



Cathedrals as agents of psychological health and well-being within secular societies: Assessing the impact of the Holly Bough service in Liverpool Cathedral

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This study is designed to test the hypothesis that events like the Holly Bough service held in Liverpool Cathedral on the fourth Sunday of Advent that attracts a wide range of participants, including regular churchgoers and occasional (sometimes annual) visitors, contribute significantly to the psychological health and well-being of these participants. At the Holly Bough service held in 2019, a total of 383 participants (139 men, 229 women and 15 individuals who preferred anonymity) completed a recognised measure of psychological health and well-being (the Oxford Happiness Questionnaire) whilst they were waiting for the service to begin and again during a 5-min organ improvisation just before the close of the service. The data demonstrated a significantly higher score on the Oxford Happiness Questionnaire at time 2 than at time 1, suggesting that the experience of the service functioned as an agent of psychological health and well-being.

Contribution: Situated within the science of cathedral studies, this paper confirms by means of a repeated-measure study that cathedrals promote psychological health; 383 participants at a Christmas service completed the same well-being measure before and after the service, with a significant increase in scores at time two.

Keywords: Cathedral studies; Psychological health; Oxford happiness questionnaire; Carol service; Psychology of religion.

Introduction

The developing science of cathedral studies draws attention to the multiple functions fulfilled by cathedrals within the local areas in which they are located. Coleman (2019:120) succinctly voiced, 'the double identities of English cathedrals as places of religious engagement but also as locations of heritage'. Recent studies have suggested that cathedrals may be making a positive contribution to psychological health and well-being through both of these identities. The aim of this article is to explore the current status of the evidence to support such claims (amongst congregations, visitors and those attending special events) and then to propose an innovative research method to test the claim within one distinctive context that may unusually draw together into one event individuals whose attendance is motivated more by religious engagement and individuals whose attendance is motivated more by secular interests, namely, the Holly Bough service held in Liverpool Cathedral on the fourth Sunday of Advent, just a few days before Christmas.

Psychological health and well-being of congregants

As with any church, at the heart of cathedrals there is a congregation of people who meet for worship on a Sunday. The science of cathedral studies draws attention to ways in which these congregations may be reaching some people whom parish churches may be failing to reach, people who somehow just do not fit into the psychological profile of church congregations (Francis & Lankshear 2015) and who may be more motivated than many churchgoers by asking religious questions (Francis & Lankshear in press). Some commentators have speculated that people choose to worship in cathedrals to avoid commitment to richer engagement in church life. The science of cathedral studies challenges this speculation by listening to participants' own accounts of their motivations and by revealing the depth of bonding and bridging social capital within cathedral congregations. Here are signs that cathedrals enhance both personal

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psychological health and well-being of participants in the Sunday congregation and social well-being within the local community (Francis & Williams 2015a, 2015b).

Not only do cathedrals attract Sunday congregations, they also attract what ap Siôn refers to as 'hidden congregations'. For ap Siôn (2015a, 2015b, 2017), the hidden congregations are those people who regularly come back to the cathedral to light candles, to sit quietly or to post prayers on the prayer board. An insight into the personal benefits derived from such activities can be revealed by careful reading of the messages left in the visitors' books (Burton 2015) or by careful analysis of the content of the prayer cards (ap Siôn 2015a). Members of these hidden congregations use the prayer board not only to voice (sometimes heart-rendering) petitions but also (on occasion) to come back to express deeply felt gratitude and relief in the light of the perceived outcomes (ap Siôn 2015a). Here are signs that cathedrals enhance psychological health and well-being of the hidden congregations.

In her study of the significance of the Friends' associations for cathedrals today, Muskett (2015) drew attention to what may be considered as another form of hidden congregation. Drawing on the theory of passive participation in voluntary associations, Muskett concluded from her data that members of the Friends' associations benefit from an enhanced sense of social capitals generated through loyal networking within a distributed community of members near and far brought together by the values of the cathedral. Here are signs that cathedrals enhance psychological health and well-being of those who relate more remotely with the ongoing life of the cathedral community.

Psychological health and well-being of visitors

More research has been conducted on cathedrals as visitor attractions than on cathedrals as places of worship. Early studies were particularly concerned with visitor motivation (Francis, Annis & Robbins 2015; Gutic, Caie & Clegg 2010; Jackson & Hardman 1995; Olsen 2013; Voase 2007; Williams et al. 2007; Winter & Gasson 1996) and concern with visitor motivation continues (see Riegel & Lindner 2020). Some recent studies have focused on exploring visitor experiences (Bond, Packer & Ballantyne 2015; Francis et al. 2008; Hughes, Bond & Ballantyne 2013). Research on cathedral visitors has generally distinguished between visitors characterised as pilgrims and visitors characterised as secular tourists. For example, Williams et al. (2007) distinguished amongst three groups operationalised in terms of frequency of church attendance: those who never attend a place of worship, those who attend a place of worship less often than weekly (styled occasional attenders) and those who attend a place of worship on a weekly basis.

Of particular relevance for the present article is research concerned with the effect of visiting cathedrals on the outlook and perceived psychological health and well-being of the visitors themselves. In an earlier study reported by Winter and Gasson (1996) amongst 814 visitors to four English cathedrals (Coventry, Ely, Lichfield and Wells), visitors named the

perceived benefits of peace and quiet. Finding a sense of peace was also identified in a study by Williams et al. (2007) among 514 visitors to St Davids Cathedral. This study also reported a significant association between personal church attendance and identifying such a sense of peace. Whilst 50% of those who never attended church agreed that they felt a sense of peace during their visit, the proportion rose to 81% amongst occasional churchgoers and to 88% amongst weekly churchgoers. Interpreting visitor-perceived benefit from visiting Canterbury Cathedral, Bond et al. (2015) employed factor analysis to distinguish amongst five benefits that they characterised as connecting spiritually and emotionally, discovering new things, engaging mentally, interacting and belonging, and relaxing and finding peace.

Working within the broader field of environmental psychology, Ysseldyk, Haslam and Morton (2016) tested the thesis that immersion within three different built environments (cathedral, castle and shopping centre) or immersion within three different virtual environments (cathedral, mosque and museum) would have significantly different effects on reported levels of self-esteem. Their data indicated that higher levels of self-esteem were reported amongst Christians immersed within the cathedral environment, but not for atheists. Here are signs that cathedrals enhance psychological health and well-being of visitors and especially of visitors rooted within the Christian tradition.

Psychological health and well-being of participants at special events

Alongside the Sunday congregation and the hidden congregation, cathedrals attract different styles of congregations for special events and for special occasions. Amongst these special events and special occasions, the specific event that has received most attention is the Christmas carol service, from both qualitative (Coleman, Bowman & Sepp 2019; Murphy 2016; Muskett 2017; Phillips 2010) and quantitative perspectives (Francis et al. 2020b; Francis, Edwards & ap Siôn in press; Walker 2012a, 2012b, 2013, 2015a, 2015b). A particular feature of these studies is that they draw attention to the distinctive profile of the individuals who come to these services. Here is an event in which committed churchgoers and those who come to the cathedral as secular tourists mingle.

One stream of the quantitative studies conducted amongst those who attend carol services has explored the participants' self-perceived impact of attendance at such services. Using the four-component model of spiritual well-being proposed by Fisher (1998, 2004, 2010, 2011, 2016) that speaks about the personal domain, the communal domain, the environmental domain and the transcendental domain, Francis et al. (2020b) found that over half of the participants surveyed at the pre-Christmas service in Liverpool Cathedral reported that the service had helped them over all four domains: 66% felt better about themselves (personal domain), 64%

felt better about their relationship with other people (communal domain), 54% felt better about their relationships with the world (environmental domain) and 56% felt better about their relationship with God (transcendental domain). This indicates that cathedrals enhance the psychological health and well-being of those who attend special events.

Research question

Whilst the cumulative evidence arising from the previous research reviewed here is largely consistent in supporting the view that people who come to cathedrals, either as worshippers or as tourists, tend to feel that their psychological health and well-being has been enhanced by such engagement, the research design from which such data have been derived is weak. For example, the recent study by Francis et al. (2020b) amongst individuals who attended the pre-Christmas service in Liverpool Cathedral reported that 66% of the participants had helped them to feel better about themselves. Reported self-perception of this nature is of considerable importance, but there are research designs that can generate a different and stronger kind of evidence. Suppose that it were possible to take an objective measure of psychological health and well-being at the point when people entered the service and again at the point when they were getting ready to leave? Suppose that the service itself was regarded as an intervention deliberately positioned within the lives of those participants? Might it be possible to gauge the impact of this intervention on psychological health and well-being?

Empirical theology and positive psychology

The connection between cathedrals and psychological health and well-being is a matter of relevance for the field of empirical theology and for the field of the positive psychology of religion. Empirical theology is that branch of theology that takes seriously engagement with theories and methods shaped within the social sciences (see Cartledge 1999; Francis & Village 2015; Van der Ven 1988, 1993, 1998). Within the Christian tradition, empirical theologians draw inspiration from one of the characteristic ways in which Jesus is portrayed in the Gospels as dealing with theological questions. As empirical theologians, Jesus' followers were encouraged to learn about the Reign of God by employing techniques now so familiar to natural scientists. The challenge given to Jesus' followers was to go out into the fields and to observe the sower at work, to describe and to classify the kinds of soils (qualitative research techniques) and to count the yield (quantitative research techniques). Then away from the fields, these empirical theologians were led into the kitchen to observe the baker at work. Later these empirical theologians were led into the wedding feast to observe the behaviour of the guests and to identify the fundamental patterns that shape human interaction, human ambition and human humility, now drawing on techniques so familiar to social scientists.

Within the field of empirical theology there seem to be clear claims within the Christian scriptures linking religious faith

and practices with human flourishing, psychological health and well-being. For example, in John's Gospel, Jesus is reported as claiming 'I came that they may have life, and have it abundantly' (Jn 10:10). In Matthew's Gospel, religious faith and practice are more explicitly related with happiness (as a viable translation of the Greek *makarios*). Thus, in some translations of the Matthean Beatitudes, Jesus is reported as proclaiming in the Sermon on the Mount, '[h]appy are the pure in heart, for they shall see God' (Mt 5:8; see also Francis, Strathie & Ross 2019). In Luke's Gospel, Jesus is reported as saying, '[h]appy are those who hear the word of God and obey it' (Lk 11:20). In the letter to the Romans, Paul writes, '[h]ow happy are those whose wrongs God has forgiven, whose sins God has covered over' (Rm 4:7), which is a direct quote from Psalm 32:1. Within the Psalms there are other clear references linking religious faith and practice with happiness. For example, according to Psalm (128:1), '[h]appy is everyone who fears the Lord, who walks in his ways'. The book of Proverbs is another source for such linking of religious faith and practice with happiness: '[h]appy are those who keep my ways' (Pr 8:32); '[h]appy are those who trust in the Lord' (Pr 16:20). There is good reason then for empirical theology to examine the evidence for such clear claims.

For empirical theology to be properly equipped to examine the evidence for such clear claims linking religious faith with human flourishing, psychological health and well-being, engagement is needed with the broad field of positive psychology. Such engagement begins with an assessment of the range of instruments proposed for the measurement of well-being (Gallagher & Lopez 2019). Amongst the constructs considered by positive psychology, the notion of happiness has emerged as of special significance (Argyle 2001; Csikszentmihalyi 2002; Kristjánsson 2010; Lyubomirsky, Sheldon & Schkade 2005; Ryan & Deci 2001). The notion of happiness has also played an important role within the developing positive psychology of religion.

Within the field of the developing positive psychology of religion, Robbins and Francis (1996) and Francis, Jones and Wilcox (2000) reviewed the current state of the literature and concluded that the problem they experienced in reconciling divergent findings resulted, at least in part, from the diversity of definitions and operationalisations of happiness used in that literature. In order to address this problem, their recommendation was to initiate a series of studies that could be linked by some common measures (or family of measures) used over diverse samples. In particular, they proposed that such a programme of research could be integrated by focusing on the model of personal happiness proposed by Argyle and Crossland (1987) and Argyle, Martin and Crossland (1989) and operationalised in their instrument, the Oxford Happiness Inventory. The argument is that this model of happiness benefits from robust conceptualisation, sound operationalisation and a growing body of empirical studies.

The operationalisation of happiness proposed by Argyle and Crossland (1987) and Argyle et al. (1989) embraced three

components of the construct: the frequency and degree of positive affect or joy, the average level of satisfaction over a period and the absence of negative feelings, such as depression and anxiety. Working from this definition, they initially developed the Oxford Happiness Inventory for which they reported an internal reliability of .90 using alpha (Cronbach 1951), and a 7-week test-retest reliability of .78. Construct validity was established against recognised measures of the three hypothesised components of happiness, showing correlations of .32 with the positive affect scale of the Bradburn (1969) Balanced Affect measure, $-.52$ with the Beck Depression Inventory (Beck et al. 1961) and $.57$ with Argyle's own life satisfaction index.

Initial research employing the Oxford Happiness Inventory was restricted to the English language. More recently, such research has been extended by a series of studies for proposing translations of the instrument in Arabic (Abdel-Khalek 2005), Chinese (Lu et al. 1997), German (Lewis, Francis & Ziebertz 2002), Japanese (Furnham & Cheng 1999), Hebrew (Francis & Katz 2000), Italian (Meleddu et al. 2012), Persian (Bayani 2008) and Portuguese (Neto 2001).

The Oxford Happiness Inventory comprised a set of 29 multiple-choice items for each of which participants were offered four options designed to reflect incremental levels of happiness, for example, 'I do not feel happy', 'I feel fairly happy', 'I am very happy' and 'I am incredibly happy'. In a subsequent study, Hills and Argyle (2002) recognised the disadvantages presented by the bulky format of the Oxford Happiness Inventory for surveys requiring multiple instruments. Accordingly they proposed the Oxford Happiness Questionnaire that comprised a set of 29 Likert scale items, originally rated on a six-point scale and subsequently on the conventional five-point scale. In their foundation article, Hills and Argyle (2002) reported a high correlation between the two instruments ($r = .80$).

In their foundation study designed to establish a model for developing the positive psychology of religion, Robbins and Francis (1996) administered the Francis scale of attitude towards Christianity (Francis et al. 1995) and the Oxford Happiness Inventory amongst a sample of 360 first-year undergraduate students in Wales. Their study reported a significant positive correlation between religious affect and personal happiness. In their recent review of subsequent research building on this foundation study, Francis et al. (2020a) identified studies employing the same two instruments amongst seven further samples that all confirmed the finding from the original study: 212 undergraduate students in the United States of America (Francis & Lester 1997), 295 individuals ranging in age from late teens to late 70s in England (Francis & Robbins 2000), 994 secondary school students aged 15–16 years in England (Francis et al. 2000), 496 members of the University of the Third Age in England (Francis et al. 2000), 456 undergraduate students in Wales (Francis et al. 2000), 89 undergraduate students in Wales (Francis, Robbins & White 2003) and 3848 students aged 16–19 years in the Republic of Ireland (Francis & Lewis 2016).

Subsequently, working within other faith traditions, the Oxford Happiness Inventory has been administered alongside the Katz–Francis Scale of Attitude towards Judaism (Francis & Katz 2007) in three studies in Israel reported by Francis and Katz (2002) amongst 298 female students, Francis et al. (2004) amongst 203 male students and Francis, Yablon and Robbins (2014) amongst 348 female students. The Oxford Happiness Inventory has been administered alongside the Ok (2016) Religious Attitude Scale (Islam) by Francis, Ok and Robbins (2017) amongst 348 students in Turkey and alongside the Sahin–Francis Scale of Attitude towards Islam (Sahin & Francis 2002) by Tekke, Francis and Robbins (2018) amongst 189 students in Malaysia. The Oxford Happiness Inventory has been administered alongside the Santosh–Francis Scale of Attitude towards Hinduism (Francis et al. 2008) by Tiliopoulos, Francis and Slattery (2011) amongst 100 Hindu affiliates in south India. All six studies reported a positive significant correlation between these measures of religious affect and scores recorded on the Oxford Happiness Inventory.

Against this background, the aim of the present study is now to introduce the Oxford Happiness Questionnaire within the science of cathedral studies.

Method

Procedure

When people came to the cathedral for the Holly Bough service, the welcomers gave them a printed copy of the service and a white envelope containing the questionnaire and a pen. The welcomers invited participants to complete the questionnaire. This invitation was reinforced by the video screens organised around the cathedral to relay the service. The front page of the questionnaire carried the message from the Dean, which is given in the next section.

Preparing for Christmas in Liverpool Cathedral

As Dean of this wonderful cathedral I would like to listen to and learn from the many people who come to our special services preparing for Christmas. By listening and learning I hope to be able to plan wisely for the future.

This survey has been designed with two parts. I would like to invite you to complete part 1 whilst you are sitting and waiting for the service to begin. Then towards the end of the service there will be an opportunity for you to complete part 2.

Everything you tell us is completely confidential and anonymous. Please feel free to answer as honestly as you can. We want to find out what people are really feeling and thinking about what we are doing as a Cathedral.

Please finish completing the questionnaire before you go and leave the questionnaire on your seat.

Thank you for your help and cooperation.



The Very Revd Dr Sue Jones
Dean

Instrument

The questionnaire comprised two parts. Part 1, which was completed by the participants whilst awaiting for the service to start, explored the demographic, background and religious factors and included both the Oxford Happiness Questionnaire (Hills & Argyle 2002) and the Francis (2005) Psychological Type and Emotional Temperament Scales. Part 2, which was completed towards the end of the service during an organ improvisation on the well-known Christmas carol 'In the bleak midwinter', explored the perceptions of the service and the second presentation of the Oxford Happiness Questionnaire.

The Oxford Happiness Questionnaire as proposed by Hills and Argyle (2002) comprises 29 items: 17 with positive valency and 12 with negative valency. Examples of the positive items include the following: 'I feel that life is very rewarding', 'I am always committed and involved' and 'I feel able to take anything on'. Examples of negative items include the following: 'I am not particularly optimistic about the future', 'I don't feel particularly pleased with the way I am' and 'I feel that I am not especially in control of my life'. Whilst originally developed for rating on a six-point scale, current usage has reverted to the conventional five-point Likert rating: agree strongly (5), agree (4), not certain (3), disagree (2) and disagree strongly (1). In the foundation article, Hills and Argyle (2002) reported a high level of internal consistency reliability in terms of the alpha coefficient (Cronbach 1951): $\alpha = .91$. In the first presentation of the Oxford Happiness Questionnaire (before the service began), participants were invited to rate each of the 29 items with respect to the prompt, 'how I have felt over the past week about me'. In the second presentation of the Oxford Happiness Questionnaire (during the organ improvisation on 'In the bleak midwinter'), the participants were invited to rate each of the 29 items with respect to the prompt, 'how I am feeling about me now'.

Participants

A total of 383 participants at the Holly Bough service completed the Oxford Happiness Questionnaire both at time 1 and time 2. The participants comprised 139 men, 229 women and 15 individuals who preferred not to reveal their gender; 13 were under the age of 20, 35 in their 20s, 31 in their 30s, 45 in their 40s, 93 in their 50s, 93 in their 60s, 60 in their 70s, 10 were aged 80 or over and three preferred not to reveal their age. The majority (78%) described their present or most recent work as professional or semi-professional, 9% as manual, 6% as student and the remaining 7% preferred not to say. In terms of religious identity, 84% described themselves as Christian, 14% as none, 1% as either Buddhist or Hindu and 1% preferred not to say. The 84% who described themselves as Christian comprised 60% Anglican, 17% Catholic, 2% Methodist and 1% Presbyterian. The remaining 4% included a few Orthodox, Pentecostal, Baptist, Welsh Presbyterian and other unspecified. In terms of attendance at acts of public worship (apart from occasions like weddings and funerals), 21% of the 383 participants reported weekly attendance, 8% at least once a month, 18%

at least six times a year, 39% at least once a year, 13% never and 1% preferred not to say.

Analysis

The data were analysed by SPSS employing the frequency, reliability and *t*-test routines.

Ethical considerations

This article followed all ethical standards for research without direct contact with human or animal subjects.

Results

The first step in data analysis concerned an examination of the psychometric properties of the Oxford Happiness Questionnaire in terms of the alpha coefficient (Cronbach 1951) as an index of internal consistency reliability, the correlations between the individual items and the sum of the other 28 items as a measure of the contribution of each item towards the homogeneity of the scale and the item endorsement (presented as the sum of the agree and agree strongly responses) as an index of the variability in item discrimination. The data presented in Table 1 demonstrate a high level of internal consistency reliability ($\alpha = .88$).

TABLE 1: Oxford happiness questionnaire: Scale properties.

Statements	<i>r</i>	%
I do not feel particularly pleased with the way I am†	.51	30
I am intensely interested in other people	.22	69
I feel that life is very rewarding	.60	78
I have very warm feelings towards almost everyone	.42	65
I rarely wake up feeling rested†	.39	34
I am not particularly optimistic about the future†	.56	26
I find most things amusing	.23	46
I am always committed and involved	.18	63
Life is good	.63	82
I do not think that the world is a good place†	.35	30
I laugh a lot	.45	79
I am well satisfied about everything in my life	.54	53
I do not think I look attractive†	.35	23
There is a gap between what I would like to do and what I have done†	.27	58
I am very happy	.67	69
I find beauty in some things	.31	95
I always have a cheerful effect on others	.46	58
I can fit in everything I want to	.26	33
I feel that I am not especially in control of my life†	.47	27
I feel able to take anything on	.49	47
I feel fully mentally alert	.54	70
I often experience joy and elation	.57	76
I do not find it easy to make decisions†	.27	27
I do not have a particular sense of meaning and purpose in my life†	.57	16
I feel I have a great deal of energy	.52	52
I usually have a good influence on events	.49	60
I do not have fun with other people†	.44	7
I do not feel particularly healthy†	.45	19
I do not have particularly happy memories of the past†	.42	15
Alpha	.88	

r, correlation between individual item and the sum of the other items.

%, percentage of agree and agree strongly responses.

†, These items are reverse coded to compute *r* but not %.

TABLE 2: Change between time one and time two.

Time	N	Mean	SD	t	p <
Time 1	383	102.4	13.2	-	-
Time 2	383	103.7	13.8	3.73	.001

SD, standard deviation.

The majority of items correlated well with the total of the remaining items but with sufficient variability to reflect the width of the construct being accessed. The item discrimination varies between 33% and 95% for the positive items and between 7% and 58% for the negative items, demonstrating a wide and helpful range. On the second administration, similar results were reported with an alpha coefficient of .91.

The second step in data analyses employed the *t*-test to examine the statistical significance between scores recorded on the two occasions. The data presented in Table 2 demonstrate a significant increase at the .001 level of probability from a mean score of 102.4 at time 1 to a mean score of 103.7 at time 2.

Discussion and conclusion

This study set out to assess the extent to which extant research findings could sustain the claim that cathedrals act as agents of psychological health and well-being within secular societies. Drawing on available data from the evolving science of cathedral studies, the body of extant literature distinguished between two different constituencies with which cathedrals engage: the constituency rooted in the deeply religious and Christian character of cathedrals and the constituency rooted in the broader cultural and heritage character of cathedrals. At one level these two constituencies may be characterised as concerned with worshippers and with tourists, but neither of these categories stands without further clarification. According to Williams et al. (2007), tourists may include both religious pilgrims and secular tourists. Extant empirical research suggests that those who visit cathedrals may perceive some beneficial impact on aspects of psychological health and well-being (Winter & Gasson 1996) although such impact may be more beneficial for religiously motivated pilgrims than for secular tourists (Williams et al. 2007) or for Christians rather than for atheists (Ysseldyk et al. 2016). Clearly further detailed and more finely calculated research is needed amongst visitors to cathedrals in order to test the psychological health and well-being hypothesis.

In terms of worshippers, the science of cathedral studies has identified three distinct constituencies. The first constituency concerns those who attend services on a regular basis. Such people are continuous with, but in some ways different from, those who attend parish churches (Francis & Lankshear 2015; Lankshear, Francis & Iprgrave 2015). Extant empirical research suggests that the depth of bonding and bridging social capital within cathedral congregations may enhance both psychological health and well-being of the participants and

the social well-being of the local community (Francis & Williams 2015a). Obviously further detailed research is needed amongst regular cathedral congregations to test the psychological health and well-being hypothesis.

The second constituency concerns those to whom ap Siôn (2015a, 2015b, 2017) refers as 'hidden congregations'. Ap Siôn's own research explored the community of people who return time and time again to post prayers on the prayer board or to light candles. Ap Siôn's analysis of the content of prayers posted for public reading suggests that this mechanism enhances the well-being of the user communities. The term 'hidden congregations' may also be applied to the community of cathedral friends researched by Muskett (2015). Muskett concludes from her research that Friends' associations generate an enhanced sense of social capital that may in turn lead to enhanced well-being. Clearly further detailed research is needed amongst the hidden congregations to test the psychological health and well-being hypothesis.

The third constituency concerns the kind of service that Walker (2017) styles as 'event', contrasting with the 'activities' that take place every week. Walker (2017) argues that some people belong to the Anglican Church through activities, whilst others may belong through events. The 'events' best researched within the science of cathedral studies are the pre-Christmas carol services as evidenced by Walker (2012a, 2012b, 2013, 2015a, 2015b). Within the group of studies concerned with carol services, Francis et al. (2020b) found that over half of the participants at a pre-Christmas service in Liverpool Cathedral reported that the service had enhanced their sense of well-being over the four domains embraced by Fisher's (1998, 2016) model of spiritual health. From our analysis of this study, we concluded that the research design was weak, in the sense that it relied on the participants' feeling that the service had acted as an agent of psychological health and well-being for them. In order to address this weakness, the present study was designed as a repeated-measure study. Participants completed the Oxford Happiness Questionnaire (Hills & Argyle 2002) whilst they were waiting for the service to begin and again towards the end of the service during a 5-min period of organ improvisation. This repeated-measure study found a significant increase in scores recorded on the Oxford Happiness Questionnaire between time 1 and time 2.

This new repeated-measure study may offer the strongest evidence currently available within the science of cathedral studies for the thesis that cathedrals act as agents of psychological health and well-being within secular societies. This study, however, is not without criticism. Valid criticisms may question the adequacy of the Oxford Happiness Questionnaire as a relevant measure of psychological health and well-being, may question the value of what may be a short-lived change in psychological health and well-being as measured towards the end of the service, may question the simplicity of the statistical analysis and may caution against generalisation on the basis of one location and one highly

specific expression of a pre-Christmas cathedral event. These findings, nonetheless, are sufficiently intriguing for the study to deserve replication and extension within other locations and other contexts.

Whilst the present study has framed the Oxford Happiness Questionnaire to focus on assessment of psychological health and well-being over two well-specified periods of time (comparing how participants have felt over the past week and how they are feeling now), a subsequent replication study may wish to take a differently nuanced approach by applying the same prompt on both occasions referring to a longer period of time. For example, the prompt, 'how I have felt over the past 6 weeks about me' (posed both before the service and towards the end of the service) would detect the extent to which participation in the service may have re-tuned evaluation of recent recalled experience of psychological health and well-being.

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Authors' contributions

L.J.F. conceptualised the article and S.H.J. facilitated the design of the survey and data collection, and gave oversight to the analysis and interpretation of the data.

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Data availability

Data are available from the first author upon reasonable request.

Disclaimer

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