



DATA NOTE

REVISSED Longitudinal data on parental religious behaviour and beliefs from the Avon Longitudinal Study of Parents and Children (ALSPAC) [version 2; peer review: 2 approved]

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Abstract





There is evidence that, in general, the West is becoming more secular. Religious belief has been shown in some studies to have positive associations with outcomes such as coping with serious illness and other life events and general well-being. In this paper, we describe the data from parents enrolled in the Avon Longitudinal Study of Parents and Children (ALSPAC) on their religious behaviour and beliefs collected on three occasions during the 1990s and early 2000s, that are available for researchers to use in association with other longitudinally collected data on social, biological, genetic and epigenetic features of this culturally largely protestant Christian population. Data were collected antenatally and then subsequently at 5 and 9 years post-delivery from self-completion questionnaires completed by each parent independently. Strong sex differences (all $P < 0.001$) were noted regarding religious beliefs and behaviour: for example, 49.9% of women stated that they believed in God or some divine being compared with 37% of men. Almost twice as many men (28.6%) than women (14.9%) declared they were atheists. Men were less likely to have stated that they had been helped by a divine presence; to appeal to God if they were in trouble, to attend religious services or obtain help from members of religious groups. Among the 6256 women and 2355 men who answered the questions at all three time points, there was evidence of a slight reduction in professed belief and a slight increase in the proportion stating that they were atheists. Information is available from this resource, which is rich in data on the environment, traumatic incidents, health and genetic background. It can be used for research into various aspects of the antecedents and consequences of religious belief and behaviour.


Keywords

ALSPAC, religious belief, religious behaviour, longitudinal cohort, atheist, agnostic

Open Peer Review

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- Ralph W. Hood Jr.**, University of Tennessee at Chattanooga, Chattanooga, USA
- Philip Wilson** , University of Aberdeen, Inverness, UK

Any reports and responses or comments on the article can be found at the end of the article.



This article is included in the [Avon Longitudinal Study of Parents and Children \(ALSPAC\)](#) gateway.

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<http://www.bristol.ac.uk/alspac/external/documents/grant-acknowledgements.pdf>.

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REVISED Amendments from Version 1

Thank you, Reviewer 2, for your very helpful comments on our paper. We have amended the paper as follows:

This is purely a descriptive paper and a regression analysis is out with the scope of the paper.

We have reworded the Abstract (changing 'impact' for 'association').

We have removed the first sentence of the last paragraph in the Introduction that stated there had been few population studies.

We have added a new [Table 5](#) which illustrates the maternal responses to whether they are bringing their child up in their faith.

We have reworded the Abstract to be less repetitive.

We have added the data collection dates into the Abstract.

We have added a footnote to [Table 2](#) clarifying 'O-levels'.

See referee reports

Introduction

The general population in the West has become more secular over time ([Chaves, 2017](#)). For example, in the United States, the 2007 Religious Landscape Survey revealed that 92% of Americans believed in God and 56% stated that their faith was very important in their daily lives; a further sweep in 2014 showed that these figures had reduced to 89% and 53% respectively ([The Pew Forum on Religion and Public Life, 2017](#)). In the UK, data from the national censuses of 2001 and 2011 showed that the number of people stating they had no religion increased from 14.8% to 25.1% ([Office of National Statistics, 2012](#)).

Previous research has shown that religious belief is associated with increases in life satisfaction, feelings of hope and self-worth and reductions in depression ([Idler & Kasl, 1997](#)). It has also been shown to be used as a coping mechanism, moderating the effects of stress across the lifespan ([McFadden, 1995](#); [Ness & Wintrob, 1980](#); [Pargament, 1990](#); [Seligman, 1991](#)) although not all studies agree. It has also been reported that some view negative life events as opportunities for spiritual growth ([Ellison, 1991](#)). [Cotton and colleagues \(2006\)](#) confirmed previous research showing that spiritual coping and religious decision-making were positively associated with health outcomes in adolescents. A review by [Regnerus \(2003\)](#) concluded that religiosity produced moderately positive outcomes in adolescents in regard to physical and emotional health, educational attainment, volunteering, involvement in politics and family well-being.

It has been reported that women tend to display higher levels of religiosity (from attitudes to behaviour) than men ([Levin *et al.*, 1994](#); [Roth & Kroll, 2007](#); [Spilka *et al.*, 2003](#)). Results from a group of US-based national surveys found that older participants were more religious than younger ones ([Levin *et al.*, 1994](#); [Taylor *et al.*, 1999](#)). The only reduction in religious behaviour reported in the elderly appears to be religious service attendance, perhaps due to ill health and reduced mobility ([Ainlay *et al.*, 1992](#)).

The aim of the present paper is to describe the longitudinal data on religious behaviour and beliefs available from a large

longitudinal population birth cohort study—the Avon Longitudinal Study of Parents and Children (ALSPAC)—comprising over 20,000 individuals (women and their partners).

Methods

The ALSPAC sample

All pregnant women resident in the Bristol area of South West England, with expected dates of delivery between 1st April 1991 and 31st December 1992, were invited to enrol in the study. The initial number of pregnancies enrolled was 14,541. Of these initial pregnancies, there was a total of 14,676 fetuses, resulting in 14,062 live births and 13,988 children who were alive by the age of 1 year. Mothers, their partners and the index offspring continue to be followed up via self-completion questionnaires, hands-on clinics and links to routine data collections ([Boyd *et al.*, 2013](#); [Fraser *et al.*, 2013](#); [Golding & the ALSPAC Study Team, 2004](#)).

At the time of enrolment (and with advice from the ALSPAC Ethics and Law Advisory Committee), it was decided not to enrol the study fathers directly ([Birmingham, 2018](#)). A questionnaire was sent (via the mother) for the partner to complete. The mother could pass this on to him if she wanted her partner to be involved, along with a separate reply-paid envelope. This methodology meant that the study deliberately had no information on whether the mother had invited her partner to take part or not, except on receipt of a completed questionnaire from him. For this reason, reminders could not be sent directly to the partners. In the event, at least one questionnaire was returned by 75% of the partners of the enrolled women.

A major component of the study design was to obtain, from the parents, details of their own personalities, moods and attitudes, including religious behaviour and beliefs, prior to the birth of the index child. The study website contains details of all the data that are available through a fully searchable data dictionary and variable search tool: <http://www.bristol.ac.uk/alspac/researchers/our-data/>.

Ethical approval and consent

Ethical approval for the study was obtained from the ALSPAC Ethics and Law Committee and the Local Research Ethics Committees ([Birmingham, 2018](#)). Questionnaires were completed by parents in their own homes – return of a questionnaire to the study offices was interpreted as giving tacit consent to the study. Full details of the approvals obtained are available from the study website (<http://www.bristol.ac.uk/alspac/researchers/research-ethics/>). Study members have the right to withdraw their consent for elements of the study or from the study entirely at any time.

Religious belief questions

The religious behaviour and belief questions were devised specifically for ALSPAC by Ursula King (Emeritus Professor of Theology & Religious Studies, University of Bristol) in discussion with Jean Golding. The same questions were included in self-completion questionnaires to both the mother and her partner during pregnancy and at 5 and 9 years after birth. [Table 1](#) shows the actual wording of the questions used. These questions had been piloted to ensure acceptability prior to their inclusion in questionnaires at the three time points. We suggest that the most

Table 1. Questions asked of the mother and father (antenatally, at 5 and at 9 years after delivery) and their variable names. * Asked at 9 years after delivery only.

	AN	5 years	9 years
Do you believe in God or in some divine power? Yes/Not sure/No	D810 PB150	K6240 PH6240	P4040 PM4040
Do you feel that God (or some divine power) has helped you at any time? Yes/Not sure/No	D811 PB151	K6241 PH6241	P4041 PM4041
Would you appeal to God for help if you were in trouble? Yes/Not sure/No	D812 PB152	K6242 PH6241	P4042 PM4042
Do you 'pray' even if not in trouble? Yes/No*	-	-	P4043 PM4043
What sort of religious faith would you say you had? (tick only one) None Church of England Roman Catholic Jehovah's Witness Christian Science Mormon Other Christian (please describe) Jewish Buddhist Sikh Hindu Muslim Rastafarian Other (please describe)	D813 PB153	K6243 PH6243	P4044 PM4044
Are you bringing your child up in this faith? Yes/No*	-	-	P4048 -
How long have you had this particular faith? All my life More than 5 years 3–5 years 1–2 years Less than a year	D815 PB154	K6246 PH6246	P4047 PM4047
Do you go to a place of worship? Yes, at least once a week Yes, at least once a month Yes, at least once a year Not at all	D816 PB155	K6247 PH6247	P4049 PM4049
Do you obtain help and support from leaders of your religious group? Yes/No	D817 PB156	K6248 PH6248	P4050 PM4050
Do you obtain help and support from other members of your religious group? Yes/No	D818 PB157	K6249 PH6249	P4051 PM4051
Do you obtain help and support from members of other religious groups (please describe)? Yes/No	D819 PB158	K6250 PH6250	P4052 PM4052

Maternal antenatal questionnaire: "About Yourself" (D variables). Maternal 5-year questionnaire: "Study Mother's Questionnaire" (K variables). Maternal 9-year questionnaire: "Mother of a 9-Year-Old" (P variables). Paternal antenatal questionnaire: "Partner's Questionnaire" (PB variables). Paternal 5-year questionnaire: "Study Partner's Questionnaire" (PH variables). Paternal 9-year questionnaire: "Father of a 9-Year-Old" (PM variables).

important question is the first: 'Do you believe in God or some divine power?' The responses: 'yes; not sure; no' can be used to divide the responders into: believers, agnostics and atheists respectively.

As indicated in Table 1, the participants were asked to indicate their faith and were given 12 options, as well as 'other Christian' and 'other'; if they had ticked either box they were asked to

describe as text. The text answers have been coded by Y.I.C. See Supplementary Table 3 and Supplementary Table 4 (Iles-Caven, 2019) for the breakdown of responses and frequencies.

Timing of the questionnaires

Enrolling women in pregnancy provided a number of technical problems for a study that aimed to enrol all such women who were pregnant and resident in a defined geographic area;

by their very nature the women recognised their pregnancies at different stages, the local health services had different criteria as to when pregnancies should receive care, and some women only moved into the area in the second half of pregnancy. The ALSPAC design was for certain questions to be asked at specific gestations, whereas the timing of others was not so crucial. As a result, four questionnaires were designed: one on environmental exposures to be administered as early in pregnancy as possible; one concerning the health and well-being of the woman at 18 weeks and a similar questionnaire at 32 weeks. The remaining questions considered to be important to ask in pregnancy, if at all possible, were included in the questionnaire 'About Yourself'. If the mother enrolled at gestations <11, 11–14, 15–18, 19–21 or 22–30 weeks, the questionnaire was administered at 14, 23, 26, 28, and 34–37 weeks, respectively. For the 10% of pregnancies that did not enrol until after 30 weeks, the questionnaire was administered at 4 months post-delivery. This questionnaire was 36 pages long and included questions concerning the mother's medical history, her relationship with her partner, details of her parents, including a measure of her relationship with her mother during childhood, the history of events during her childhood, a social network scale, a perceived social support scale, and a generalised locus of control scale. The religiosity questions comprised three pages and were located between the social support and the locus of control scales at the end of the questionnaire and were answered by 12,351 women.

The subsequent administration of the religiosity questions to the study mothers occurred when the study child was 5 years

1 month (The Study Mother's Questionnaire), and 9 years 2 months (Mother of a Nine-Year-Old). The questions were nested within questionnaires, both of which were 48 pages in length, and were answered by 8904 and 7827 women, respectively.

Questions to the mothers' partners were included in questionnaires that were sent to the study mother (for forwarding) when she herself was sent those questionnaires containing the religious belief and behaviour questions. These had response rates of 9798, 4484 and 3607 fathers respectively.

Description of population

Table 2 presents the distribution of the responding participants in the antenatal period by demographic factors, including their ages, education levels (divided according to the maximum educational achievement in three groups: the lowest <O-level; medium O-level or equivalent; higher <O-level), whether the partner lived with the mother, ethnic background and the sex of the child. It can be seen that the demographic distributions of the women and their partners are similar with the exception of the smaller number of responses from partners who were not living with the mother of their child.

Table 3 and Table 4 show the data available from each of the three time points. In order to assess whether there are changes of belief and/or behaviour over time, Supplementary Table 1–Supplementary 2 (Iles-Caven, 2019) repeat Table 3 and Table 4, but restrict the data to the individuals who responded at all three time points. These data indicate that for both men and women

Table 2. Proportion (n) of enrolled parents who answered the religion questions in pregnancy by selected sociodemographic factors.

Variable	Mothers, % (n)	Fathers, % (n)
<i>Age of parents</i>		
<25	21.2% (2599)	21.3% (2042)
25–34	68.5% (8384)	68.4% (6553)
35+	10.3% (1260)	10.3% (988)
<i>Parental education level*</i>		
<O level	28.5% (3304)	26.9% (2436)
O level	35.2% (4089)	34.9% (3154)
>O level	36.3% (4219)	38.2% (3450)
<i>Partner lives with mother</i>		
Yes	91.7% (11109)	95.2% (9018)
No	8.3% (1003)	4.8% (456)
<i>Sex of child</i>		
Boy	51.5% (6323)	51.5% (4949)
Girl	48.5% (5950)	48.5% (4670)
<i>Ethnic background</i>		
White	97.6% (11288)	97.2% (9367)
Non-white	2.4% (273)	2.8% (268)

*Public exams, usually in 5–10 subjects, are normally undertaken at the end of Year 11 (age 16) (although they can be taken at any age). Formerly called 'O' (Ordinary) Levels the current equivalent are GCSEs.

Table 3. Mother's beliefs/religion and support at each time point, where data for the questions are available.

Question	Antenatal, n (%)	5 years, n (%)	9 years, n (%)
<i>Do you believe in God or some divine power?</i>			
Yes	6160 (49.9%)	4141 (46.5%)	3776 (48.2%)
Not sure	4353 (35.2%)	3018 (33.9%)	2682 (34.3%)
No	1838 (14.9%)	1745 (19.6%)	1369 (17.5%)
<i>Do you believe that God/divine power has helped you at any time?</i>			
Yes	4181 (33.9%)	2672 (30.1%)	2566 (32.9%)
Not sure	4672 (37.9%)	3047 (34.3%)	2774 (35.6%)
No	3477 (28.2%)	3152 (35.5%)	2454 (31.5%)
<i>Would you appeal to God for help if you were in trouble?</i>			
Yes	5738 (46.6%)	4070 (45.9%)	3578 (45.8%)
Not sure	3861 (31.3%)	2653 (29.9%)	2288 (29.3%)
No	2722 (22.1%)	2146 (24.2%)	1943 (24.9%)
<i>Mother prays even if not in trouble</i>			
Yes	-	-	3012 (39.2%)
No	-	-	4677 (60.8%)
<i>Mother bringing up child in this faith</i>			
Yes	-	-	5167 (72.0%)
No	-	-	2010 (28.0%)
<i>Length of time mother has followed her current religion</i>			
Whole life	8905 (81.8%)	6610 (83.6%)	5667 (80.8%)
>5 years	1472 (13.5%)	1018 (12.9%)	1135 (16.2%)
3–5 years	290 (2.7%)	147 (1.9%)	119 (1.7%)
1–2 years	127 (1.2%)	83 (1.1%)	62 (0.9%)
<1 year	88 (0.8%)	44 (0.6%)	29 (0.4%)
<i>Frequency mother attends a place of worship</i>			
At least once a week	885 (7.3%)	886 (10.3%)	927 (12.0%)
At least once a month	836 (6.9%)	849 (9.8%)	723 (9.4%)
At least once a year	3520 (29.2%)	2287 (26.5%)	2235 (28.9%)
Never	6824 (56.6%)	4602 (53.4%)	3838 (49.7%)
<i>Has the mother received help from:</i>			
<i>Leaders in her religious group</i>			
Yes	897 (7.7%)	645 (7.6%)	738 (10.0%)
No	10735(92.3%)	7789(92.4%)	6620 (90.0%)
<i>Members of her religious group</i>			
Yes	1087(9.4%)	856 (10.2%)	921 (12.6%)
No	10465(90.6%)	7499 (89.8%)	6384 (87.4%)
<i>Members of other religious groups</i>			
Yes	233(2.1%)	144 (1.8%)	186 (2.6%)
No	11059(97.9%)	7911 (98.2%)	6862 (97.4%)
<i>Type of religious belief</i>			
Stated "none"	1981 (16.2%)	1411 (16.1%)	1276 (16.6%)
Church of England	7774 (63.6%)	5532 (63.2%)	4608 (60.1%)
Roman Catholic	972 (7.9%)	670 (7.6%)	583 (7.6%)
Jehovah's Witness	53 (0.4%)	41 (0.5%)	36 (0.5%)
Christian Scientist	16 (0.1%)	17 (0.2%)	11 (0.1%)
Mormon	30 (0.2%)	22 (0.3%)	16 (0.2%)
Other Christian (please describe)*	851 (7.0%)	797 (9.1%)	425 (5.5%)
Judaism	11 (0.1%)	11 (0.1%)	10 (0.1%)
Buddhist	26 (0.2%)	18 (0.2%)	28 (0.4%)
Sikh	16 (0.1%)	6 (0.1%)	5 (0.1%)
Hindu	22 (0.2%)	13 (0.1%)	6 (0.1%)
Muslim	55 (0.4%)	22 (0.3%)	18 (0.2%)
Rastafarian	5 (0.0%)	<5 (0.0%)	<5 (0.0%)
Other (please describe)*	377 (3.1%)	197 (2.3%)	21 (0.3)

*These descriptors were coded and are described in Supplementary Table S3 (Iles-Caven, 2019).

Table 4. Father's beliefs/religion and support, where data for the questions are available.

Question	Antenatal	5 years	9 years
<i>Do you believe in God or some divine power?</i>			
Yes	3621 (37.0%)	1505 (33.6%)	1275 (35.3%)
Not sure	3376 (34.5%)	1573 (35.1%)	1183 (32.8%)
No	2801 (28.6%)	1406 (31.4%)	1149 (31.9%)
<i>Do you believe that God/divine power has helped you at any time?</i>			
Yes	2472 (25.3%)	1031 (23.0%)	876 (24.3%)
Not sure	3158 (32.3%)	1430 (32.0%)	1117 (31.0%)
No	4144 (42.4%)	2013 (45.0%)	1606 (44.6%)
<i>Would you appeal to God for help if you were in trouble?</i>			
Yes	3536 (36.2%)	1586 (35.5%)	1248 (34.9%)
Not sure	6288 (27.5%)	1319 (29.5%)	1014 (28.3%)
No	3548 (36.3%)	1566 (35.0%)	1319 (36.8%)
<i>Father prays even if not in trouble</i>			
Yes	-	-	902 (25.4%)
No	-	-	2650 (74.6%)
<i>Father bringing up child in this faith</i>			
Yes	-	-	2012 (60.7%)
No	-	-	1301 (39.3%)
<i>Length of time father has followed his current religion</i>			
Whole life	6671 (79.0%)	3052 (78.3%)	2449 (76.2%)
>5 years	1409 (16.7%)	744 (19.1%)	678 (21.1%)
3–5 years	180 (2.1%)	48 (1.2%)	54 (1.7%)
1–2 years	89 (1.1%)	29 (0.7%)	20 (0.6%)
<1 year	94 (1.1%)	23 (0.6%)	15 (0.5%)
<i>Frequency father attends a place of worship</i>			
At least once a week	588 (6.1%)	358 (8.2%)	322 (9.0%)
At least once a month	415 (4.3%)	282 (6.5%)	240 (6.7%)
At least once a year	2515 (26.2%)	987 (22.7%)	952 (26.7%)
Never	6077 (63.3%)	2712 (62.5%)	2049 (57.5%)
<i>Father receives help from:</i>			
<i>Leaders in his religious group</i>			
Yes	559 (6.0%)	301 (7.1%)	287 (8.2%)
No	8717 (94.0%)	3947 (92.9%)	3198 (91.8%)
<i>Members of his religious group</i>			
Yes	642 (7.0%)	335 (7.9%)	327 (9.4%)
No	8544 (93.0%)	3894 (92.1%)	3146 (90.6%)
<i>Members of other religious groups</i>			
Yes	144 (1.6%)	65 (1.6%)	55 (1.6%)
No	8944 (98.4%)	4093 (98.4%)	3356 (98.4%)
<i>Type of religious belief</i>			
Stated "none"	2523 (26.2%)	1086 (24.9%)	896 (25.6%)
Church of England	5238 (54.3%)	2455 (56.2%)	1849 (52.8%)

Question	Antenatal	5 years	9 years
Roman Catholic	699 (7.3%)	314 (7.2%)	274 (7.8%)
Jehovah's Witness	32 (0.3%)	21 (0.5%)	12 (0.3%)
Christian Scientist	13 (0.1%)	7 (0.2%)	<5 (0.1%)
Mormon	18 (0.2%)	13 (0.3%)	5 (0.1%)
Other Christian (please describe)*	591 (6.2%)	374 (8.6%)	166 (4.7%)
Judaism	7 (0.1%)	5 (0.1%)	<5 (0.1%)
Buddhist	29 (0.3%)	11 (0.3%)	21 (0.6%)
Sikh	18 (0.2%)	<5 (0.1%)	<5 (0.1%)
Hindu	19 (0.2%)	<5 (0.1%)	<5 (0.1%)
Muslim	59 (0.6%)	16 (0.4%)	10 (0.3%)
Rastafarian	5 (0.1%)	<5 (0.0%)	<5 (0.1%)
Other (please describe)*	381 (4.0%)	91 (2.1%)	6 (0.2%)

*These descriptors were coded and are described in Supplementary Table S4 (Iles-Caven, 2019).

there is a slight reduction in professed belief, and an increase in atheism over time.

When the children were 9 years of age, 72.3% of mothers claimed they were bringing up their child in their faith (Table 5). This includes those that stated they had no religion (31.2%).

Strengths and limitations of the data

The primary strength of this data set is the size of the sample of participants and the fact that responders comprise a general population of over 20,000 men and women with no restrictions on their selection other than that they were initially expecting a baby. They were roughly representative of the local Avon population in terms of socioeconomic status (slightly more likely to be owner-occupiers, own a car and be married, and live in over-crowded circumstances) but less likely to be non-White (Fraser *et al.*, 2013). The initial religious behaviour and belief questions were asked during pregnancy and responses at that point were not influenced by the birth nor future characteristics of the child. Identical questions were asked 5 and 9 years after the birth of the child. A major advantage of the data is that it can be linked to information already collected on the individuals including: (a) characteristics of their parents, (b) their own childhoods including their health, well-being and traumatic events, (c) their social and educational background, (d) their personality, attitudes and behaviour, (e) their interactions with their children, (f) and future outcomes. In addition, the data can be linked to characteristics of the child such as development, health and well-being.

One limitation of this data is that extrinsic and intrinsic religiosity were not measured directly which prevents more complex analyses. Extrinsic individuals are more likely to exploit religion, e.g. to provide security and solace, for social reasons, status and self-justification. Intrinsic individuals aim to live their life according to the tenets of that religion and exhibit behaviours consistent with those tenets (Allport & Ross, 1967).

Table 5. Maternal response to the question “Are you bringing your child up in this faith?” asked when the child was 9 years old.

Mother's faith	Mother bring up child in this faith		Total
	Yes	No	
None	269 (31.2%)	594 (68.8%)	863 (100.0%)
Church of England	3699 (82.2%)	799 (17.8%)	4498 (100.0%)
Roman Catholic	405 (69.2%)	180 (30.8%)	585 (100.0%)
Jehovah's Witness	32 (84.2%)	6 (15.8%)	38 (100.0%)
Methodist, Baptist or other Christian	604 (70.0%)	259 (30.0%)	863 (100.0%)
Buddhist	7 (25.9%)	20 (74.1%)	27 (100.0%)
Other	131 (53.9%)	112 (46.1%)	243 (100.0%)
All responses	5147 (72.3%)	1970 (27.7%)	7117 (100.0%)

Other limitations concern the reduction in the numbers of men answering the questionnaires; this was largely due to the fact that the mother was seen as the centre of the enrolment, and consequently there was no direct contact with the study fathers. A further limitation is the lack of diversity, because at the time of enrolment, the county of Avon was mainly Caucasian, and there were too few non-white participants (<6%) to enable analysis by ethnic background.

Data availability

Underlying data

ALSPAC data access is through a system of managed open access. The steps below highlight how to apply for access to the data included in this paper and all other ALSPAC data. Note that

Table 1 in this paper gives the variable numbers for the religion data. Please read the ALSPAC access policy (http://www.bristol.ac.uk/media-library/sites/alspac/documents/researchers/data-access/ALSPAC_Access_Policy.pdf) which describes the process of accessing the data and biological samples in detail, and outlines the costs associated with doing so.

1. You may also find it useful to browse our fully searchable research proposals database (<https://proposals.epi.bristol.ac.uk/>), which lists all research projects that have been approved since April 2011.
2. Please submit your research proposal (<https://proposals.epi.bristol.ac.uk/>) for consideration by the ALSPAC Executive Committee using the online process. You will receive a response within 10 working days to advise you whether your proposal has been approved.

If you have any questions about accessing data, please email: alspac-data@bristol.ac.uk (data) or bbl-info@bristol.ac.uk (samples).

The ALSPAC data management plan (<http://www.bristol.ac.uk/media-library/sites/alspac/documents/researchers/data-access/alspac-data-management-plan.pdf>) describes in detail the policy regarding data sharing, which is through a system of managed open access.

Extended data

Open Science Framework: Longitudinal data on parental religious behaviour and beliefs from the Avon Longitudinal Study of Parents and Children (ALSPAC). <https://doi.org/10.17605/OSF.IO/KX2EN> (Iles-Caven, 2019). The following tables are included in Supplementary Tables.pdf:

- Supplementary Table 1. Maternal: where data for each question are available for all time points
- Supplementary Table 2. Paternal: where data for each question are available for all time points
- Supplementary Table 3. Coding of the ‘Other Christian’ and ‘Other’ – Mothers
- Supplementary Table 4. Coding of the ‘Other Christian’ and ‘Other’ – Partners

Extended data are available under the terms of the [Creative Commons Zero “No rights reserved” data waiver \(CC0 1.0 Public domain dedication\)](#).

Grant information

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The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

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Philip Wilson 

Centre for Rural Health, Centre for Health Sciences, University of Aberdeen, Inverness, UK

The authors have addressed my concerns about the original draft of this manuscript very well and I am now happy to approve the paper.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Primary care and child epidemiology. I have published some work on spirituality in primary care.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 1

Reviewer Report 17 May 2019

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Philip Wilson 

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Thank you for the opportunity to review this useful paper based on parental responses to ALSPAC questionnaires in the antenatal period and at child age five and nine years. The findings are in many respects unsurprising: greater levels of religious belief and adherence among women than men and

modestly reducing levels of religious affiliation over time. The purpose of the paper is to highlight the availability of the data so the analysis is relatively straightforward. It would nevertheless have been good to see, for example, an illustrative regression analysis comparing those who lose their religious belief with those who maintain it.

I have a few concerns about the tone in places: there seems to be an assumption that the often-reported association between religious belief and better health outcomes is causal. For example, in the abstract there is a statement “Religious belief has been shown in some studies to positively impact on outcomes such as coping with serious illness and other life events and general well-being”. While this may be true, in the absence of experimental studies it is equally plausible that confounders account for the association so it would probably be better to use the word ‘association’ rather than ‘impact’.

The introduction is good but it is something of an exaggeration to state that there have been few population studies of religious affiliation: there have been a fairly large number of cross sectional studies in several countries. The particularly valuable feature of the ALSPAC data is that they are longitudinal.

The British Social Attitudes Survey in 2016 gave a figure of 53% for lack of religious affiliation, significantly higher than that found in the 2011 census and substantially higher than that found in the BSAS in 1983 (31%). This large, and possibly accelerating, reduction in religious affiliation makes it particularly important to place the ALSPAC data in its chronological context.

The limitations of the data are well discussed. The mode of recruitment and selective attrition of fathers certainly presents some difficulties in interpretation. One additional concern may be in interpretation of the question “Are you bringing your child up in this faith?”. It would be useful to know whether this answered in the affirmative by significant numbers of those professing atheism.

Minor points:

- There is some repetition in the abstract (sentences about data availability).
- The abstract should make it clear that the data were collected during the 1990s and early 2000s.
- There are not many Buddhists in the sample but they present a problem in interpreting the Religious Belief questions “*Do you believe in God or some divine power?*” *The responses: ‘yes; not sure; no’ can be used to divide the responders into: believers, agnostics and atheists respectively.*” Buddhists are religious but not theists.
- ‘O-level’ probably needs clarification for an international readership.

Is the rationale for creating the dataset(s) clearly described?

Yes

Are the protocols appropriate and is the work technically sound?

Yes

Are sufficient details of methods and materials provided to allow replication by others?

Yes

Are the datasets clearly presented in a useable and accessible format?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Primary care and child epidemiology. I have published some work on spirituality in primary care.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 12 March 2019

<https://doi.org/10.21956/wellcomeopenres.16505.r34946>

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Ralph W. Hood Jr.

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This is a useful study framed with the larger context of the increasing secularization of western cultures, especially in the United States and United Kingdom belief in God continues to decline and more people identify as spiritual independent of specific religious beliefs and participation. Insofar as previous research has established that religiosity is associated with many positive physical and psychological health outcomes, as well as general life satisfaction, decline in religiosity over time may suggest issue of concern with regards to the largely positive effects of religiosity that may be less available to individuals over their lifespan with the increasing secularization of cultures.

This study provides longitudinal data tracking primarily birth mothers and their surviving children at three time periods, antenatal, 5 and 9 years. This is a large longitudinal birth cohort study of birth mothers and their children the Avon Longitudinal Study of Parents and Children (ALSPAC) (<http://www.bristol.ac.uk/alspac/>). In addition more limited data are collected from male partners if they responded to a questionnaire sent via the birth mother. Of particular value are religious measures that allow the tracking of change in beliefs and practices over time.

Among the more significant findings are that mothers tend to remain committed to religion over time although just under half believe in God or some divine power and another third are not sure. Males are almost equally distributed across the three options, a third each believing in God or some divine power, a third uncertain, and a third confident in their denial of either a God or some divine power. Not surprisingly, belief that one has been helped by God or some divine power follows the percentages associated with belief, uncertainty, and denial of God or some divine power. While slightly over 70% of mothers (as opposed to 60% for fathers) are bringing up their child in their religion, neither mothers nor fathers are likely to pray and not surprisingly unlikely to appeal to God or a divine power in times of trouble. Religious attendance is infrequent among both mothers and fathers with “never” or “at least once a year” the most common choices, for both mothers and fathers. Finally, it is not surprising that neither mothers nor fathers report receiving help from leaders in their religious group. Thus, the overall picture that emerges from these longitudinal data are stable patterns that change little over time and indicate that religion if seen as significant, is more so for mothers than fathers, but overall whether belief, assistance in time of trouble, or prayer, religion appears to play a significant role for less than half the mothers in the ALSPAC study.

Additional data is available that will allow interested investigators to seek correlates of religious beliefs or practices. Also, given the large sample size one might be able to shed light on why it is that some individuals maintain beliefs and practices that others abandon. There appears to be for most questions (especially with mothers) a consistent trajectory with a distinct dip at 5 years and then a return at 9 years to the previous antenatal high.

Limitations of this study are properly noted by the authors and include failure to directly measure religious motivations (extrinsic/intrinsic), the lack of a diverse religious sample (over 60% Church of England) and the concomitant lack of other diversity (such as ethnicity) and the limited response from male partners as opposed to birth mothers. Yet despite these criticisms the ALSPAC study provides useful longitudinal data in an area where most research is cross-sectional.

Is the rationale for creating the dataset(s) clearly described?

Yes

Are the protocols appropriate and is the work technically sound?

Yes

Are sufficient details of methods and materials provided to allow replication by others?

Yes

Are the datasets clearly presented in a useable and accessible format?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Psychology of religion

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.
