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Testing the AQ10 as a predictor of poor work-related psychological wellbeing among newly ordained Anglican clergy in England

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Abstract

Although the AQ10 was originally designed to identify referrals for professional diagnosis for Autism Spectrum Disorders (ASD), recent studies suggest that this instrument may also be tapping more generalised affective disorders. Working with this revised interpretation and a slightly revised measure (dropping one item), this study examines the predictive power of the AQ10 to account for additional variance, after personal and personality factors have been taken into account, on the two scales of the Francis Burnout Inventory. Data provided by 388 Anglican curates serving in their second year of ministry in the Church of England or the Church in Wales demonstrated that 3.8% of the participants recorded six or more red flags on the AQ10 (and so qualified for referral for specialist diagnostic assessment) and that higher scores on the revised AQ10 are associated with significantly lower levels of satisfaction in ministry and with significantly higher levels of emotional exhaustion in ministry. These data suggest that screening with the AQ10 may be helpful in identifying clergy vulnerable to professional burnout and to poor work-related psychological wellbeing, as well as identifying referral for specialist diagnostic assessment.

Keywords: clergy studies, burnout, affective disorders, autism, personality

Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterised by pervasive difficulties in communication and social interaction occurring independently from intellectual functioning (Word Health Organization, 2022). Although in recent years there has been an emerging interest in the prevalence of autistic tendencies among professional practitioners, including for example doctors (Doherty et al., 2021; Moore et al., 2020; Price et al., 2019), lawyers (McKinney, 2020; Ward, 2019), college and university educators (Kaupins et al., 2020; Martin, 2021; Wright & Kaupins, 2017), and psychologists (Hawker et al., 2022), clergy and religious professionals have not featured strongly in this field of research. In an initial study, among 220 Anglican clergy in Wales, Francis et al. (2024) administered the AQ10 (Allison et al., 2012) alongside a measure of professional burnout and a measure of personality. Professional burnout was assessed by the Francis Burnout Inventory (FBI; Francis et al., 2005). Personality was assessed by the measures of extraversion and emotionality proposed by the Francis Psychological Type and Emotional Temperament Scales (FPTETS; Village & Francis, 2023).

Francis et al. (2024) drew three main conclusions from their initial study. The first conclusion accepted the construct validity and reliability of the AQ10 as endorsed by the National Institute for Clinical Excellence (2021), according to which the AQ10 identifies ten "red flags" as potential indicators of ASD and proposes the cut-off point of 'six or more' red flags as the threshold for referral for professional assessment. For the avoidance of doubt, it is helpful to note that within the extant literatures this threshold has sometimes been misreported as 'more than six' red flags (see Waldren et al., 2021). According to this criterion 8.6% of Anglican clergy serving in Wales recorded six or more red flags. Located alongside other recent surveys exploring the AQ10 among non-clinical populations, this percentage suggested that there was nothing distinctive about this clergy sample. Gollwitzer et al. (2019)

reported on 6,595 participants spread across 104 countries who responded to an online social psychological skill quiz: 8.4% recorded six or more red flags. Lundin et al. (2019) reported on 44,722 participants in a public health survey collected by Statistics Sweden on behalf of the Stockholm County Council: overall 7.7% recorded six or more red flags, with variation among different groups of men between 6.8% and 14.9% and among different groups of women between 3.6% and 10.2%.

The second conclusion, in line with earlier work reported by Jia et al. (2019), Lundin et al. (2019), and Taylor et al. (2020), questioned the internal consistency reliability of the AQ10 that in this sample recorded an alpha coefficient of .57 and included an item recording a negative correlation with the sum of the other nine items. With the removal of this rogue item, Francis et al. (2024) proposed a shorter AQ9 that recorded an improved alpha coefficient of .64 and recommended the use of this revised instrument in further analysis of their data.

The third conclusion questioned the construct validity of the AQ10 drawing on studies that had failed to find good prediction of ASD diagnosis. For example, Brugha et al. (2011) reported that the AQ10 only moderately predicted ASD diagnosis within a large general population. Ashwood et al. (2016) reported that the AQ10 'was not better than chance as a predictor of ASD diagnosis' and suggested that the measure may be picking up wider generalised anxiety disorder (GAD) and related pathologies. Having reconceptualised the revised AQ9 as a diagnostic tool concerned with identifying wider generalised anxiety disorder, Francis et al. (2024) explored the association between scores recorded on the AQ9 and both emotional exhaustion in ministry and satisfaction in ministry, after controlling for pertinent personal and personality factors. Here the data demonstrated that higher scores recorded on the AQ9 predicted significantly lower scores of satisfaction in ministry and significantly higher scores of emotional exhaustion in ministry. From this finding they

concluded that routine assessment with the AQ9 (as a broad measure of generalised affective disorders) is able to identify those clergy most vulnerable to low levels of positive work-related affect.

Francis et al. (2024) recognised that the major limitation with the three conclusions emerging from their initial study is that they were based on data generated from just one sample of 220 Anglican clergy and they advocated replication studies to address this limitation. The present study is a direct response to that invitation and has been designed to address the following three research questions.

The first research question assumes the reliability and validity of the AQ10 to calculate the proportion of clergy who recorded six or more red flags, thus qualifying them for referral to professional assessment.

The second research question explores the internal consistency reliability of the AQ10 and examines whether the AQ9, with the removal of one item (I often notice small sounds when others do not) leads to a more reliable instrument.

The third research question assumes that the AQ10 (and therefore the AQ9) functions as a diagnostic tool concerned with identifying wider generalised anxiety disorder (see Ashwood et al., 2016) and explores the predictive power of the AQ9 on scores of emotional exhaustion in ministry and scores of satisfaction in ministry, after controlling for pertinent personal and personality factors.

Method

Procedure

Anglican curates who had served over a year in ordained ministry and had been listed in the *Church Times* as recently ordained as priests within the Church of England and the Church in Wales were mailed a 16-page survey exploring their initial experience in ministry. Responses

were completely confidential and anonymous. A 46% response rate generated 404 surveys of which 388 contained complete data on the following measures.

Measures

Personality factors were assessed by the Francis Psychological Type and Emotional Temperament Scales (FPTETS; Village & Francis, 2023) developed from the instrument originally proposed by Francis (2005). This 50-item instrument comprises five sets of 10 forced-choice items related to emotionality and 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 toward the outer world (judging or perceiving). A number of studies have demonstrated this instrument to function well in church-related contexts. For example, Francis et al. (2008) reported alpha coefficients of .83 for the EI scale, .76 for the SN scale, .73 for the TF scale, and .79 for the JP scale.

Participants were presented each pair of characteristics and asked to 'check the box next to that characteristic that is closer to the real you, even if you feel both characteristics apply to you. Tick the characteristics that reflect the real you, even if other people see you differently.'

Professional burnout was assessed by the two scales proposed by the Francis Burnout Inventory (FBI: Francis et al., 2005). This 22-item instrument comprises the Scale of Emotional Exhaustion in Ministry (SEEM) and the Satisfaction in Ministry Scale (SIMS). Each item is assessed on a five-point scale: ranging from agree strongly (5) through not certain (3) to disagree strongly (1). Francis et al. (2005) reported alpha coefficients of .84 for SIMS and .84 for SEEM.

Autism predisposition was assessed by the Autism Spectrum Quotient (AQ10) proposed by Allison et al. (2012). This 10-item instrument comprises a single measure. For application in multivariate statistical analysis each item is assessed on a four-point scale: ranging from definitely agree (4) to definitely disagree (1), with six reverse coded items. For

'red flag' screening, the agree and agree strongly responses (after recoding) are combined to count as a positive 'red flag' indicator. The scoring guidelines recommend that 'individuals scoring 6 or above' should be considered for referral for specialist diagnostic assessment (National Institute for Clinical Excellence, 2021).

Participants

Of the 404 participating Anglican curates 199 were male, 204 female and one preferred not to say; 30 were under thirty, 99 were in their thirties, 89 were in their forties, 125 were in their fifties, and 61 were aged sixty or over; 255 were engaged in stipendiary ministry, 114 were in self-supporting ministry, 20 in ordained local ministry, 10 in pioneer ministry, 2 in ministry in secular employment, and 3 declined to say.

Data analysis

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

Results and discussion

- insert table 1 about here -

The first step in data analysis involved exploring the psychometric properties of the five measures employed in the present study in terms of the internal consistency reliability reported by the alpha coefficient (Cronbach, 1951) and the means and standard deviations. The data presented in table 1 demonstrate that the Scale of Emotional Exhaustion in Ministry, the Satisfaction in Ministry Scale, the FPTETS Extraversion Scale, and the FPTETS Emotionality Scale all achieved satisfactory levels of internal consistency reliability. The Autism Spectrum Quotient (AQ10), however, failed to achieve an acceptable level of internal consistency reliability by generally recognised criteria as proposed by DeVellis (2003).

- insert table 2 about here -

The second step in data analysis involved examining in greater detail the performance of the individual items with the AQ10 in terms of the correlations between the individual items and the sum of the other nine items. The data presented in table 2 help to explain the low alpha coefficient achieved by this measure. In particular, the item 'I often notice small sounds when others do not' failed to covary in the expected direction with the other items.

The data in table 2 also present the endorsement of the ten items in terms of the proportions of the Anglican curates who checked the definitely agree, slightly agree, slightly disagree, and definitely disagree responses. In terms of the four positively worded items, a red flag is achieved by checking definitely agree or slightly agree. By this criterion, up to a fifth of the Anglican curates scored a red flag on three items: When I am reading a story I find it difficult to work out the characters' intentions (11%); I find it difficult to work out people's intentions (17%); and I like to collect information about categories of things (18%). Over half of the Anglican curates scored a red flag on the fourth of the positively worded items: I often notice small sounds when others do not (51%). In terms of the six negatively worded items, a red flag is achieved by checking slightly disagree or definitely disagree. By this criterion, over a quarter of the Anglican curates scored a red flag on three items: I find it easy to do more than one thing at once (28%); If there is an interruption, I can switch back to what I was doing very quickly (28%); and I usually concentrate more on the whole picture, rather than the small details (26%). On the remaining three items, a smaller proportion of the Anglican curates scored a red flag: I find it easy to work out what someone is thinking or feeling just by looking at their face (14%); I find it easy to 'read between the lines' when someone is talking to me (11%); and I know how to tell if someone listening to me is getting bored (3%).

- insert table 3 about here -

The third step in data analysis involved scanning the red flags. Table 3 demonstrates that 3.8% of the Anglican curates recorded six or more red flags. This finding can be located alongside the initial study reported by Francis et al. (2024) among 220 Church in Wales clergy where 8.6% recorded six or more red flags.

- insert table 4 about here -

Given the low internal consistency reliability ($\alpha = .57$) recorded by the AQ10, and following the precedent of Jia et al. (2019), the worst performing item was dropped from the AQ10 to produce the AQ9 ($\alpha = .63$). The fourth step in data analysis explored the bivariate correlations between scores recorded on the AQ9, personal factors (age and sex), personality factors (extraversion and emotionality), and professional burnout (emotional exhaustion in ministry and satisfaction in ministry). Three features of the data presented in table 4 deserve commentary. First, scores recorded on the AQ9 were significantly related to personal factors, psychological factors, and burnout. Higher scores on the AQ9 were associated with male clergy. Higher scores on the AQ9 were associated with introversion and with emotionality. Higher scores on the AO9 were associated with higher levels of emotional exhaustion in ministry and with lower levels of satisfaction in ministry. Second, older clergy reported lower levels of emotional exhaustion in ministry. Third, not only are personality factors significantly correlated with AQ9 scores, but they are also correlated significantly with both emotional exhaustion in ministry and satisfaction in ministry. These data confirm the importance of taking personality into account when exploring the connection between the AO9 and burnout.

- insert tables 5 and 6 about here -

The final step in data analysis explores the associations between the AQ9 and both emotional exhaustion in ministry and satisfaction in ministry, with a stepwise regression model, entering personal factors (age and sex) in step one, psychological factors (extraversion

and emotionality) in step two, and the AQ9 in step three. Table 5 demonstrates that neither age nor sex were significant predictors of individual differences in satisfaction in ministry. Both extraversion and emotionality were significant predictors of individual differences in satisfaction in ministry: higher levels of satisfaction in ministry were associated with stable extraversion. After personal factors and psychological factors were taken into account, higher scores on the AQ9 were associated with significantly lower levels of satisfaction in ministry. Table 6 demonstrates that age (but not sex) is a significant predictor of individual differences in emotional exhaustion in ministry. Both extraversion and emotionality were significant predictors of individual differences in emotional exhaustion in ministry. After personal and psychological factors were taken into account, AQ9 scores added further significant predictive power to explaining individual differences in emotional exhaustion in ministry.

Conclusion

Francis et al.'s (2024) initial study applying the AQ10 among a sample of 220 Anglican clergy serving in Wales led to three potentially important conclusions that required further examination in appropriately designed replication studies. The present study was designed therefore to test three specific research questions arising from that initial study, among 388 Anglican curates currently serving their second year of ordained ministry in the Church of England and the Church in Wales.

The first research question assumed the reliability and validity of the AQ10 to calculate the proportion of clergy who recorded six or more red flags, thus qualifying them for referral to professional assessment. Francis et al. (2024) reported that six or more red flags were recorded by 8.6% of their sample of clergy, a level roughly consistent with the findings of other surveys among non-clinical populations (Gollwitzer et al., 2019; Lundin et al. 2019). The present study reported that six or more red flags were recorded by 3.8% of

recently ordained Anglican curates. On the basis of these two studies there is no evidence to support the notion of a high incidence of ASD among Anglican clergy.

The second research question explored the internal consistency reliability of the AQ10 and examined whether this measure could be improved by the removal of one item (I often notice small sounds when others do not). The present data among recently ordained clergy clearly replicated the findings of Francis et al. (2024) among longer serving clergy. In the present study the AQ10 recorded alpha = .57, compared with .54 in the previous study. In both studies the rogue item recorded a negative correlation with the sum of the other nine items. With the removal of that item in the present study the AQ9 recorded alpha = .63, compared with .64 in the previous study. Although not entirely satisfactory, the AQ9 offers a more robust instrument than the AQ10 for research purposes.

The third research question assumed that the AQ10 (and therefore the AQ9) functioned as a diagnostic tool concerned with identifying wider generalised anxiety disorder and explored the predictive power of the AQ9 on individual differences in scores of emotional exhaustion and on scores of satisfaction in ministry, after controlling for pertinent personal and personality factors. Employing stepwise regression, entering personal factors (sex and age) followed by personality factors (extraversion and emotionality), Francis et al. (2024) found that entering the AQ9 as the third step predicted significantly lower scores of satisfaction in ministry ($\beta = -.39$, p < .001), and significantly higher scores of emotional exhaustion in ministry ($\beta = .12$, p < .05). These findings were matched in the present sample of recently ordained Anglican curates with the AQ9 predicting significantly lower scores of satisfaction in ministry ($\beta = -.22$, p < .001), and significantly higher scores of emotional exhaustion in ministry ($\beta = -.22$, p < .001), and significantly higher scores of emotional exhaustion in ministry ($\beta = .11$, p < .05).

The third conclusion is of both theoretical and practical interest within the field of understanding and managing professional burnout among clergy. The theoretical interest

resides in supporting the construct validity of the balanced affect approach to clergy work-related psychological wellbeing advanced by the Francis Burnout Inventory. The balanced affect approach maintains that positive affect and negative affect operate as partially independent systems. The present data are consistent with that assumption by demonstrating in two independent studies the stronger association of the AQ9 with individual differences in positive affect than with individual differences in negative affect.

The practical interest from these findings resides in the pastoral support of clergy, drawing on the insights established by the balanced affect approach to work-related psychological wellbeing. The first established insight from this model is that the deleterious consequence of negative affect (as expressed in emotional exhaustion in ministry) can be mitigated by positive affect (as expressed in satisfaction in ministry). The second established insight is that intervention strategies designed to promote clergy wellbeing may be more profitably targeted at enhancing positive affect (as expressed in satisfaction in ministry) than at trying to reduce the causes of negative affect (as expressed in emotional exhaustion in ministry). In terms of pastoral practice, these established insights suggest that care providers may wish to help clergy to identify and to focus on those aspects of ministry that they find rewarding to enhance their levels of positive affect. The new insight offered both by the initial study (Francis et al., 2024) and by the present study is that routine assessment with the AQ10 (as a broad measure of generalised affective disorders) is able to identify those clergy most vulnerable to low levels of positive work-related affect. These may be the clergy most in need of appropriate intervention strategies and the most challenging to impact by such strategies.

Francis et al. (2024) concluded their initial study by drawing attention to the limitation of basing conclusions of this nature on a single study. Now that there are two studies generating similar findings, the evidence base is stronger, but not strong enough.

Further replication and extension of these two studies among more diverse groups of clergy would be welcome.

Statements and declarations

Competing interests

The authors declare that they have no financial or personal relationship that may have inappropriately influenced them in writing this article.

Ethical approval

Ethical approval was obtained from the University of Warwick.

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Table 1
Scale properties

	N items	Range Lo H	Alpha	Mean	SD
Scale of Emotional Exhaustion in Ministry	11	11 - 55	.82	24.7	6.6
Satisfaction in Ministry Scale	11	11 - 55	.85	45.4	5.0
FPTETS Extraversion Scale	10	0 - 10	.84	5.0	3.1
FPTETS Emotionality Scale	10	0 - 10	.72	3.4	2.3
Autism Spectrum Quotient (AQ10)	10	10 - 40	.57	18.8	3.6

Table 2

AQ10: Scale properties

	r	DA %	SA %	SD %	DD %
I often notice small sounds when others do not	02	15	36	26	23
I usually concentrate more on the whole picture, rather than the small details*	.05	27	48	23	3
I find it easy to do more than one thing at once*	.29	34	38	21	7
If there is an interruption, I can switch back to what I was doing very quickly*	.27	29	43	24	4
I find it easy to 'read between the lines' when someone is talking to me*	.47	43	46	10	1
I know how to tell if someone listening to me is getting bored*	.33	54	43	3	0
When I'm reading a story I find it difficult to work out the characters' intentions	.23	2	9	48	41
I like to collect information about categories of things (e.g. types of car, types of bird, types of train, types of plant etc.)	.26	3	15	27	56
I find it easy to work out what someone is thinking or feeling just by looking at their face*	.37	29	58	11	3
I find it difficult to work out people's intentions	.45	2	15	50	33

Note: r =correlation between item and sum of other nine items

DA = Definitely Agree; SA = Slightly Agree; SD = Slightly Disagree; DD = Definitely Disagree

N = 388

^{* =} item reverse coded to calculate r

Table 3

Autism Spectrum Quotient (Index 0 to 10)

Score	%
0	14.4
1	27.6
2	26.0
3	16.2
4	9.5
5	2.3
6	2.8
7	0.5
8	0.5
9	0.0
10	0.0

Note: N = 388

Table 4

Correlation matrix

	AQ9	SIMS	SEEM	EM	EX	Age
Sex	31***	.09	07	.03	.06	.23***
Age	04	.09	31***	10	.07	
Extraversion (EX)	18***	.18***	13*	02		
Emotionality (EM)	.14**	23***	.36***			
SEEM	.17**	55***				
SIMS	27***					

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

Table 5

Regression on Satisfaction in Ministry Scale

	Model 1	Model 2	Model 3
Personal factors	1		
Sex	.07	.07	.00
Age	.07	.04	.05
Personality factors			
Extraversion		.17***	.13**
Emotionality		23***	19***
Autism Spectrum Disorders			
AQ9			22***
R^2	.01	.09	.13
Δ	.01	.08***	.04***

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

Table 6

Regression on Scale of Emotional Exhaustion in Ministry

	Model	Model	Model
Personal factors	1	2	3
Sex	.01	00	.03
Age	31***	27***	27***
Personality factors			
Extraversion		10*	08
Emotionality		.33***	.31***
Autism Spectrum Disorders			
AQ9			.11*
R^2	.09	.21	.22
Δ	.08***	.22***	.01*

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