White Paper 22-01:

COVID-19 Stress, Religious Affiliation, and Mental Health Outcomes among Adolescents

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Summary

Using a representative sample of 71,001 Utah adolescents (data collected by the Utah Department of Health), religious affiliation was found related to significantly lower rates of teen suicidal thoughts and suicide attempts and lower levels of depression. For religiously affiliated adolescents, the rate of considering and attempting suicide was nearly half that of unaffiliated adolescents. Analyses suggest one reason for affiliation being protective against mental health problems is that affiliation was related to fewer stressors from COVID-19, including: lower anxiety, fewer financial difficulties, less family fighting, and fewer school difficulties. However, affiliated adolescents were more likely to have gotten sick with COVID-19 (or had COVID-19 symptoms), which was related to increased suicidal thoughts. Despite affiliation being related to becoming sick, overall, affiliation was related to fewer COVID-19 stressors providing a buffer against mental health problems. Supplementary analyses found Latter-day Saints and Catholics to be particularly protected. To promote positive mental health outcomes and safeguard against disease during pandemic times, consistent and clear policies that facilitate religious worship but also align with good physical health measures will be critical.

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Introduction

When Coronavirus disease 2019 (COVID-19) lockdowns began in 2020 there were immediate concerns about mental health.[1] The world economy began to slow, schools closed, and the daily routines of individuals from every walk of life were impacted. Many individuals had a decrease in employment, impacting feelings of financial security. In addition, fear of becoming sick with COVID-19 (or fears when it was acquired) became a serious concern for many. News outlets and social media regularly reported stories of individuals becoming seriously ill or dying. Even if there was no one in a person's immediate family or social group who had become ill with COVID-19, these reports may have created additional stress. The full mental health implications of the pandemic will not be determined for several years. However, data collected by the Utah Department of Health (UDOH) on over 70,000 Utah youth (the Utah Student Health and Risk Prevention [SHARP] survey[2]) in 2021 enable an examination of how various COVID-19 stressors relate to adolescent mental health.

Several theoretical models can be used to explain how COVID-19 (and stresses associated with COVID-19) may affect adolescent mental health. The *stimulus-based model of stress*[3] suggests that stressful events like those that may surround COVID-19 (such as getting sick, changes to daily routines, loss of income) can create psychological and physiological distress. This distress may lead to greater physical and mental illness, including depression, anxiety, and suicidality. Another model is the *compensatory model of resiliency theory,*[4] which suggests that positive routines or circumstances (such as religious habits and affiliation) can lead to better health in the face of adversity. And finally, the *protective factors model of resiliency theory* suggests that positive events and routines can be protective and buffer against the negative effects of adversity on health.

Research has found that religion is typically protective against mental health difficulties among adults and adolescents.[5],[6],[7] Those who are religious often have a support system to draw upon as

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[1] World Health Organization, "Mental Health and Psychosocial Considerations during the COVID-19, Outbreak," March 18, 2020, https://apps.who.int/iris/bitstream/handle/10665/331490/WHO-2019-nCoV-MentalHealth-2020.1-eng.pdf.

[2] Utah Department of Human Services, "SHARP Survey," accessed June 17, 2021, https://dsamh.utah.gov/sharp-survey.

[3] Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. Journal of Psychosomatic Research, 11, 213-218.

[4] Zimmerman, M. A. (2013). Resiliency theory: A strengths-based approach to research and practice for adolescent health. In: Sage Publications Sage CA: Los Angeles, CA.

[5] AbdAleati, N. S., Zaharim, N. M., & Mydin, Y. O. (2016). Religiousness and mental health: Systematic review study. *Journal of religion and health*, *55*(6), 1929-1937.

[6] Harold G. Koenig, *Religion and Mental Health: Research and Clinical Applications* (London, England: Academic Press, 2018).

[7] Sam A. Hardy et al., "Processes of Religious and Spiritual Influence in Adolescence: A Systematic Review of 30 Years of Research," *Journal of Research on Adolescence* 29, no. 2 (2019): 254–75, https://doi.org/10.1111/jora.12486.

well as a world view that can provide meaning in difficulties.[8] However, how religion may play a role in mental health with COVID-19 stressors is still an open question. Some preliminary research with a small sample suggests that adolescents who turn to their faith may experience better mental health outcomes during the pandemic, possibly because their religious faith helped guide them through difficult situations.[9]

The purpose of this study was to use a large, representative sample of adolescents to explore the relationship between religious affiliation, stressors due to COVID-19, and mental health problems. Two research questions were examined: (1) What is the relationship between seven COVID-19 stressors and adolescent mental health problems? and (2) Does religious affiliation mitigate COVID-19 stressors and subsequently reduce mental health problems?

The following hypotheses were statistically tested:

1) COVID-19 stressors will be related to more suicidal thoughts, suicide attempts, and depression in adolescents.
2) Compared to non-religious adolescents, religious adolescents will experience fewer COVID-19 stressors and fewer suicidal thoughts, fewer suicide attempts, and less depression.
3) Compared to non-religious adolescents, religious adolescents will experience fewer suicidal thoughts, fewer suicide attempts, and less depression *because* they experienced fewer COVID stressors.

Hypothesis 3 examines whether there is evidence of a chain reaction where religious affiliation decreases COVID-19 stressors which, in turn, decreases suicidal thoughts and attempts as well as decreasing depression. This is referred to a "mediation" model in that the COVID-19 stressors may mediate the relationship between religion and mental health. These types of analyses are crucial as they help us identify the reasons why religion may be related to mental health, providing more information for interventions to improve mental health.

COVID-19 related stressors were measured by the UDOH who asked adolescents the following question: "This past year, many youth and families in Utah were affected by the Coronavirus (also known as COVID-19). Did you experience any of the following due to the coronavirus or coronavirus symptoms?" with the following responses:

1) I was sick with the coronavirus or coronavirus symptoms.
2) One or more people living in my home lost their job.
3) I had to move or change homes.
4) Skipped one or more meals because my family didn't have enough money to buy food.

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[8] Steven Stack, "The Effect of Religious Commitment on Suicide: A Cross-National Analysis," *Journal of Health and Social Behavior*, 1983, 362–74; Steven Stack and Augustine J. Kposowa, "Sociological Perspectives on Suicide," in *The International Handbook of Suicide Prevention*, ed. Rory C. O'Connor and Jane Pirkis (John Wiley & Sons, Ltd, 2016), 241–57.

[9] Kang, J. H., Mason, R. N., & Tarshis, T. P. (2020). 51.14 Relationship between religion/spirituality and mental health in youth during COVID-19. *Journal of the American Academy of Child and Adolescent Psychiatry*, *59*(10), S255.

5) I felt anxious, sad, or hopeless.
6) People in my home were fighting a lot.
7) I had difficulty keeping up with schoolwork because I didn't have access to a reliable computer or internet service.

Adolescents indicated whether they had experienced any of these stressors. They were also asked: "During the past 12 months, did you ever seriously consider attempting suicide?" to which they could reply *yes* or *no*. Adolescents were also asked: "During the past 12 months, how many times (if any) did you actually attempt suicide?" to which they could reply: *0 times, 1 time, 2 to 3 times, 4 to 5 times, 6 or more times.* They were also asked six questions about depression including: "During the past 30 days, how often did you feel worthless?*"* To which they could answer: *All of the time, Most of the time, Some of the time, A little of the time, None of the time.* The six depression items were combined to form a single depression composite score.

Religious affiliation was measured by asking: "Which is your religious preference? (Choose the ONE religion with which you identify the most.)" To which they could indicate: *Catholic, Protestant (such as Baptists, Presbyterians, or Lutherans), Jewish, another religion, LDS (Mormon),* and *No religious preference.* Adolescents who reported any religious affiliation were combined into a single "affiliated" group and compared with adolescents who reported no affiliation (see supplemental analyses below for results of each denomination).

The sample size was 71,001 adolescents in 6, 8, 10, and 12 grades. All missing data were imputed using stochastic regression.[10] Mplus 8.7 was used to test the hypotheses. Statistical methods were used (weighting and stratifying) such that results are representative of all Utah adolescents in grades 6, 8, 10, and 12. In all analyses here, various background characteristics were controlled for such as gender, age, parents'/caregivers' education level, and race. Mediation analyses were conducted using the most up-to-date methods of bootstrapped confidence intervals.[11]

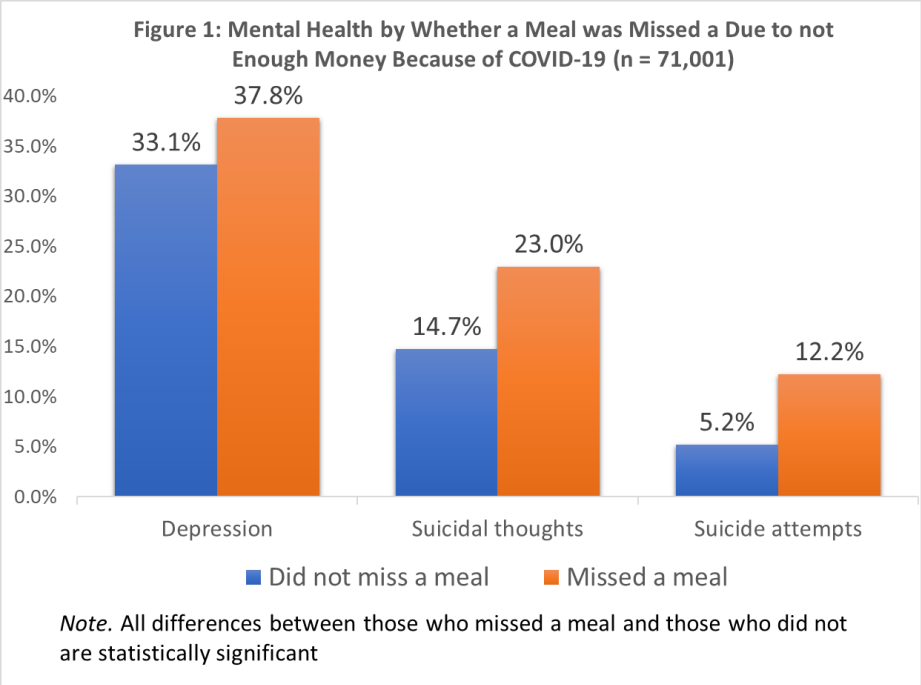
Results

Hypothesis 1: COVID-19 Stressors and Mental Health

Analyses found nearly all COVID-19 stressors related to poorer mental health. The exceptions were that having to move was not related to suicide ideation, job loss was not related to suicide attempts, and getting sick was not related to suicide attempt or depression. Skipping a meal, experiencing anxiety, the family fighting, and problems in school were significantly[12] related to suicide ideation, suicide attempt, and depression. As an example, Figure 1 displays mental health differences between those who had to skip a meal due to not enough money because of COVID-19. The depression percentage represents the average depression as a percentage of the total possible depression scale. In other words, for those who did not miss a meal, their depression

[10] Craig K. Enders, *Applied Missing Data Analysis* (New York: Guilford Press, 2010).
[11] Bengt O. Muthén, Linda K. Muthén, and Tihomir Asparouhov, *Regression and Mediation Analysis Using Mplus* (Los Angeles, CA: Muthén & Muthén, 2016).
[12] In this White Paper, the term "significantly" refers to statistical significance (i.e., differences are unlikely due to chance).

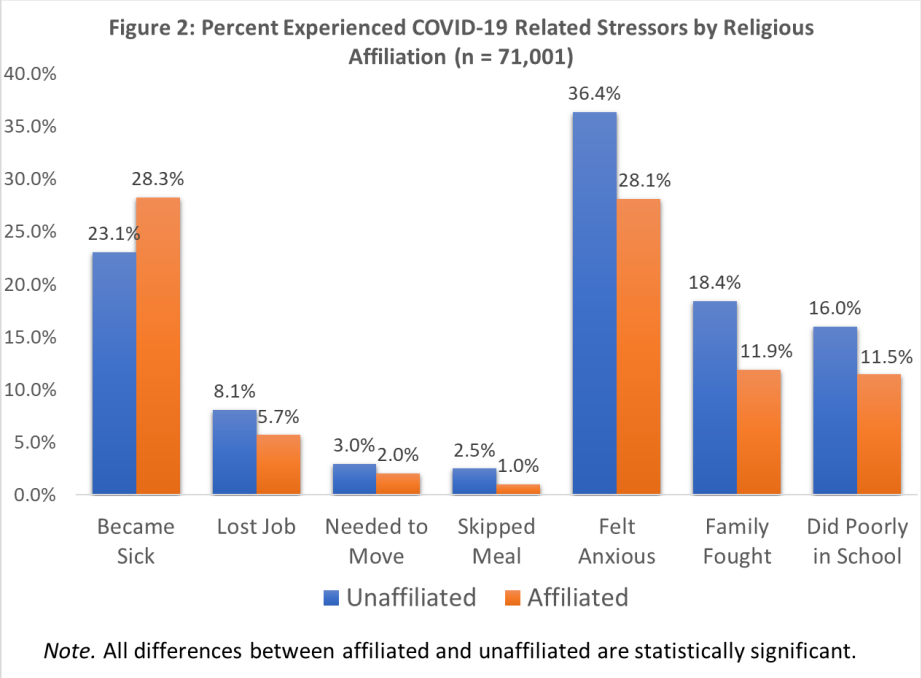
score was 33% of the total possible score and for those who did miss a meal, their average depression was 38% of the total possible depression score. Most strikingly, **those who missed a meal due to a decrease in funds because of COVID-19 had more than double the rate of attempting suicide than those who did not miss a meal**. In all, results found strong support that COVID-19 stressors are related to worse mental health.



Hypothesis 2: Religious Affiliation, COVID-19 stressors, and Mental Health

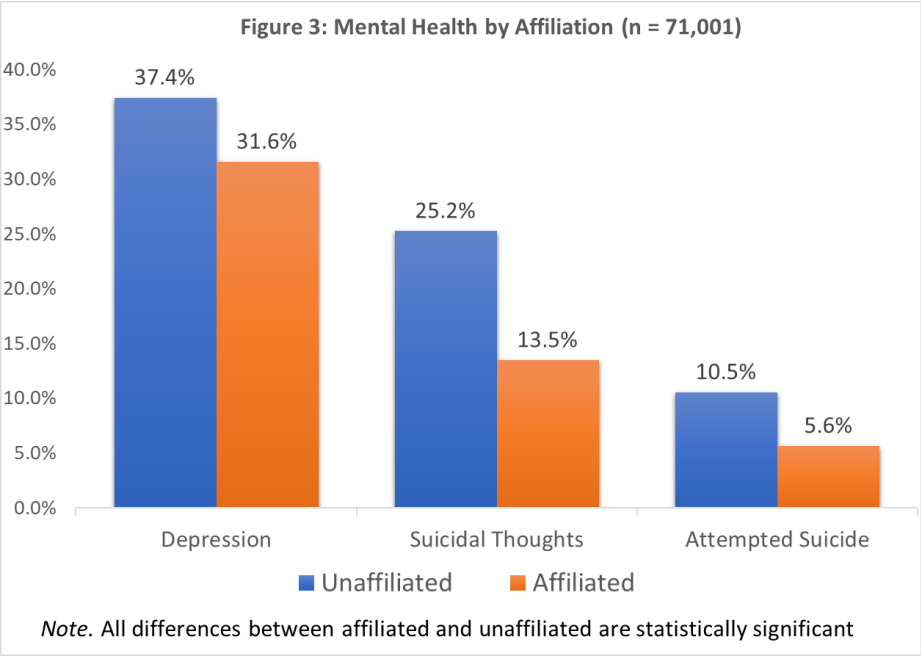
Figure 2 displays COVID-19 related stressors by whether the teen was affiliated with a religion or not. All differences between affiliated and unaffiliated are statistically significant.

Affiliated individuals were significantly more likely to get sick than unaffiliated individuals. Affiliated individuals were significantly less likely to experience any of the other six COVID-19 stressors.



Note. All differences between affiliated and unaffiliated are statistically significant.

Figure 3 contains differences in suicidality between the religiously affiliated and unaffiliated. Affiliated individuals were significantly less likely to have suicidal thoughts or attempts than the unaffiliated. The differences for suicidality are rather striking with the likelihood of thoughts or attempt being nearly half for the affiliated versus the unaffiliated. The affiliated were also less likely to be depressed.



Note. All differences between affiliated and unaffiliated are statistically significant

Thus, almost full support was found for Hypothesis 2. The exception was that rather than those who were affiliated being less likely to get sick, they were more likely to get sick.

Hypothesis 3: Religious Affiliation → COVID-19 Stressors → Mental Health

Mediation analysis found evidence that religious affiliation reduced suicidal thoughts *through* fewer COVID-19 related skipped meals (affiliation related to a .6% lower rate of ideation through fewer skipped meals), fewer fights at home (3.2% lower rate), feeling less anxious (3.2% lower rate), and having fewer difficulties in school (.8% lower rate). In other words, there was evidence that religiously affiliated adolescents experienced fewer suicidal thoughts *because* they experienced fewer of these four COVID-19 related stressors. However, religiously affiliated adolescents were also more likely to get sick which, in turn, was related to more suicidal thoughts (affiliation related to a .3% higher rate of suicidal thoughts through getting sick).

For suicide attempts, being affiliated with a religion was related to lower rates of attempting suicide through fewer COVID-19 related skipped meals (affiliation related to a .9% lower rate of attempting through fewer skipped meals), less anxiety (1.9% lower rate), and fewer fights at home (2.4% lower rate). Being affiliated was related to lower levels depression through fewer skipped meals (affiliation related to a .003 lower level of depression through fewer skipped meals), less anxiety (.014 lower level), fewer fights at home (.013 lower level), and fewer school difficulties (.01 lower level).

It is important to note that analyses cannot determine whether these relationships are truly causal. However, results are consistent with what would be expected if there were causal links between religious affiliation, COVID-19 stressors, and mental health.

Figures 4a, 4b, and 4c display results. Blue lines from affiliation to mental health indicate that affiliation is related to better mental health through lower rates of the particular COVID-19 stressor. Red lines indicate affiliation is related to worse mental health through the increase of a particular COVID-19 stressor (this is only the situation for becoming sick and suicide ideation).

Conclusion

When experiencing crisis, the resources one has to draw upon are critical in coping and developing resilience to protect against mental health problems. Religion offers several methods to cope including routines and rituals, social networks, and a world view that often provides meaning in adversity and makes the world more coherent. Previous research on adolescents has found that belief in a higher power can lead to better self-regulation and mental health even in the face of adversity.[13],[14] Analyses here aligned with this research and suggest that religious adolescents were buffered against COVID-19 stressors and subsequently had better mental health outcomes. They were less likely to go without meals (churches often provide help during financial difficulties), less likely to experience anxiety, and less likely to have family members fighting (religions often place high priority on family relationships).

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[13] Rollins EM, & Crandall A. "Self-regulation and Shame as Mediators between Childhood Experiences and Young Adult Health." *Frontiers in Psychiatry*, 12 (2021), 649911.

[14] Crandall A, Broadbent E, Stanfill M, Magnusson BM, Novilla MLB, Hanson CL, Barnes M. "The Influence of Adverse and Advantageous Childhood Experiences during Adolescence on Young Adult Health." *Child Abuse and Neglect,* 108 (2020): 104644.

However, affiliated adolescents were more likely to get sick. In January 2022, Utah had the third highest prevalence rate in the United States of COVID-19 infections per 1 million people, but also the third lowest death rate per 1 million.[15] Some international evidence suggests certain religious groups may neglect COVID-19 health preventative measures due to religious beliefs.[16] Further, some evidence suggests religion may facilitate COVID-19 transmission through direct (e.g., worship services) and indirect means (endorsing more and strengthening more social connections).[17] It is also possible religious families have more family members leading to increased opportunity for exposure. A potential solution to protect against COVID-19 transmission is for religious organizations to consider implementing and enforcing policies that protect the health of individuals while still supporting religious observance, practices, and social connection that protect against mental health difficulties.

Aligned with the protective factors model of resilience theory,[18] our analyses found that during crisis, religions can be an important buffer against mental health problems among adolescents. Analyses suggest the number of adolescents who thought about or attempted suicide or experienced depressive symptoms was significantly lower due to religious connections. Individuals and governments engaging with and supporting religions may be a critical component of reducing the impact of a pandemic on adolescent mental health. As such, governments and public health departments should also consider implementing policies that protect religious practices during pandemics and other crises for the entire family. These policies may promote individual and collective religious observance both at home and in houses of worship. To protect against the spread of disease, these policies should not only facilitate gathering but also align with good physical health measures. Such policies may need to be developed by local religious leaders based on local circumstances with guidance from regional religious leaders, government officials, and public health departments. To promote positive mental health outcomes and safeguard against disease during pandemic times, consistent and clear communication will be important to promote better religious participation and practices.

[15] Worldometers – data as of January 19, 2022.
[16] Dein, S., Loewenthal, K., Lewis, C. A., & Pargament, K. I. (2020). COVID-19, mental health and religion: An agenda for future research. *Mental Health, Religion & Culture*, *23*(1), 1-9.
[17] Vermeer, P., & Kregting, J. (2020). Religion and the Transmission of COVID-19 in The Netherlands. *Religions*, *11*(8), 393.

[18] Zimmerman, M. A. (2013). Resiliency theory: A strengths-based approach to research and practice for adolescent health. In: Sage Publications Sage CA: Los Angeles, CA.

Figure 4a: Ideation

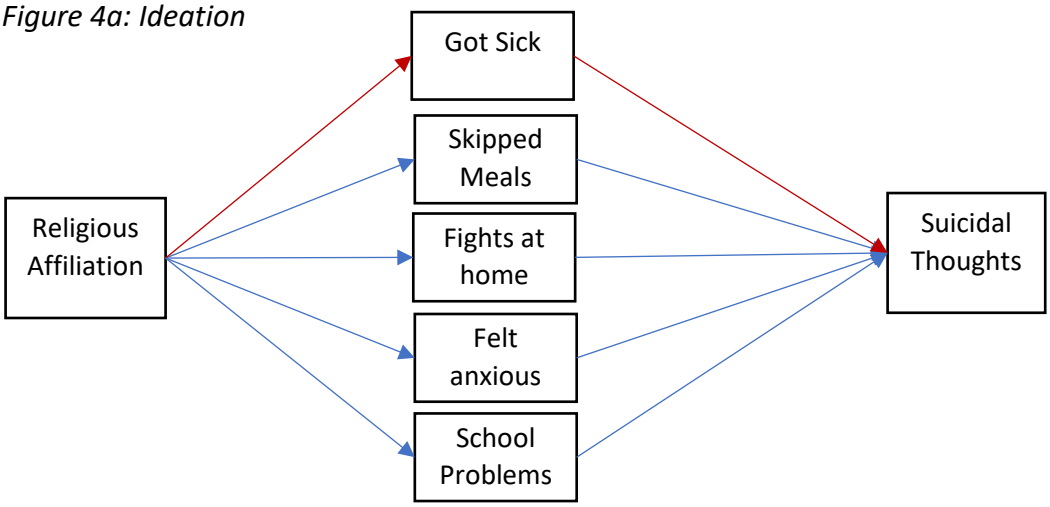


Figure 4b: Attempt

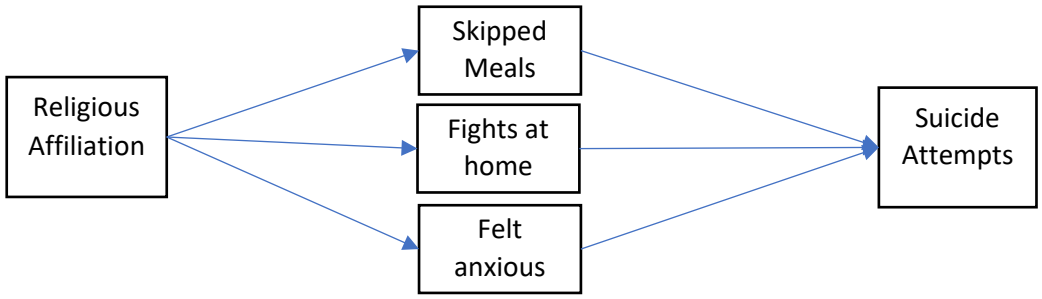
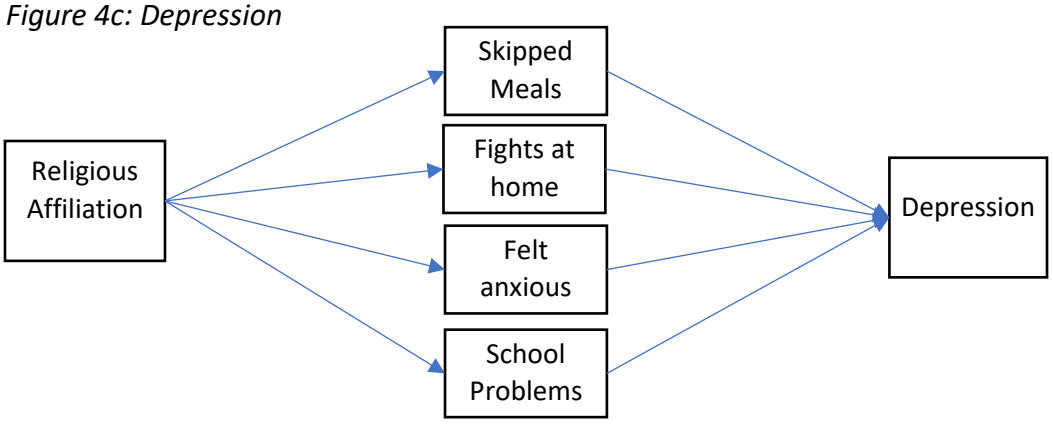


Figure 4c: Depression

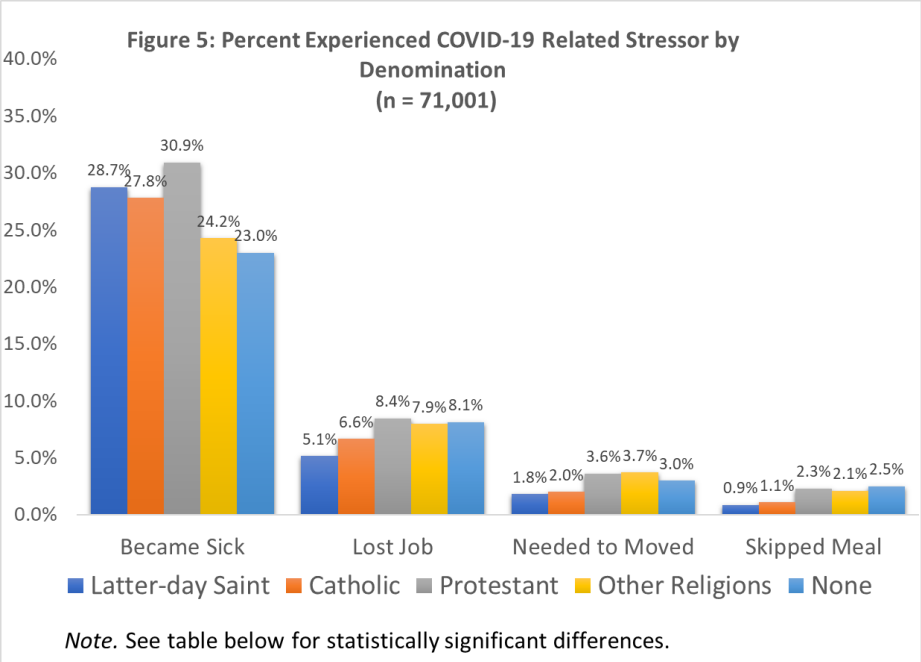


Note. Arrows represent statistically significant mediation relationships. Blue arrows indicate mediation such that religious affiliation decreased the mental health problem. Red arrows indicate affiliation increased the mental health problem.

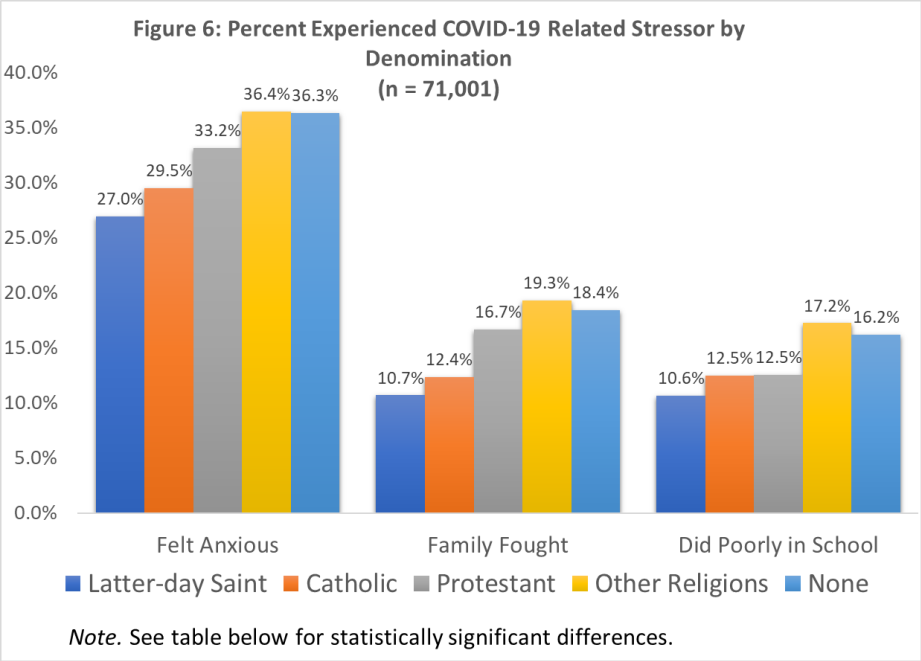
Supplementary Analyses

Supplementary analyses were conducted dividing the sample by various affiliations: Latter-day Saint, Catholic, Protestant, all other affiliations ("other"), and those of no affiliation. This allows us to examine whether the effect of affiliation may be driven by a particular affiliation. Figures 4-6 contain difference among the religious groups for COVID-19 stressors and mental health.

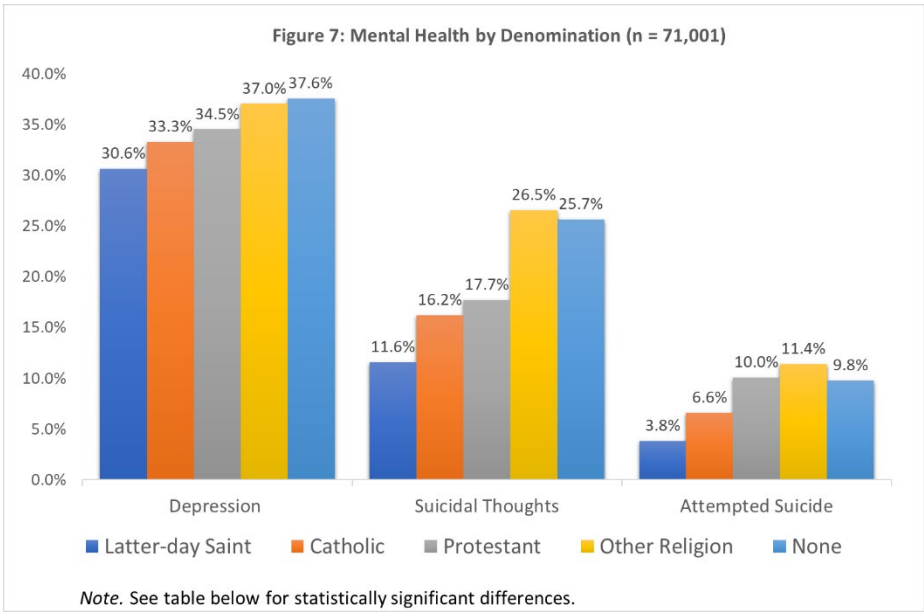
Latter-day Saints and Catholics were particularly low in COVID-19 stressors. However, all religious groups were more likely than those of no religion to become sick. Latter-day Saints were particularly low in suicidal thoughts and attempts, though Catholics and Protestants were also low. Analyses suggested that Latter-day Saints and Catholics were significantly lower than those of no religion *because* they were also lower in COVID-19 stressors (that is, significant mediation).



Note. See table below for statistically significant differences.



Note. See table below for statistically significant differences.



Note. See table below for statistically significant differences.

Table 1. *Statistically significant differences between religions.*

	Latter-day Saint	Catholic	Protestant	Other Religions
Catholic	[a]More suicide ideation, more suicide attempts, more depression, more job loss, more anxiety, more school difficulties			
Protestant	More suicide ideation, more suicide attempts, more depression, more anxiety, more family fights	No Differences		
Other Religions	More suicide ideation, more suicide attempts, more depression, less sick, more job loss, more moves, more skipped meals, more anxiety, more family fights, more school difficulties	More suicide ideation, more suicide attempts, more depression, less sick, more moves, more skipped meals, more anxiety, more family fights, more school difficulties	More suicide ideation, more depression, less sick, more school difficulties	
None	More suicide ideation, more suicide attempts, more depression, less sick, more job loss, more moves, more skipped meals, more anxiety, more family fights, more school difficulties	More suicide ideation, more suicide attempts, more depression, less sick, less job loss, more moves, more skipped meals, more anxiety, more family fights, more school difficulties	More suicide ideation, more depression, less sick	No Differences

Note. All differences significant at $p < .05$.

[a]Example interpretation: "Catholics experienced more suicide ideation, more suicide attempts, more depression, more job loss, more anxiety, and more school difficulties than Latter-day Saints."

Table 2. *Predictors of COVID-19 Stressors: Odds-Ratios*

	Become Sick	Job Loss	Move Residence	Skipped Meal	Anxiety/Fear	Family Fight	School Problems
	OR(SE)	OR(SE)	OR(SE)	OR(SE)	OR(SE)	OR(SE)	OR(SE)
Male[a]	.90(.02)*	.77(.05)*	.65(.05)*	.71(.07)*	.32(.01)*	.43(.01)*	.66(.02)*
Child Age	1.08(.01)*	1.13(.01)*	1.03(.02)*	1.15(.02)*	1.19(.01)*	1.13(.01)*	1.10(.01)*
Household Education	1.04(.01)*	.86(.02)*	1.00(.04)	.69(.02)*	1.04(.01)*	.93(.01)*	.85(.01)*
Indian[b]	.90(.09)	1.14(.18)	1.00(.23)	1.46(.34)	.87(.07)	1.02(.20)	1.04(.09)
Asian[b]	.67(.09)*	.91(.17)	1.08(.36)	.49(.10)	1.05(.10)	.97(.08)	.76(.07)*
Black[b]	.85(.07)*	1.42(.15)*	1.93(.43)*	1.87(.22)*	.95(.07)	.88(.15)	.97(.14)
Hispanic[b]	1.12(.05)*	1.42(.09)*	1.55(.13)*	1.74(.14)*	.98(.05)	.95(.04)	1.31(.09)*
Pacific Islander[b]	1.15(.10)	1.92(.28)*	1.42(.40)	1.59(.60)	.79(.11)*	.83(.14)	1.51(.30)
Affiliated[c]	1.32(.04)*	.69(.04)*	.68(.04)*	.43(.05)*	.69(.04)*	.59(.02)*	.68(.02) *

* $p < .05$ (odds-ratios could only be reported whether lower the .05)

[a] Female as baseline; [b] White as baseline; [c] Unaffiliated as baseline;

Table 3. *Predictors of Mental Health: Odds-Ratios and Unstandardized Coefficients*

	Suicide Ideation OR(SE)	Suicide Attempt OR(SE)	Depression b(SE)
Male[a]	.72(.03)*	.66(.02)*	-.25(.02)***
Child Age	1.02(.01)	.91(.02)*	.03(.01)***
Household Education	.92(.02)*	.87(.01)*	-.07(.01)***
Indian[b]	1.06(.06)	1.57(.23)*	.07(.04)
Asian[b]	1.11(.21)	1.15(.18)	.10(.08)
Black[b]	1.46(.20)*	2.03(.25)*	.12(.05)**
Hispanic[b]	1.24(.09)*	1.71(.15)*	.16(.02)***
Pacific Islander[b]	1.78(.21)*	2.45(.39)*	.20(.06)**
Affiliated[c]	.51(.03)*	.59(.05)*	-.32(.02)***
Became Sick	1.13(.05)*	1.07(.04)*	.02(.01)
Job Loss	1.16(.08)*	1.11(.08)	.04(.02)*
Moved Residence	1.02(.12)	1.38(.16)*	.10(.03)***
Skipped Meal	1.55(.17)*	2.06(.20)*	.30(.03)***
Anxiety	3.31(.11)*	2.38(.13)*	.76(.01)***
Family Fight	2.28(.10)*	2.00(.11)*	.45(.02)***
School Problems	1.27(.05)*	1.38(.13)*	.20(.02)***

* $p < .05$, ** $p < .01$, *** $p < .001$ (odds-ratios could only be reported whether lower the .05)

[a] Female as baseline; [b] White as baseline; [c] Unaffiliated as baseline;