

Online and divided: Social media's effects on American life

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Article Info	Abstract
Original article	Background: Social media is deeply embedded in American political and social life, yet evidence about its consequences remains fragmented across single outcomes, specific platforms, and predominantly younger populations. It therefore remains unclear whether its associations extend broadly across social life or are concentrated in particular domains and operate through distinct communicative and psychological mechanisms. Aims: This study examines the relationships between social media engagement and five domains of American social life— political polarisation, institutional trust, subjective wellbeing, racial attitudes, and religious practice— and tests the mediating roles of online political talk, cross-cutting exposure, and anticipated loneliness without internet access. Methodology: Data were drawn from the 2024 General Social Survey (N= 3,986), with model-specific subsamples resulting from its split-ballot design. Descriptive statistics, Spearman correlations, multivariate ordinary least squares regressions with demographic controls, and observed-variable path analyses were employed. Findings: Given the cross-sectional design, the findings are interpreted as associational rather than causal. Greater social media engagement was associated with higher ideological extremity ($\beta = 0.058$, $P = 0.044$) and greater anticipated loneliness without internet access ($\beta = 0.375$, $P < 0.001$). Path analysis indicated that the relationship between social media engagement and polarisation was primarily channelled through online political talk (indirect effect: $\beta = 0.230$, $P < 0.001$). Cross-cutting exposure also produced a smaller positive indirect effect ($\beta = 0.034$, $P = 0.026$), suggesting that encountering opposing views online may intensify rather than reduce polarisation. Social media engagement had no significant direct association with happiness but showed a significant negative indirect association through anticipated loneliness ($\beta = -0.018$, $P < 0.001$). No significant associations emerged for institutional trust or religious practice, while only a small negative association was found for endorsement of innate explanations of racial inequality. Overall, social media's associations with American social life appear selective and mechanism-dependent rather than universal. Conclusion: They are concentrated in politically expressive interaction and psychological dependency, shifting analytical attention from exposure alone to platform affordances that reward adversarial participation and continuous connectivity. These findings support a domain-sensitive and mechanism-centred approach to digital media effects while underscoring the need for longitudinal and experimental verification.
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1. Introduction: American way of doing SM

Social media has become one of the defining features of contemporary American life. According to the Pew Research Center's ongoing tracking surveys, the vast majority of American adults now use at least one social media platform regularly: YouTube is used by approximately 84% of adults, Facebook by 71%, Instagram by roughly half, and TikTok—the fastest-growing major platform in recent years—by 37% of adults as of 2025 (Pew Research Center, 2025). The depth of engagement is as striking as the breadth: about three-quarters of American adults under 30 uses at least five social media platforms simultaneously, and usage patterns vary substantially by age, gender, race, and education. Younger adults, women, Black and Hispanic Americans, and those with higher educational attainment are systematically more likely to be multiplatform users. About half of all American adults report getting news from social media at least sometimes, with Facebook and YouTube serving as the two most common platforms for regular news consumption. This transformation in the information environment has unfolded with remarkable speed: social media has in little more than the decade displaced newspapers, radio, and much of broadcast television as the primary arena in which millions of Americans encounter political information, form social judgements, and construct their sense of public life. Understanding what this transformation means for the texture of American society—for political beliefs, civic trust, personal wellbeing, racial attitudes, and religious engagement—is therefore one of the most pressing questions available to contemporary social science.

The societal consequences of this transformation span multiple domains. Politically, the rise of social media has coincided with an era of intensifying partisan conflict. The January 6, 2021 Capitol attack provided perhaps the most dramatic illustration of how social media platforms can serve as organisational infrastructure for political mobilisation, including of a violent and anti-democratic character. But social media's political effects are not limited to the extreme: they include the amplification of affective polarisation, the spread of misinformation and politically selective information environments, and the undermining of shared factual foundations for democratic deliberation (Lorenz-Spreen et al., 2023).

Economically, social media has created vast new markets for attention, advertising, and social influence, while simultaneously imposing costs. Research by Allcott, Gentzkow and Song (2022), drawing on a randomised experiment, found that self-control problems account for approximately 31% of social media use, suggesting that a substantial portion of time spent on these platforms is not freely or reflectively chosen but is instead the product of habit formation and impulsivity that users themselves recognise as problematic.

Socially and culturally, social media has served as an accelerant for

social movements— most visibly the Black Lives Matter movement, which used platforms such as Twitter, Instagram, and Facebook to document police violence, coordinate protest, and shift public discourse around racial inequality in ways that earlier generations of activists could not have achieved through offline channels alone (Bonilla & Rosa, 2015; Mundt et al., 2018).

At the same time, religious communities have engaged social media both as a tool for outreach and as a source of cultural challenge: younger, more digitally immersed cohorts show lower levels of religious affiliation and attendance than their predecessors, though whether this reflects a causal effect of digital media or a coincident generational and educational shift remains contested (Twenge, 2017).

For individual wellbeing, a large body of research has documented associations between heavy social media use and reduced subjective happiness, increased loneliness, and heightened psychological distress, particularly among younger users, though the magnitude and consistency of these associations remain debated (Twenge & Campbell, 2019; Valkenburg et al., 2022).

These varied observations have prompted theorists across several disciplines to develop frameworks for understanding why and how people use social media and what the consequences of that use might be. The oldest and most widely applied framework in this domain is Uses and Gratifications Theory, which holds that media audiences are active and goal-directed agents who select media platforms to satisfy pre-existing psychological and social needs; including needs for social interaction, information seeking, entertainment, self-expression, and surveillance of one's social environment (Whiting & Williams, 2013). Applied to social media, this perspective shifts analytical attention away from what platforms do to users and toward what users seek from platforms, predicting that the consequences of social media use will depend critically on the motivations driving engagement.

A second influential framework is Habermas's (1991) concept of the public sphere; the idea that democracy requires a communicative space that is in principle open to all citizens and insulated from the distorting logic of economic markets and state power. Scholars such as Fuchs (2014) have argued that social media, despite its apparent openness, fails to meet the normative standards of a genuine public sphere because it is structured by commercial logics of engagement, attention, and profit that privilege outrage, entertainment, and tribal affiliation over reasoned deliberation.

From a political science perspective, Sunstein (2017) extended this critique into an account of echo chambers and cybercascades, arguing that the personalisation architectures of social media platforms— which algorithmically surface content users are likely to agree with and engage with— produce ideological homophily at scale, reinforcing pre-

existing beliefs and making cross-partisan understanding progressively more difficult.

A related but empirically more nuanced body of work has complicated this picture: Bail et al. (2018) demonstrated experimentally that exposure to opposing political views on social media can counterintuitively increase rather than reduce polarisation, through what researchers have termed the backfire effect and motivated reasoning, and Lorenz-Spreen et al.'s (2023) comprehensive systematic review found that the net associations between digital media use and democratic health are predominantly harmful in established democracies, spanning polarisation, declining institutional trust, and the proliferation of misinformation, while benefits tend to be concentrated in authoritarian or emerging democratic contexts.

The available evidence suggests that social media is neither the neutral communication tool that early optimists envisioned nor an undifferentiated force for social harm, but a complex sociotechnical system whose consequences depend on who is using it, in what ways, for what purposes, and in what political and institutional context. What remains comparatively rare in the existing literature is a comprehensive, multi-domain empirical examination of these consequences using nationally representative probability survey data on a broad adult population. Most existing studies are experimental, platform-specific, or focused on adolescents; fewer examine the full range of societal domains— political, civic, psychological, racial, and religious— simultaneously and with equivalent methodological rigour. This study addresses that gap. Drawing on the 2024 General Social Survey (GSS, see Davern et al., 2025), a nationally representative cross-sectional sample of 3,986 American adults, we examine the associations between social media engagement and five domains of American social life: political polarisation, institutional trust, psychological wellbeing, racial attitudes, and religious practice.

2. Methodology

This study draws on data from the 2024 General Social Survey (GSS), a nationally representative, cross-sectional survey of non-institutionalised English, and Spanish-speaking adults aged 18 and older residing in the United States. The 2024 wave was conducted by the National Opinion Research Center (NORC) at the University of Chicago and constitutes Release 3, published in March 2026. The full sample comprised 3,986 completed cases. The 2024 GSS employed a multimode data collection design, combining in-person interviewing with web-based self-administration, a methodological evolution from earlier waves that reflects both the realities of survey participation in the post-pandemic era and NORC's ongoing commitment to maximising coverage and response quality. Sampling followed a probability-based design with stratification and clustering, and post-

stratification weights were applied to adjust for differential non-response and to align the sample with known population benchmarks from the American Community Survey on key demographic characteristics including age, sex, race, Hispanic ethnicity, and educational attainment. All analyses in this study use the unweighted sample, consistent with the exploratory and associational aims of the research, though weighted distributions were consulted for descriptive comparisons.

An important feature of the 2024 GSS design that bears directly on the analytical strategy of this study is its use of split-ballot, or modular, questionnaire administration. Different thematic modules were assigned to non-overlapping subsamples of respondents, meaning that not all items were administered to every participant. The social media and internet behaviour module—which includes items on internet use frequency, online photo and video sharing, online political discussion, and access to political news online—was administered to Subsample A ($n \approx 1,900$), while the news media and reliability module—covering political news source preferences, news source reliability ratings, and perceptions of media bias—was administered to Subsample B ($n \approx 1,800$). These two subsamples do not overlap, and as a consequence it is not possible to include both the social media engagement composite and the political news media use variable within the same regression model, nor to correlate items from the two modules directly. All bivariate and multivariate analyses therefore respect this constraint and are reported separately for each subsample.

The primary predictor in Subsample A analyses is a composite Social Media Engagement score constructed by averaging four frequency-of-use items—general internet use, photo and video sharing, political talk online, and online political news access—all recoded so that higher scores indicate greater engagement ($M = 3.52$, $SD = 0.92$; Cronbach's $\alpha = 0.43$). The modest internal consistency reflects the fact that the items capture distinct behavioural facets of digital media use rather than a single underlying attitude, which is consistent with their intended function as a multidimensional behavioural index. In Subsample B analyses, the primary predictor is the political news media use item (POLNEWS), measuring how frequently respondents use media for political news on a seven-point scale from never to every day.

The analytic strategy proceeds in three stages. In the first stage, descriptive statistics are reported for the key predictors and outcome variables, including frequency distributions, means, and standard deviations, disaggregated where appropriate by age, sex, race, and education.

In the second stage, bivariate associations between social media engagement and nine outcome variables—spanning political polarisation, institutional trust, subjective happiness, self-rated health, internet-induced loneliness, racial attitudes, and religious practice—are

examined using Spearman rank-order correlations, selected for their robustness to the ordinal scaling and non-normality present in many of the GSS items.

In the third stage, a series of ordinary least squares (OLS) regression models are estimated to assess whether the bivariate associations persist after controlling for age (continuous), sex (female= 1), race (dummy-coded with White and Black indicators and Other as the reference category), and years of formal education, all of which were selected on the basis of their theoretical relevance as potential confounders of both social media use and the societal outcomes under study.

Finally, three path models are estimated using observed-variable path analysis to test whether the effects of social media engagement on polarisation and happiness operate through theoretically specified mediating mechanisms: cross-cutting exposure to opposing views online, frequency of online political talk, and internet-induced loneliness.

Indirect effects are estimated using the product-of-coefficients method, with standard errors derived via the delta method, and model fit is evaluated using the Comparative Fit Index (CFI), the Goodness-of-Fit Index (GFI), and the Root Mean Square Error of Approximation (RMSEA).

All analyses were conducted in Python 3 using the pandas, scipy, statsmodels, and semopy libraries. Given the cross-sectional design of the GSS, no causal inferences are drawn; all findings are interpreted as associational patterns that, where theoretically coherent and statistically robust, may motivate future longitudinal or experimental investigation.

3. Findings

3.1. Descriptive findings

3.1.1. Internet and social media use

The 2024 General Social Survey (GSS) documents a near-total integration of the internet into daily American life. Among the 1,968 respondents who answered the internet use frequency item, 50.7% reported using the internet “almost all the time”, with a further 33.0% reporting use several times a day. Taken together, 83.7% of respondents were thus engaged with the internet at near-constant or multiple-times-daily frequency; a figure that underscores just how thoroughly online connectivity has moved from an occasional activity into a pervasive feature of the daily routine for American adults. Only 3.8% of respondents reported never using the internet, confirming that non-use has become a minority position in the contemporary United States. Figure 1 presents the full frequency distribution.

A composite Social Media Engagement score was constructed by averaging four internet-use items: general internet frequency, photo and video sharing, online political talk, and access to online political news. The composite had a mean of 3.52 (SD= 0.92) on a seven-point scale,

with higher values indicating greater engagement. Cronbach’s alpha for the composite was 0.43, which is modest but acceptable given that the items were designed to capture distinct behavioral facets of social media use rather than a single latent attitude or trait.

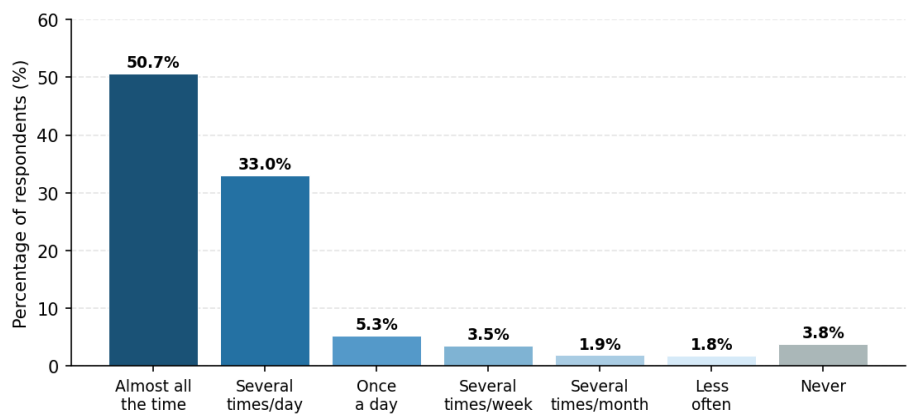


Figure 1. Distribution of internet use frequency among U.S. adults (GSS 2024, n= 1,968). Bars represent the percentage of respondents in each frequency category. Darker shading indicates higher frequencies.

The demographic distribution of this composite revealed a clear age gradient: respondents aged 18–29 had the highest average engagement (M= 3.81), followed by those aged 30–44 (M= 3.66), 45–59 (M= 3.57), 60–74 (M= 3.33), and 75 and older (M= 2.79). Similarly, educational attainment was positively associated with SM engagement, with graduate degree holders (M= 3.69) and bachelor’s degree holders (M= 3.70) scoring about 0.6 points higher than respondents without a high school diploma (M= 3.10). Gender differences were negligible: women scored 3.53 on average compared to 3.50 for men, a difference that did not approach statistical significance (t= 0.81, P= 0.419). By race, respondents identifying as other had the highest engagement (M= 3.67), followed by Black (M= 3.52) and White respondents (M= 3.47), though these differences were also small.

Table 1. Social media engagement composite score and political news media use by age group. SM scores range from 1 (lowest engagement) to 7 (highest engagement). Political news use ranges from 1 (never) to 7 (every day). Alternating row shading is for readability only.

Age group	Mean SM score	SD	n	Political news use (M)
18–29	3.81	0.91	302	5.37
30–44	3.66	0.90	565	5.62
45–59	3.57	0.92	439	5.16
60–74	3.33	0.95	460	4.88
75+	2.79	0.95	150	5.48

3.1.2. Political news sources and media reliability

Beyond the sheer frequency of internet use, the 2024 GSS also reveals a striking transformation in how Americans access political information. When respondents were asked to identify their primary source of political news, television remained the most commonly cited source at 36.2%, but online social media—including platforms such as Facebook, Instagram, TikTok, X (formerly Twitter), YouTube, and Snapchat—was identified by 28.6% of respondents, placing it firmly in second position. This represents a remarkable development: social media has now overtaken newspapers (9.0%) and podcasts and radio combined (15.0%) as a source of political information. This finding carries significant implications for the quality of political discourse, given longstanding concerns about the accuracy, selectivity, and algorithmic curation of political content on these platforms.

Against this backdrop, respondents in Subsample B were also asked to rate the reliability of different news sources on a four-point scale ranging from 1 (not at all reliable) to 4 (very reliable). The results present a counterintuitive picture: social media received the highest average reliability rating ($M = 2.83$, $SD = 0.86$), followed by television ($M = 2.42$, $SD = 0.83$), web-based news ($M = 2.41$, $SD = 0.75$), and print and radio news ($M = 2.25$, $SD = 0.83$). This ranking is likely not a straightforward reflection of epistemic trust in social media as an information source; rather, it probably reflects the degree to which habitual use and self-selected content exposure on these platforms create an impression of familiarity and relevance that users interpret as reliability. In other words, people may be rating the news they actually see and relate to, which for many respondents increasingly means social media. Figure 2 presents these means with standard deviation bars.

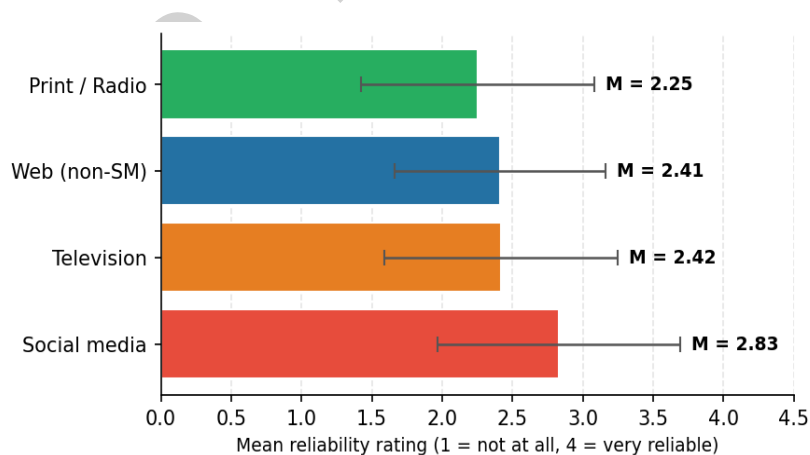


Figure 2. Mean reliability ratings for four categories of news source, with standard deviation error bars (GSS 2024, Subsample B). A rating of 1 indicates 'not at all reliable' and 4 indicates 'very reliable'.

Table 2. Mean reliability ratings for each news source category (GSS 2024, Subsample B). Scale: 1= not at all reliable to 4= very reliable. SD= standard deviation.

News source	Mean reliability	SD	n	Rank
Social media	2.83	0.86	1,740	1st
Television	2.42	0.83	1,820	2nd
Web (non-social media)	2.41	0.75	1,677	3rd
Print / Radio	2.25	0.83	1,692	4th

3.2. Bivariate findings

3.2.1. Social media engagement and political polarization

One of the central research questions concerns whether greater engagement with social media is associated with more extreme political views. The bivariate evidence from the 2024 GSS provides suggestive support for this relationship. Crosstabulating the SM engagement composite against respondents' self-reported political ideology (measured on a seven-point scale from extremely liberal to extremely conservative) reveals a pattern in which respondents at the ideological extremes tend to report higher social media engagement than those in the middle. Respondents who identified as extremely liberal had the highest SM engagement score ($M= 3.85$), followed by those who described themselves as liberal ($M= 3.68$), while those who were extremely conservative had the lowest ($M= 3.25$). Moderates and slight conservatives clustered closely around the midpoint of 3.50–3.52.

A Spearman rank-order correlation between SM engagement and ideological extremity— operationalised as the absolute distance from the moderate midpoint— was positive and marginally significant ($r= +0.046$, $P= 0.047$).

A more pronounced pattern emerged for political news media consumption. Figure 3 presents SM engagement and political news use scores across the ideological spectrum. Political news consumption was highest among self-identified liberals ($M= 5.62$ on a seven-point scale), followed closely by extreme conservatives ($M= 5.48$) and extreme liberals ($M= 5.37$), while moderates consumed the least ($M= 4.88$). This U-shaped pattern is consistent with existing research on selective media exposure, which suggests that ideologues on both ends of the spectrum are disproportionately drawn to political information, likely because such information is more directly tied to their identities and social groups. The convergence of extreme liberals and extreme conservatives at similar levels of political news engagement is particularly notable and may partly explain how polarisation feeds itself: the most ideologically committed citizens are also the most politically informationally active online.

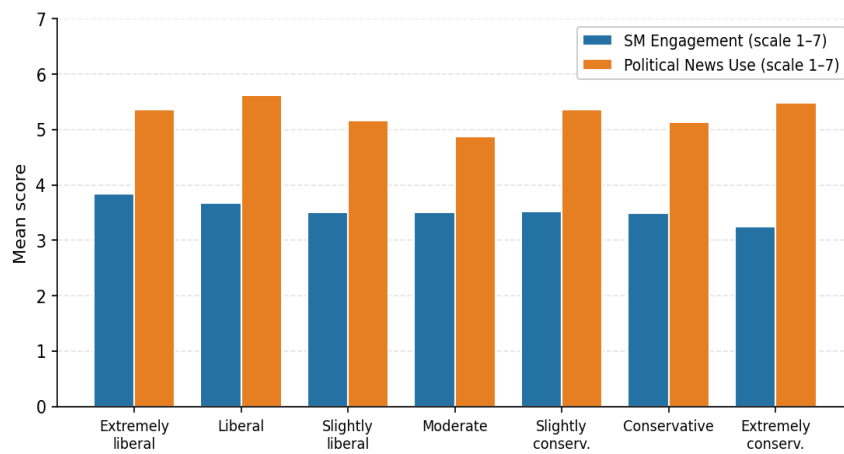


Figure 3. Mean social media engagement score and political news media use score by self-reported ideological category (GSS 2024). SM engagement and political news use are both scored on 1–7 scales (higher= more frequent use). Error bars are not shown for figure clarity.

A particularly important bivariate finding concerns the relationship between talking about politics online and polarization. Whereas the correlation between general SM engagement and polarization was small ($r = +0.046$), the correlation between the frequency of online political discussion specifically and ideological extremity was substantially larger ($r = +0.180$, $P < 0.001$). This distinction suggests that it is not merely being online but actively engaging in political discourse online that covaries most strongly with holding extreme views. Whether this reflects a causal process in which online argumentation entrenches views, or a selection process in which more extreme individuals simply gravitate toward political debate, cannot be determined from cross-sectional data alone but is explored through path analysis in a later section.

Table 3. Social media engagement, political news media use, and ideological extremity by self-reported ideology (GSS 2024). SM engagement and political news use scored 1–7. Ideological extremity = absolute distance from the moderate midpoint (0= moderate, 3= maximally extreme).

Ideology	SM engagement (M)	Polnews use (M)	n	Pol. extremity
Extremely liberal	3.85	5.37	185	3.00
Liberal	3.68	5.62	526	1.00
Slightly liberal	3.51	5.16	468	1.00
Moderate	3.51	4.88	1,426	0.00
Slightly conservative	3.52	5.36	437	1.00
Conservative	3.50	5.13	568	2.00
Extremely conservative	3.25	5.48	212	3.00

3.2.2. Internet loneliness and social media engagement

The strongest bivariate relationship in the entire study is between social media engagement and what may be called internet-induced loneliness: the degree to which respondents would feel lonely without access to the internet. Measured on a four-point scale from 1 (not at all true) to 4 (very true), the internet loneliness item showed a Spearman correlation with SM engagement of $r = +0.230$ ($P < .001$), by far the largest association observed across all outcome variables examined. The association was not driven by any single demographic subgroup; rather, it appeared across all four quartiles of SM use in a clear dose-response pattern. Respondents in the lowest engagement quartile had a mean loneliness score of 1.22, indicating that they would not especially miss internet access. Those in the mid-low quartile scored 1.45, those in the mid-high quartile scored 1.66, and those in the highest engagement quartile scored 1.91. Notably, this dose-response gradient was consistent for both men and women, though women in the highest engagement quartile reported slightly higher loneliness ($M = 1.98$) than men in the same quartile ($M = 1.82$). Figure 4 displays this pattern by gender.

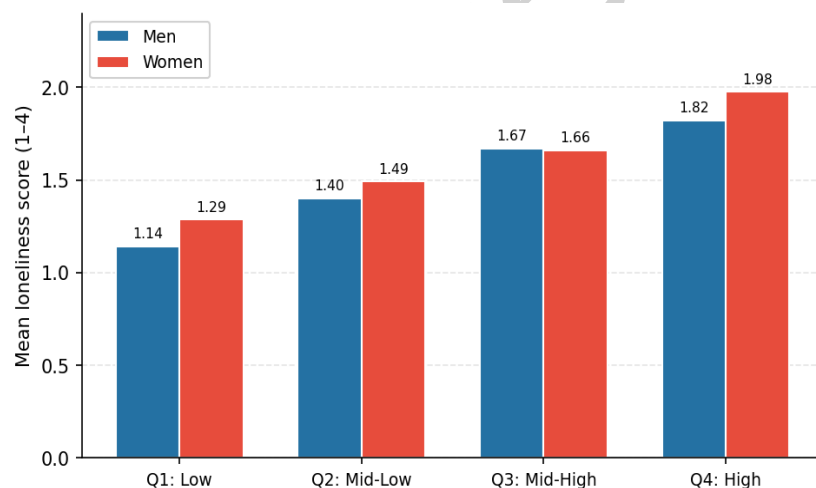


Figure 4. Mean internet loneliness score by social media engagement quartile, disaggregated by gender (GSS 2024, $n = 1,800$). Loneliness is scored from 1 (would not feel lonely without internet) to 4 (would feel very lonely). Q1= lowest SM engagement, Q4= highest.

This monotonic gradient is consistent with the broader literature on problematic internet use and technology dependency, which suggests that heavy users develop not just habitual reliance but an affective attachment to online connectivity that disrupts functioning when removed. The fact that the pattern holds across gender and that it escalates steadily rather than showing a threshold effect points toward a continuous relationship between digital engagement intensity and

psychological dependency, rather than a step-change at some clinical threshold.

3.2.3. Racial attitudes

Two items from the racial attitudes battery showed small but statistically significant associations with social media engagement. The first item asked whether respondents believed that differences in socioeconomic outcomes between Black and White Americans are “mostly due to inborn ability”. Higher SM engagement was associated with lower endorsement of this view ($r = -0.049$, $P = 0.029$).

The second item asked whether such differences are due to “lack of will”, and similarly showed a small negative association with SM engagement ($r = -0.053$, $P = 0.019$). These negative correlations indicate that heavier social media users are marginally but significantly less likely to endorse individual-deficit explanations for racial inequality; that is, less likely to attribute racial gaps to innate ability or personal motivation. Notably, attributing racial gaps to discrimination showed no significant association with SM engagement ($r = +0.007$, $P = 0.767$). One possible interpretation is that exposure to diverse voices and lived experiences on social media platforms nudges users away from the most reductive framings of racial inequality without necessarily moving them toward a structural explanation. However, given the very small effect sizes, this interpretation should be treated with caution.

3.2.4. Happiness, health, and institutional trust

In contrast to the findings above, several outcome variables showed no meaningful bivariate association with SM engagement. General happiness, measured on a three-point scale, showed a negligible and non-significant correlation with SM engagement ($r = -0.025$, $P = 0.309$). Self-rated health was similarly unrelated ($r = +0.057$, $P = 0.154$). Institutional trust—computed as the mean of 12 confidence items spanning financial institutions, the press, government, medicine, science, the military, and other domains—showed essentially zero correlation with SM engagement ($r = -0.023$, $P = 0.557$). Disaggregating the trust composite by domain, trust in science showed a modest positive trend with SM engagement ($r = +0.077$, $P = 0.055$) but did not reach the conventional significance threshold. Religious attendance and prayer frequency were also unrelated to SM engagement ($r = -0.012$ and $r = -0.040$, respectively, both non-significant). These null findings are informative: they suggest that the effect of social media on American society is domain-specific rather than global, and that major institutions of civic and spiritual life remain largely insulated from digital media habits at this level of analysis.

3.3. Multivariate regression findings

3.3.1. Overview of analytic strategy

To isolate the relationship between social media engagement and each outcome variable net of confounding demographic factors, a series of ordinary least squares (OLS) regression models were estimated. Each model included the SM engagement composite as the primary predictor of interest, along with age (continuous), sex (female= 1), race (dummy-coded: White and Black, with Other as the reference category), and years of education as controls. These controls were selected based on their theoretical relevance as likely predictors of both social media use and the societal outcomes under study. Because the internet and news media modules of the 2024 GSS were administered to non-overlapping subsamples, results from Subsample A ($n \approx 1,900$; the internet and SM behavior module) and Subsample B ($n \approx 1,800$; the news media and reliability module) are presented separately. All regression coefficients reported are unstandardised.

Table 4. OLS regression results for Subsample A: SM engagement composite predicting societal outcomes, controlling for age, sex, race, and education. β = unstandardised coefficient for SM engagement. Sig. = significance level.

Outcome variable	β (SM)	SE	t	p-value	Sig.	N	R ²
Ideological polarization	+0.058	0.029	2.02	0.044	*	1,836	0.016
Internet loneliness	+0.375	0.037	10.22	<0.001	**	1,800	0.073
Institutional trust	+0.007	0.019	0.36	0.720	n.s.	632	0.010
Happiness	-0.017	0.017	-0.99	0.323	n.s.	1,894	0.012
Racial innate belief	-0.009	0.004	-2.01	0.044	*	1,906	0.008
Racial will/effort belief	-0.012	0.008	-1.62	0.106	n.s.	1,906	0.007
Religious attendance	+0.041	0.073	0.56	0.573	n.s.	1,893	0.029
Prayer frequency	+0.028	0.051	0.55	0.582	n.s.	1,891	0.080

* $P < 0.05$; ** $P < 0.001$; n.s.= not significant

Table 5. OLS regression results for Subsample B: political news media use predicting societal outcomes, controlling for age, sex, race, and education. β = unstandardised coefficient for political news use.

Outcome variable	β (Polnews)	SE	t	p-value	Sig.	N	R ²
Ideological polarization	+0.045	0.013	3.55	<0.001	*	1,758	0.024
Institutional trust	+0.008	0.005	1.70	0.089	n.s.	1,817	0.018
Happiness	-0.003	0.008	-0.39	0.700	n.s.	1,808	0.013
Racial discrim. belief	+0.001	0.007	0.13	0.895	n.s.	1,819	0.010
Religious attendance	+0.008	0.034	0.23	0.818	n.s.	1,809	0.034
News bias belief	+0.002	0.011	0.19	0.852	n.s.	1,749	0.048

* $P < 0.001$; n.s.= not significant

3.3.2. Social media engagement and polarization

Turning to the regression findings in detail, the association between SM engagement and ideological polarization survived adjustment for the full set of demographic controls. Each one-unit increase in the SM engagement composite was associated with a 0.058-unit increase in ideological extremity ($SE = 0.029$, $t = 2.02$, $P = 0.044$), with the overall model explaining roughly 1.6% of variance in polarization ($R^2 = 0.016$). While this effect size is small, its significance is notable given the heterogeneity of the sample and the relatively coarse measurement of both SM engagement and political ideology. Crucially, the polarization finding was replicated in Subsample B using a different predictor: political news media use was an even stronger predictor of ideological extremity ($\beta = +0.045$, $P < 0.001$, $R^2 = 0.024$). The fact that two independent predictors measured in non-overlapping samples both significantly predict the same outcome in the same direction constitutes a meaningful cross-validation of the core finding. Two demographic variables also significantly predicted polarization across both models: older respondents and those with more years of education were both more ideologically extreme, echoing prior research on the civic engagement of older and better-educated adults.

3.3.3. Internet loneliness

The regression finding for internet loneliness is the most robust in the study. Each one-unit increase in SM engagement predicted a 0.375-unit increase in internet loneliness ($SE = 0.037$, $t = 10.22$, $P < 0.001$), with the model explaining 7.3% of variance ($R^2 = .073$); the highest explained variance of any outcome model. This effect persisted after controlling for age (which was negatively associated with loneliness: $\beta = -0.005$, $P = 0.005$, meaning younger respondents felt lonelier without the internet) and education (also negatively associated: $\beta = -0.028$, $P = 0.004$). Sex did not significantly predict loneliness after controlling for SM engagement, indicating that the gender gap in loneliness observed in bivariate analyses was largely attributable to women's marginally higher SM use rather than to sex per se.

3.3.4. Racial attitudes, religion, and other outcomes

The regression model for the racial innate belief item—the view that Black-White outcome gaps are due to inborn differences in ability—yielded a small but statistically significant negative coefficient for SM engagement ($\beta = -0.009$, $SE = 0.004$, $P = 0.044$). This suggests that heavier social media users are marginally less likely to endorse an innate explanation for racial inequality, even after controlling for education, which itself was a stronger negative predictor ($\beta = -0.004$, $P = 0.004$). The corresponding model for the “lack of will” explanation yielded a similarly signed but non-significant coefficient ($\beta = -0.012$, $P = 0.106$). Neither happiness nor general health showed a significant

regression coefficient for SM engagement, and neither did institutional trust. As in the bivariate analyses, religious attendance and prayer frequency showed no significant association with SM engagement after controls. However, the regression models for religion revealed powerful demographic patterns of their own: being female was associated with substantially higher attendance ($\beta = +0.561$, $P < 0.001$) and more frequent prayer ($\beta = +0.662$, $P < 0.001$), and older respondents attended more and prayed more frequently as well. Education was negatively associated with prayer ($\beta = -0.056$, $P < 0.001$) but not with attendance. These findings confirm that religious practice in America remains deeply structured by gender and age rather than by digital media habits.

3.4. Path analysis

3.4.1. Overview and rationale

Regression models establish whether two variables are associated net of covariates, but they do not reveal the mechanisms through which one variable affects another. Path analysis— a form of observed-variable structural equation modelling that decomposes a total effect into direct and indirect (mediated) components— was used here to test three theoretically grounded mediational hypotheses. In each model, social media engagement is the exogenous predictor, a mediating variable is specified on theoretical grounds, and an outcome is the endogenous dependent variable. Age, sex, and education are included as exogenous controls throughout. Indirect effects were estimated using the product-of-coefficients method ($a \times b$), with standard errors computed via the delta method, yielding z-statistics and associated p-values. Model fit was assessed using the Comparative Fit Index (CFI), the Goodness-of-Fit Index (GFI), and the Root Mean Square Error of Approximation (RMSEA), with $CFI \geq 0.95$, $GFI \geq 0.95$, and $RMSEA \leq 0.06$ considered indicative of good fit. All three models achieved excellent fit across these indices.

3.4.2. Model 1. SM engagement → Cross-cutting exposure → Ideological polarization

The first path model tests the hypothesis that social media engagement increases polarization partly by exposing users to more political opinions with which they disagree— a pathway sometimes called the cross-cutting exposure mechanism. The theoretically expected outcome of cross-cutting exposure is depolarisation, as contact with different viewpoints should moderate extreme positions. However, a growing body of experimental and observational research suggests the opposite: encountering opposing views online can sometimes entrench rather than soften ideological positions, particularly when such exposure is algorithmically mediated and occurs in the context of adversarial debate. Path Model 1 tests this formally. The results showed that SM engagement strongly predicted cross-cutting exposure (path a: $\beta =$

+0.598, SE= 0.032, $z= 18.76$, $P< 0.001$), confirming that heavier SM users do indeed encounter more opposing political views online. However, cross-cutting exposure itself was positively, not negatively, associated with polarization (path b: $\beta= +0.058$, SE= 0.026, $z= 2.25$, $P= 0.024$). The indirect effect of SM on polarization via cross-cutting exposure was therefore positive and significant ($\beta= +0.034$, SE= 0.015, $z= 2.23$, $P= 0.026$), indicating partial mediation. The direct effect of SM on polarization remained significant after accounting for this pathway ($\beta= +0.078$, $P= 0.035$). The total effect was $\beta= +0.113$. Model fit was excellent (CFI= 1.019, RMSEA= 0.000, GFI= 0.9999, N= 1,724).

Model fit: CFI = 1.019, RMSEA = .000, N = 1,724

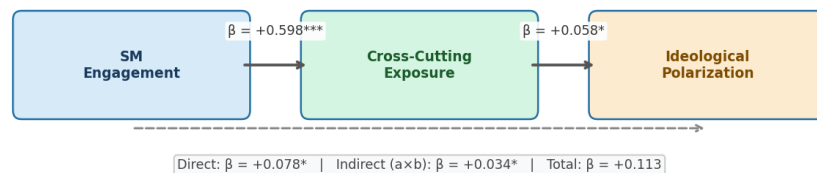


Figure 5. Path Model 1. Social media engagement predicting ideological polarization through cross-cutting online exposure (GSS 2024, N= 1,724). Solid arrows represent estimated paths with unstandardised coefficients. The dashed arrow represents the direct effect. Significance: * $P< 0.05$; *** $P< 0.001$.

The implication of this finding is that, while social media does indeed expose users to more diverse political viewpoints, this diversity of exposure does not reduce polarization and may actually amplify it. This is consistent with the “backfire effect” hypothesis and with research demonstrating that algorithmically curated conflict—in which opposing views are presented as outrage-inducing challenges to one’s identity—tends to harden rather than open views. Encountering a provocative opposing opinion in a social media comment thread is a qualitatively different experience from engaging in calm deliberative dialogue, and the data suggest that the net effect of such online cross-cutting exposure is to push respondents toward more, not less, extreme positions.

3.4.3. Model 2. SM engagement→Internet loneliness→Happiness

The second path model tests whether SM engagement undermines happiness indirectly, through the mechanism of internet dependency and loneliness. The theoretical argument is that heavy social media use cultivates an affective attachment to online connectivity that resembles dependency: users come to feel a sense of loss or emptiness when offline, and this chronic low-grade loneliness diminishes subjective

wellbeing over time. Path Model 2 estimates the indirect effect of SM engagement on happiness through the internet loneliness mediator, alongside the direct effect of SM on happiness. The results were striking: SM engagement strongly predicted internet loneliness (path a: $\beta = +0.375$, $SE = 0.037$, $z = 10.20$, $P < 0.001$), and internet loneliness was in turn a significant negative predictor of happiness (path b: $\beta = -0.047$, $SE = 0.013$, $z = -3.71$, $P < 0.001$). The indirect effect of SM on happiness via loneliness was negative and significant ($\beta = -0.018$, $SE = 0.005$, $z = -3.48$, $P < 0.001$), while the direct effect of SM on happiness was small and non-significant ($\beta = -0.015$, $P = 0.480$). Model fit was again excellent ($CFI = 1.033$, $RMSEA = 0.000$, $GFI = 0.9999$, $N = 1,791$).

Model fit: CFI = 1.033, RMSEA = .000, N = 1,791

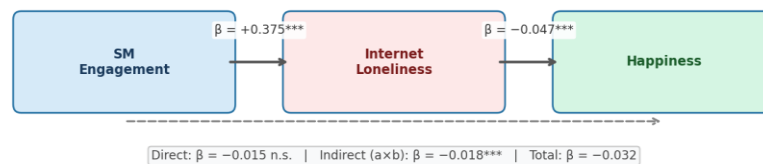


Figure 6. Path Model 2. Social media engagement predicting happiness through internet loneliness / dependency (GSS 2024, $N = 1,791$). The indirect effect ($\beta = -0.018$) was statistically significant ($P < 0.001$), while the direct effect was not, indicating full mediation. Significance: *** $P < 0.001$; n.s.= not significant.

The pattern of a significant indirect effect alongside a non-significant direct effect constitutes evidence of full mediation: social media's negative effect on happiness operates entirely through the loneliness pathway, with no residual direct harm to happiness once loneliness is held constant. This has an important practical interpretation. Social media does not make people unhappy by exposing them to distressing content or displacing leisure time; or at least, these direct pathways are not detectable at the population level in this data. Rather, the mechanism is one of dependency: heavy use creates an attachment to being online such that life without internet access feels emptier, and it is this sense of loneliness that then erodes happiness. Interventions that reduce internet dependency— whether through structural features of platform design, digital detox programmes, or mindfulness-based approaches to media consumption— may therefore be more effective for wellbeing than interventions aimed solely at content quality or moderation.

3.4.4. Model 3. SM engagement→Political talk online→Ideological polarization

The third path model tests a behavioural mechanism for the SM-

polarization relationship: the hypothesis that SM engagement increases polarization because it leads people to engage more actively in online political discussion, and that this participatory political engagement is itself a driver of ideological extremity. Whereas Model 1 examined passive cross-cutting exposure, Model 3 examines the active behavior of talking about politics online, asking whether the act of engaging in political discourse on social media—posting, arguing, debating, reacting—is the operative mechanism through which heavy SM use becomes polarising. The results provide the strongest mediation effect in the study. SM engagement was a very strong predictor of online political talk (path a: $\beta = +1.309$, $SE = 0.037$, $z = 35.56$, $P < 0.001$), reflecting the fact that general internet engagement is closely linked to political participation online. Political talk online was in turn a substantial positive predictor of polarization (path b: $\beta = +0.176$, $SE = 0.024$, $z = 7.44$, $P < 0.001$). The indirect effect was large and highly significant ($\beta = +0.230$, $SE = 0.031$, $z = 7.34$, $P < 0.001$). Notably, the direct effect of SM on polarization, holding political talk constant, was negative ($\beta = -0.095$, $P = 0.031$), yielding a suppression pattern in which the total effect ($\beta = +0.136$) is positive even though the direct effect is negative. This pattern indicates that, absent political talk, being more active on social media is actually weakly associated with less polarization; the polarising influence of social media operates almost entirely through inducing political engagement online.

Model fit: $N = 1,736$ | * $p < .05$ | *** $p < .001$

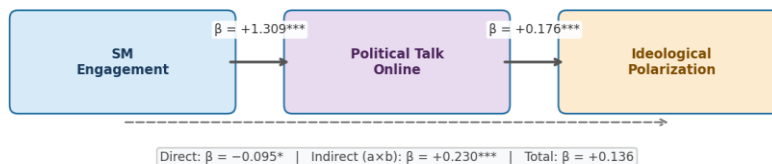


Figure 7. Path Model 3. Social media engagement predicting ideological polarization through online political talk (GSS 2024, $N = 1,736$). The indirect effect ($\beta = +0.230$) was the largest mediation effect in the study ($P < 0.001$). The negative direct effect ($\beta = -0.095$) yields a suppression pattern. Significance: * $P < 0.05$; *** $P < 0.001$.

The practical implication of Model 3 is that the polarising effects of social media are not simply a function of algorithm-driven passive exposure; they are amplified and potentially created by the incentive structures of social media platforms that encourage users to argue, debate, and react publicly to political content. Features such as public comment threads, retweet-with-comment functions, reaction buttons, and algorithmic amplification of high-engagement content all provide

structural incentives for users to engage politically online. The finding that online political talk— not mere social media presence— is the dominant carrier of the polarization effect suggests that platform design choices may be critical levers for reducing the civic harms of social media without curtailing political expression or information access as such.

Table 6. Summary of path analysis results across three mediation models (GSS 2024).

Path a= effect of SM engagement on mediator; Path b= effect of mediator on outcome; Direct= SM effect on outcome controlling for mediator; Indirect= $a \times b$ product.

Model	Path a (β)	Path b (β)	Direct (β)	Indirect (β)	Total (β)	CFI	N
Model 1. SM→ Cross-cutting→ Polarization	+0.598**	+0.058*	+0.078*	+0.034*	+0.113	1.019	1,724
Model 2. SM→ Loneliness→ Happiness	+0.375**	-0.047**	-0.015 n.s.	-0.018**	-0.032	1.033	1,791
Model 3. SM→ Pol. talk→ Polarization	+1.309**	+0.176**	-0.095*	+0.230**	+0.136	—	1,736

* $P < 0.05$; ** $P < 0.001$; n.s.= not significant. RMSEA= 0.000 for Models 1 and 2.

4. Conclusion

Our study revealed that the polarising effect of social media operates almost entirely through active political engagement online, rather than through passive exposure to partisan content, challenges the framing that has dominated public discourse: the problem is not primarily the algorithm presenting the wrong content but the architecture that rewards and incentivises argument, reaction, and public performance of political identity. The suppression pattern in Path Model 3— wherein the direct effect of social media on polarisation is actually negative once political talk is held constant— suggests that in the absence of online political engagement, greater social media use is weakly associated with less polarisation, not more. This implies that a meaningful portion of what has been attributed to digital media exposure as such is in fact attributable to a particular mode of use that platforms actively cultivate through design incentives: likes, reply threads, algorithmic amplification of high-engagement conflict.

The parallel finding that cross-cutting exposure online amplifies rather than moderates ideological extremity adds a further complication that existing accounts of echo chambers and filter bubbles do not fully capture. The problem, these data suggest, is not that people are sheltered

from opposing views online; it is that the architecture within which they encounter those views is one designed for performance and provocation rather than deliberation. Similarly, that social media's harm to wellbeing is fully mediated by internet-induced loneliness— with no significant direct pathway— implies that the mechanism is one of cultivated dependency rather than content harm. These two findings converge on a single, underappreciated diagnosis: social media's societal costs in the American context are less a function of information environment effects and more a function of behavioural entrenchment, whether into adversarial political performance or into compulsive connectivity.

The null findings of this study are analytically as important as the significant ones, and they deserve more than the conventional treatment of limitations. That social media engagement showed no significant relationship with institutional trust, religious practice, or most racial attitudes— after controlling for demographics that themselves proved powerful predictors— invites a reconsideration of the scope conditions under which digital media effects are detectable at the population level. Religious practice in America continues to be structured by age, gender, and education in patterns that long pre-date the social media era and show no evidence of being displaced by it; institutional trust appears to be anchored in political identity and historical experience rather than in media habits; and racial attitudes, at least at the coarse level of survey measurement available in the GSS, are shaped more by education and generation than by online exposure.

Taken together, these null results suggest that social media's effects on American social life are real but bounded; concentrated in the domains where online behaviour is most directly implicated, namely political engagement and psychological dependency, and largely absent from the deeper structural determinants of civic, religious, and racial attitudes. This boundary condition has normative significance: it counsels against both the alarmist position that social media is comprehensively remaking American society and the dismissive position that its effects are negligible. What is needed instead is a domain-sensitive, mechanism-conscious research programme that identifies, for each domain of social life, whether and through what pathway digital media is operative, and this study, despite its cross-sectional limitations, offers a template for that more discriminating approach.

Conflict of interest

The authors declared no conflicts of interest.

Ethical considerations

The authors have completely considered ethical issues, including informed consent, plagiarism, data fabrication, misconduct, and/or

falsification, double publication and/or redundancy, submission, etc. This article was not authored by artificial intelligence.

Data availability

The dataset generated and analyzed during the current study is available from the author on reasonable request.

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