Religious Identity and Morality: Evidence for Religious Residue and Decay in Moral Foundations

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Abstract
Religion provides a powerful social identity. Building on previous work demonstrating that formerly religious individuals (i.e., religious dones) more closely resemble currently religious individuals than do never religious individuals (i.e., religious nones), we report three studies examining a potential religious residue effect for the endorsement of moral foundations. In Study 1 (N = 312), we found evidence of a stairstep pattern of endorsement of the five moral foundations, descending from currently religious to formerly religious to never religious individuals. Study 2 (N = 957) replicated these findings with a larger sample. In Study 3 (N = 2,071), we found evidence for the religious residue effect in a 4-wave longitudinal study of adolescents and young adults and suggest that the residual effects of religion on endorsement of moral foundations may erode over time. These studies add to a recently burgeoning line of work on the nature and consequences of religious deidentification.

Keywords
religious residue, religion, morality, moral foundations, formerly religious, nonreligious

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Religion and morality are both powerful features of human life. The relationship between the two is complex and nuanced (McKay & Whitehouse, 2015). Research in each separate domain has flourished, such as work exploring moral identity and moral foundations (Graham et al., 2013), and other work examining religious identity (Ysseldyk et al., 2010) and religious foundations (Saroglou, 2011). Yet much more research is needed that examines the intersection of these important domains. Some extant work exists, such as how religion may play a central role in moral behavior (Graham & Haidt, 2010). For example, a meta-analysis of religion and prosociality revealed that cognitively activating religious constructs enhances prosociality among religious participants (Shariff et al., 2016), though this positive association between religion and prosociality has been criticized (e.g., Galen, 2012).

One understudied, yet relevant, area of research is the role of one’s religious identity—specifically considering their religious identification history—in moral processes. To be sure, morality is multifaceted, and moral behavior is multiply determined (Gantman & Van Bavel, 2016; Haidt & Kesebir, 2010). Because social identities play a role in one’s emotional, cognitive, and behavior responses, such as morality and prejudice (Rutland et al., 2010), we sought to examine: What role does religious identity play in people’s endorsement of moral foundations? More specifically, among people who do not identify as religious, does previously having a religious identity affect their moral processes? The central purpose of this set of studies was to examine whether a recently developed religious residue hypothesis (Van Tongeren et al., 2020) extends to the endorsement of moral foundations.

Religious Identity and Deidentification
Religion provides people with a powerful social identity (Ysseldyk et al., 2010). Religious identities are not natural kinds, and people vary in the type of religious identity they report. On the most basic level, researchers often make comparisons between religious and irreligious individuals, such as when asking the question of whether or not religious

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individuals are more prosocial (e.g., Galen, 2012). Given that the religiously unaffiliated comprise the third largest religion-related identity group in the world (Pew-Templeton, 2015), and Christianity continues to decline in the United States as the religiously unaffiliated steadily rise (Pew, 2019), it is important to understand the variety of individuals who identify as nonreligious. However, within the category of the nonreligious, most research obscures important differences between those individuals who have never identified as religious (i.e., religious nones) and those who were at one time religious but no longer identify as religious (i.e., religious dones). Insufficiently differentiating between formerly religious and never religious individuals may fail to identify the features associated with religious deidentification and the complex ways in which these two groups of individuals vary on cognitive, emotional, and motivational processes. Recently, cross-cultural research has revealed that there is sufficient variation within people who identify as nonreligious (Van Tongeren et al., 2020), and they contend that research should capture that variation rather than treating all nonreligious individuals as a homogenous group. One predictor of variation is likely one’s religious history: have they ever identified as religious in the past?

Religious deidentification is the process of no longer identifying as religious—that is, it entails the shift from identifying as religious to not (or more precisely, no longer) religious. Considering the various reasons one might decide to stop identifying, religious deidentification may take several forms: (a) people may no longer believe in the supernatural (religious disbelief), (b) people may no longer practice particular religious behaviors (religious discontinuance), (c) people may not want to be affiliated with other religious individuals (religious disaffiliation), or (d) people’s attitude toward religion may have become increasingly negative (religious antipathy). Thus, even among religious dones, people may have various reasons for no longer identifying as religious, and some work has already begun to explore the differing motivations for deidentification and types of formerly individuals (McLaughlin et al., 2020). However, as research in this domain is beginning to accumulate, it is important to examine whether religious dones differ from those who never identified as religious, and the various psychological processes where these two groups may be similar or respond differently.

Whereas prior work has focused on religious deconversion (Fisher, 2017; Gooren, 2011; Jacobs, 1987; Paloutzian et al., 2013) and religious disbelief (Baker & Smith, 2015; Gervais et al., 2011; Norenzayan & Gervais, 2013; Zuckerman et al., 2016), considerably less work has focused on the psychological process and consequences associated with religious deidentification: when people stop identifying as religious. To fill that gap, a new line of research has begun to examine the psychological consequences of religious deidentification, including the causes and consequences of no longer identifying as religious.

The Religious Residue Hypothesis

Recently, research on religious deidentification has proposed a religious residue hypothesis, which posits that individuals who were at one time religious but now identify as formerly religious (i.e., religious dones) still exhibit religious cognitions, emotions, and behaviors, and they would more closely resemble currently religious individuals than their never religious counterparts (religious nones) do on a host of religion-relevant variables (Van Tongeren et al., 2020). Such work has provided cross-cultural support for this hypothesis: Across four different countries (the United States, the Netherlands, Hong Kong, and New Zealand), religious psychology and behavior persisted after deidentification, and these associations were found for explicitly reported religious attitudes, implicitly assessed religious attitudes, self-reported religious practices, and actual prosocial behavior. That is, religious dones responded and behaved more like currently religious individuals than did those who never identified as religious.

What might account for these enduring associations? We see several possibilities. First, religion operates as a schema (McIntosh, 1995). As such, schemas are notoriously difficult to change, especially if these schemas have are rather elaborate and have been present for some time. In the same way, religious schemas likely remain relatively strong even after people’s self-reported social identity changes. That is, the psychological effects of religion appear to persist after people stop identifying as religious. The enduring effects of religion may be due to viewing one’s membership in the religious group as “eternal,” and their worldview is imbued with sacred meaning (Ysseldyk et al., 2010). Religious, compared with nonreligious, meaning is often viewed as having a stronger effect in people’s lives (Newton & McIntosh, 2013), which may lead to lingering effects, even after religious deidentification.

Another possible explanation for the religious residue findings may be the role of habits (Van Tongeren et al., 2020). Being raised in religious communities, individuals may have adopted certain patterns of habitualized religious cognition and behavior. Because habits are particularly resistant to change and difficult to alter, certain patterns of behavior may persist after one stops identifying as religious. For example, research has found that religious dones continue to demonstrate patterns of religious prosociality (i.e., volunteering their time) even after they disaffiliate from religion (Van Tongeren et al., 2020). Thus, the development and sustenance of religious habits may play a role in religious residue.

This line of research has initiated an investigation in various domains to determine the extent of the religious residue effect. Some work has focused on religious behavior. For example, DeWall and Van Tongeren (2020) report three studies wherein they found a stairstep pattern in religious consumer behavior: currently religious individuals spend the
most on religious products, followed by formerly religious individuals, and then by never religious individuals. That is, they found evidence for the religious residue hypothesis in spending behaviors on religiously oriented goods.

Despite initial work on the religious residue effect, little is known about how one’s religious identity—and, importantly, their religious history—plays a role in moral attitudes and endorsement of moral foundations. The current research filled this gap by exploring potential differences in the endorsement of moral foundations across differing religious identities, by applying research on religious residue to the moral domain, which may help advance an understanding of the dynamic relationship between religion and morality (e.g., McKay & Whitehouse, 2015).

**Changing Religious Identities**

Religious identities are somewhat different from other social identities, such as race or ethnicity, which are more enduring. That is, someone identifying as African American may likely have that identity for their life; whereas, for some, religious identities may be more malleable and likely to change over their lifetime. Accordingly, this work on religious deidentification is bolstered by research on religious switching, which leads to an immediate change in religious identity (Suh & Russell, 2015). Such a shift in identity includes moving from religious to secular identities. Among these secular (nonreligious) identities, research posits that some identities are “softer” (i.e., have more permeable boundaries) and some are “harder” (i.e., have firmer or more rigid boundaries; Kosmin & Keysar, 2007; Schwadel, 2020). It is possible that religious “done”s have softer identities that are still more like currently religious individuals, whereas never religious individuals (“nones”) may have harder identities. Consistent with such thinking, research has shown that religious identity formation involves multiple stages that unfold in a process (LeDrew, 2013), and some secular or nonreligious individuals are more liminal—being somewhat “in-between” identities of the stably religious and stably nonreligious (Lim et al., 2010). We suspect that religious dones, who have shifted their identity from religious to nonreligious, are still in the softer, liminal, unfolding process of deidentification, and as such, may be caught “in-between,” resembling religious individuals more closely than do never religious individuals. Empirically, supporting evidence would resemble a stairstep pattern, where the psychological processes and behavior are situated in between currently religious and never religious individuals.

In the current investigation, we sought to examine whether we would find evidence for the religious residue effect on endorsement of moral foundations. Previous research has examined intuitive morality across five domains: harm/care and fairness/cheating (which are individualizing foundations), and ingroup loyalty/betrayal, authority/subversion, and purity/degradation (which are binding foundations) (Graham et al., 2009). Prior work suggests that religion exerts a particularly strong effect on the binding foundations. For example, religion has been strongly associated with ingroup favoritism (e.g., Preston & Ritter, 2013), the endorsement of authority (e.g., religious authoritarianism; Altemeyer & Hunsberger, 1992), and purity (e.g., Davis et al., 2017; Preston & Ritter, 2012). Accordingly, the binding foundations may be particularly affected by religious identity. However, what is unclear is how such foundations might be affected by religious identity change: are binding foundations only viewed as important as long as one is currently religious, or does the potency of religion persist after deidentification?

Prior work has found that religious individuals desire to be seen as moral and promote a moral self-image (Ward and King, 2019). Indeed, religious individuals place a greater emphasis on humility relative to their nonreligious peers (Van Tongeren et al., 2018). However, other work has suggested that religious and nonreligious individuals do not differ in the degree to which they make moral judgments (Rabelo & Pilati, 2019). Prior work has directly examined the associations between moral foundations and specific religious orientations (Bulbulia et al., 2013), and other work suggests that religious and nonreligious individuals view the moral foundations—such as purity—somewhat differently (Davis et al., 2017). Because research in this area is mixed, and we are not aware of any existing work examining the role of one’s religious identification history, we sought to explore whether the religious residue effect found in previous research would extend to the moral domain. That is, we intended to test for the religious residue hypothesis on endorsement of the five moral foundations.

**Overview and Hypotheses**

Following the religious residue hypothesis (Van Tongeren et al., 2020), we predict a stairstep pattern of results (from highest to lowest endorsement) for currently religious individuals, formerly religious individuals (religious dones), and never religious individuals (religious nones) on endorsement of moral foundations. That is, currently religious individuals will report the highest endorsement of the moral foundations, followed by religious dones, and then religious nones. Study 1 was exploratory. Study 2 was a preregistered replication (i.e., we preregistered our hypotheses on the Open Science Framework [OSF]1: https://osf.io/3s7mc/), in which we predicted (a priori) that harm and purity would be the foundations most likely to reveal the religious residue effect. Study 3 examined these patterns in a nationally representative, longitudinal sample, as well as examined the temporal ordering of the relationship between religious deidentification and moral processes.

Studies 1 and 2 were part of a larger set of studies designed to explore the role of religious identities on cognition, emotion, and behavior; thus, other measures were included that
address other research questions not germane to the present investigation. No data or conditions were excluded. Study 3 was drawn from a larger, nationally representative sample with many measures. A power analysis (Cohen, 1992) suggested that we needed 156 participants to detect a medium effect with an alpha of .05 in Study 1. After finding these effects were small, we tripled our sample size to increase statistical power in Study 2. Study 3 used the most available data to maximize power.

Study 1

The purpose of Study 1 was to explore whether there were any differences between religious identity groups on their endorsement of five moral foundations. Study 1 was approved by the first author’s Institutional Review Board.

Method

Participants. Participants were 312 community members (271 females, 41 males) recruited from Qualtrics Panels, which was twice as many as the power analyses suggested. Seeking roughly equal representation from each of the three religious identity groups, participants were recruited as being either currently religious \( n = 105 \), formerly religious \( n = 102 \), or never religious \( n = 105 \). The sample ranged in age from 18 to 81 \( M = 40.57, SD = 15.29 \) and was predominantly White/Caucasian (81.7%).

Materials and procedure. Participants completed all measures online. After providing informed consent, participants first completed items assessing their religious and spiritual beliefs and practices, including their religious identity (“I identify as religious,” “I was formerly religious, but no longer identify as religious,” or “I have never identified as religious”). They later completed the moral foundations questionnaire (Graham et al., 2011), which is a 32-item measure in which participants rate the relevance \((0 = \text{not at all relevant to } 5 = \text{extremely relevant})\) of 16 items, and how much they endorse 16 items \((0 = \text{strongly disagree to } 5 = \text{strongly agree})\), assessing the five moral foundations (six items for each foundation, plus two filler items): harm/care \((\alpha = .85)\), fairness/cheating \((\alpha = .83)\), ingroup loyalty/betrayal \((\alpha = .81)\), authority/subversion \((\alpha = .80)\), and purity/degradation \((\alpha = .85)\). Finally, participants completed demographic information.

Results

A one-way analysis of variance (ANOVA) revealed a main effect of religious identity on endorsement of each of the moral foundations (Figure 1; Table 1).

![Figure 1. Religious residue effects on moral foundations in Study 1 (means with standard error bars).](image-url)
individuals, though they did not differ from formerly religious individuals. Religious dones did not differ from religious nones.

There was a significant main effect for ingroup loyalty, $F(2,309) = 9.19, p < .001$, again revealing a stairstep pattern according to religious identity. Post hoc tests revealed that currently religious participants reported significantly higher endorsement of the ingroup foundation than both formerly religious and never religious individuals. Religious dones did not differ from religious nones.

There was a significant main effect for authority, $F(2,309) = 12.67, p < .001$, again revealing a stairstep pattern according to religious identity. Post hoc tests revealed that currently religious participants reported significantly higher endorsement of the authority foundation than both formerly religious and never religious individuals. Religious dones did not differ from religious nones.

There was a significant main effect for purity, $F(2,309) = 20.57, p < .001$, again revealing a stairstep pattern according to religious identity. Post hoc tests revealed that currently religious participants reported significantly higher endorsement of the purity foundation than both formerly religious and never religious individuals. Religious dones did not differ from religious nones.

### The Mediating Role of Social Influence

Another possibility for our findings is that religious dones are more likely to endorse a pattern of moral foundations that is closer to currently religious individuals than are never religious individuals because religious dones still socialize with currently religious individuals. That is, religious dones are still embedded in communities with religious friends and family and thus are likely to have a pattern of values that is similar to religious individuals. Toward that end, we conducted a post hoc analysis examining the mediating role of social influence by examining the indirect effect of religious identity to each moral foundation via frequency of interacting with religious individuals (measured on a scale from 0 to 100) using PROCESS (Hayes, 2013) across 5,000 bootstrapping iterations. Results revealed significant indirect effects of the frequency of interacting with religious individuals for each moral foundation: harm ($b = .0019, SE = 0.0007$, 95% confidence intervals [CIs] = [0.0008, 0.0034]), fairness ($b = .0020, SE = 0.0007$, 95% CIs = [0.0010, 0.0036]), ingroup ($b = .0021, SE = 0.0007$, 95% CIs = [0.0010, 0.0037]), authority ($b = .0020, SE = 0.0006$, 95% CIs = [0.0010, 0.0034]), and purity ($b = .0023, SE = 0.0007$, 95% CIs = [0.0011, 0.0039]). Indeed, social influence plays a role in this religious residue effect on the endorsement of moral attitudes, as frequency of interacting with religious individuals mediated the associations between religious identity and each moral foundation.

### Discussion

The results of Study 1 suggested a potential religious residue effect for moral foundations expressed in a stairstep pattern.

### Table 1. Pairwise Comparisons.

<table>
<thead>
<tr>
<th>Moral foundation</th>
<th>Never1 vs. Formerly2</th>
<th>Formerly1 vs. Currently2</th>
<th>Never1 vs. Currently2</th>
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<tr>
<td></td>
<td>$M_1$</td>
<td>$M_2$</td>
<td>$t$</td>
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<tr>
<td>Study 1</td>
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<tr>
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<td>3.65</td>
<td>0.61</td>
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<td>3.76</td>
<td>1.32</td>
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<tr>
<td>Purity</td>
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<td>3.70</td>
<td>1.74</td>
</tr>
<tr>
<td>Study 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harm</td>
<td>4.43</td>
<td>4.66</td>
<td>3.16*</td>
</tr>
<tr>
<td>Fairness</td>
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<td>4.56</td>
<td>3.20*</td>
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<td>Ingroup</td>
<td>3.61</td>
<td>3.84</td>
<td>2.95*</td>
</tr>
<tr>
<td>Authority</td>
<td>3.78</td>
<td>4.00</td>
<td>2.91*</td>
</tr>
<tr>
<td>Purity</td>
<td>3.45</td>
<td>3.73</td>
<td>3.31*</td>
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<td>Study 3</td>
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<tr>
<td>Ingroup</td>
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<td>3.74</td>
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<tr>
<td>Authority</td>
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<td>2.14*</td>
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<tr>
<td>Purity</td>
<td>3.07</td>
<td>3.29</td>
<td>2.41*</td>
</tr>
</tbody>
</table>

Note. CI = confidence interval. $p < .05$. 

* $p < .003$.
currently religious individuals reported the highest endorsement of the moral foundations, followed by religious dones, and then by religious nones. Moreover, this effect was mediated by the frequency of interacting with currently religious individuals—to the degree that people still have religious friends, family, and acquaintances in their life, they are more likely to provide higher endorsement of the five moral foundations. In the case of harm and fairness, currently religious individuals did not significantly differ from religious dones, hinting at the presence of religious residue. Yet, in Study 1, the binding values (i.e., ingroup, authority, and purity) yielded the strongest results for current religious affiliation—currently religious individuals prioritized these values much more than nonreligious individuals (either dones or never religious). However, despite this staisstep pattern, religious dones did not significantly differ from religious nones on any of the five moral foundations, which did not support our predictions. Despite being sufficiently powered, we suspect that this is because these effect sizes between dones and nones may be somewhat small (i.e., $d$ of 0.25 or smaller); therefore, we sought to replicate these findings in another study with a larger sample. We preregistered our hypotheses on the OSF (https://osf.io/3s7mc/).

**Study 2**

The purpose of Study 2 was to replicate Study 1 with a larger sample to determine whether moral foundations endorsement varied by religious group identity and to further test the religious residue hypothesis. Although we found the predicted staisstep pattern in Study 1, dones and nones did not significantly differ. Considering which foundations may be most strongly affected by religious residue, given that some theorists have argued that harm may be a central moral foundation (Schein & Gray, 2015), and the strong link between religion and purity (e.g., Davis et al., 2017; Preston & Ritter, 2012), we predicted that harm and purity would be the primary foundations where we would see religious residue effects (i.e., former and never religious individuals would differ) and where these significant staisstep patterns would emerge in which all groups would differ from one another. Study 2 was approved by the first author’s Institutional Review Board.

**Method**

**Participants.** Participants were 957 community members (570 females, 387 males) recruited from Amazon’s Turk Prime and were roughly one third of each currently religious ($n = 328$), formerly religious ($n = 314$), or never religious ($n = 315$) group. The sample ranged in age from 18 to 83 ($M = 41.63$, $SD = 15.72$) and was predominantly White/Caucasian (81.4%).

**Materials and procedure.** Participants completed all of the same measures as in Study 1. Participants in each religious identity group completed the moral foundations questionnaire (harm/care [$\alpha = .78$], fairness/cheating [$\alpha = .78$], ingroup loyalty/betrayal [$\alpha = .80$], authority/subversion [$\alpha = .80$], and purity/degradation [$\alpha = .85$]).

**Results**

We sought to replicate the effect of religious identity on endorsement of each of the moral foundations. We replicated the main effects on all moral foundations and probed with Bonferroni-adjusted post hoc tests (Figure 2; Table 1). Once again, there was a significant main effect for harm, $F(2, 954) = 26.87, p < .001$. We again see a staisstep pattern according to religious identity, in which currently religious participants reported the highest endorsement of the harm foundation, followed by formerly religious individuals and never religious individuals.

There was also significant main effect for fairness, $F(2, 954) = 14.66, p < .001$, demonstrating a staisstep pattern according to religious identity, in which currently religious participants and formerly religious individuals did not vary from one another, but they both reported endorsement significantly higher than never religious individuals.

There was a significant main effect for ingroup loyalty, $F(2, 954) = 79.68, p < .001$. We again see a staisstep pattern according to religious identity, in which currently religious participants and formerly religious individuals did not vary from one another, but they both reported endorsement significantly higher than never religious individuals.

There was a significant main effect for authority, $F(2, 954) = 75.16, p < .001$. We again see a staisstep pattern according to religious identity, in which currently religious participants and formerly religious individuals did not vary from one another, but they both reported endorsement significantly higher than never religious individuals.

Finally, there was a significant main effect for purity, $F(2, 954) = 146.19, p < .001$. We again see a staisstep pattern according to religious identity, in which all groups significantly differ from one another: currently religious participants reported the highest endorsement of the purity foundation, followed by formerly religious individuals and never religious individuals.

**Replicating the Mediating Role of Social Influence**

The mediational analyses in Study 1 were post hoc analyses raised during the revision process (i.e., not preregistered hypotheses). Thus, we sought to replicate them in Study 2. Again, using PROCESS (Hayes, 2013) across 5,000 bootstrapping iterations, we found significant indirect effects of
the frequency of interacting with religious individual for each moral foundation: harm \( (b = 0.0030, SE = 0.0004, 95\%\ CIs = [0.0022, 0.0039]) \), fairness \( (b = 0.0027, SE = 0.0004, 95\%\ CIs = [0.0020, 0.0035]) \), ingroup \( (b = 0.0030, SE = 0.0005, 95\%\ CIs = [0.0022, 0.0040]) \), authority \( (b = 0.0031, SE = 0.0005, 95\%\ CIs = [0.0023, 0.0040]) \), and purity \( (b = 0.0033, SE = 0.0005, 95\%\ CIs = [0.0023, 0.0043]) \). Once again, frequently interacting with religious individuals (i.e., social influence) mediated the religious residue effect on the endorsement of moral foundations.

**Discussion**

Study 2 extended the findings of Study 1. In this larger separate sample, we replicated and extended the religious residue finding on endorsement of moral foundations, as expressed in the stairstep pattern based on religious identity group. Although we originally predicted that religious residue (i.e., the stairstep pattern) would be evidenced primarily in harm and purity (cf. Davis et al., 2017; Preston & Ritter, 2012; Schein & Gray, 2015), in this larger sample, formerly religious individuals differed from never religious individuals on each moral foundation. The increased statistical power detected religious residue for each foundation, suggesting that the residual impact of religion may be small but consistent across the moral domain. In some cases (e.g., fairness), religious dones looked more similar to currently religious individuals (i.e., they did not significantly differ from currently religious individuals on fairness). However, currently religious individuals reported significantly greater endorsement than religious dones on the other four moral foundations, and again the binding values revealed this difference most pronouncedly. Study 2 provided compelling evidence for the religious residue hypothesis: even though formerly religious individuals often looked similar to never religious individuals, there were meaningful differences between religious dones and never religious individuals on endorsement of each of the moral foundations. Given the consistent stairstep pattern in the first two cross-sectional studies with adults, we were curious if these results would also replicate in a nationally representative sample and a longitudinal study design.

**Study 3**

Study 3 sought to replicate and extend the findings of Study 2 in a nationally representative longitudinal sample of adolescents and young adults, to examine (a) how these associations unfold over time as they are occurring, and (b) the degree to which these results are similar or different in a decidedly younger sample, who are in the developmental stage of identity formation (Erikson, 1993) and whose religious deidentification may have occurred earlier in life, rendering the lingering effects of a religious cognitive schema somewhat less potent (though other religious dones in Studies 1 and 2 could also have deidentified in a similar developmental phase). This methodological approach allowed us to examine consequences of deidentification as they occurred, rather than relying solely on self-reported religious history.

**Method**

**Participants.** We use data from the nationally representative, longitudinal National Study of Youth and Religion (NSYR) for Study 3. Participants in Wave 1 of the survey, conducted in 2002–2003, were 3,290 adolescents aged 13 to 17 (1,627
females, 1,663 males) recruited through Random Digit Dialing. The response rate was 57%. The survey was administered again to the same participants in 2005 (Wave 2 \( n = 2,530 \), 2007–2008 (Wave 3 \( n = 2,458 \)), and 2013 (Wave 4 \( n = 2,071 \)). By Wave 4, the mean age was 25.48 (\( SD = 1.45 \)). The Wave 4 sample, which is the analysis sample for the present study, is 73.2% White/Caucasian, 11.9% African American, 8.9% Hispanic, and 5.0% other race (0.7% missing). See Smith and Lundquist Denton (2008) for more information on the NSYR.

**Materials and procedure.** Participants completed the interviews via phone in Waves 1 to 3. In Wave 4, 85% of respondents completed the survey online and 15% completed it over the phone. Participants completed a brief version of the moral foundations questionnaire (Graham et al., 2011) in the Wave 4 survey, which included four items for each foundation (harm/care [\( \alpha = .55 \)], fairness/cheating [\( \alpha = .53 \)], ingroup loyalty/betrayal [\( \alpha = .47 \)], authority/subversion [\( \alpha = .54 \)], and purity/degradation [\( \alpha = .67 \)]). In addition, given that the moral foundations questionnaire was only administered in Wave 4, to examine directionality we utilized a measure of moral relativism, which was available at Waves 2 to 4. Participants rated three items pertaining to moral relativism (e.g., “Some people say that morals are relative, that there are not definite rights and wrongs for everybody”); Wave 2 \( \alpha = .64 \); Wave 3 \( \alpha = .59 \); Wave 4 \( \alpha = .66 \), rated on a 5-point scale from strongly disagree to strongly agree. We averaged the three items to create moral relativism scores at each wave such that higher scores indicate greater moral relativism. Although this is a different measure than the moral foundations questionnaire, it is still in the domain of morality. Furthermore, at Wave 4 all five moral foundations scores correlated significantly and positively with moral relativism.

**Results**

**Data preparation.** We created dichotomous variables at each wave indicating if participants were religiously affiliated or not (0 = unaffiliated; 1 = affiliated). Then, using those four variables, we created a three-category variable for longitudinal patterns of religious affiliation. The longitudinal nature of this study provided the opportunity to more directly capture patterns of religious affiliation, at least across the four waves. We did not have data on affiliation prior to the initial study wave. To align with Studies 1 and 2, we created the following three categories: never religious (those who were unaffiliated at Waves 1 and 4; \( n = 191 \)), formerly religious (those who were religiously affiliated at Wave 1 but not at Wave 4; \( n = 517 \)), and currently religious (those religiously affiliated at Waves 1 and 4; \( n = 1,254 \)). Although we had data on religious affiliation at Waves 2–3, requiring participants to have data at those occasions and to have a certain affiliation status greatly reduced our sample sizes. Therefore, our analytic decisions sought to maximize our statistical power (and we use affiliation data at Waves 2 and 3 for the ancillary analyses below).

**Primary analyses.** The analyses were conducted in Stata (version 15). See Figure 3 for estimated means (and standard error bars) on the five moral foundations across the three religious affiliation categories. Means and standard errors were estimated in Stata via the svy command, using sampling weights available to help make the NSYR nationally representative (similarly, means reported below were also estimated using the sampling weights). To align with the two studies reported above, we conducted ANOVAs with Tukey post hoc pairwise comparisons (see Table 1).

We did not find significant main effects for harm, \( F(2, 1950) = 0.11, p = .89, R^2 = .0001 \), or fairness, \( F(2, 1950) = 2.68, p = .07, R^2 = .003 \). We did find a significant main effect for ingroup loyalty, \( F(2, 1950) = 57.51, p < .001, R^2 = .06 \). Never religious individuals were not significantly different than formerly religious, but both groups were significantly lower in endorsement of ingroup loyalty than currently religious, with medium effect sizes.

We similarly found a significant main effect for authority, \( F(2, 1950) = 148.45, p < .001, R^2 = .13 \). We found the stairstep pattern identified in Studies 1 and 2. Never religious individuals had the lowest endorsement of authority, followed by formerly religious, followed in turn by people who were currently religious. All comparisons were statistically significant. The effect was small comparing never religious to formerly religious, but large for the other two comparisons.

Likewise, we found a significant main effect for purity, \( F(2, 1950) = 120.73, p < .001, R^2 = .11 \). Again, we found the stairstep pattern identified in Studies 1 and 2. Never religious individuals had the lowest endorsement of purity, followed by formerly religious, and then the highest was for currently religious. All comparisons were statistically significant. The effect was small comparing never religious to formerly religious, medium-large comparing formerly religious and currently religious, and large comparing never religious and currently religious.

Analyses can be conducted using the NSYR data and sampling weights to generalize to the U.S. population of adolescents and young adults. However, such weights cannot be used to conduct ANOVAs in Stata. Thus, to verify the ANOVA analyses above were generalizable, we reran them as ordinary least squares regressions with sampling weights to generalize to the U.S. population of this study provided the opportunity to more directly capture patterns of religious affiliation, at least across the four waves. We did not have data on affiliation prior to the initial study wave. To align with Studies 1 and 2, we created the following three categories: never religious (those who were unaffiliated at Waves 1 and 4; \( n = 191 \)), formerly religious (those who were religiously affiliated at Wave 1 but not at Wave 4; \( n = 517 \)), and currently religious (those religiously affiliated at Waves 1 and 4; \( n = 1,254 \)). Although we had data on religious affiliation at Waves 2–3, requiring participants to have data at those occasions and to have a certain affiliation status greatly reduced our sample sizes. Therefore,
were statistically significant according to the same pattern as above. For ingroup loyalty, never religious and formerly religious respondents were not significantly different, but both were significantly lower than currently religious. For both authority and purity, there was the stairstep pattern of never religious, formerly religious, and currently religious—all statistically different from the others. In short, these regression results suggest that the ANOVA tests reported above are likely representative of U.S. adolescents and young adults.

To further utilize the longitudinal nature of the NSYR, we conducted additional analyses to examine whether the lingering effect of religiousness faded over time for those who switched from being religiously affiliated to being religiously unaffiliated. To do so, we created five religious affiliation groups: never religious (those not religious at Waves 1–4; \(n = 95\)), formerly religious who switched at Wave 2 (\(n = 82\)), formerly religious who switched at Wave 3 (\(n = 107\)), formerly religious who switched at Wave 4 (\(n = 210\)), and always religious (those who were religious at Waves 1–4; 931). We ran ANOVAs with Tukey post hoc comparisons (see Table 2). See Figure 4 for estimated means and standard errors on the five moral foundations across the five religious affiliation categories. Means and standard errors were estimated in Stata via the svy command, using sampling weights available to help make the NSYR nationally representative.

There was not a significant main effect for harm, \(F(4, 1413) = .96, p = .43, R^2 = .003\). This time, there was a significant main effect for fairness, \(F(4, 1413) = 2.57, p = .04, R^2 = .007\), but none of the follow-up comparisons were statistically significantly different. For ingroup loyalty, there was a significant main effect, \(F(4, 1413) = 27.47, p < .001, R^2 = .07\), and always religious respondents were significantly higher on ingroup loyalty than all other groups, but none of the other comparisons were significant. There was also a significant main effect for authority, \(F(4, 1413) = 58.61, p < .001, R^2 = .14\), but in addition to always religious respondents being significantly higher than all others, formerly religious respondents who switched at Waves 3 or 4 were also significantly higher than those who were never religious (while those who switched at Wave 2 were not). Similarly, there was a significant main effect for purity, \(F(4, 1413) = 55.60, p < .001, R^2 = .14\), and in addition to always religious respondents being higher on purity than all other groups, formerly religious respondents who switched at Wave 4 were significantly higher than never religious respondents (while those who switched at Waves 2 and 3 were not). In addition, the means for authority and purity followed a clear stairstep pattern. Thus, there was some evidence on authority and purity for a fading residual effect of religiousness affiliation for those who switch to being unaffiliated. This offers the first evidence for the decay of the religious residue effect over time (at least in an adolescent sample).

**Follow-up analyses.** To examine directionality of relations between religious identification and morality, we used data from Waves 2 to 4 to estimate auto-regressive cross-lagged models linking religious identification to moral relativism. We specified auto-regressive paths of religious identification at each wave predicting itself at the next wave and likewise for moral relativism. We specified cross-lagged paths of religious identification at each wave predicting moral relativism at the next wave, and vice versa. We also specified covariances between religious identification and moral relativism within each wave. The model fit was significantly improved (based on a chi-square difference test) by adding higher-order auto-regressive paths (Wave 2 predicting Wave 4) for
religious identification and moral relativism. Constraining the cross-lagged paths and covariances to be equal over time did not worsen model fit, but simplified the model. This final model fit the data well, $\chi^2 (6) = 20.05, p = .003$, comparative fit index (CFI) = .99, root mean square error of approximation (RMSEA) = .03. Religious identification and moral relativism were dynamically linked over time (see Table 3 and Figure 5), such that each was a significant negative predictor of the other at the subsequent wave (accounting for prior levels).

To assess the robustness of the analyses reported above, we reran all analyses controlling for gender, ethnicity (dichotomized as White or not), and household income at Wave 1. All significant effects remained significant with two exceptions, which dropped to being only marginally significant ($p < .10$). Both exceptions pertained to the five group ANOVAs. The first was the main effect of religious identification on fairness, while the second was the pairwise comparison for purity between respondents who were never religious and those who were formerly religious who switched at Wave 4. Thus, the findings were generally robust when controlling for three standard demographic factors.

**Discussion**

Study 3 provides an important replication and extension of Studies 1 and 2. Examining nationally representative data in a longitudinal study of adolescents and young adults, there was not a perfect replication of Studies 1 and 2—we found evidence for the religious residue hypothesis on two of the binding moral foundations: authority and purity. In addition, ancillary cross-lagged analyses in Study 3 revealed that religious deidentification and moral relativism may be mutually reinforcing: leaving religion predicts future moral relativism, and moral relatively predicts future religious deidentification. This suggests the relationship between religious and moral values is interdependent. Finally, the longitudinal nature of the study helped reveal that the residue does fade over time, with those who most recently deidentified (e.g., Wave 4) looking more similar to always religious individuals than those who deidentified in prior waves (e.g., Wave 2). This provides initial evidence that religious residue may erode over time—a process we call religious residual decay—at least among young adults.

To determine if this religious residual decay is a feature unique to this sample of adolescents or may be present in older samples, we calculated the percentage of time religious dones (i.e., formerly religious individuals) had not identified as religious (years not identifying as religious/age) from our Studies 1 and 2. This index correlated negatively with the binding foundations in Studies 1 and 2 (see Table 4). The endorsement of binding foundation weakened the longer religious dones had not identified as religious, suggesting that residual decay of binding foundations may be present in older samples ($\text{age}_{M} = 40.57$ in Study 1; $\text{age}_{M} = 41.63$ in Study 2). Taken together, this suggests that religious affiliation is associated with stronger endorsement of the binding foundations and does persist (somewhat) after deidentification, though this residual effect decays over time.

**General Discussion**

Three studies tested the religious residue hypothesis on participants’ endorsement of moral foundations. Across three studies, we found a general stairstep pattern such that religious individuals provided the highest endorsement of the five moral foundations, followed by the formerly religious
Table 3. Study 3 Auto-Regressive Cross-Lagged Models.

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Wave 3</th>
<th>Wave 4</th>
<th>Wave 3</th>
<th>Wave 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religious identification (W2)</td>
<td>β = .50***</td>
<td>β = .23***</td>
<td>β = -.12***</td>
<td>—</td>
</tr>
<tr>
<td>Religious identification (W3)</td>
<td>—</td>
<td>β = .34***</td>
<td>—</td>
<td>β = -.12***</td>
</tr>
<tr>
<td>Moral relativism (W2)</td>
<td>β = -.12***</td>
<td>—</td>
<td>β = .50***</td>
<td>β = .23***</td>
</tr>
<tr>
<td>Moral relativism (W3)</td>
<td>—</td>
<td>β = -.11***</td>
<td>—</td>
<td>β = .32***</td>
</tr>
</tbody>
</table>

Note. N = 1,956; β = standardized regression coefficients over time; W2 = Wave 2; W3 = Wave 3. Only auto-regressive and cross-lagged paths are presented. The constraints over time were placed on the unstandardized cross-lagged coefficients, so the standardized coefficients still varied slightly over time. ***p < .001.

Table 4. Correlations Between Percent of Life Not Identifying as Religious and Each of the Moral Foundations Among Religious Dones (i.e., Formerly Religious Individuals) in Studies 1 and 2.

<table>
<thead>
<tr>
<th>Moral foundation</th>
<th>Study 1</th>
<th>Study 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harm</td>
<td>.176†</td>
<td>.160*</td>
</tr>
<tr>
<td>Fairness</td>
<td>.122</td>
<td>.185*</td>
</tr>
<tr>
<td>Ingroup</td>
<td>-.189†</td>
<td>-.102†</td>
</tr>
<tr>
<td>Authority</td>
<td>-.252†</td>
<td>-.130*</td>
</tr>
<tr>
<td>Purity</td>
<td>-.429*</td>
<td>-.121*</td>
</tr>
<tr>
<td>Binding (Average)</td>
<td>-.323*</td>
<td>-.129*</td>
</tr>
</tbody>
</table>

Note. Percent of life not identifying as religious was calculated as: (years not identifying as religious/age).
†p < .08. *p < .05.

(i.e., religious dones), and then never religious (i.e., religious nones) individuals. Study 1 provided an initial glimpse of this pattern, and a larger, high-powered Study 2 revealed that religious dones significantly differed from religious nones on their endorsement of each moral foundation, providing clear and compelling evidence for religious residue in an adult sample. Moreover, Studies 1 and 2 suggested that social influence (i.e., being embedded in religious communities) may be an explanation for this religious residue effect. Study 3 examined these associations over time with an adolescent sample, again showing a stairstep pattern with the binding moral foundations (notably authority and purity), and it revealed that the residue effect of religion may decay over time (i.e., religious residual decay), as those who most recently disaffiliated behaved most similarly to those who were currently religious. Religious schemas and habits endure, but may eventually decay in a younger adult sample—though the results of Studies 1 and 2 suggest that among adults, the extent of such schematic erosion is not complete and the influence of being embedded in a religious community (i.e., frequently interacting with religious individuals) may explain the residual endorsement of moral foundations. Some religious residue remains.
The results were not perfectly replicated in each study, nor were our predictions always perfectly confirmed. However, taken together, these findings help paint a nuanced picture of the role of religious identity in moral reasoning: Currently religious individuals report the highest endorsement of the moral foundations significantly more than never religious individuals (Studies 1–3); religious nones look like currently religious individuals when reasoning about harm (Study 1) and fairness (Studies 1 and 2), and a clear stepwise pattern emerges among adults in a larger and more highly powered study, where religious nones differ from other religious nones on each foundation (Study 2), but this is particularly robust on the binding foundations of ingroup and purity among adolescents (Study 3); and, never religious individuals report the lowest endorsement of the moral foundations. The weaker associations found in Study 3 may be due, in part, to the age of the sample: adolescents who are deidentifying earlier in life may have had less time for a religious schema to exert an effect, somewhat attenuating its residual effects, relative to an adult sample who could have deidentified at various points in life (e.g., after college, mid-adulthood). Perhaps with the younger, adolescent sample, their religious schemas were not as elaborate or fully integrated as those in the adult sample or their habits were not as deeply engrained, though it is possible that some religious nones in the adult sample similarly deidentified in adolescence. Examining the amount of time religious nones had deidentified from religion (while controlling for age by calculating an index of years deidentified divided by age) suggested that the religious residue does decay the residual endorsement of binding foundations over time. Still, future research, particularly longitudinal work with participants of a variety of ages, is needed to address this pressing question.

**Advancing Work on Religious Identities**

Studies 1 and 2 added to the existing research on religious residue (Van Tongeren et al., 2020) by suggesting that in addition to cognitive schemas and religious habits, social influence may play a role in explaining why religious nones may still behave in ways that somewhat resemble religious individuals. Being embedded in religious communities where one frequently interacts with religious individuals likely plays a significant role in one’s moral attitudes, even if they no longer identify as religious. Studies 1 and 2 also added to the existing research on religious residue (Van Tongeren et al., 2020) by suggesting that in addition to cognitive schemas and religious habits, social influence may play a role in explaining why religious nones may still behave in ways that somewhat resemble religious individuals. Being embedded in religious communities where one frequently interacts with religious individuals likely plays a significant role in one’s moral attitudes, even if they no longer identify as religious.

Study 3 provided an important contribution regarding the temporal unfolding of how religious deidentification occurs, and then shifts in moral processes follow, albeit slowly. However, cross-lagged analyses revealed that religious deidentification and moral relativism are mutually reinforcing and dynamically linked over time: leaving religion leads to future moral relativism, but higher levels of moral relativism predict leaving religion in the future. However, what remains to be determined are the various causes that lead one to deidentification: why are people motivated to stop identifying as religious? What mechanisms underlie this process? And are there different trajectories of religious deidentification? Some work suggests that some people may leave religion for intellectual reasons or “outgrowing their faith,” whereas others may reconfigure their beliefs, and still others become angry and develop antipathy toward religion after deidentification (McLaughlin et al., 2020). Given that the range of reasons varies from cognitive (i.e., intellectual reasons) to emotional (i.e., antipathy toward religion), it is possible that different cognitive or emotional pathways may operate as mechanisms that drive value-related behavior and judgment. For example, a more “rational” abandonment of belief may lead to a slower and more nuanced dismantling or reorganization of particular values based on cognitive decisions, whereas strong anger toward God or religion may lead to quicker, more wholesale reactive changes to one’s landscape of values as a way of rejecting a former religious identity that is now strongly associated with emotional pain as a way of addressing negative emotions. Indeed, recent work suggests many people leaving religion experience religious and spiritual struggles amid changing values (Exline et al., 2020). Indeed, there is considerable variation in why people decide to “leave religion,” and we suspect that future work that can provide a richer, more complete picture of the landscape of religious identity should prove valuable.

Beyond this, we see the need for more work to provide a richer understanding of all of the features of religious identity. Our current work focused on the important role of one’s religious history: Does having identified as religious at one time in life affect their current psychology? And though we believe that this is an important contribution—in part because prior work has failed to differentiate between the nonreligious, which has obscured important and meaningful differences between these groups—additional work should attempt to catalog a broader understanding of religious identity by expanding to consider additional features of religion. For example, how do religious beliefs, bonding, behaving, and belonging—understood as the core features or foundations of religion (Saroglou, 2011)—combine to create different religious identity groups or categories? That is, might some people retain belief in supernatural agents (i.e., beliefs) though they stop praying (i.e., bonding), abandon their moral prescriptions (i.e., behaviors), and quit attending church and socializing with other religious individuals (i.e., belonging)? Still others may question the existence of God while continuing to attend church, pray, and forge relationships with co-religionists. We need a deeper, richer, and more nuanced understanding of religious identity, as well as the causes and consequences of religious identity change over time.

**Limitations and Suggestions for Future Research**

Our study design had several strengths. We replicated the general pattern of results across multiple samples (though not perfectly), we preregistered our hypotheses (though our
predictions were not always perfectly confirmed), and we implemented a longitudinal design. We also sampled adult (Studies 1 and 2) and adolescent (Study 3) populations. However, like all scientific work, our research had limitations, and there are several areas that could be strengthened by future research. First, future work could implement experimental designs to attempt to identify causal factors. Because it is not possible to randomly assign individuals to religious identities, longitudinal designs (such as the ones used in Study 3) may be the best way to approximate causal factors, but other designs may be able to identify mechanisms by which these processes unfold.

Second, we encourage future work to explore how additional features of morality may vary based on religious identity (and may be related to religiousness), such as disgust-sensitivity, moral condemnation, and moral emotions, such as guilt and shame. Third, we encourage future research to examine how the role of religious identity operates similarly to, or is unique from, other social identities in shaping people’s responses to social cognitive processes, such as endorsement of moral foundations. We also realize that asking participants to self-identify religious group in Studies 1 and 2 may have inadvertently primed stereotypes that affected responses (e.g., stereotype threat), so future work should ask for religious identity at the end of the study or at a separate time point (e.g., as we did in Study 3) to minimize such potential effects.

Fourth, the reliabilities of the Moral Foundations Questionnaire (MFQ) were somewhat low in Study 3, which is consistent with other work reporting low reliabilities for the subdomains (e.g., Bassett et al., 2015) but limits the findings reported here. Similarly, a critique of the MFQ subscales—particularly binding subscales, such as purity—is the overlap between religious tenets and items designed to assess moral foundations, which suggests that religious individuals may simply view those scales differently (e.g., Davis et al., 2017). Future work should examine other moral processes beyond endorsement of the MFQ (e.g., moral relativism, as we examined in Study 3).

Fifth, in Study 3, it is possible that the unaffiliated individuals in Wave 1 already had deidentified earlier in childhood, prior to study. However, the goal of Study 3 was to examine the downstream consequences of religious deidentification processes over time. Future work could include both religious history and longitudinal examination of these processes. Sixth, because the majority of our participants were Christians, our findings should be generalized accordingly; we encourage future research to expand the examination of religious identities to a wider variety of religious and spiritual traditions (including across multiple cultures). We think that a larger and more complete research program on religious identity, and changes in such identity, would be a significant contribution.

Finally, we want to clarify our decision to rely on self-report of religious identity. As with research on other social identities (e.g., gender, sexual orientation, ethnicity), we believe that people know their own identities and can be reliably believed. We caution critics who might disbelieve participants’ assessment of their own identity, suggesting that perhaps religious dones “really are religious” or simply “don’t like labels.” Whatever the motivation may be for participants’ self-identification, like research on other social identities, self-reported identity is powerful and predictive of cognition, emotions, and behavior (Rutland et al., 2010). In short, self-reported religious identification matters. More work is needed to fully understand the various motivations people have to deidentify from religion (e.g., Exline et al., 2020; McLaughlin et al., 2020).

**Concluding Remarks**

Religious identities can be powerful, playing a role in a wide range of cognitive, emotional, and behavioral processes. After deidentifying from religion, religious dones’ endorsement of moral foundations lies between the religious nones and the currently religious individuals, while remaining somewhat closer to the religious nones, especially on the binding foundations. This suggests that a religious residue persists and simply examining one’s current religious affiliation (religious or not) without considering their religious history may obscure small, but meaningful, differences in their moral processes. However, as the results here suggest, the enduring effects of residual religion may erode over time. Thus, there is evidence for religious residue, and its decay over time, in the moral domain.

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**Supplemental Material**

Supplemental material is available online with this article.

**Notes**

1. Because these studies were part of a larger project on religious deidentification, the study numbers in the Open Science Framework (OSF) preregistration do not perfectly align with the manuscript study numbers. Moreover, the hypotheses include variables for other, separate projects (not reported here).
2. The dataset also included an item that asked participants if they currently, formerly, or have never believe(d) in God. Comparisons based on this variable revealed a similar pattern of results to those found with religious identity in both Studies 1 and 2.

3. We thank the editor for raising this possibility.

4. This excludes the 73 respondents who constitute the Jewish oversample. Those cases are not part of the nationally representative data collection and therefore cannot be weighted to match the population along with the other cases in the data.

References


