Introducing the Francis Owl-Lark Indices (FOLI): Assessing the implications of diurnal activity patterns for clergy work-related psychological health

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Abstract

Drawing on three sets of data provided by 338 Anglican clergy serving in the Church in Wales, 484 Presbyterian clergy serving in the Church of Scotland, and 422 Salvation Army Officers serving in the UK, this study reports the development of a 10-item instrument designed to provide independent measures of preference for morning activity (the Lark preference) and preference for evening activity (the Owl preference) appropriate for use among clergy. The thesis is then tested that these preferences predict individual differences in clergy work-related psychological health, as assessed by the Francis Burnout Inventory, after taking into account the effects of personal factors (sex and age) and personality factors (extraversion and neuroticism). The data demonstrated that clergy who displayed the Lark preference were less likely to suffer from emotional exhaustion, suggesting a clear and consistent linkage between preferences for mornings and lower vulnerability to burnout.

Keywords: morningness, eveningness, personality, burnout, clergy

Introduction

A growing research literature has drawn attention to the personal and social significance of individual differences in preferences for morning activity (the Lark preference) and for evening activity (the Owl preference). Within this literature the contrast between 'morningness' and 'eveningness' refers to individual differences 'in circadian phase position of sleep-wake and subjective alertness rhythms' (Arrona-Palacios & Díaz-Morales, 2017, p. 480). Morningness and eveningness are not regarded as opposite poles of a single continuum, but an independent (although not orthogonal) factors, with the consequence that individuals can be classified as morning types, evening types, or neither types. In general Larks prefer waking up early and tend to feel at their best during the morning, while Owls prefer waking up later in the day and tend to feel at their best in the late afternoon. Among individuals classified as neither larks nor owls, Putilov has identified two further 'bird species' characterised as swifts and woodcocks (see Putilov, Donskaya, & Verevkin, 2015; Putilov, 2017; Zakharenko, Petrovskii, & Putilov, 2018; Putilov et al., 2019).

Preferences for morningness and eveningness (the diurnal rhythm) have been assessed by a range of measures, including: the 19-item Morningness-Eveningness Questionnaire (MEQ; Horne & Östberg, 1976); the 7-item Diurnal Type Scale (DTS; Torsvall, & Åkerstedt, 1980); the 13-item Composite Scale of Morningness (CSM; Smith, Reilly, & Midkiff, 1989); the 5-item Reduced Morningness-Eveningness Questionnaire (rMEQ; Adan & Almirall, 1990); the ten-item Morningness-Eveningness Scale for Children (MESC; Carskadon, Vieira, & Acebo, 1993); and the 12-item Early-Late Preferences Scale (Smith, et al., 2002).

The connections between the Lark and the Owl preferences and personality have been explored in relation to several models of personality. For example, a number of earlier studies located morningness and eveningness preferences alongside the two dimensional model of personality (extraversion and neuroticism) proposed by Eysenck and Eysenck (1964) and the

later three dimensional model (extraversion, neuroticism, and psychoticism) proposed by Eysenck and Eysenck (1975), including work reported by Eysenck and Folkard (1980), Humphreys, Revelle, Simon, and Gilliland (1980), Larsen (1985), Mecacci, Zani, Rochetti, and Lucioli (1986), Mura and Levy (1986), Matthews (1987), Zuber and Ekehammar (1988), Wilson (1990), Adan and Almirral (1990, 1991), Neubauer (1992), Adan (1992, 1994), Mitchell and Redman (1993), Mecacci and Rocchetti (1998), Langford and Glendon (2002), Francis, Fearn, and Booker (2003), Mecacci, Righi, & Rocchetti (2004).

While evidence from these studies is far from unanimous, the main clue to emerge is that impulsivity is the key personality factor to predict the preferred time of day (Anderson & Revelle, 1982, 1994), although even here the evidence is not conclusive. Some studies have failed to find a significant relationship between impulsivity and the diurnal rhythm (Lawrence & Stanford, 1999). In respect of Eysenck's dimensional model of personality, the location of impulsivity within personality has itself been somewhat problematic. In the early Eysenck Personality Inventory (Eysenck & Eysenck, 1964) impulsivity was associated with extraversion. In the more recent Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975) and the Revised Eysenck Personality Questionnaire (Eysenck & Eysenck, 1991), impulsivity was associated with psychoticism. Studies, however, have reported significant correlations between the diurnal rhythm and Eysenck's more recent conceptualisation of extraversion, particularly a relationship between extraversion and eveningness (Larsen, 1985; Adan, 1992; Mitchell & Redman, 1993) and the neuroticism scale, indicating a relationship between neuroticism and eveningness (Mura & Levy, 1986; Neubauer, 1992; Mecacci & Rocchetti, 1998).

More recent studies have located morningness and eveningness preferences alongside the Big Five Factor model of personality (extraversion, neuroticism, agreeableness, conscientiousness, and openness) as proposed by Costa and McCrae (1985), including work

reported by Jackson and Gerard (1996), Gray and Watson (2002), Zelenski, Rusting, and Larsen (2003), Dresch, Sánchez-López, and Aparcio-García (2005), DeYoung, et al. (2007), Cavallera and Giampietro (2007), Hogben, Ellis, Archer, and von Schantz (2007), Díaz-Morales (2007), Randler (2008a), Tonetti, Fabbri, and Natale (2009), Randler, Baumann, and Horzum (2014), Walker, et al. (2014), Walker, Christopher, Wieth, and Buchanan (2015), and Ponzi, et al. (2015). These studies tend to suggest that Larks record higher scores on agreeableness and conscientiousness, but lower scores on neuroticism.

A number of studies have also noted and reported on sex differences among Larks and Owls. For example, using the 19-item Morning-Eveningness Questionnaire (Horne & Östberg, 1976) among a sample of 2,135 students (with an age range from 18 to 30 years), Adan and Natale (2002) reported that men presented a more pronounced eveningness preference. Subsequently, drawing on a meta analysis of 52 studies, Randler (2007) concluded that females were significantly more morning orientated than males.

Studies concerned with the health-related correlates (both physical and psychological) of the diurnal rhythm have generally pointed to a better trajectory among Larks. For example, Larks show better general health (Paine, Gander, & Travier, 2006), lower incidence of depression (Mecacci & Rocchetti, 1998; Chelminski, Ferraro, Petros, & Plaud, 1999; Lester, 2015; Merikanto, et al., 2015; Müller, Olschinski, Kundermann, & Cabanel, 2016), lower levels of anxiety (Díaz-Morales & Sánchez-Lopez, 2008) lower levels of pessimism (Lewy, 1985), higher levels of satisfaction in life (Randler, 2008b), and better self-esteem (Randler, 2011). The health-related advantages of Larks has been questioned, however, by Putilov (2008).

Another stream of research has suggested that Larks achieve better grade averages at school (Preckel, et al., 2013), perform better in university entrance examinations (Beşoluk, 2011) and go on to earn significantly higher salaries (Bonke, 2012).

A further stream of research points to certain life-style differences between Larks and Owls. For example, Owls consume higher levels of alcohol, nicotine and caffeine from coffee and cola (Adan, 1994). Owls engage in higher levels of casual sex and sexual activity in uncommitted relationships (Jankowski, Díaz-Morales, Vollmer, Randler, 2014) and display higher levels of intrasexual competition among men (Ponzi et al., 2015). Owls display higher levels of bulimic behaviour (Kasof, 2001) and other eating disorders (Natale, et al., 2008; Walker, Christopher, Wieth, & Buchanan, 2015).

The notion of morningness and eveningness preferences was introduced to the empirical study of work-related psychological health and professional burnout in a study reported by Randler, Luffer, and Müller (2015). In this study they reported on data provided by 177 teachers (48 men, 128 women, and one unspecified) who completed the Maslach Burnout Inventory (Maslach & Jackson, 1986) together with the Composite Scale of Morningness (Smith, Reilly, & Midkiff, 1989). The data demonstrated a significant positive correlation between morningness and personal accomplishment (positive affect) and a significant negative correlation between morningness and emotional exhaustion (negative affect), but no significant association between morningness and depersonalisation.

Research question

Against this background the aim of the present paper is first to report on the development of a new measure of preferences for morning activity (the Lark preference) and for evening activity (the Owl preference) designed for use among clergy, second to confirm the dimensionality of the index using two additional datasets, and thirdly use all three datasets to examine the impact of these preferences on clergy work-related psychological health, after first taking into account the effects of personal factors (sex and age) and personality (extraversion and neuroticism).

Method

Procedures

Dataset 1: Anglican clergy in Wales

A questionnaire was posted to all licensed Anglican clergy serving in parochial ministry in the Church in Wales. Participation was voluntary and participants were assured of anonymity and confidentiality. A response rate of 54% produced 338 replies from clergy who had completed all the relevant measures that form the basis for the present analyses.

Dataset 2: Church of Scotland Clergy

A questionnaire was posted to all ministers, deacons, and locums serving in the Church of Scotland. Participation was voluntary, anonymous, and confidential. A response rate of 51% produced 484 replies from clergy who had completed all the relevant measures that form the basis for the present analyses.

Dataset 3: Salvation Army Officers

As part of its 2018 conference for personnel engaged in active ministry, the Salvation Army invited all participants to complete a detailed survey on aspects of wellbeing and resilience in ministry. Participation was voluntary, anonymous, and confidential. The administration of the survey was overseen by the Wellbeing Unit, and staff members for this unit were in attendance to answer questions about the survey and to encourage participation. All the relevant measures that form the basis for the present analyses were completed by 422 participants.

Participants

- insert table 1 about here -

Sample profiles for all three datasets are given in table 1. The majority of the clergy in the Welsh and Scottish samples were men, but the opposite was true for the Salvation Army officers. The age profiles were similar across the three samples, though the Salvation Army

Officers were slightly younger, on average, than those in the other two samples. Across all three samples 16-18% were single.

Measures

Work-related psychological health was assessed by the revised and slightly shortened version (see Francis, Crea, & Laycock, under review) of the two scales originally reported by Francis, Kaldor, Robbins, and Castle (2005): the Scale of Emotional Exhaustion in Ministry (SEEM) and the Satisfaction in Ministry Scale (SIMS). In the revised version, each scale comprised 10 items (one fewer than the originally reported scales) assessed on a five-point scale: agree strongly (5), agree (4), not certain (3), disagree (2), and disagree strongly (1). Example items from SEEM include: 'I feel drained in fulfilling my functions here', and 'I am less patient with people here than I used to be'. Example items from SIMS include: 'I feel very positive about my ministry here', and 'I am really glad that I entered the ministry'. The items from the SEEM and SIMS were presented alternately. Scale properties of the original 11-item scale have been reported elsewhere in a study of over 6,000 clergy drawn from a range of denominations in Australia, New Zealand and England (Francis, Kaldor, Robbins, & Castle, 2005), in which both scales showed high internal consistency reliability (Cronbach's alpha for both scales = .84). Results using the 10-item version of the scale showed improved internal consistency, and this was evident in this study for all three datasets (see table 5).

Personality variables were assessed by two different instruments. Dataset 1 included the abbreviated form of the Eysenck Personality Questionnaire Revised (EPQR-A) reported by Francis, Brown, and Philipchalk (1992) and modified by Francis, Robbins, Louden, and Haley (2001), using two six-item measures of extraversion and neuroticism. Each item is assessed on a two-point scale: yes (1) and no (2). Example items for the extraversion scale include: 'Are you a talkative person?' and 'Can you easily get some life into a rather dull party?'. Example items from the neuroticism scale include: 'Does your mood often go up and

down?' and 'Are you a worrier?'. Scale properties reported among 685 students from England, Canada, the USA, and Australia reported Cronbach's alpha coefficient for extraversion between .74 and .87, and for neuroticism between .84 and .85. In the present sample the extraversion and neuroticism scales had alpha reliabilities of .78 and .78 respectively.

Datasets 2 and 3 included the Francis Psychological Type and Emotional Temperament Scales (FPTETS). This 50-item instrument comprises the four sets of ten forced-choice items proposed by the Francis Psychological Type Scales (FPTS: Francis, 2005; Francis, Laycock, & Brewster, 2017) related to each of the four components of psychological type theory: orientation (extraversion or introversion), perceiving process (sensing or intuition), judging process (thinking or feeling), and attitude toward the outer world (judging or perceiving). Recent studies have demonstrated this instrument to function well among clergy. For example, Francis and Village (2012) reported alpha coefficients of .84 for the EI scale, .74 for the SN scale, .68 for the TF scale, and .74 for the JP scale. Additionally the FPTETS contains a fifth set of ten forced-choice items designed to assess emotionality.

Diurnal activity patterns were assessed by an experimental pool of 19 items intended to differentiate between personal preference for morning-related activity (the Lark preference) and personal preference for evening-related activity (the Owl preference). Each item was assessed on a five-point scale: agree strongly (5), agree (4), not certain (3), disagree (2), and disagree strongly (1). Example items for the Lark preference include: 'I do my best work early in the day' and 'I rarely have difficulty getting up in the morning'. Example items for the Owl preference include: 'I do my best work late in the evening' and 'I rarely have difficulty staying awake late into the evening'.

Analysis

The analysis was in the several stages. In the first stage, Dataset 1 was used to perform an exploratory factor analysis of the 19 items related to diurnal activity. Extraction used alpha factoring, and a varimax rotation was used to try to maximize the discrimination of the factors. Items that loaded poorly, or strongly on different factors were removed to ensure each item loaded only on one factor. In the second stage a confirmatory factor analysis was run on Datasets 2 and 3, using the items selected from the initial exploratory analysis. In this stage, an oblimin rotation was used to allow factors to be correlated with one another. In stage three, the Owl and Lark indices identified through factor analyses were used as predictor variables in regression analyses of the SEEM and SIMS scales in each dataset. Sex, age, extraversion and neuroticism indices were used as control variables in multiple linear regressions.

Results

Exploratory Factor Analysis

Initial extraction identified two factors which together accounted for 57% of the total variance. Items that loaded poorly or highly on both factors were dropped, leaving two factors of five items each (table 2).

- insert table 2 and table 3 about here -

On the basis of the factor analysis displayed in table 2, the two scales were generated to produce the Francis Owl-Lark Index (FOLI). Further data regarding the psychometric properties of these two new indices in each of the three datasets are provided in table 3 in terms of the correlations between the individual items and the sum of the other four items, and the item endorsement as the sum of the agree and agree strongly responses . In all three datasets, both scales demonstrated similarly good levels of internal consistency reliability as reported by the alpha coefficient (Cronbach, 1951): dataset 1, Lark = .81,Owl = .85; dataset 2, Lark = .82, Owl = .88; dataset 3, Lark = .84, Owl = .87.

Confirmatory Factory Analyses

Pattern matrices for the CFA in Datasets 2 and 3 are shown in table 4. The number of dimensions was not constrained, but in each case the 14 items loaded clearly on the same factors as in the original factor analysis, indicating a clear and consistent dimensionality to the FOLI.

- insert table 4 and table 5 about here -

FOLI as a predictor of psychological work-related health

Details of the scales used in the regression analyses are shown in table 5 for all three datasets. For this stage of the analysis a subset of Dataset 3 (Salvation Army officers) was used which excluded those whose ministry was not primarily in the corps, which is the nearest equivalent to parochial ministry in the other denominations tested here. The FOLI index was developed for use among those working primarily in parishes and with congregations, so this subset of 330 corps officers was the most appropriate with which to examine relationship with SEEM and SIMS. It should be noted that two of the control variables, extraversion and neuroticism, were measured by a different instrument in Dataset 1 (Eysenck) than in the other two (FPTETS).

Bivariate correlations were broadly similar across the two datasets, though there were some variations (tables 6-8). In all three datasets, SEEM was strongly positively correlated with neuroticism and strongly negatively correlated with extraversion, with the opposite for SIMS. This is what is expected from previous studies (see Francis, 2018), and shows the need to control for personality factors in this analysis. Lark scores were negatively correlation with neuroticism in datasets 2 and 3, but not in dataset 1. Owl scores were positively correlated with extraversion in dataset 1, but not in datasets 2 and 3. Women had slightly lower Owl scores in dataset 2 and slightly lower Lark scores in dataset 3. Older people had higher Lark scores in datasets 2 and 3 and lower Owl scores in Dataset 3.

- insert tables 6-8 about here -

Linear regressions confirmed the variable responses to the FOLI index between the datasets for both SEEM (table 9) and SIMS (table 10). Lark scores were consistently negatively correlated with SEEM scores across all three datasets, but this was true for Owl scores only in Dataset 2. SIMS scores were positively correlated with Larks scores in Dataset 1 and positively with Owl scores in Dataset 3, but otherwise there were no significant correlations, though some relationships approached the 10% level of significance.

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Discussion and conclusion

This study set out to address two research problems. The first research problem concerned developing a new index of diurnal activity patterns for use among clergy, resulting in the Francis Owl-Lark Indices (FOLI). The second research problem concerned assessing the effects of the Lark preference for morningness and the Owl preference for eveningness on clergy work-related psychological health. The findings for these two research problems will be addressed in turn.

Francis Owl-Lark Indices

This study built on experience gained from consideration of earlier measures, including: the 19-item Morningness-Eveningness Questionnaire (MEQ; Horne & Östberg, 1976); the 7-item Diurnal Type Scale (DTS; Torsvall, & Åkerstedt, 1980); the 13-item Composite Scale of Morningness (CSM; Smith, Reilly, & Midkiff, 1989); the 5-item Reduced Morningness-Eveningness Questionnaire (rMEQ; Adan & Almirall, 1990); the ten-item Morningness-Eveningness Scale for Children (MESC; Carskadon, Vieira, & Acebo, 1993); and the 12-item Early-Late Preferences Scale (Smith, et al., 2002). The view was taken that morningess and eveningness are not opposite ends of a continuum, but independent (although not orthogonal constructs). Factor analysis of the pool of 19 items identified two

distinctive sets of items that clearly corresponded with Lark preferences and with Owl preferences. The two scales correlated highly (r = -.51, -.59, and -.48 in the three datasets), but by no means perfectly. Levels of item endorsement indicated a much stronger preference among clergy for morningness than for eveningness, across all three datasets.

Personal and personality correlates of diurnal activity patterns

Considerable previous research has explored the location of diurnal activity patterns within models of personality, with particular attention given to the Major Three Dimensions proposed by Eysenck and Eysenck (1975) and the Big Five Factors proposed by Costa and McCrae (1985). The present study reported an inverse relationship between neuroticism and Lark preferences in two of the three datasets and a positive relationship between extraversion and Owl preference in one of the three dataset. The direction of these associations is consistent with earlier research employing the Eysenckian measure (Larsen, 1985; Mura & Levy, 1986; Adan, 1992; Neubauer, 1999; Mitchell & Redman, 1993; Mecacci & Rocchetti, 1998).

Although Randler's (2007) meta analysis of sex differences in the diurnal activity pattern found females to be significantly more morning orientated than males, the present study found no consistent sex differences in either Lark preference or Owl preference among clergy across the three datasets. This finding is consistent with studies that show that the personality characteristics of male and female clergy are by no means as clearly differentiated as the personality characteristics of men and women in the wider population (Francis, 1992; Francis & Musson, 1999; Robbins, Francis, Haley, & Kay, 2001; Francis, Jones, Jackson, & Robbins, 2001; Robbins, Littler, & Francis, 2011; Brewster, Francis & Robbins, 2011).

Assessing clergy work-related psychological health

Two models of professional burnout and work-related psychological health are well established within the field of clergy studies (for review see Francis, 2018): the model

proposed by Maslach and Jackson (1986) as operationalised by the Maslach Burnout Inventory, and the model proposed by Francis, Kaldor, Robbins, and Castle (2005) as operationalised by the Francis Burnout Inventory. This study employed the Francis Burnout Inventory that draws on the classic balanced affect model proposed by Bradburn (1969). This model suggests that effects of negative affect can be offset, to some extent, by the effects of positive affect. In the Francis Burnout Inventory negative affect is assessed by the Scale of Emotional Exhaustion in Ministry, while positive affect is assessed by the Satisfaction in Ministry Scale.

Studies assessing professional burnout and work-related psychological health among clergy, using either the Maslach model or the Francis model, have indicated that burnout and poor work-related psychological health are significantly correlated with low extraversion scores and high neuroticism scores (for review see Francis, 2018). The present study is consistent with these general findings. High satisfaction in ministry was associated with low neuroticism scores and high extraversion scores, while high emotional exhaustion in ministry was associated with high neuroticism and low extraversion, within all three datasets.

The wider literature does not demonstrate a consistent pattern of sex differences in burnout and work-related psychological health among clergy (for review see Francis, 2018). The present study indicates that clergywomen experienced lower levels of emotional exhaustion than clergymen in all three datasets, and that clergywomen experienced higher levels of satisfaction in ministry in one of the three datasets.

Work-related psychological health and diurnal activity patterns

A common-sense hypothesis might proceed as follows. While the varied work of parish ministry may occupy all parts of the day, in many parishes there may be a particular emphasis to hold meetings in the evening and to concentrate some aspects of pastoral visiting and pastoral engagement within the evening. It is likely that Owls will find such engagement

more congenial than Larks. At the same time, the present study indicates that Larks, rather than Owls are recruited into parish ministry. We may expect then, Larks to be at greater risk from professional burnout and poor work-related psychological health, while Owls may have greater propensity to thrive in parish ministry.

However, what militates against this common-sense hypothesis are the findings rehearsed in the introduction to this paper that the health-related correlates (both physical and psychological) of the diurnal rhythm have generally pointed to a better trajectory among Larks. For example, Larks show better general health (Paine, Gander, & Travier, 2006), lower incidence of depression (Mecacci & Rocchetti, 1998; Chelminski, Ferraro, Petros, & Plaud, 1999; Lester, 2015; Merikanto, et al., 2015; Müller, Olschinski, Kundermann, & Cabanel, 2016), lower levels of anxiety (Díaz-Morales & Sánchez-Lopez, 2008) lower levels of pessimism (Lewy, 1985), higher levels of satisfaction in life (Randler, 2008b), and better self-esteem (Randler, 2011). Moreover, Randler, Luffer, and Müller (2015) demonstrated that Larks were less susceptible to high burnout scores than Owls.

In order to take into account the complexity among the bivariate associations between diurnal activity preferences, personality and wellbeing, the present study controlled for sex differences and for differences in neuroticism and extraversion before testing for the effects of diurnal activity preferences on emotional exhaustion in ministry and on satisfaction in ministry. The data found no support for the common-sense hypothesis. On the contrary, the data demonstrated that in all three datasets, among Anglican clergy in Wales, among Presbyterian clergy in Scotland, and among Salvation Army officers in the United Kingdom, Lark preferences were consistently associated with lower emotional exhaustion in ministry.

Further research

The present study is limited by concentration on just three groups of clergy, Anglican clergy in Wales, Presbyterian clergy in Scotland, and Salvation Army officers in the UK. The

intriguing findings may, nonetheless add new insights into individual differences in levels of clergy professional burnout and work-related psychological health. Replication of this study among other groups of clergy would be helpful in testing the extent to which the findings may be generalised.

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Table 1

Sample profiles of the three datasets

		Dataset 1	Dataset 2	Dataset 3
	N =	338	484	422
Sex	% Male	75	67	39
	% Female	25	33	61
Age	% 20s	1	1	1
	% 30s	7	3	11
	% 40s	17	16	22
	% 50s	46	41	46
	% 60s	27	33	20
	% 70s	2	6	0
Marital status	% Single	17	16	18

Table 2

Exploratory factor analysis of items in the Francis Owl-Lark Indices in Dataset 1

	Owl	Lark
I am definitely an evening type of person	**.80**	-.40
I am at my best late at night	**.78**	-.28
I like to say up late at night	**.74**	-.19
I would find it very difficult to stay up to midnight every day*	**.63**	.01
I rarely have difficulty staying awake late into the evening	**.62**	-.09
I would find it very difficult to get up at 6am every day to go to work*	-.14	**.72**
I rarely have difficulty getting up in the morning	-.09	**.63**
I am definitely a morning type of person	-.56	**.62**
I do not mind getting up early in the morning to start a journey	-.08	**.60**
I am at my best in the morning	-.53	**.59**

Note. Alpha extraction and varimax rotation. Loadings in bold were assigned to the relevant factor.

* reversed-coded items

Table 3

Scale properties of the Francis Owl-Lark Indices

	Dataset 1		Dataset 2		Dataset 3	
Owl index	CITC	% Yes	CITC	% Yes	CITC	% Yes
I am at my best late at night	.74	21	.77	28	.77	25
I rarely have difficulty staying awake late into the evening	.57	42	.60	42	.59	39
I like to say up late at night	.70	33	.73	44	.73	32
I am definitely an evening type of person	.77	21	.76	27	.73	25
I would find it very difficult to stay up to midnight every day*	.55	70	.71	67	.64	74
Lark Index						
I am at my best in the morning	.67	70	.71	58	.73	63
I rarely have difficulty getting up in the morning	.54	64	.53	66	.62	55
I do not mind getting up early in the morning to start a journey	.52	88	.43	90	.52	86
I am definitely a morning type of person	.70	59	.75	52	.76	56
I would find it very difficult to get up at 6am every day to go to work*	.61	39	.64	44	.61	44

Note. CITC = Corrected Item-Total Correlation. % Yes = percentage answering Agree or Strongly Agree.

* These items were reverse-coded for analysis.

Table 4

Confirmatory factor analysis of the FOLI index using datasets 2 and 3

	Dataset 2		Dataset 3	
	Owl	Lark	Owl	Lark
I like to stay up late at night	**.80**	.03	**.81**	.04
I would find it very difficult to stay awake after midnight every day*	**.80**	.09	**.74**	.10
I am at my best late at night	**.78**	-.13	**.82**	-.07
I am definitely an evening type of person	**.74**	-.22	**.73**	-.25
I rarely have difficulty staying awake late into the evening	**.66**	.09	**.64**	.04
I would find it very difficult to get up at 6.00 am every day to go to work*	-.03	**.75**	.05	**.73**
I rarely have difficulty getting up in the morning	-.05	**.57**	.02	**.70**
I do not mind getting up early in the morning to start a journey	.09	**.56**	.08	**.63**
I am definitely a morning type of person	-.50	**.54**	-.40	**.64**
I am at my best in the morning	-.48	**.49**	-.39	**.60**

Note. Pattern matrix produced after alpha extraction and oblimin rotation with Kaiser normalization. Loadings in bold were assigned to the relevant factor.

* reversed-coded items.

Table 5

Descriptive statistics for the continuous variables used in the analyses from datasets 1 to 3

Dataset 1	alpha	N Items	Mean	SD	Lo	Hi
Scale of Emotional Exhaustion in Ministry	.84	10	25.25	6.75	10	49
Scale of Satisfaction in Ministry	.85	10	38.59	4.91	19	50
Lark Index	.81	5	18.09	4.07	6	25
Owl Index	.85	5	12.90	4.57	5	25
Extraversion Scale	.78	6	3.08	2.22	0	6
Neuroticism Scale	.78	6	2.14	1.90	0	6
Dataset 2						
Scale of Emotional Exhaustion in Ministry	.84	10	25.62	7.27	10	45
Scale of Satisfaction in Ministry	.85	10	39.57	5.36	17	50
Lark Index	.82	5	17.62	4.47	5	25
Owl Index	.88	5	13.74	5.08	5	25
Extraversion Scale	.88	10	4.15	2.92	0	10
Neuroticism Scale	.77	10	3.39	2.47	0	10
Dataset 3						
Scale of Emotional Exhaustion in Ministry	.84	10	29.31	7.31	10	45
Scale of Satisfaction in Ministry	.89	10	36.53	6.85	16	50
Lark Index	.84	5	17.31	4.64	5	25
Owl Index	.87	5	12.63	4.83	5	25
Extraversion Scale	.81	10	3.68	2.87	0	10
Neuroticism Scale	.81	10	4.32	2.81	0	10

Table 6 *Correlation matrix for Dataset 1*

	Neu	Ext	Owl	Lark	Age	Fem	SIMS
SEEM	.61***	-.18**	.01	-.16**	.05	-.15**	-.61***
SIMS	-.47***	.29***	.00	.18**	-.01	.04	
Female	-.08	.06	-.05	-.05	-.05		
Age group	.04	.05	-.06	.08			
Lark Score	-.10	.02	-.51***				
Owl Score	-.09	.21***					
Extraversion (Eysenck)	-.25***						
Neuroticism (Eysenck)							

Note. N = 338. SEEM = Scale of Exhaustion in Ministry; SIMS = Satisfaction in Ministry Scale.

* $p < 0.5$; ** $p < .01$; *** $p < .001$.

Table 7 *Correlation matrix for Dataset 2*

	Neu	Ext	Owl	Lark	Age	Fem	SIMS
SEEM	.49***	-.28***	-.03	-.17***	-.19***	.00	-.59***
SIMS	-.36***	.33***	.07	.08	.07	.01	
Female	.10*	.00	-.10*	-.05	-.09		
Age group	-.10*	.09	-.09	.20*			
Lark Score	-.18***	-.02	-.59***				
Owl Score	.05	.12					
Extraversion (FPTETS)	-.18						
Neuroticism (FPTETS)							

Note. *N* = 484. SEEM = Scale of Exhaustion in Ministry; SIMS = Satisfaction in Ministry Scale. FPTETS = Francis Psychological Type and Emotional Temperament Scales.

* $p < 0.5$; ** $p < .01$; *** $p < .001$.

Table 8 *Correlation matrix for Dataset 3 (subset)*

	Neu	Ext	Owl	Lark	Age	Fem	SIMS
SEEM	.50***	-.22***	-.03	-.14*	.07	-.15**	-.64***
SIMS	-.39***	.20***	.08	.06	-.07	.15**	
Female	.04	.07	-.10	-.18**	.04		
Age group	-.02	-.10	-.15**	.24***			
Lark Score	-.17**	.05	-.48***				
Owl Score	-.06	.04					
Extraversion (FPTETS)	-.26***						
Neuroticism (FPTETS)							

Note. *N* = 330. SEEM = Scale of Exhaustion in Ministry; SIMS = Satisfaction in Ministry Scale. FPTETS = Francis Psychological Type and Emotional Temperament Scales.

* $p < 0.5$; ** $p < .01$; *** $p < .001$.

Table 9

Linear regression of SEEM

		B	SE	β	*t*
Dataset 1					
	Female	-1.64	0.68	-.11	-2.43*
	Age group	0.23	0.31	.03	0.73
	Extraversion (Eysenck)	-0.11	0.14	-.04	-0.76
	Neuroticism (Eysenck)	2.09	0.16	.59	13.11***
	Lark Score	-0.17	0.09	-.10	-2.04*
	Owl Score	0.01	0.08	.01	0.14
Dataset 2					
	Female	-1.18	0.60	-.08	-1.96*
	Age group	-0.91	0.30	-.12	-3.01***
	Extraversion (FPTETS)	-0.44	0.10	-.18	-4.51***
	Neuroticism (FPTETS)	1.27	0.12	.43	10.97***
	Lark score	-0.28	0.08	-.17	-3.53***
	Owl score	-0.23	0.07	-.16	-3.26***
Dataset 3					
	Female	-2.94	0.72	-.20	-4.10***
	Age group	0.76	0.35	.10	2.15*
	Extraversion (FPTETS)	-0.15	0.12	-.06	-1.28
	Neuroticism (FPTETS)	1.16	0.12	.46	9.32***
	Lark score	-0.23	0.09	-.15	-2.64*
	Owl score	-0.11	0.08	-.08	-1.38

Note. FPTETS = Francis Psychological Type and Emotional Temperament Scales.

* $p < 0.5$; ** $p < .01$; *** $p < .001$.

Table 10

Linear regression of SIMS

		B	SE	β	*t*
Dataset 1					
	Female	0.04	0.54	.00	0.08
	Age group	-0.04	0.25	-.01	-0.17
	Extraversion (Eysenck)	0.42	0.11	.19	3.78***
	Neuroticism (Eysenck)	-1.06	0.13	-.41	-8.32***
	Lark Score	0.16	0.07	.13	2.30*
	Owl Score	-0.02	0.06	-.01	-0.24
Dataset 2					
	Female	0.66	0.48	.06	1.38
	Age group	0.05	0.24	.01	0.21
	Extraversion (FPTETS)	0.48	0.08	.26	6.17***
	Neuroticism (FPTETS)	-0.66	0.09	-.31	-7.20***
	Lark score	0.11	0.06	.09	1.80
	Owl score	0.12	0.06	.12	2.23*
Dataset 3					
	Female	2.77	0.75	.19	3.69***
	Age Group	-0.61	0.37	-.09	-1.64
	Extraversion (FPTETS)	0.18	0.13	.08	1.45
	Neuroticism (FPTETS)	-0.87	0.13	-.35	-6.68***
	Lark score	0.16	0.09	.11	1.70
	Owl Score	0.16	0.09	.11	1.89

Note. FPTETS = Francis Psychological Type and Emotional Temperament Scales.

* $p < 0.5$; ** $p < .01$; *** $p < .001$.