

This is a sample research project; it follows some dissertation guidelines, but not all. Therefore, this paper should not be used explicitly for correct APA7 formatting.

The document was generated in R, which was used to analyze the results. The results were saved in an RMarkdown file.

To examine whether the proportion of individuals identifying as Christian changed significantly between 2010 and 2020, I conducted a two-proportion z-test using R. I used the raw counts of Christian-identifying individuals and the total U.S. population for each year. The test compares the two proportions to determine if the observed difference is statistically significant.

In R, I used the `prop.test()` function, which performs a chi-square test for equality of proportions. I specified the counts of Christian individuals and the total population for each year as input. Because the sample sizes are extremely large, I disabled the continuity correction (`correct = FALSE`) to avoid overly conservative results. The output includes the test statistic, p-value, and a confidence interval for the difference in proportions.

This approach is appropriate for large-scale survey data and provides a straightforward way to assess whether the decline in Christian affiliation over time is statistically meaningful.

## Research Question & Hypotheses

**Research Question:** Has the proportion of individuals identifying as Christian in the U.S. significantly changed between 2010 and 2020?

**Null Hypothesis ( $H_0$ ):** There is no significant difference in the proportion of individuals identifying as Christian in 2010 compared to 2020.  $H_0: p_{2010} = p_{2020}$

**Alternative Hypothesis ( $H_1$ ):** There is a significant difference in the proportion of individuals identifying as Christian in 2010 compared to 2020.  $H_1: p_{2010} \neq p_{2020}$

## Change in Christian Affiliation Over Time Statistical Analysis and Results

### Findings

This research presents the results of a two-proportion z-test conducted to examine changes in Christian religious affiliation in the United States between 2010 and 2020. The analysis utilizes unrounded population and affiliation counts from Pew Research Center data (Caulfield, 2024), and is complemented by visualizations and interpretive commentary to enhance accessibility and relevance.

### Descriptive Overview

In 2010, 243.5 million individuals identified as Christian out of a total U.S. population of 311.1 million (78.3%). By 2020, this number declined to 217.3 million Christians out of 339.4 million (64.0%). These figures suggest a notable decline in Christian affiliation over the decade.

### Statistical Analysis

A two-proportion z-test was conducted to assess whether the decline in Christian affiliation between 2010 and 2020 was statistically significant. The test was performed without continuity correction<sup>1</sup> and utilized unrounded population counts to enhance precision.

The analysis yielded a chi-square statistic of  $\chi^2(1, N = 650,498,949) = 15,996,243$ , with a  $p$ -value  $< .001$ <sup>2</sup>. The 95% confidence interval for the difference in proportions ranged from 14.26% to 14.28%. The sample estimates were 78.28% in 2010 and 64.01% in 2020, indicating a consistent and substantial decline in Christian affiliation.

These results support the alternative hypothesis and reflect a statistically significant shift in religious identification patterns over the decade.

---

<sup>1</sup> Continuity correction is commonly applied in small-sample tests to adjust for discreteness in the binomial distribution. However, given the extremely large sample size in this analysis, the correction was omitted to avoid unnecessary conservatism and to preserve statistical power.

<sup>2</sup> Although a two-proportion z-test was conducted, the resulting test statistic is expressed as a chi-square value because the square of the z-statistic follows a chi-square distribution with one degree of freedom. This reporting convention aligns with APA guidelines for categorical data analysis and facilitates interpretability across disciplines.

**Table 1**

*Results of Two-Proportion Z-Test Comparing Christian Affiliation in 2010 and 2020*

Year	Total Population	Christian Population	Proportion Christian
2010	311,100,000	243,500,000	78.3%
2020	339,400,000	217,300,000	64.0%

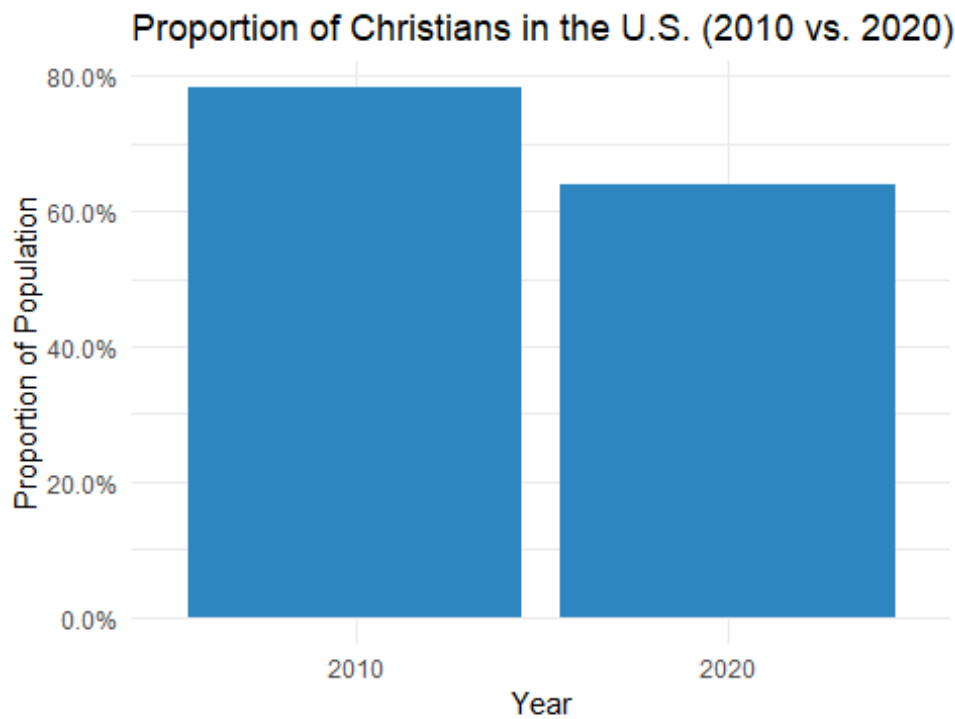
*Note.* Data sourced from Pew Research Center (Caulfield, 2024). Proportions calculated using unrounded counts.

**Visual Representations**

To enhance interpretability, two visualizations were developed:

**Figure 1**

*Bar Plot of Christian Proportions in 2010 and 2020*

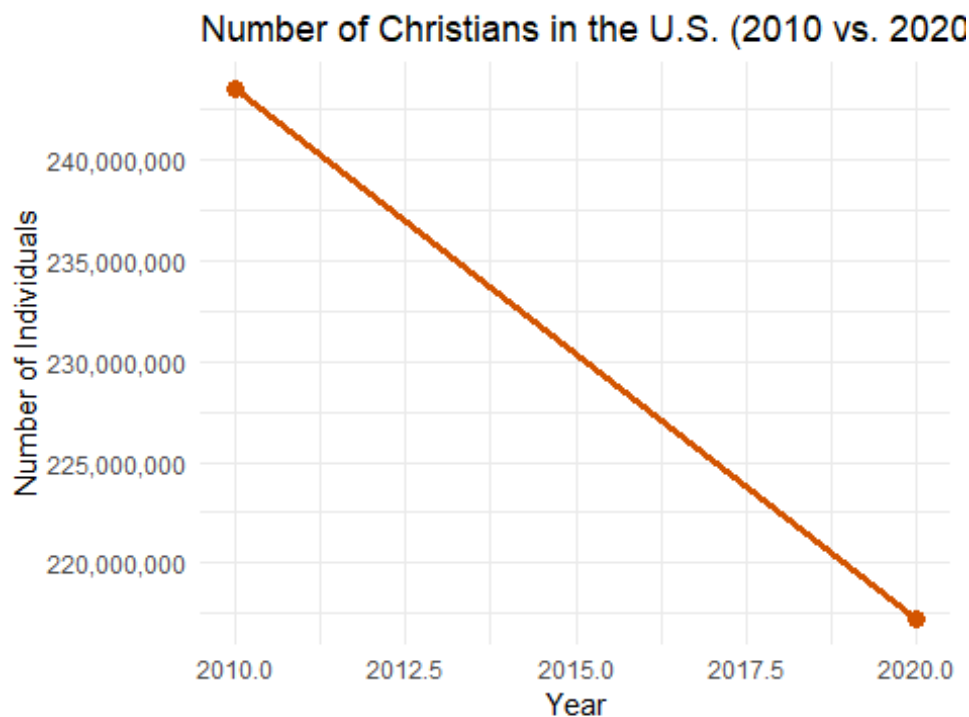


Source: Pew Research Center dataset

*Note.* This bar plot illustrates the decline in the proportion of individuals identifying as Christian in the United States between 2010 and 2020. Data are based on unrounded counts from Pew Research Center (Caulfield, 2024).

**Figure 2**

*Line Plot of Christian Population Counts in 2010 and 2020*



Source: Pew Research Center dataset

*Note.* This line plot displays the absolute number of individuals identifying as Christian in the United States in 2010 and 2020. The downward trend reflects a significant decline in affiliation. Data sourced from Pew Research Center (Caulfield, 2024).

### **Sociocultural Context**

The observed decline aligns with broader patterns of religious disaffiliation and the rise of the “nones”—individuals who identify as religiously unaffiliated (McLaughlin et al., 2022; Knight et al., 2019). Generational shifts, increased secularization, and evolving attitudes toward organized religion contribute to this trend. Millennials and Generation Z, in particular, exhibit lower rates of religious participation, often favoring individualized spirituality over institutional affiliation (Bengtson et al., 2013; Saroglou & Cohen, 2013).

Disaffiliation is frequently driven by tensions between personal identity and institutional doctrine, especially among sexually minoritized groups (Pentaris et al., 2024). These findings suggest that religious institutions may need to reevaluate their engagement strategies to remain culturally relevant.

## **Methodological Considerations**

The use of unrounded survey data enhances the precision of the analysis and aligns with best practices in reproducible research. However, limitations such as potential response bias and changes in survey methodology over time should be acknowledged. The large sample size lends robustness to the findings, but also necessitates caution in interpreting the distinction between statistical and practical significance.

Future research should consider longitudinal and mixed-method designs to explore the nuances of religious transformation across life stages and sociopolitical contexts (Kemp et al., 2025).

## **Practical Implications**

These findings have implications for policymakers, educators, and religious institutions. As religious affiliation evolves, so must the frameworks through which belief systems and community engagement are studied. Understanding spiritual struggles and their psychological impact—especially during periods of social upheaval—can inform more empathetic approaches to ministry and outreach (Pargament & Exline, 2020).

## **Summary of Findings**

The statistically significant decline in Christian affiliation between 2010 and 2020 reflects a broader cultural transformation. The results of the two-proportion z-test, supported by visualizations and contextual analysis, underscore the importance of adaptive strategies for religious institutions. These findings provide a foundation for the subsequent discussion on institutional responses, theological messaging, and cultural engagement.

## **Conclusion**

This research examined changes in Christian religious affiliation in the United States between 2010 and 2020, revealing a statistically significant decline from 78.3% to 64.0%. The results of the two-proportion z-test, supported by a large national sample and unrounded survey data, indicate a meaningful shift in religious identity patterns. Visualizations reinforced both the relative and absolute decline in Christian affiliation, enhancing interpretability for diverse audiences.

Beyond statistical significance, these findings reflect broader sociocultural trends, including generational disaffiliation, increased secularization, and evolving perceptions of institutional religion (McLaughlin et al., 2022; Knight et al., 2019). The implications extend to religious institutions, educators, and policymakers, who must critically evaluate engagement strategies, theological messaging, and operational sustainability in response to shifting cultural landscapes.

## References

- Bengtson, V. L., Putney, N. M., & Harris, S. (2013). *Families and faith: How religion is passed down across generations*. Oxford University Press.  
<https://doi.org/10.1093/acprof:oso/9780199948659.001.0001>
- Boukydis, K., & Boukydis, Z. (1982). Listening and focusing in supportive community. *Issues in Radical Therapy*, 10(4), 28–32.
- Caulfield, J. (2024). *Religious affiliation trends in the United States: 2010–2020*. Pew Research Center. <https://www.pewresearch.org>
- Jarrott, S. E., Leedahl, S. N., Shovali, T. E., De Fries, C., DelPo, A., Estus, E., Gangji, C., Hasche, L., Juris, J., MacInnes, R., Schilz, M., Scrivano, R. M., Steward, A., Taylor, C., & Walker, A. (2022). Intergenerational programming during the pandemic: Transformation during (constantly) changing times. *Journal of Social Issues*, 78(4), 1038–1065. <https://doi.org/10.1111/josi.12530>
- Kaiser, W. C., Jr., & Garrett, D. (Eds.). (2006). *NIV archeological study Bible: An illustrated walk through biblical history and culture*. Zondervan.
- Kemp, D. M., Ikonomou, V. C., & Currier, J. M. (2025). A meta-analytic comparison of longitudinal changes in scores on the Religious Spiritual and Struggles Scale and mental health symptom measures. *Psychology of Religion and Spirituality*. Advance online publication. <https://doi.org/10.1037/rel0000574>
- Knight, A., Wilson, E. E., Ward, D., & Nice, L. (2019). Examining religious disaffiliation through a family systems lens: Implications for treatment. *Journal of Couple & Relationship Therapy*, 18(2), 170–187.  
<https://doi.org/10.1080/15332691.2018.1506373>
- Landau, S. D., & Jones, F. W. (2021). Finding the spiritual in the secular: A meta-analysis of changes in spirituality following secular mindfulness-based programs. *Mindfulness*, 12(7), 1567–1581. <https://doi.org/10.1007/s12671-021-01600-0>
- McLaughlin, A. T., Van Tongeren, D. R., Teahan, K., Davis, D. E., Rice, K. G., & DeWall, C. N. (2022). Who are the religious “dones?”: A cross-cultural latent profile analysis of formerly religious individuals. *Psychology of Religion and Spirituality*, 14(4), 512–524. <https://doi.org/10.1037/rel0000376>
- Pargament, K. I., & Exline, J. J. (2020, November 1). Religious and spiritual struggles. *American Psychological Association*. <https://www.apa.org/topics/belief-systems-religion/spiritual-struggles>
- Pentaris, P., Thomsen, D. K., & Walshe, C. (2024). Religious disaffiliation among sexually minoritized people: A systematic review. *Journal of Religion and Health*, 63(1), 101–123. <https://doi.org/10.1007/s10943-023-01776-6>

Raponi, M. A. (2015). *FY 2014 independent auditor's report*. U.S. Government Publishing Office. [https://www.oversight.gov/sites/default/files/oig-reports/16-03\\_0.pdf](https://www.oversight.gov/sites/default/files/oig-reports/16-03_0.pdf)

Saroglou, V., & Cohen, A. B. (2013). Cultural and cross-cultural psychology of religion. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (2nd ed., pp. 330–354). The Guilford Press.

Stringer, H. (2024, March 4). Better connecting the generations could change the world. *American Psychological Association*. <https://www.apa.org/topics/aging-older-adults/connecting-generations-improve-world>