older women face considerable derogation due to the combined effects of age and gender bias (76). The current findings emphasize the need to examine perceptions of younger women, whose unique intersecting identities might lead to greater scrutiny as well. Similarly, more work is needed to understand how target age moderates perceptions of race, social class, and other social categories that foster prejudice.

It is also worth noting that, while the present discussion focuses primarily on young and older adults, building a better understanding of the factors underlying perceptions of the middle-aged is also central to developing a comprehensive view of age-based social cognitions. Our results suggest that Americans’ evaluations of age groups plateau around middle-aged target groups. Future work should seek to develop theories and hypotheses to explain why this might be.

Finally, researchers should strive to reconcile research on ageism targeting younger and older adults. At least 60 y of academic work on ageism has underscored the consistency and strength of ageism targeting older adults (e.g., refs. 15, 16, 31, and 77). In contrast, corroborating more recent work, our large samples matched to the US adult population exhibited much less favorable views of young adults than of any other age group and more favorable views of older adults than of any other age group. What accounts for these discrepancies? The answer is likely multifaceted. One explanation is that attitudes toward older adults have changed positively over time. The life conditions of older adults have improved drastically in the last 60 y. People live healthy, independent, productive lives longer than ever before. For instance, people in their 60s and 70s in 2020

look—and in all likelihood, feel—quite different from people in their 60s and 70s in 1950. Societal images of older adults have likely changed too. Supporting this argument, recent word embedding analyses of a large online library spanning 200 y suggest that the representation of older adults has improved over time, particularly in the last 50 y (78).

Methodological differences also likely contribute to the discrepancies between our findings and those dominating the ageism literature. For instance, contrasting with our decontextualized approach, studies on explicit ageism have traditionally focused on domains commonly unfavorable to older adults (e.g., memory, health, attractiveness, adaptability at work). It is also worth noting that, while the present study has focused on explicit sentiments, large datasets of implicit attitudes have consistently found a preference for younger over older targets, among participants of all age groups (29, 30). Future research on age-based prejudice should therefore build new theory and empirical tests to disentangle when, where, how, and why people might be most likely to be biased against young adults, older adults, or both. Additionally, researchers should explore the effect of ageism in a broader range of domains, including those potentially unfavorable to young adults, to build a more comprehensive view of ageism in society (e.g., perceptions of younger vs. older political activists; endorsement of economic policies to address issues of rising student debts, insolvency of social security, or growing intergenerational wealth gap; endorsement of political efforts to tighten abortion laws, limit gun controls, or contain LGBTQ+ rights, which disproportionately affect young adults).

Moreover, methodological limitations of prior work may also account for discrepancies between our findings and ageism research’s typical focus on older adults. For instance, a large share of ageism research comparing younger and older targets has been conducted with undergraduate participants. Per our findings, undergraduates, younger and more liberal leaning than the rest of the population, are the most likely to express favorable sentiments toward younger relative to older targets (Fig. 3D). Similarly, the participant pools of crowdsourcing platforms tend to be young and progressive (58, 59). Relying on these samples can limit the ecological validity of certain ageism findings. This stresses the value of using samples that match the US adult population when researchers seek to generalize about age attitudes at the population level. Per our experience, applying a stratified sampling with proportional allocation approach when recruiting samples from crowdsourcing platforms such as Prolific Academic or Amazon Mechanical Turk can reveal an effective and reasonably inexpensive solution, as long as stratification criteria are selected thoughtfully, in relation to the phenomenon studied—in the case of ageism, participant age and political view seem the most important (see *SI Appendix, Samples and Recruiting* for a more detailed explanation of our sampling approach).

To conclude, we note that the current findings do not intend to foster age group competition of victimhood, but rather highlight the need for cross-generational solidarity in understanding how age prejudice spans the entire age spectrum. Likewise, showing that today’s young face less favorable explicit sentiments than older adults does not mean that ageism is not a grave concern for today’s older population. However, the current findings underscore how, in a rapidly aging world where valued resources must be shared across a widening range of generations, building a comprehensive picture of age prejudice is imperative to craft policies that balance the needs and well-being of all age groups and protect the intergenerational cohesion that underlies all human societies.

## Materials and Methods

**Participants.** Participants in samples A and B were recruited from the US pool of the crowdsourcing platform Prolific and were paid, respectively, \$0.54 and \$0.67. Participants in our lay forecasting study were recruited from the US pool of the crowdsourcing platform Amazon Mechanical Turk using demographic screenings from cloudresearch.com and were paid \$0.40. Finally, the sample of social scientists who joined our forecasting study were recruited via email, snowball sampling, and a post on the open forum of the *Society of Personality and Social Psychology*. They were incentivized with an opportunity to join a raffle to win one of eight \$100 Amazon Gift Cards. Details about the samples and recruiting in [SI Appendix, Samples and Recruiting](#).

### Procedure.

**Sample A.** Participants first completed a brief demographic questionnaire. They self-reported their attitudes toward each target age groups using a series of feeling thermometers with endpoints 0 = *Extremely Cold Feelings* and 10 = *Extremely Warm Feelings*. The order of the target age groups was counterbalanced to reduce the risk of anchoring effects. Participants also completed a measure of egalitarianism adapted from the feminist identity scale (79); results in [SI Appendix, Confirmatory Analyses](#). Finally, participants completed the short version of SDO<sub>7</sub> on a seven-point scale with endpoints 1 = *Strongly Oppose* and 7 = *Strongly Favor* (36).

**Sample B.** The procedure resembled that of sample A, with a few exceptions. The original labels of the feeling thermometers were substituted for 0 = *Extremely Negative Feelings*, and 10 = *Extremely Positive Feelings*. We opted for these labels because cold/warm felt semantically too close to the warmth dimension of the Stereotype Content Model (69). We wanted to make sure that participants—and, subsequently, the social scientists forecasting our findings—interpret our feeling thermometers as a measure of valence, not warmth stereotyping. Per our analyses comparing samples A and B, labels did not greatly alter our results ([SI Appendix, Additional Results](#)). The additional egalitarianism measure included for sample A was removed. Instead, participants completed two essays with the following prompt: “Please take a minute to describe in a few words or sentences how you view people in their 20s and 30s [80s and 90s] today, how you feel toward them, and why.” A demographic questionnaire concluded the study.

Three research assistants independently coded each essay to assess the overall valence of participants’ sentiments toward younger and older adults using a 5-point scale with endpoints  $-2 = \textit{Extremely negative feelings}$ , and  $+2 = \textit{Extremely positive feelings}$ ,  $ICC = 0.92$ ,  $CI_{95\%} [0.911, 0.924]$ . Four other research assistants extracted all the attributes that respondents associated with younger and older adults in these essays ( $N = 3,761$  nonunique attributes; 1,256 unique attributes; full list in our [Online Repository](#)). Three assistants independently coded each attribute as positive, neutral, or negative (Fleiss’s  $k = 0.77$ ,  $P < 0.0001$ ; detailed methodology in [SI Appendix, Additional Results](#)). The first two authors coded all the attributes mentioned at least twice in participant essays along the two fundamental dimensions of social cognition warmth/communality and competence/agency ( $n = 351$  unique attributes;  $N = 2,791$  nonunique attributes; 74.2% of the entire sample of attributes;  $k = 0.83$ ,  $P < 0.0001$ ; detailed methods in [SI Appendix, Additional Results](#)). Raters did not know whether the stereotype rated referred to the younger target group, the older one, or both.

**Lay forecasting.** Participants completed a brief demographic questionnaire to confirm their eligibility for the study. They read about sample B’s procedure and were instructed to forecast the results. They forecasted the results of the thermometer task using sliders similar to the ones provided to sample B. They estimated the valence of sample B’s essays about younger and older adults on a five-point scale, with endpoints  $-2 = \textit{Extremely Negative}$ , and  $+2 = \textit{Extremely Positive}$ , consistent with the scale used by the raters who coded these essays. Participants then forecasted the percentage of positive adjectives associated with younger and older adults in these essays, using sliders with endpoints 0 = 0% *Positive Adjectives*, and 100 = 100% *Positive Adjectives*. Two attention checks were inserted among four filler items, which concluded the study.

Of note, forecasters only estimated sample B’s responses because the instructions and scales for sample A differed slightly, and sample B included essay questions absent in sample A. To be consistent, forecasts were compared with the responses of Sample B exclusively.

**Scientist forecasting.** The procedure was similar to that of lay forecasters, with a few exceptions. After forecasting the feeling thermometers, participants read a definition of SDO, reviewed a correlation matrix of SDO and attitudes toward racial groups, and forecasted the correlations between SDO and attitude toward our eight target age groups, using sliders with endpoints  $-1 = \textit{Perfectly negative relationship}$ , and  $+1 = \textit{Perfectly positive relationship}$ . They also estimated the percentage of positive warmth/communality and competence/agency stereotypes in sample B’s essays. The results for this latter forecast are not reported here but the data are available in our [Online Repository](#). A demographic questionnaire including questions about participant’s degree of expertise in DEI and ageism concluded the survey.

**Consent.** All studies were approved by the Institutional Review Board of New York University (i.e., IRB-FY2018-1358 and IRB-FY2021-5734). Participants read the consent form at the beginning of the study and were able to withdraw at any time. By continuing with the survey, all participants provided informed consent to participate.

The material for each survey, including items and scales, is available in our [Online Repository](#). Detailed procedures in [SI Appendix, Procedures](#).

**Analyses.** Most analyses with repeated measures were modeled using multilevel modeling, with observations nested in participants. Ordinal predictors (e.g., target age groups) were entered as noncontinuous variables. Continuous predictors were standardized. We followed up on each model with Wald tests, pairwise comparisons, simple effects, and simple slope analyses.

To complement our multilevel model of the SDO moderation, we also examined the partial Spearman correlations of SDO and attitudes toward each age group, net of participant attitudes toward age groups in general (i.e., aggregate of the eight feeling thermometers; for a similar approach, see ref. 65). This additional analysis allowed us to provide an easily interpretable measure of effect size, draw a parallel with relationships between SDO and race, and offer a convenient way for scientific forecasters to estimate the relationships between SDO and our target age groups.

For models involving forecasts, feeling thermometers were centered to eliminate baseline differences and allow for appropriate pairwise comparisons between actual and forecasted data. To assess forecasters’ accuracy at estimating the collective sentiment of our original sample, actual attitudes were centered at their Grand Mean (i.e., mean of all actual feeling thermometers). To assess the individual rather than the collective accuracy of forecasters, forecasted attitudes were centered at the Individual Mean (i.e., mean of each forecaster’s eight forecasted feeling thermometers; 80). Alternative DV transformations were also preregistered, as well as models using target age group as a continuous variable; none altered the conclusions presented in this article ([SI Appendix, Preregistration and Confirmatory Analyses](#)). To examine the effect of DEI and ageism expertise, the outcome variable was transformed into a measure of accuracy by subtracting actual from forecasted attitudes.

Comprehensive model descriptions, secondary analyses, and detailed results are available in [SI Appendix, Additional Results and Confirmatory Analyses](#).

**Academic Transparency.** Our preregistration forms are available on AsPredicted.org; detailed link is in [SI Appendix, Preregistrations](#). Our data, material, and syntax are publicly accessible online on a database of the Open Science Foundation: [https://osf.io/6wgct/?view\\_only=53d99ec25366473e87a7fd0d1aab0fcf](https://osf.io/6wgct/?view_only=53d99ec25366473e87a7fd0d1aab0fcf).

**Material, De-identified Data and Syntax.** Material, de-identified datasets and syntax have been deposited in an OSF repository (81) [https://osf.io/6wgct/?view\\_only=53d99ec25366473e87a7fd0d1aab0fcf](https://osf.io/6wgct/?view_only=53d99ec25366473e87a7fd0d1aab0fcf); <https://doi.org/10.17605/OSF.IO/6WGCT>.

**Data, Materials, and Software Availability.** <https://AsPredicted.org>, [https://osf.io/6wgct/?view\\_only=53d99ec25366473e87a7fd0d1aab0fcf](https://osf.io/6wgct/?view_only=53d99ec25366473e87a7fd0d1aab0fcf); [SI Appendix](#) Material, de-identified datasets, and syntax have been deposited in an OSF repository (81): <https://doi.org/10.17605/OSF.IO/6WGCT>.

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