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To cite this article: Leslie J. Francis, Ann Casson, Ursula McKenna, Andrew Village & Susan H. Jones (2025) Assessing the impact of a cathedral pre-Christmas *son et lumiere* on participants' psychological wellbeing and spiritual health, *Journal of Beliefs & Values*, 46:4, 766-783, DOI: [10.1080/13617672.2025.2595918](https://doi.org/10.1080/13617672.2025.2595918)

To link to this article: <https://doi.org/10.1080/13617672.2025.2595918>



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Published online: 30 Jan 2026.



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Assessing the impact of a cathedral pre-Christmas *son et lumiere* on participants' psychological wellbeing and spiritual health

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ABSTRACT

This study employs The Index of Balanced Affect Change (TIBACH) and the Francis Index of Spiritual Health Change (FISH) to assess the perceived impact on 518 participants who attended the *Starlight* pre-Christmas *son et lumiere* in Liverpool Cathedral. The Index of Positive Affect Change demonstrated that up to two-thirds of the participants went away feeling more positive about life. The Index of Existential Spiritual Health Change demonstrated that around two-fifths went away feeling more positive about relationships with themselves, with others, and with the world. The greater impact on existential spiritual health was among younger people. The greater impact on psychological wellbeing was among those without connections with a religious worldview. In other words, the installation is enabling the cathedral to extend the Church's reach among the young and among the unchurched.

ARTICLE HISTORY

Received 12 September 2025
Accepted 21 November 2025

KEYWORDS

Cathedral studies; spiritual wellbeing; psychological wellbeing; installations

Introduction

The present study has been designed to draw together two strands of research within the emerging field concerned with the science of cathedral studies (see Francis 2015). The first strand of research concerns exploring participants' responses to attending events, installations, and exhibitions within cathedrals. The second strand of research concerns exploring the impact of attending cathedral services on participants' psychological wellbeing and spiritual health. The present study is concerned with exploring the impact of a specific cathedral installation on participants' psychological wellbeing and spiritual health. The context for the present study is set by considering four specific issues: what is currently known about participants' responses to events, installations, and exhibitions in cathedrals; what is currently known about the impact of cathedral services on participants' psychological wellbeing and spiritual health; how is change in psychological

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wellbeing conceptualised and assessed; how is change in spiritual health conceptualised and assessed?

Visitor responses to cathedral installations

Recent studies have explored visitor responses to cathedral events, installations, and exhibitions using both quantitative and qualitative methods. Within the quantitative tradition, Kirby, Francis, and Village (2023) examined the responses of 283 individuals who completed a survey after attending the *Luxmuralis son et lumiere* installation, *Space, the Universe and Everything* in Liverpool Cathedral during February 2022. Given the focus of this installation, the survey focused on three main themes: response to the Cathedral; response to the science and religion controversy; and response to holding such an exhibition within a cathedral. In terms of response to the Cathedral, the vast majority found the Cathedral awe-inspiring (97%) and uplifting (95%). Three quarters found the Cathedral spiritually alive (75%) and 69% felt a prayerful atmosphere in the Cathedral. In terms of response to the science and religion controversy, the data demonstrated that the installation prompted more reflection on science than on religion: 78% had been helped to reflect on the benefits of science within our world, compared with 44% who had been helped to reflect on the benefits of religion within our world. In terms of holding such an exhibition within a cathedral, the majority of the participants agreed that a cathedral is an ideal place for such an exhibition (94%).

Also within the quantitative tradition, Village and Francis (2024) examined the responses of 562 individuals who completed a survey after attending the *Luxmuralis son et lumiere* installation, *The light before Christmas: The angels are coming* in Liverpool Cathedral during early December 2022. The aim of this study was to employ psychometric techniques to identify different dimensions of engagement with the installation and then to explore the effect of personal, educational, psychological, and religious factors on predicting individual differences in levels of engagement across these dimensions. From these data seven measures of engagement were designed, styled as Christmas engagement, Cathedral engagement, Spiritual/religious engagement, Personal engagement, Imaginative engagement, Positive engagement, and Negative engagement. Two core findings from these analyses were that this pre-Christmas installation exerted its greatest impact on younger people and on those who did not attend church services. In this way, not only was the Cathedral extending its reach, but delivering an experience that enticed them to want to return.

In a third paper within the quantitative tradition, Francis (2024) drew on data provided by 464 individuals who attended the 2023 pre-Christmas *son et lumiere* in Liverpool Cathedral: *The light before Christmas: The manger*, giving particular attention to the set of items connecting the experience with an intention to return to the Cathedral for Christmas services. Nearly two-fifths of the participants said that their experience made them more likely to attend a carol service in the Cathedral (39%) and nearly one-fifth said that they were more likely to attend a Christmas Eve or Christmas Day service (18%). By coincidence, the 4,749 attendance at the Christmas Eve carol services, was a 21% uplift on the pre-Covid 2019 attendance, the 1,232 attendance at Midnight Mass was a 73% uplift on the 2019 attendance, and the 910 attendance at the Christmas Day Choral Eucharist was a 26% uplift on the 2019 attendance.

Within the qualitative tradition, Kirby, Francis, and Village (2023) identified six themes within the open text responses of the 283 visitors to the installation, *Space, the Universe and Everything*: visitors commented on the distinctive effectiveness of the installation within the cathedral; the installation exemplified ways in which the Cathedral was serving the local community; the visit had a beneficial psychological impact; the installation resourced the spirituality of visitors who described themselves as spiritual but not religious; people who described themselves as not religious applauded access to this space; the installation resourced the faith of people who aligned themselves with the Christian tradition.

Brown, Neil, and Francis (2025) researched the impact of Luke Jerram's installation, *Gaia*, in Lincoln Cathedral by inviting visitors to reflect on the world and to write on postcards prayers and well wishes for the world. Analysis of the content of 112 postcards demonstrated that the installation stirred people to reflect on things that really mattered to them. Seven main themes were identified, four concerning vulnerability and three concerning faith and values. The world is vulnerable to conflict and war, vulnerable to degradation, vulnerable to loss of biodiversity, and vulnerable to unhappiness. Faith and values were reflected in awareness of the ephemeral nature of human life, a reminder of God's presence, and a call for respectful living.

Drawing on psychological type theory that differentiates between two contrasting cognitive functions relevant for evaluating experiences, styled feeling and thinking (see Francis and Village 2008), McKenna, Francis, and Village (2024) employed these two lenses to explore responses to the 2022 pre-Christmas *son et lumiere* at Liverpool Cathedral, *The light before Christmas: The angels are coming*. Of the 978 visitors who responded to the quantitative survey, 398 responded to the open text prompt to engage the feeling function, 'What most touched your heart?' and 238 responded to the open text prompt to engage the thinking function, 'What big issues were raised in your mind?' Nine themes were identified within the responses to the feeling prompt: valuing being moved by visual images of the nativity; valuing the Christmas spirit; valuing multi-sensory engagement; valuing the opportunity to light a candle; valuing personal feelings; valuing reflection on family; valuing being warmed by the responses of children; valuing the sense of community; and valuing the use of the cathedral space. Eight themes were identified within the responses to the thinking prompt: reflecting on the importance and meaning of Christmas; reflecting on shared experience; reflecting on relationships with others; reflecting on consumerism and commercialism; reflecting critically on the Cathedral's engagement with consumerism; reflecting on religion; reflecting on the big questions of life; and reflecting on the world.

Service attendance and psychological wellbeing

In an initial attempt to measure the impact of attending a cathedral carol service on the psychological wellbeing of participants, Francis and Jones (2020) reported on a survey conducted during the Holly Bough service in Liverpool Cathedral on the Fourth Sunday of Advent 2019. The survey was designed with two parts. Participants were invited to complete the first part while waiting for the service to begin, and the second part towards the end of the service during improvisation on Christmas melodies by the cathedral organist. Alongside a range of other questions, both parts of the survey contained

a recognised measure of psychological wellbeing: the Oxford Happiness Questionnaire (OHQ) as proposed by Hills and Argyle (2002). In this way scores recorded on the OHQ by individuals before and after the experience could be compared.

At the Holly Bough service 383 participants completed the OHQ both at time one and time two. The participants comprised 139 males, 229 females, and 15 individuals who preferred not to say. 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 month, 18% at least six times a year, 39% at least once a year, 13% never, and 1% preferred not to say. The data demonstrated a significantly higher score on the OHQ at time two than at time one, suggesting that the experience of the service functioned as an agent of psychological wellbeing.

In a subsequent paper, Francis, Jones, and McKenna (2021) reported on the replication of the earlier study, this time among participants at the Christmas Eve carol services in Liverpool Cathedral in 2019. This time 802 participants completed the OHQ both at time one and time two. The participants comprised 284 males, 495 females, and 23 individuals who preferred not to say. In terms of attendance at acts of public worship (apart from occasions like weddings and funerals), 18% of the 802 participants reported weekly attendance, 6% at least once a month, 14% at least six times a year, 44% at least once a year, 18% never, and 1% preferred not to say. Again, the data demonstrated a significantly higher score on the OHQ at time two than at time one. Within psychological research replication studies hold the key to building up a secure body of knowledge (see Pennington 2023).

There are, however, significant caveats that need to be applied to this approach. What has been demonstrated is only immediate impact, rather than lasting impact. It is onerous to invite participants at worship to complete the same measure twice. The Oxford Happiness Questionnaire operationalises only one recognised conceptualisation of psychological wellbeing, a concept that is open to multiple expressions.

Conceptualising and measuring change in psychological wellbeing

Psychological wellbeing is often conceptualised as embracing the presence of positive affect and the absence of negative affect. For example, in the development of the Oxford Happiness Inventory, from which the Oxford Happiness Questionnaire evolved, Argyle and Crossland (1987) and Argyle, Martin, and Crossland (1989) argued that their construct of happiness embraced three components described as: 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. Their basic assumption in developing the Oxford Happiness Inventory was that one single score could capture this complex construct with positive affect (high scores) and negative affect (low scores) being opposite ends of a continua.

The assumption regarding a single continuum affirmed by Argyle and his associates is challenged by a school of thought that regards positive affect and negative affect as, at least partially, independent systems. This alternative model, captured by the notion of balanced affect, maintains that some individuals may experience at the same time high levels of positive affect together with high levels of negative affect. This conceptualisation

of psychological wellbeing requires positive affect and negative affect to be recorded by separate measures. The notion of balanced affect, as originally proposed by Bradburn (1969), has been reflected in the Positive and Negative Affect Schedule (PANAS) proposed by Crawford and Henry (2004) and the Francis Burnout Inventory (FBI) proposed by Francis, Laycock, and Brewster (2017).

Measures of wellbeing drawing on balanced affect theory, like PANAS and FBI, are designed to record the levels of positive affect and negative affect at a given point in time. Objective change in levels of positive affect and negative affect can be measured by inviting the same individuals to complete these measures at two points in time. This research design is not always easy or possible. Responding to this challenge, Francis and Village (2021) proposed The Index of Balanced Affect Change (TIBACH), as a measure of *self-perceived* change. The TIBACH was developed initially among a sample of 4,449 Church of England clergy (29%) and laity (71%) in order to provide a measure of the perceived effect of the Covid-19 pandemic on psychological wellbeing. In the foundation study, the two five-item measures of positive affect and negative affect were developed from an initial pool of 20 items. The positive affect scale recorded an alpha coefficient of .70 (happiness, thankfulness, hopefulness, trust, and excitement). The negative affect scale recorded an alpha coefficient of .83 (exhaustion, anxiety, stress, fatigue, and frustration). The present study employs a modified form of TIBACH.

Conceptualising and measuring change in spiritual health

Despite being an attractive concept, the notion of spiritual health or spiritual wellbeing remains contested and elusive (Jaberi et al. 2019; Shaver et al. 2020). The challenge facing the development of quantitative measures in the field of spiritual health is to be found in the range of interpretations for the concept of spirituality itself. In a review of existing measures of spiritual health or spiritual wellbeing, Francis, Laycock, and Penny (2016) identified a clear divide between holding to a strong distinction between religion and spirituality and measures that conceptualised spirituality in religious or theistic terms. Some instruments, such as the Spiritual Assessment Inventory (Hall and Edwards 1996) and the Spiritual History Scale in Four Dimensions (Hays et al. 2001), include religious content and theistic language. In contrast, other instruments, such as the Spirituality Index of Well-Being (Daaleman and Frey 2004), focus solely on the self and avoid any reference to religious content or theistic language. Combining both approaches, Ellison's Spiritual Well-Being Scale presents ten items for each of two factors, differentiating between Existential Well-Being and Religious Well-Being (Ellison 1983).

Within this context, the cumulative work of John Fisher has made a considerable impact on the conceptualisation and measurement of spiritual health. In his initial study, Fisher (1998) defined spirituality in relational terms and argued that these relational terms should embrace four domains (personal, communal, environmental, and transcendental). According to Fisher (2011, 21–22) good spiritual health is indicated by the combined quality of relationships that individuals experience within each of the four domains: the personal domain, concerning relationship with the self; the communal domain, concerning relationship with other people; the environmental domain, concerning relationship with the environment; and the transcendental domain, concerning relationship with

something or someone beyond the human level, whether this be known as ultimate concern, cosmic force, transcendent reality or God. While Fisher's transcendental domain recognised the need to encompass the experiences of those who neither believed in God, nor practised any religion, the problem arose as to how such a broad definition could be operationalised and measured in a way that was accessible both to theists and non-theists.

Fisher operationalised the four-domain model of spiritual health through the Spiritual Health and Life-Orientation Measure (SHALOM; Fisher 1999, 2010, 2011, 2016, 2021). SHALOM has been introduced to the broad field of empirical theology by studies concerning the selection of Catholic religious novices (Del Castillo, Del Castillo, and Alvarez 2020), online Eucharistic celebration among the Catholic faithful (Rosales 2021), and cathedral visitors (Francis, Fisher, and Annis 2015). Alongside SHALOM there have been other operationalisations of Fisher's four-domain model of spiritual health developed for use among different age groups and within different contexts. These measures include the Spiritual Health in Four Domains Index (SH4DI; Fisher, Francis, and Johnson 2000), Feeling Good, Living Life (Fisher 2004), and the Feeling Good, Living Life Measure Revised (Francis et al. 2018).

Working with Fisher's model, Francis and McKenna ([under review](#)) proposed a new measure, the Francis Indices of Spiritual Health Change (FISH), designed specifically for use with cathedral and congregation studies in which the transcendental domain was framed within an explicit Christian context, and in which the assessment was on measuring change in spiritual wellbeing. Testing this measure on data provided by 874 participants at two Christmas Eve carol services, they reported a clear two-factor structure distinguishing between what they styled the Index of Existential Spiritual Health Change (combining the personal, communal, and environmental domains) and the Index of Religious Spiritual Health Change (reflecting the transcendental domain). Construct validity for distinguishing between these two factors was supported by regression models identifying different predictors for individual differences in the two domains. The present study employs the FISH.

Research aims

Against this background, the present study has three main research aims. The first aim is to test the psychometric properties of the modified form of The Index of Balanced Affect Change (TIBACH; Francis and Village 2021) and of the Francis Index of Spiritual Health Change (FISH; Francis and McKenna [under review](#)) employed in this context. The second aim is to report on the participants' perceived impact of the installation on their psychological wellbeing and their spiritual health. The third aim is to explore the predictive power of three groups of variables on individual differences in levels of perceived impact of the installation. Building on earlier research within the combined fields of cathedral studies, positive psychology, and the psychology of religion, these three groups of variables are personal factors (sex, age, and education), religious factors (belief, practice, affiliation, and self-identified religiosity), and psychological factors (psychological type and emotionality) as discussed more fully by Francis and Village (2025).

Method

Procedure

When people booked to attend the *son et lumiere*, they were invited to give assent to receiving a follow-up survey from the team at Liverpool Cathedral to assess their experience of the installation. The survey was emailed after the event only to those participants who had given their assent to be contacted. All participants who responded to this online survey were 18 or over and gave their formal consent by clicking a box that gave access to the rest of the survey. A total of 660 responses were received.

Instrument

The survey was hosted on the Qualtrics platform and comprised three sections. Section 1 explores demographic and background information. Section 2 presents measures of religiosity, psychological wellbeing, and spiritual wellbeing. Section 3 presents a recognised measure of personality. No prompts, photographic or otherwise, were incorporated in the survey.

Self-identified religiosity was assessed by two items: I am a religious person; I am a spiritual person. Each item was rated on a five-point scale: agree strongly (5), agree (4), not certain (3), disagree (2), disagree strongly (1).

Religious belief was assessed by the item: I believe in God, rated on a five-point scale: agree strongly (5), agree (4), not certain (3), disagree (2), disagree strongly (1).

Religious affiliation was assessed by two items: What is your religious affiliation? followed by eight options (none, Christian, Buddhist, Hindu, Jewish, Muslim, Sikh, Other); If Christian what is your denomination? followed by seven options (Anglican, Catholic, Methodist, Baptist, Presbyterian, Pentecostal, Other).

Religious practice was assessed by the item: How often do you attend acts of public worship (apart from occasions like weddings or funerals)? followed by six options (never, at least once a year, at least six times a year, at least once a month, nearly every week, and more than once a week).

Education was assessed by the item: Please indicate the highest level of education you have had, followed by six options (no formal qualifications, school-level, certificate/diploma, university (bachelor) degree, masters degree, doctorate).

Personality variables were assessed by the Francis Psychological Type and Emotional Temperament Scales (FPTETS; Village and Francis 2022, 2023a). This 50-item instrument comprises four sets of ten forced-choice items related to each of the four components of psychological type: orientation (extraversion or introversion), perceiving process (sensing or intuition), judging process (thinking or feeling), and attitude towards the outer world (judging or perceiving), and ten items related to emotional temperament (calm or volatile). Previous studies have demonstrated that the instrument functions well in a range of church-related contexts. For example, Village and Francis (2023b) reported alpha reliabilities of .84 for the extraversion – introversion scale, .79 for the sensing – intuition scale, .76 for the thinking – feeling scale, .82 for the judging – perceiving scale, and .84 for the calm – volatile scale. Scores (rather than binary preferences) were used in the present study to indicate inclinations for extraversion, sensing, thinking, judging, and emotional volatility.

Spiritual health

The impact of attending the installation on spiritual health was assessed by the Francis Indices of Spiritual Health Change (Francis and McKenna, [under review](#)). This instrument comprises 16 items rated on a five-point scale: agree strongly (5), agree (4), not certain (3), disagree (2), and disagree strongly (1). These 16 items comprised four items relating to each of the four domains of spiritual health: personal domain (e.g. to feel better about myself), communal domain (e.g. to feel better about my relationships with other people), environmental domain (e.g. to feel better about my relationship with the world), and transcendental domain (e.g. to feel better about my relationship with God).

Psychological wellbeing

The impact of attending the installation on psychological wellbeing was assessed by a modified form of The Index of Balanced Affect Change (TIBACH) as originally proposed by Francis and Village (2021). This measure was introduced by: How would you rate the effect of *Starlight* on how you feel? followed by 16 items rated on a five-point scale: increased a lot (5), increased a little (4), stayed the same (3), decreased a little (2), and decreased a lot (1). Items measuring positive affect included: happy, cheerful, fulfilled, and energised. Items measuring negative affect included: drained, anxious, hopeless, stressed.

Participants

Although a total of 660 people completed part one of the survey, not everyone completed all the items in part 2. The wellbeing instruments were completed by 518 participants of whom: 132 were male, 385 were female, and one preferred not to say; 24% were under the age of fifty, 55% were in their fifties or sixties, and 21% were aged seventy or over; 19% had no post-school level qualifications, 27% had certificates or diplomas, 35% had bachelor degrees, 16% had masters degrees, and 3% had doctorates. In terms of religion, 23% reported no religious affiliation, 75% Christian affiliation, and 3% affiliation with other religions. In terms of religious attendance, 39% never attended public worship, 29% did so at least once a year, 11% at least six times a year, 4% at least once a month, 18% nearly every week, and more than once a week.

Analysis

The data were analysed by the SPSS statistical package, employing the frequency, factor, correlation, and reliability routines.

Results and discussion

The first step in data analysis concerned establishing the psychometric properties of the two core instruments concerned with measuring spiritual wellbeing and psychological wellbeing. [Table 1](#) presents the factor structure of the 16 items proposed by the Francis Index of Spiritual Health Change (FISH), employing varimax rotation with Kaiser normalisation. These data confirm the two-factor structure reported by Francis and McKenna ([under review](#)). Together these two factors accounted for 84% of the variance.

Table 1. Spiritual health change factor analysis: varimax rotation.

	Factors	
	1	2
To reflect on my personal wellbeing	.79	
To feel better about myself	.82	
To open my eyes to the good in myself	.78	
To connect better with my inner self	.79	
To reflect on my relationships with other people	.82	
To feel better about my relationships with other people	.84	
To open my eyes to the good in other people	.80	
To connect better with other people close to me	.82	
To reflect on my relationship with the world	.80	
To feel better about my relationship with the world	.84	
To open my eyes to the good in the world	.80	
To connect better with the natural world	.76	
To reflect on my relationship with God		.86
To feel better about my relationship with God		.87
To open my eyes to the good in God		.86
To connect better with God		.88

Note: Factor loadings below .43 have been suppressed.
The two factors account for 84% of the variance.

The first factor drew together the four items reflecting the personal domain, the four items reflecting the communal domain, and the four items reflecting the environmental domain. These 12 items constitute the Index of Existential Spiritual Health Change. The second factor drew together the four items reflecting the transcendental domain. These four items constitute the Index of Religious Spiritual Health Change.

Table 2 takes a closer look at the scale properties of the two components of spiritual health change, in terms of the alpha coefficients (Cronbach 1951), the correlations between the individual items and the sum of the other items in the scale, and the item

Table 2. Scales of existential spiritual health change and religious spiritual health change: corrected item-total correlations and item endorsement.

	<i>r</i>	%
<i>Existential spiritual health change (α = .98)</i>		
To reflect on my personal wellbeing	.85	57
To feel better about myself	.86	49
To open my eyes to the good in myself	.88	29
To connect better with my inner self	.88	40
To reflect on my relationships with other people	.89	44
To feel better about my relationships with other people	.89	45
To open my eyes to the good in other people	.89	38
To connect better with other people close to me	.86	45
To reflect on my relationship with the world	.87	40
To feel better about my relationship with the world	.91	46
To open my eyes to the good in the world	.88	35
To connect better with the natural world	.85	28
<i>Religious spiritual health change (α = .97)</i>		
To reflect on my relationship with God	.92	36
To feel better about my relationship with God	.94	28
To open my eyes to the good in God	.92	31
To connect better with God	.95	29

Note: *r* = correlation between the individual item and the sum of the other items within the scale.

% = sum of agree and agree strongly responses.

endorsement in terms of the sum of the agree and agree strongly responses. The data presented in Table 2 confirm that both scales display a good level of internal consistency reliability, and that the correlations between the individual items and the sum of the other items in the scale confirm that all items are playing a strong and consistent part within the two homogeneous scales.

In terms of existential spiritual health change, the item endorsement indicated that the experience in Liverpool Cathedral had impacted: the personal domain, helping 57% to reflect on their personal wellbeing and 40% to connect better with their inner self; the communal domain, helping 44% to reflect on their relationships with other people and 45% to connect better with other people close to them; and the environmental domain, helping 40% to reflect on their relationship with the world, and 28% to connect better with the natural world. In terms of religious spiritual health change, the item endorsement indicated that the experience in Liverpool Cathedral had impacted the transcendental domain, helping 36% to reflect on their relationship with God, and 29% to connect better with God.

Table 3 presents the factor structure of the 16 items proposed by the modified form of The Index of Balanced Affect Change (TIBACH), employing varimax rotation with Kaiser normalisation. These data confirm the two-factor structure proposed by Francis and Village (2021). Together these two factors account for 67% of the variance. The first factor drew together the eight items reflecting negative affect change. The second factor drew together the eight items reflecting positive affect change.

Table 4 takes a closer look at the scale properties of the two components of psychological wellbeing change, in terms of the alpha coefficient (Cronbach 1951), the correlation between the individual items and the sum of the other items in the scale, and the item endorsement in terms of the sum of the increased a lot and increased a little

Table 3. Psychological wellbeing change factor analysis: varimax rotation.

	Factors	
	1	2
Stressed	.62	
Detached	.62	
Negative	.74	
Hopeless	.78	
Lonely	.80	
Anxious	.82	
Drained	.83	
Exhausted	.82	
Fulfilled		.78
Hopeful		.77
Blessed		.77
Energised		.77
Alert		.67
Positive		.77
Happy		.72
Cheerful		.72

Note: Factor loadings below .43 have been suppressed.
The two factors account for 67% of the variance.

Table 4. Scales of positive affect change and negative affect change: corrected item-total correlations and item endorsement.

	<i>r</i>	%
<i>Negative affect change (α = .93)</i>		
Stressed	.69	5
Detached	.61	5
Negative	.80	5
Hopeless	.74	4
Lonely	.74	4
Anxious	.84	3
Drained	.86	3
Exhausted	.84	3
<i>Positive affect change (α = .93)</i>		
Fulfilled	.77	50
Hopeful	.76	49
Blessed	.71	47
Energised	.78	46
Alert	.59	29
Positive	.83	58
Happy	.78	68
Cheerful	.78	63

Note: *r* = correlation between the individual item and the sum of the other items within the scale.

% = sum of increased a lot and increased a little responses.

responses. The data presented in Table 4 confirm that both scales display a good level of internal consistency reliability, and that the correlations between the individual items and the sum of the other items in the scale confirm that all items are playing a strong and consistent part within the two homogeneous scales.

In terms of positive affect change, the item endorsement indicated that over half of the participants went away feeling happier (68%), more cheerful (63%), and more positive (58%); around half felt more fulfilled (50%), more hopeful (49%), more blessed (47%), and more energised (46%); and 29% felt more alert. In terms of negative affect change, the item endorsement indicates that between 3% and 5% of the participants went away feeling more stressed (5%), more detached (5%), more negative (5%), more hopeless (4%), more lonely (4%), more anxious (3%), more drained (3%), and more exhausted (3%).

The second step in data analysis concerned establishing the psychometric properties of the Francis Psychological Type and Emotional Temperament Scales (FPTETS) before drawing these into correlational analyses alongside the measures of psychological well-being change and spiritual health change. The alpha coefficients presented in Table 5 suggest that all five scales are satisfactory, but with the perceiving process (sensing and

Table 5. Personality measure.

	Alpha	Mean	SD
Extraversion	.78	4.32	2.82
Sensing	.64	6.75	2.22
Thinking	.71	4.20	2.57
Judging	.75	7.08	2.42
Emotionality	.85	4.01	2.99

intuition) less strong than the other four scales. The mean scale scores suggest a weighting towards introversion, sensing, feeling, and judging (ISFJ), the profile most strongly associated with church-related participation (Francis, Robbins, and Craig 2011).

The third step in data analysis concerned examining the bivariate associations between psychological wellbeing change or spiritual health change and personal factors (sex, age, and education), religious factors (Christian affiliation, worship attendance, belief in God, self-definition as a religious person, and self-definition as a spiritual person), and psychological factors (extraversion, sensing, thinking, judging, and emotionality). Table 6 demonstrates the following associations. In terms of personal factors, neither sex nor education is significantly associated with individual differences in any of the four measures. Age, however, is a significant predictor: compared with younger people, older people reported the installation to have greater impact on positive psychological wellbeing change and lower impact on negative psychological wellbeing change. Older people also reported lower impact on existential spiritual health change.

In terms of religious factors, all five religious factors were predictors of reporting greater impact of the installation on both religious spiritual health change and existential spiritual health change, but in every case, the reported impact was greater in respect of religious spiritual health change. The five religious factors were less strong predictors of individual differences in psychological wellbeing. None of these five factors were related to individual differences in changes to perceived negative affect, while three (belief in God, self-assessment as a religious person, and self-assessment as a spiritual person) were all negatively related to perceived levels of increases in positive affect. In other words, the experience of the installation had greater impact on the improvement of psychological wellbeing among those with lower connection with a religious worldview.

In terms of psychological factors, the strongest predictor was the judging process (distinguishing between feeling and thinking). A preference for feeling was associated with greater reported impact of the installation on both religious spiritual health change and existential spiritual health change. A preference for thinking, however, was

Table 6. Correlations.

	Spiritual		Psychological	
	Religious <i>r</i>	Existential <i>r</i>	Positive <i>r</i>	Negative <i>r</i>
<i>Personal factors</i>				
Sex	.02	.02	-.07	-.06
Age	-.01	-.12**	.23***	-.24***
Education	-.07	-.02	.04	-.05
<i>Religious factors</i>				
Christian	.46***	.21***	-.02	-.01
Worship attendance	.33***	.12**	.01	-.05
Belief in God	.63***	.31***	-.12***	.05
A religious person	.63***	.35***	-.18***	.07
A spiritual person	.44***	.34***	-.15***	.06
<i>Psychological factors</i>				
Extraversion	.02	-.02	.01	-.03
Sensing	-.07	-.14**	.13**	.08
Thinking	-.20***	-.22***	.22***	-.18***
Judging	.03	-.01	.04	-.02
Emotionality	.10*	.09	-.04	.08

Note: * $p < .05$; ** $p < .01$; *** $p < .001$.

associated with greater reported impact of the installation on increasing positive affect and with lower reported impact of the installation on increasing negative impact. In other words, feeling types found that the installation had greater impact on their sense of spiritual health while thinking types found the installation had greater impact on their sense of psychological wellbeing. This finding is consistent with the general observation that feeling types are more concerned than thinking types both with relational matters and with religious engagement (see further, Francis, Robbins, and Craig 2011).

Conclusion

This paper set out three clear research aims. The first aim was to test the modified form of the Index of Balanced Affect Change and the Francis Index of Spiritual Health in the context of the specific research design. Both instruments displayed a clear two-factor structure in line with their theoretical foundations and the four resulting scales displayed good qualities of internal consistency reliability. Consequently, it is legitimate to move to the second research aim, namely to report on the participants' perceived impact of attendance at the pre-Christmas *son et lumiere* on their psychological wellbeing (in terms of the Index of Positive Affect Change and the Index of Negative Affect Change) and on their spiritual health (in terms of the Index of Religious Spiritual health Change and the Index of Existential Spiritual Health Change).

In terms of the Index of Positive Affect Change, the reported experience of the installation confirmed that many of the participants went away feeling more positive about life, including two-thirds who reported that they felt happier. In terms of the Index of Negative Affect Change, a small number of participants went away feeling worse off for the experience, including one in twenty who reported that they felt more stressed. By using the balanced affect model of change in perceived psychological wellbeing, it becomes possible to view both sides of affect change. Here, the good news for the cathedral is that this *son et lumiere* contributed significantly to the psychological wellbeing of the majority of participants. At the same time, there is cause to reflect on why the experience should cause stress and negative affect to others. Parallel studies of qualitative data from the pre-Christmas *son et lumiere* in previous years (2022 and 2023) provide some of the clues, including problems with parking, problems with queuing, problems with standing, and for some difficulties caused by the flashing lights and high volume of the sound system (see Francis and McKenna 2025; McKenna and Francis 2025; McKenna, Francis, and Village 2024).

In terms of the Index of Existential Spiritual Health Change, the reported experience of the installation confirmed that many of the participants went away feeling more relationally connected: within the personal domain, with two-fifths reporting connecting better with their inner self; within the communal domain, with nearly half reporting connecting better with other people close to them; and within the environmental domain, with over a quarter reporting connecting better with the natural world. In terms of the Index of Religious Spiritual Health Change, over a quarter of the participants reported going away connecting better with God. This differentiation between existential spiritual health and religious spiritual health illuminates the way in which the Cathedral is serving the twin areas of the distinctive Anglican presence: service to the wider community *and*

ministry and mission involving ‘encounter with the God who knows and loves us’ (see further McKenna, Francis, and Jones 2024).

The third research aim was to explore the predictive power of three groups of variables on individual differences in levels of perceived impact of the *son et lumiere* on spiritual health and psychological wellbeing: personal factors, religious factors, and psychological factors. Three main findings emerge from these analyses. First, in terms of personal factors, there were significant age differences. The experience made greater impact on the psychological wellbeing of older people, but greater impact on the existential spiritual health of younger people. This age effect is illuminating. It is young people with whom the church finds it more difficult to connect (Lankshear and Francis 2021), but when it does so through an installation like the *son et lumiere* the impact is greater on their existential spiritual health.

Second, in terms of religious factors, there were two key findings. The first finding concerned the impact of religious affiliation, belief and practice on spiritual health. Religious participants reported that the installation had a greater impact on their existential spiritual health and on their religious spiritual health. For those already connected with religious and spiritual traditions, the installation had greater impact on spiritual health than among those not so connected. The second finding was that the experience of the installation had greater impact on the improvement of psychological wellbeing among those with lower connection with a religious worldview. This difference affirms the value of distinguishing between spiritual health and psychological wellbeing, and illuminates how the Cathedral is serving religious and secular communities in different ways.

Third, in terms of psychological factors, the key finding concerned the role of the judging process (distinguishing between feeling and thinking). Feeling types found that the installation had greater impact on their sense of spiritual health, while thinking types found that the installation had greater impact on their sense of psychological wellbeing. This finding also confirms the value of distinguishing between spiritual health and psychological wellbeing, and illustrates how the impact of installations may vary according to the psychological type profile of the participants. This finding is consistent with earlier work connecting psychological type preferences with differing expectations among cathedral visitors (see further Francis et al. 2010; Francis, Mansfield, and McKenna 2021).

There are two main limitations with the present study. The first limitation concerns the way in which the data were collected by contact with the participants who had purchased the tickets, rather than with a random sample of those who actually attended. The second limitation concerns working with 518 responses in comparison with the much larger number of people who visited the installation.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Data availability statement

Data are available from the corresponding author upon reasonable request.

Ethical approval

Ethical approval was granted by the Research Ethics Committee for the School of Humanities, Religion and Philosophy at York St John University (approval code: HRP-RS-AV-05-22-01). All

participants had to affirm they were 18 or over and give their informed consent by clicking a box that gave access to the rest of the survey.

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