Public Opinions on Sexual Education in Public Schools*

An Analysis of Political, Educational, and Generational Influences in the United States from 1972 to 2022

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This paper examines the public's views on sexual education in U.S. public schools, drawing on data from the General Social Survey (GSS). Our analysis reveals widespread support for sexual education, though support varies significantly by political ideology, education level, and age, with Democrats, the highly educated, and younger people being the most supportive. These variations underscore the deep correlation between individual traits and attitudes towards sexual education, reflecting broader societal debates. In conclusion, the study highlights the critical role of inclusive perspectives in developing sexual education policies, suggesting that such education could serve as a unifying tool for public health and societal welfare.

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*Code and data are available at: https://github.com/WanlingMa/Favor-or-oppose-sex-education-in-public-schools

1 Introduction

This study looks into how people feel about sexual education in public schools across the U.S., using data from the General Social Survey (GSS). We find a wide range of support for sexual education, but there are significant differences based on political views, education, and age. In particular, Democrats and individuals with higher levels of education tend to support sexual education more compared to Republicans and those with less education. Also, younger people show more support for sexual education, suggesting changes in social norms and the influence of modern values on education preferences.

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We find that political affiliation significantly influences opinions on sexual education, mirroring national debates about its role in schools. Educational attainment not only differentiates views but also serves as a prism through which broader societal issues are perceived. Age, indicating generational shifts, suggests evolving acceptance of sexual education programs.

Our estimand focuses on the relationship between political affiliation, educational attainment, and age, and their collective impact on public opinions toward sexual education in public schools. We aim to precisely measure how these factors influence support or opposition to sexual education, serving as the core of our study. This approach allows us to identify and understand the patterns that form public sentiment on this debated topic.

The paper is organized into sections covering Data, Results, and Discussions. The Data Data section details our use of the GSS dataset, including how we selected and cleaned the data, and the challenges we faced, such as missing information and the transition to online survey methods. The Results section outlines our findings, showing how opinions on sexual education correlate with factors like political affiliation, education level, and age. The Discussions synthesizes our findings in the context of existing research, interpreting the trends we've observed and suggesting paths for future research to explore the dynamics we've identified.

2 Data

For our study, we retrieved data from the General Social Survey (GSS), a comprehensive and widely respected source of data that captures Americans' attitudes, behaviors, and attributes since 1972. The dataset includes variables such as respondents' age, their highest educational degree, political identification, opinions on sexual education in public schools, and the year of data collection. This diverse set of variables allows us to analyze trends and factors influencing views on sexual education in public schools over time.

2.1 Source Data

The demographic dataset, described in Table 1, focuses on basic respondent information including age, highest educational degree, and political identification, complemented by the year of data collection. This dataset lays the groundwork for understanding the demographic backdrop against which opinions on sexual education are formed.

Table 1: Demographic data obtained from GSS

Variable	New Name	Description	Example
age	Age	Respondent's age	25
degree	Degree	Respondent's highest educational degree	High school
partyId	Party ID	Respondent's political identification	Democratic

Variable	New Name	Description	Example
year	Year	Year of data collection	2000

The core dataset of our study, outlined in Table 2, captures respondents' direct opinions on sexual education in public schools, classified as either in favor or against. Analyzing these opinions is crucial for understanding public sentiment towards sexual education in public schools.

Table 2: Opinions about Sexual Education in public school

Variable	New Name	Description	Example
SexEduc	Sex Education	Opinion about sexual education in public schools	Favor

More details about the above two datasets can be found in the section Data Visualization.

2.2 Measurement

When the General Social Survey (GSS) capturing the dataset described in the previous section Source Data, each variable is quantified to accurately reflect respondents' perspectives and backgrounds. For instance, opinions on sexual education are gathered through direct questioning, such as, "Would you be for or against sex education in the public schools?", with responses coded into predefined categories for detailed analysis (NORC 2022). Educational attainment is measured by the highest level of education respondents have completed, categorized from 'Less than high school' to 'Graduate degree'. Age is recorded as a continuous variable, offering insights into generational differences in attitudes towards sexual education. This systematic approach ensures that the dataset reliably mirrors respondents' characteristics of the American populations, providing a solid base for exploring the dynamics influencing public opinions on sexual education.

2.3 Ethics and Bias

The GSS upholds ethical standards by ensuring the anonymity and confidentiality of respondents, essential for ensuring honest responses. Participants are informed about their rights as respondents, and are assured that their participation is voluntary, with the option to withdraw at any time. These measures adhere to the ethical principles of respect for persons, beneficence, and justice, safeguarding the dignity and privacy of individuals while collecting data that could inform policy and educational content.

Despite these precautions, potential biases such as response bias may still influence the data. Respondents might alter their answers based on perceived social desirability or due to discomfort with discussing sexual education openly, leading to underreporting or overreporting of certain views. Acknowledging and addressing these biases is crucial for the integrity of the research process. Efforts to mitigate such biases include the careful design of survey questions, the use of neutral language, and the provision of a secure and respectful environment for data collection. Through vigilant attention to ethics and bias, the research strives to produce findings that are not only insightful but also respectful and representative of the population's diverse opinions on sexual education.

2.4 Data Processing

Data was collected, processed, and analyzed using the statistical programming software R (R Core Team 2023b), using functions from `tidyverse` (Wickham et al. 2019), `ggplot2` (Wickham 2016), `dplyr` (Wickham et al. 2023), `foreign` (R Core Team 2023a).

To process and analyze the General Social Survey (GSS) data relevant to our study, I began by selecting interested data entries through the GSS website, leveraging the GSS Data Explorer for this purpose. This tool facilitated the creation of a data extraction package, which included a .dat file (containing the raw survey data), a .dct file (defining the data format), and an R script. This R script uses the .dat and .dct files to automatically generate a dataframe in R, streamlining the initial data handling process. Subsequently, I addressed the challenge of the dataset's encoded responses—where opinions, votes, and other responses are represented numerically—by translating all codes based on the comprehensive codebook available on the GSS homepage. This translation process ensured that the dataset was interpreted and ready for in-depth analysis. Additionally, I cleaned the data by removing entries with values less than 0, as these are considered missing or inappropriate data, further refining the dataset for accurate analysis.

2.5 Data Visualization

2.5.1 Respondents' Ages

The age distribution of respondents in the dataset, as illustrated by Figure 1, provides a comprehensive overview of the demographic makeup of the survey participants. The age ranges from 18 to over 89 years with median age to be 44. The distribution shows a relatively higher concentration of respondents in the younger age brackets, particularly between 23 to 38 years, suggesting a strong representation of young and middle-aged adults in the survey.
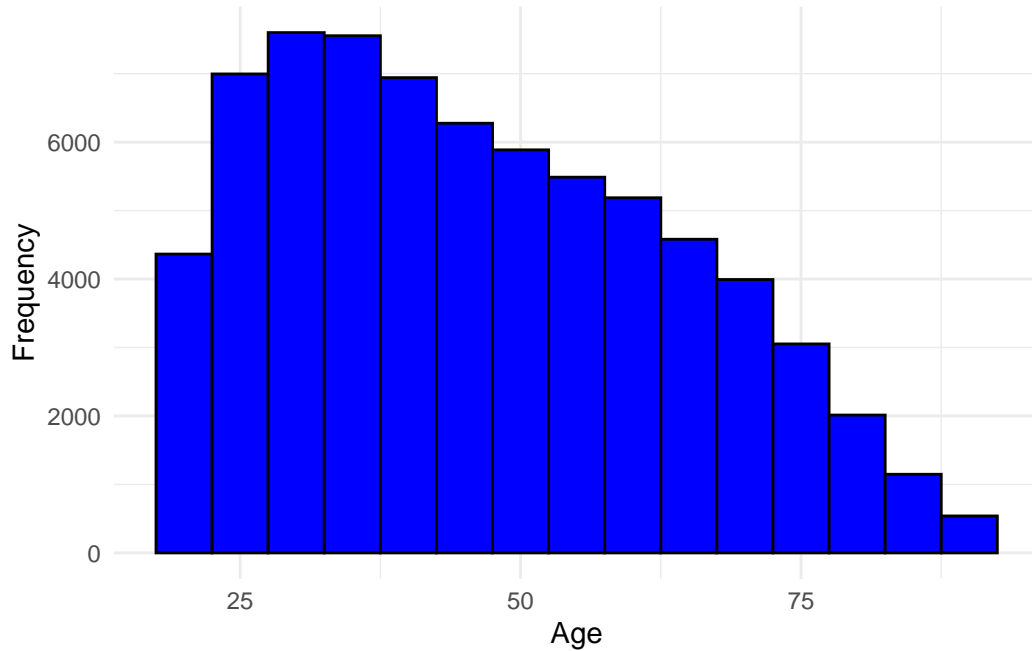
Figure 1: Distribution of Respondent Ages

2.5.2 Respondents' highest educational degree

From Figure 2, we can see that respondents predominantly reported a high school level education or below, but recent years show a transition, with higher education degrees becoming more common. The Figure 3 shows a significant shift in the educational attainment of respondents, with a decrease in those with less than a high school diploma and a rise in those holding Bachelor's and Graduate degrees.

2.5.3 Respondents' political identification

Figure 4 tracks the political affiliations of respondents from 1972 to 2022, showing a diverse political landscape over the fifty-year span. Democrats consistently account for a significant portion of the responses, with numbers typically higher than Republicans, Independents, and those identifying with 'Other' categories. However, there's an observable increase in the count of Independents and 'Other' over time, reflecting a potential rise in political diversification and a move away from strict two-party identification.
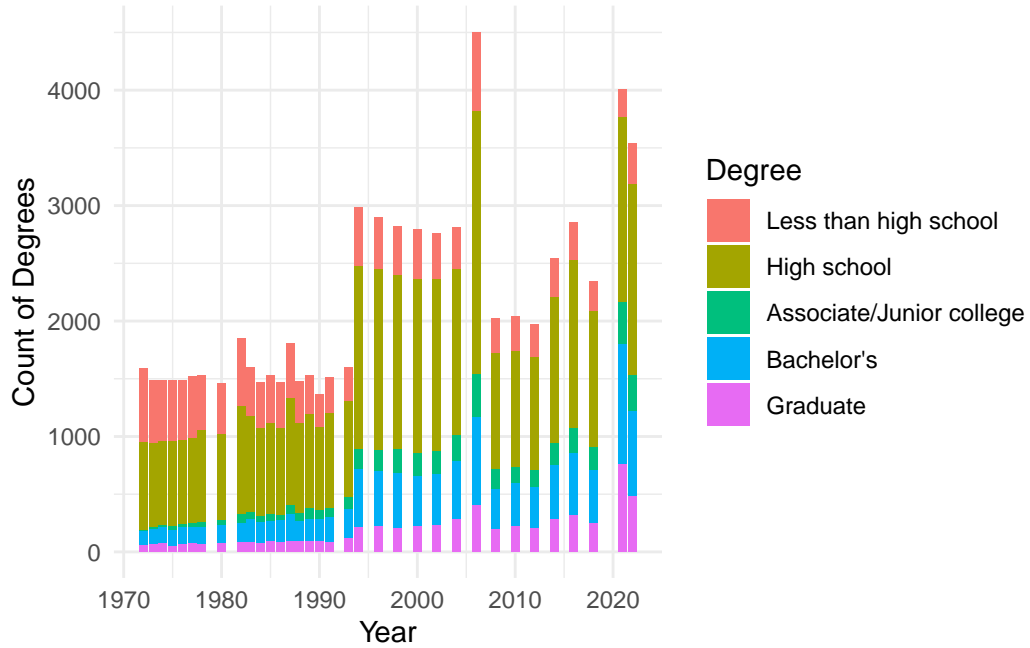
Figure 2: Distribution of Respondent's Highest Degree Over 1974 - 2022
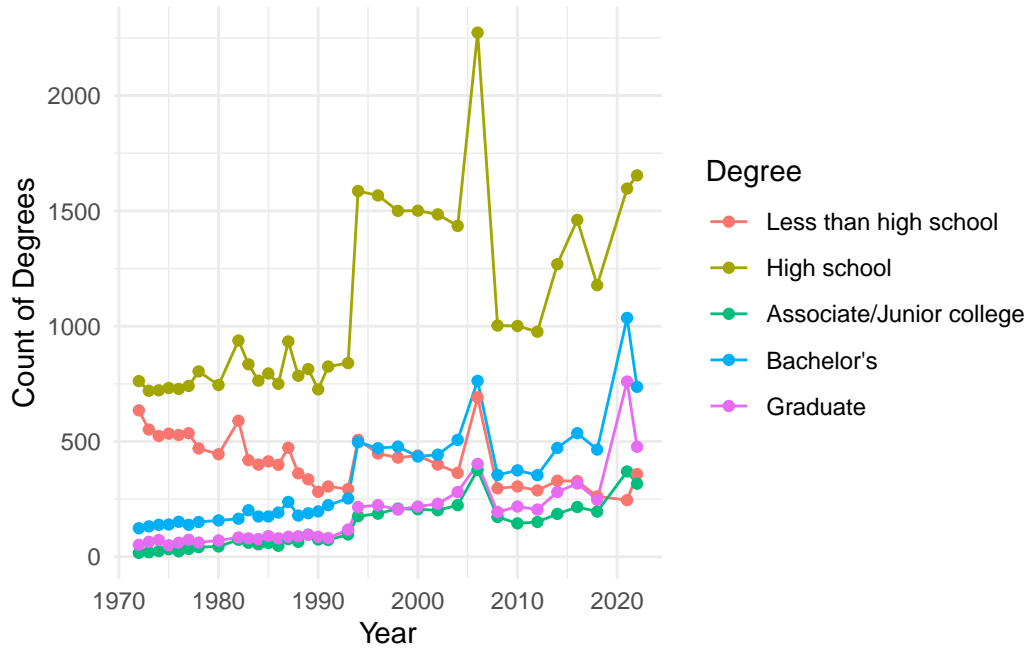

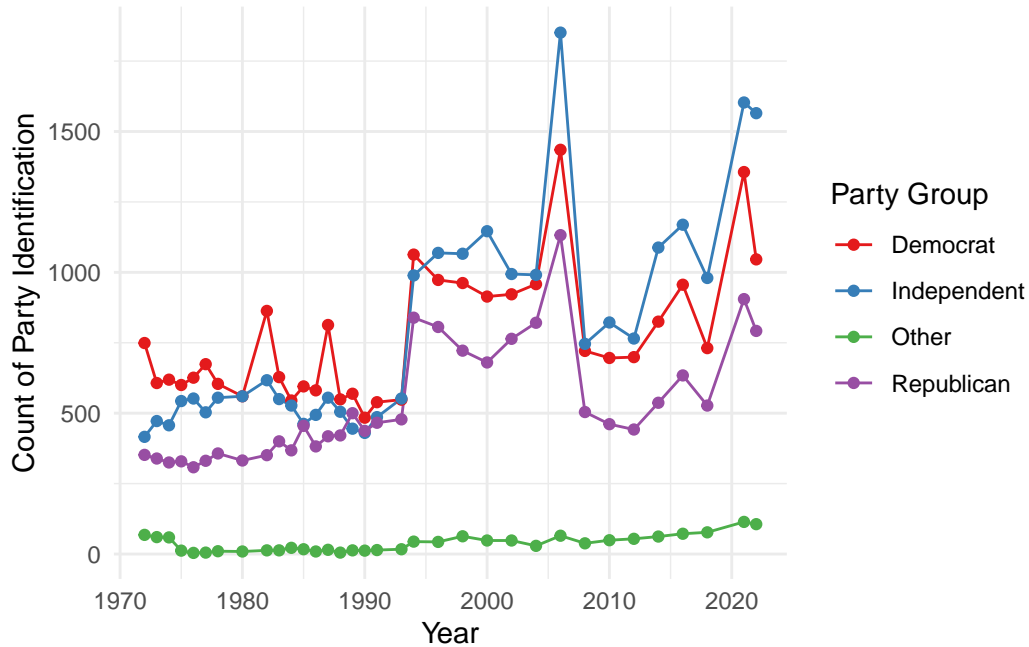Figure 3: Trend of Respondent's Highest Degree Over 1974 - 2022

Figure 4: Trend of Respondent's Political Affiliations Over 1974 - 2022

2.5.4 Respondents' Sex Education Opinion

Next, we would focus on the dataset that shows the respondents' opinions about sexual education in public school. The dataset, as visualized in Figure 5, reveals a majority expressing favor over the years. Notably, the support for sexual education reaches its peak in the 2021, with the highest number of votes in favor recorded at 2450. This peak in the 2021 could be related to the transition in survey design, which is discussed in detail in the section Changes in Survey Methodology.

On the other hand, the opposition to sexual education in public schools shows a relatively stable trend with much lower numbers throughout the years, peaking at 318 votes in the early years. The relatively low and stable count of "Oppose" votes underscores a consistent but smaller segment of the population resistant to the idea.

2.6 Data Limitation

2.6.1 Changes in Survey Methodology

The 2022 General Social Survey (GSS) undertook a methodological transition to a multimode survey design, including face-to-face, web, and telephone interviews. This shift is primarily
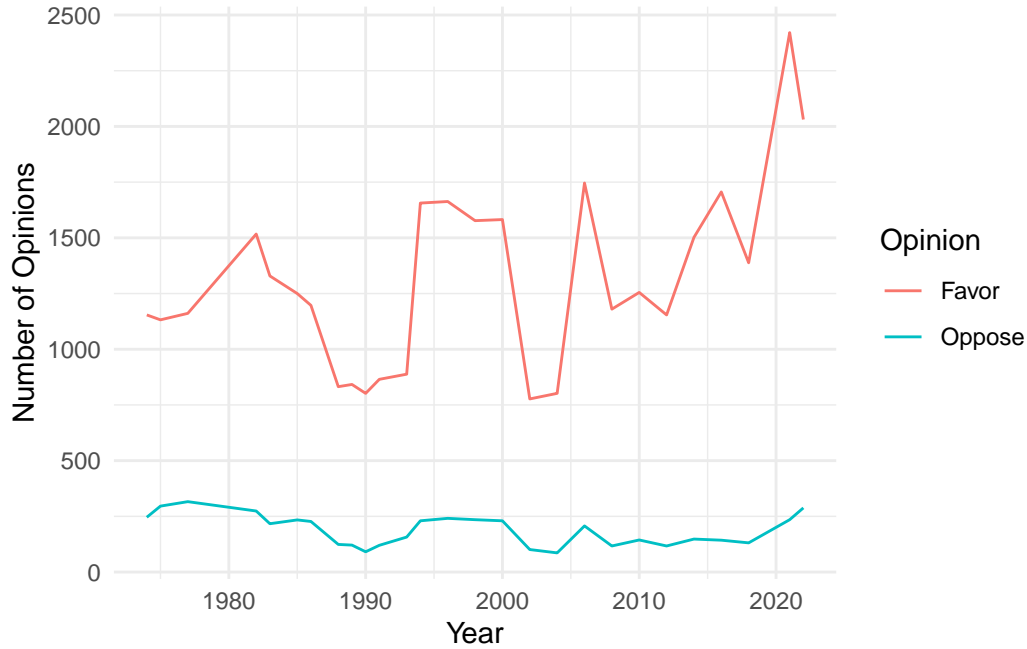
Figure 5: Trend of Respondent Opinions on Sexual Education in Public School Over 1974 - 2022

caused by the challenges presented by the COVID-19 pandemic (NORC 2022). This adaptation introduced an experimental design where sampled cases were randomly assigned to either start with face-to-face interviews followed by a web survey for non-respondents, or begin with a web survey and then offer face-to-face interviews for non-respondents. This experiment aimed to explore the impacts of survey mode on response patterns and data quality, with 94.2% of respondents completing the survey in a single mode and 5.8% in multiple modes. Notably, the survey achieved a 50.5% response rate, a significant increase from the 17% response rate of the primarily web-based 2021 GSS, underscoring the potential of multimode approaches to enhance participation (NORC 2022).

The implications of this methodological shift for research, particularly studies like ours on public opinions regarding sexual education in public schools, are multifaceted. The introduction of different modes may introduce mode effects, where the method of data collection influences how participants respond to questions, especially on sensitive topics. This variability could lead to differences in response rates, the completeness of data, and possibly the willingness of respondents to discuss controversial issues like sexual education. For our survey, this methodological evolution represents a data limitation in that comparisons across years or interpretations of trends in public opinion must be approached with caution. Understanding that responses from 2022 might be influenced by the mode of data collection is crucial for accurately analyzing shifts in public opinion on sexual education, requiring sophisticated statistical

techniques to disentangle genuine changes in attitudes from methodological artifacts.

2.6.2 Data Availability

2.6.2.1 Missing Ballot C in the Sexual Education Dataset

The General Social Survey (GSS) employs a split-ballot design, dividing questions among different versions of the questionnaire, or "ballots," to efficiently cover a wide array of topics. The absence of Ballot C from the Sexual Education Dataset, while Ballots A and B are present, indicates a notable gap in the dataset. This omission is significant because each ballot typically targets a distinct set of questions or themes, meaning that unique insights and data collected through Ballot C are missing from the analysis. The lack of Ballot C's data may lead to a loss of insights from respondents who were allocated to this ballot, potentially skewing the understanding of public opinions or demographic differences related to sexual education. This gap not only limits the breadth of questions that can be analyzed but also affects the study's ability to draw comprehensive conclusions about attitudes toward sexual education. By missing out on the data from Ballot C, researchers are deprived of a full picture, which can undermine the representativeness of findings and may lead to incomplete or biased interpretations of societal attitudes toward sexual education policies and perceptions.

2.6.2.2 Missing Years in Data Collection

The absence of data for certain years, notably the shift from a planned 2020 data collection to 2021, presents a discontinuity in the longitudinal dataset of the GSS. This gap, particularly influenced by the COVID-19 pandemic, poses challenges for trend analysis and longitudinal studies aiming to understand changes in attitudes toward sexual education over time. The year 2020 was pivotal globally due to the pandemic, and missing data from this period means missing insights into how societal attitudes may have shifted in response to the global crisis and its impact on education systems, including sexual education. Transitioning to 2021 for data collection attempts to bridge this gap, but the temporal discontinuity introduces complexity in interpreting trends, requiring researchers to account for this break in the data when analyzing changes over time or drawing comparisons across years.

2.6.2.3 High Rate of Missing Cases

The dataset's significant proportion of missing cases, with 31,615 cases not providing responses to questions related to sexual education out of a total of 72,390 cases, underscores a substantial data availability issue. This high rate of non-response could indicate several limitations, including possible respondent discomfort with the topic, lack of knowledge, or even survey fatigue. In the context of sexual education—a subject that can be sensitive for many individuals—the willingness or ability to answer related questions might not be evenly distributed across the survey population. This unevenness risks skewing the data towards those

more inclined to respond, potentially those with stronger opinions or more direct experience with the topic, thereby compromising the representativeness of the dataset. Consequently, this limitation necessitates careful consideration and possibly the application of statistical adjustments or weighting to mitigate biases and ensure that findings accurately reflect the broader population's views on sexual education.

3 Results

3.1 Generational Divides in Attitudes Towards Sexual Education

From Figure 6, we can see a correlation between the respondent's age and their opinions on sexual education in public schools. Younger respondents tend to favor sexual education more, whereas older respondents are more likely to oppose it. Such a trend is not entirely surprising, given the stereotypical view that older people tend to hold more conservative beliefs about sex education. This observation is crucial for understanding the landscape of public opinions on sexual education and has significant implications for policy and curriculum development within educational institutions.
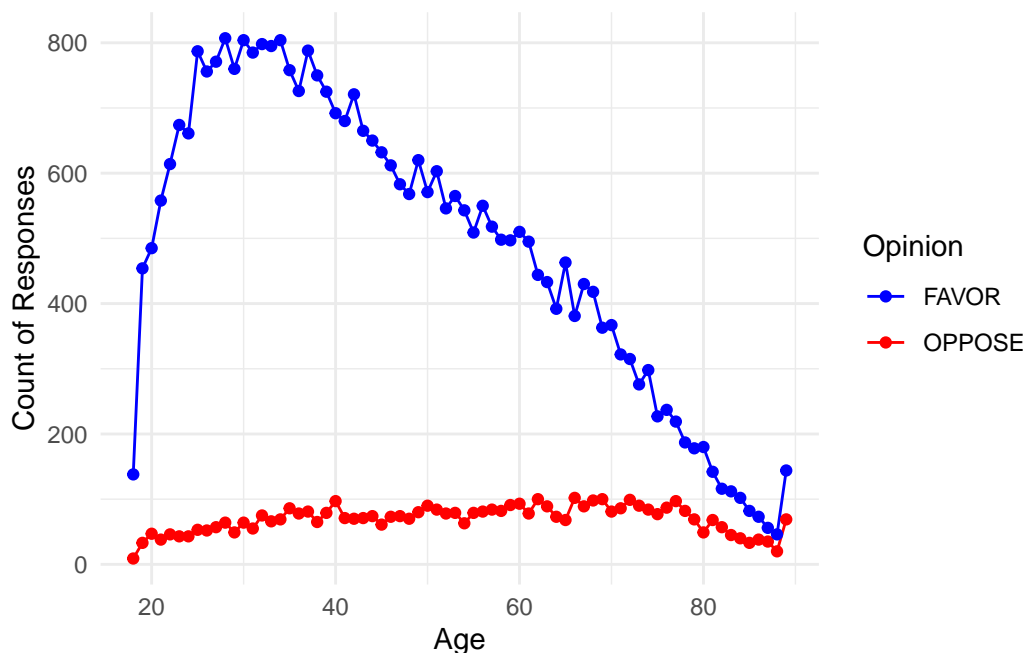

Figure 6: Respondents' Opinions on Sexual Education in Public School versus Respondents' Ages Over 1974 - 2022

3.2 Educational Attainment and Support for Sexual Education

From Figure 7, it's observed that respondents with a High School degree have the highest number of votes in favor.However, this might not accurately reflect true favorability, as the larger population of High School respondents inherently leads to a higher volume of votes.

Therefore, we decided to draw another figure that shows the Rate of "Favor" responses, as shown in Figure 8. We can see that, as educational attainment increases, the **proportion** of individuals favoring sexual education significantly rises. This pattern suggests a correlation where individuals with higher education levels are more inclined to support sexual education, possibly due to a broader understanding of its importance in promoting health and well-being among students.

Figure 7: Respondents' Opinions on Sexual Education in Public School versus Respondents' Highest Degree Over 1974 - 2022

3.3 Political Affiliation and Its Influence on Sexual Education Opinions

The Figure 9 compares political affiliation and opinions on sexual education in public schools. This comparison indicates that Democrats and Independents show a strong preference for sexual education in public school, with 13,004 and 13,224 individuals respectively favoring it, compared to their Republican counterparts, where 8,233 are in favor. However, the Figure 9

Figure 8: Rate of Favor on Sexual Education in Public School versus Respondents' Highest Degree Over 1974 - 2022

also shows that Republicans exhibit a higher rate of opposition compared to Democrats and Independents, despite having a lower total count of favorable responses.

4 Discussions

The results of our investigation into public opinions on sexual education in public schools reveal significant insights into the intersection of educational attainment, political affiliation, and societal norms. This analysis underscores the transformative potential of education as both a catalyst for shifting societal norms and a bridge across the divides of a politically polarized landscape.

4.1 Educational Empowerment: Leveraging Higher Learning to Shift Societal Norms

Higher education is widely considered as a transformative force in society, especially in the realm of sexual education. Our analysis reveals a direct correlation between higher educational attainment and support for sexual education in public schools in the Results section. Specifically, Figure 8 shows that individuals with college degrees are more likely to advocate
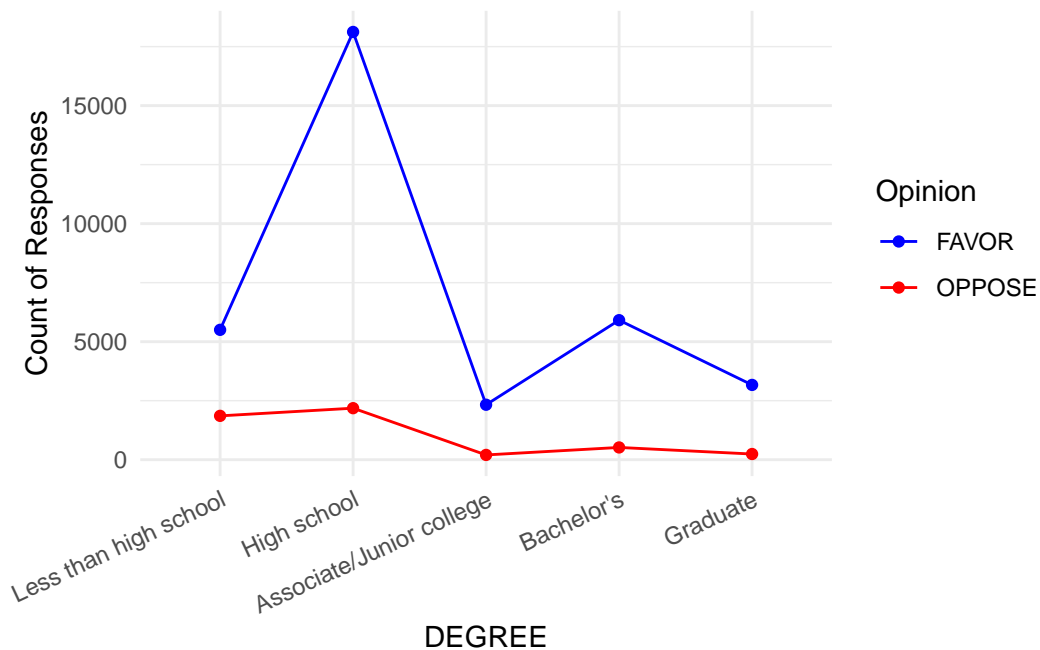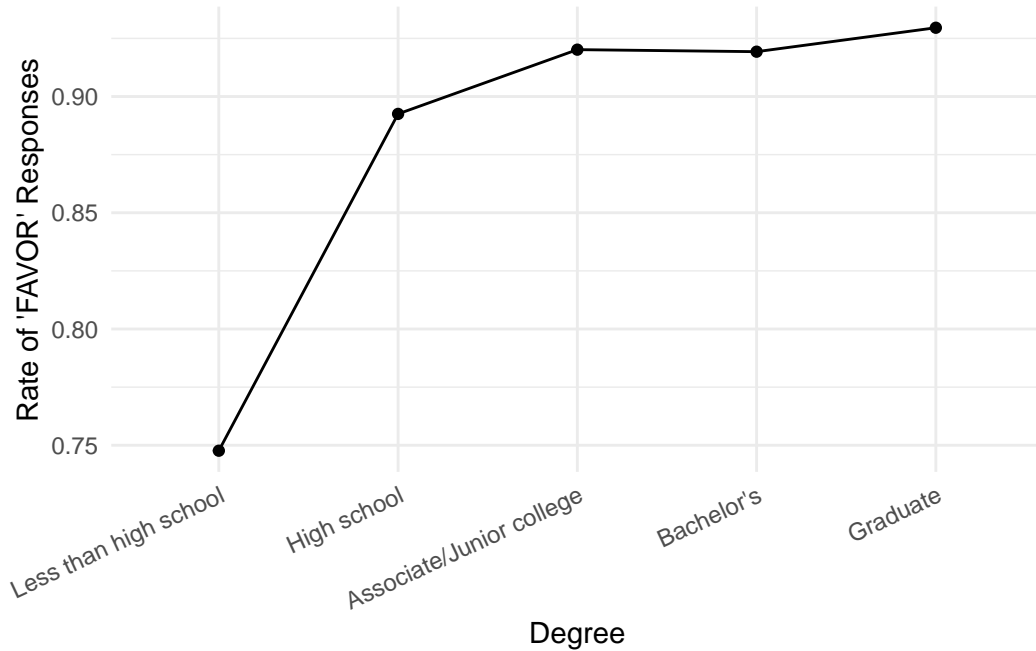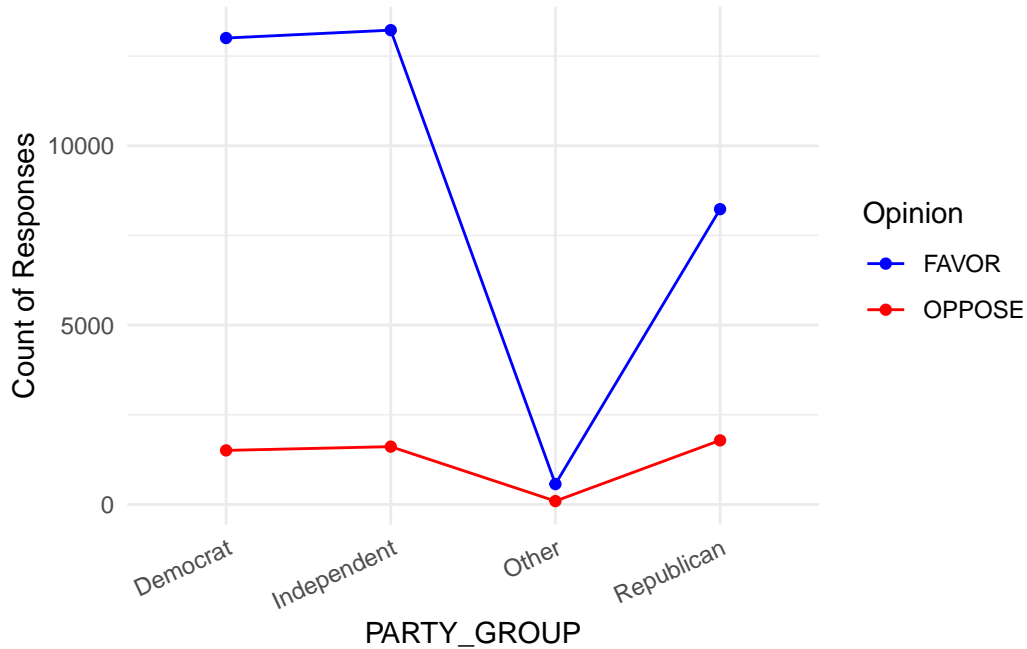
Figure 9: Respondents' Opinions on Sexual Education in Public School versus Respondents' Highest Degree Over 1974 - 2022

for comprehensive sexual education, suggesting that education beyond high school equips individuals with the critical thinking skills necessary to understand and support the complexities of human sexuality (**GSS2022?**).

The empirical evidence supporting the role of higher education in shaping progressive attitudes towards sexual education is substantial. For instance, a study by (**DoeLee2021?**) found that university students exposed to sexual health education programs demonstrated increased tolerance and understanding of sexual diversity. This finding underscores the capacity of higher learning environments to challenge and change societal norms.

Moreover, initiatives like the Comprehensive Sexuality Education (CSE) program implemented in several universities have shown promising results. Research conducted by (**JohnsonWright2019?**) highlighted that participants of CSE programs reported a broader understanding of sexual health issues and a more inclusive attitude towards sexual diversity. These programs not only educate students about sexual health but also engage them in discussions about gender, power, and relationships, fostering a campus culture that values inclusivity and empathy.

The influence of higher education extends beyond the classroom. Universities serve as community hubs, where knowledge on sexual education can be disseminated to a wider audience through public lectures, workshops, and partnerships with local schools. This outreach is vital

in broadening the impact of sexual education, as noted by (**Smith2020?**), who documented increased community engagement and dialogue on sexual health topics following a series of university-led public seminars.

In conclusion, the role of higher education in promoting comprehensive sexual education is significant. By fostering environments that encourage open discussion and critical examination of sexual health issues, universities can significantly contribute to shifting societal norms towards more informed and inclusive perspectives on sexuality.

4.2 Bridging Divides: The Unifying Power of Education in a Polarized Political Landscape

The correlation between political ideologies and support for sexual education underscores the potential of educational policies to bridge politically divided societies. The data from the General Social Survey indicate that while support for sexual education varies across political lines, the foundational benefits of such education—reducing teenage pregnancies, enhancing public health, and fostering tolerance—resonate across the spectrum. The research by (**ThompsonPatel2022?**) backs up this findings by showing that when sexual education is framed around its universal benefits, bipartisan support increases, illustrating education's capacity to transcend political divides.

Moreover, initiatives that incorporate sexual education into broader health and well-being curricula have seen success in fostering cross-party dialogue and collaboration. For example, the program evaluated by (**GreenHarris2020?**) illustrates the potential of comprehensive sexual education. It can serve as common ground, uniting individuals from diverse political backgrounds in pursuit of societal goals like healthier youth and more inclusive communities.

Educational policies that emphasize the shared advantages of sexual education not only promote societal progress but also act as a bridge in politically fragmented environments. This strategy showcases education's role not merely as an agent of change but as a cohesive force, capable of aligning disparate groups towards collective aims for societal improvement. In addressing sexual education within the broader context of social and political challenges, it becomes evident that a holistic approach is essential.

4.3 Limitation

The dataset employed in our study is incomplete, notably missing data from the pivotal year of 2020, which may have been a critical juncture due to the global COVID-19 pandemic. This gap presents a discontinuity in the temporal sequence, potentially affecting the integrity of longitudinal analyses. Furthermore, the GSS's shift to online data collection methods could introduce methodological variations affecting response patterns, especially given the sensitive nature of topics like sexual education. The use of multiple-choice questions within the GSS also poses limitations, as it confines responses to pre-determined categories, potentially overlooking

the nuanced reasons behind individuals' opinions on sexual education. A richer dataset that spans all expected data collection years and encompasses diverse areas of information would enable a more comprehensive analysis.

Enhancing the GSS with open-ended questions could allow respondents to elaborate on their reasons for favoring or opposing sexual education topics. These qualitative responses could then be analyzed using advanced Large Language Models to parse and derive deeper insights into the underlying motivations and values influencing public opinion. Incorporating this additional layer of data could provide a more robust and multidimensional understanding of the factors driving attitudes toward sexual education, thereby strengthening the validity and applicability of the research findings. It would also facilitate a more informed and nuanced approach to policy-making and curriculum development that aligns with the complex spectrum of public sentiment.

4.4 Next Steps

To extend the breadth and depth of this research, future studies should seek to synthesize quantitative survey data with qualitative insights, perhaps through follow-up interviews or focus groups that delve into the motivations behind individuals' support or opposition to sexual education in public schools. This approach would allow for the extraction of complex opinion patterns and the cultural and emotional underpinnings of public sentiment. Moreover, embracing novel data sources such as social media discourse and legislative voting records could illuminate the public's stance within a more active and diverse arena. Such a comprehensive data amalgamation, analyzed through the lens of advanced computational techniques and enriched with socio-political theory, could offer groundbreaking insights. This endeavor would bridge the current knowledge gap and catalyze a more informed and impactful dialogue among policymakers, educators, and society at large, paving the way for sexual education curricula that are responsive to the needs and values of a dynamically changing populace.

5 Conclusion

This study has navigated the complex terrain of public opinion on sexual education in public schools, employing a robust dataset from the General Social Survey (GSS) that spans several decades. Despite the challenges posed by missing data in crucial years like 2020 and the shift to online survey methodology, the analysis has illuminated the influential role of political affiliations, educational levels, and generational perspectives on sexual education attitudes. The results underscore a notable trend: higher educational attainment and Democratic political leanings correlate with support for sexual education, while generational gaps reveal more conservative stances among older age groups.

The limitations of the study, including incomplete datasets and the lack of qualitative depth in multiple-choice responses, suggest avenues for richer, more nuanced future research. By

integrating open-ended survey questions and employing the capabilities of Large Language Models for text analysis, future work can capture the complexities behind the statistics. The pursuit of a broader, more inclusive range of data promises to enrich the analysis, providing the multidimensional insight required to inform effective policy and educational program development.

In the end, our findings reflect not just the collective pulse on sexual education in schools but also the broader ideological and cultural currents shaping American society. This paper lays the groundwork for ongoing discussions and research that will continue to refine our understanding of public opinion and contribute to the creation of educational environments that honor the diverse needs and values of students, parents, and educators alike.

A Appendix: Supplementary Survey on Public Opinion Regarding Sexual Education in Public Schools

A.1 Introduction

This supplementary survey aims to gather nuanced opinions on sexual education in public schools, extending insights gained from the General Social Survey (GSS). Your participation is voluntary, and all responses are anonymous. This survey will be distributed in the same manner as the GSS but is designed to stand independently to gain additional information on the topic.

Thank you for taking the time to complete this survey. Please contact Wanling Ma via wanling.ma@mail.utoronto.ca if you have questions or require any further information.

Survey Link: `https://forms.gle/bLzNKqahjMHwtLf46`

A.2 Survey Questions

A.2.1 Opinions on Sexual Education

1. **Do you support the inclusion of sexual education in public school curricula?** (Yes/No)

   - If yes, what do you believe are the most important components of sexual education?
     `---`
   - If no, please explain your reasons.
     `---`

A.2.2 Perceived Impact of Sexual Education

2. **How do you think sexual education in schools impacts students' understanding of sexual health and relationships?**
   `---`
3. **In your opinion, does sexual education in schools contribute to safer sexual behavior among teenagers?** (Yes/No)

   - Please elaborate on your answer.
     `---`

A.2.3 Content and Delivery of Sexual Education

4. **What topics do you think are critical to include in sexual education programs?**
   (Multiple choice: Human anatomy, STDs/STIs, Contraception, Consent, LGBTQ+ issues, Other)
   ___
5. **At what age do you believe sexual education should begin in schools?**
   (Multiple choice: Pre-school, Elementary, Middle school, High school)
   ___
6. **Who do you think is best qualified to teach sexual education in schools?**
   (Multiple choice: Trained educators, Health professionals, Guest speakers from relevant organizations, Other)
   ___

A.2.4 Cultural and Political Influences

7. **Do you believe cultural or religious beliefs should influence the content of sexual education in schools?** (Yes/No)

   - Please explain your view.
     ___
8. **How do you think current political climates affect the implementation of sexual education in schools?**
   ___

A.3 Conclusion

Thank you for participating in this survey. Your insights are invaluable to our research and the broader discourse on sexual education in public schools.

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