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Prayer, purpose in life, and attitudes toward substances: a study among 13- to 15-year-olds in
England and Wales

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Abstract

This study set out to examine the association between prayer frequency, purpose in life and attitude toward substances, among a sample of 2,563 13- to 15-year-old secondary school pupils in England and Wales. Multivariate models controlling for sex, school year and personality (as defined by the Eysenkian dimensional model) demonstrated that higher levels of purpose in life are associated with greater prayer frequency, and that more proscriptive attitudes toward substances are associated with both higher levels of purpose in life and greater prayer frequency. These findings are consistent with a model suggesting that prayer frequency promotes a more negative view of substances both directly and indirectly through cultivating a greater sense of purpose in life.

Keywords:

Introduction

Scientific concern with the empirically observable correlates of prayer predates the development of the psychology of religion at the beginning of the twentieth century. The two key empirical problems concerning the objective and the subjective correlates (or consequences) of prayer were efficiently formulated and operationalised by Sir Francis Galton's statistical enquiries regarding the subjective effects of prayer on those doing the praying and the objective effects of prayer on those from whom prayers were being offered (see Galton, 1869, 1872, 1883; Means, 1876).

Following Galton's pioneering studies in the latter part of the nineteenth century, levels of empirical research in the correlates (or consequences) of prayer have waxed and waned in the psychology of religion. Although prayer was of central concern to some early commentators in the field (James, 1902; Coe, 1916; Hodge, 1931), Finney and Malony's (1985) review of the state of the literature in the mid-1980s was fully justified in its conclusion that:

Nowhere is the long standing breach between psychology and religion more evident than in the lack of research on prayer. Only a few studies of prayer exist in spite of the fact that prayer is of central religious importance.

This assessment was echoed in other reviews of that period, including Hood, Morris and Watson (1987, 1989), Poloma and Pendleton (1989) and Janssen, de Hart, and den Draak (1989).

Something of a renaissance in empirical studies concerning the correlates of prayer was heralded by Brown's (1994) study *The Human Side of Prayer* and by Francis and Astley's (2001) reader, *Psychological Perspectives on Prayer*. From the mid 1980s, there has been a stream of studies concerned with the subjective effects of prayer, as evidenced by Helm, Hays, Flint, Koenig, and Blazer (2000) and Krause (2003). From the mid 1980s there

has also been a stream of studies concerned with the objective effects of prayer, including those set within the professional context of blind clinical trials, as evidenced by Byrd (1988), and Benson, Dusek, Sherwood, Lam, Bethea, Carpenter, Levitsky, Hill, Clem, Jain, Drumel, Kopecky, Mueller, Marek, Rollins, & Hibberd (2006). What is also clear from recent studies is that the practice of prayer remains clearly in evidence, even in secularised societies (ap Siôn, 2007, 2009; Bänziger, Janssen, & Scheepers, 2008).

Prayer and purpose in life

Within the broader field of research concerned with the subjective correlates of prayer, one strand has been focused specifically on the notion of purpose in life. For example, using a single-item measure of purpose in life, Francis and Burton (1994) found a positive correlation between personal prayer and perceived purpose in life among a sample of 674 12- to 16-year-olds attending a Catholic school and who identified themselves as members of the Catholic Church, even after controlling for individual differences in frequency of church attendance. Francis and Evans (1996) found a significant positive relationship between frequency of personal prayer and perceived purpose in life among two samples of pupils: 669 pupils who attended church most weeks, and 1,640 pupils who never attended church. Francis (2005) replicated and extended the study by Francis and Evans (1996), drawing on two samples of 13- to 15-year olds. The first sample comprised 7,083 males and 5,634 females who never attend church. The second sample comprised 1,738 males and 2,006 females who attend church nearly every week. The data demonstrated a significant positive relationship between frequency of personal prayer and perceived purpose in life among both the churchgoers and the non-churchgoers. Robbins and Francis (2005) extended the study by Francis and Evans (1996) in a different way by drawing a sample of adolescents from Northern Ireland where religion has a much higher saliency than in the rest of the United Kingdom and where the community is strongly divided on denominational grounds. These

data, provided by 1,206 13- to 15-year-olds in Catholic schools and by 1,464 in Protestant schools, once again demonstrated a clear relationship between frequency of prayer and perceived purpose in life, after controlling for the effects of sex, age, personality, and church attendance, in both denominational communities.

These studies concerned with the association between prayer and purpose in life fit into a wider discussion within the psychology of religion linking higher purpose in life scores with intrinsic religiosity (Crandall & Rasmussen, 1975; Bolt, 1975; Soderstrom & Wright, 1977; Paloutzian, Jackson, & Crandall, 1978, Chamberlain & Zika, 1988; Weinstein & Cleanthous, 1996; Dezutter, Soenens, & Hutsebaut, 2006). Intrinsic religiosity, as originally conceptualised and operationalised by Allport and Ross (1967), maps closely onto the notion of personal piety as reflected within prayer.

Psychological significance of purpose in life

The association between prayer and purpose in life is of particular interest in light of the broad significance of this construct within the field of individual differences. Following the pioneering work of Frankl (1978) purpose in life is understood to be central to the meaning-making process which confers meaningfulness. As such, purpose in life is a central component of psychological well-being. It is purpose in life which makes living worthwhile and which helps to prevent despair from leading to suicide.

Early empirical research concerned with the psychological correlates of purpose in life, as reviewed by Yalom (1980), focused largely on the relation between purpose in life and psychopathology. Some more recent studies have maintained this focus, demonstrating, for example, the inverse association between purpose in life and fear and anxiety concerning the possibilities of nuclear war and nuclear accidents (Newcomb, 1986), uncontrollable stress and substance use (Newcomb & Harlow, 1986), suicidal ideation (Harlow, Newcomb, & Bentler, 1986); Lester & Badro, 1992; Edwards & Holden, 2001), drug addiction

(Schlesinger, Susman, & Koenigsberg, 1990), HIV disease (Bechtel, 1994; Lyon & Younger, 2001), death anxiety (Rappaport, Fossler, Bross, & Gilden, 1993), and general anxiety and depression (Bigler, Neimeyer, & Brown, 2001). However, another set of recent studies has focused much more on the perspective of positive psychology to identify the positive correlates of purpose in life, demonstrating, for example, the positive association between purpose in life and psychological well-being (Zika & Chamberlain, 1987; Bigler, Neimeyer, & Brown, 2001), positive affect and life satisfaction (Chamberlain & Zika, 1988), positive dimensions of well-being (Zika & Chamberlain, 1992), recovery from alcoholism (Carroll, 1993; Waisberg & Porter, 1994), positive self-image (Shek, 1992), self-esteem and cognitive well-being (Coward, 1996), personal happiness (Lewis, Lanigan, Joseph, & de Fockert, 1997), and mature coping strategies (Whitty, 2003). In a factor analytic study, Compton (2001) found that purpose in life was associated with measures of life satisfaction, happiness, positive affectivity, self-acceptance, existential well-being, self-esteem, and environmental mastery.

Social significance of purpose in life

There is also a long history of demonstrating the direct relationship between purpose in life and social attitudes (Pearson & Sheffield, 1975). A particularly relevant study among young people was reported by Shek, Ma, and Cheung (1994) who administered the Chinese version of the Purpose in Life Questionnaire (Shek, 1986) together with the Adolescent Behaviour Questionnaire (see Ma & Leung, 1991) to a sample of 2,972 secondary school students aged between 11 and 19 years. The Adolescent Behaviour Questionnaire generates two subscales associated with pro-social behaviour and six subscales associated with antisocial behaviour. The data demonstrated significant negative correlations between purpose in life scores and all six subscales associated with antisocial behaviour: (a) cognitive and academic performance, defined as deviant or socially disapproved acts in classroom and

school setting, such as playing truant; (b) psychosexual activities, defined as socially undesirable sexual activities, such as reading pornographic magazines; (c) antisocial acts in school, defined as acts against teachers and school authorities, such as telling a lie to cheat the teacher; (d) antisocial acts in the family, defined as anti-social acts occurring in the family setting, such as disobeying parental command; (e) antisocial acts in general, defined as antisocial acts in other settings, such as gambling; and (f) aggression, defined as aggressive or hostile acts, such as foul language. The data also demonstrated significant positive correlations between purpose in life and the two subscales associated with pro-social behaviour: (a) normative acts, defined as socially acceptable or normative acts, such as apologising to others; and (b) altruistic acts, defined as helping behaviours, such as voluntary work.

Building on the study by Shek, Ma, and Cheung (1994), Francis and Robbins (2006) examined the association between purpose in life and three social attitude domains among a sample of 12,717 13- to 15-year-old adolescents in England and Wales: attitude toward school, attitude toward law and order, and attitude toward substances. Their data demonstrated a positive association between purpose in life and pro-social attitudes in all three domains.

The two findings that prayer frequency predicts levels of purpose in life and that purpose in life predicts pro-social attitudes raises a question about the linkage between prayer and pro-social attitudes. For example, several studies have demonstrated the correlation between prayer among young people and positive school-related attitudes (Francis, 1992; Montgomery & Francis, 1996) or lower alcohol use (Long & Boik, 1993). In their study among 12,717 13- to 15-year-old adolescents, Francis and Robbins (2006) also examined the association between prayer frequency and their three measures of attitude toward school,

attitude toward law and order, and attitude toward substances. Their data demonstrated a positive association between prayer frequency and pro-social attitudes in all three domains.

Taking their analysis of the data on step further, Francis and Robbins (2006) employed multivariate modelling techniques to examine whether the apparent influence of prayer frequency on pro-social attitudes was mediated entirely through purpose in life or whether there was a direct influence as well (after controlling for sex, age and individual differences in personality). Multivariate modelling indicated that the statistically significant association between personal prayer and pro-social attitudes is partly, but not wholly, mediated via purpose in life. Francis and Robbins (2006) concluded their study with the suggestion that their intriguing finding deserved further exploration and checking within other sources of data. The present enquiry is a direct response to that invitation.

The role of personality

Research concerning the relationship between prayer and purpose in life needs to be aware of the potential contaminating influence of personality. A number of recent studies have demonstrated that Eysenck's three dimensional model of personality (Eysenck & Eysenck, 1991) is able to predict individual differences in prayer, including studies among school pupils (Francis & Wilcox, 1994, 1996; Smith, 1996), students (Maltby, 1995; Lewis & Maltby, 1996; Francis, 1997), school teachers (Francis & Johnson, 1999), senior citizens (Francis & Bolger, 1997), and the general adult population (Kaldor, Francis, & Fisher, 2002). In particular higher levels of prayer are associated with lower scores on the psychoticism scale. Another set of recent studies have demonstrated that Eysenck's three dimensional model of personality is able to predict individual differences over a range of areas concerned with subjective well-being in general (Francis, Brown, Lester, & Philipchalk, 1998; Francis, 1999; Hills & Argyle, 2001) and with purpose in life in particular (Pearson & Sheffield, 1974, 1989; Addad, 1987; Moomal, 1999; Francis, 2000; Robbins & Francis, 2000). In

particular higher levels of well-being are associated with lower scores on the neuroticism scale and higher scores on the extraversion scale. In order to allow for the potential contaminating influence of personality, the present study has incorporated a reliable measure of the Eysenkian dimensional model of personality. This model argues that individual differences can be most economically and adequately expressed in terms of three higher order orthogonal dimensions characterised as extraversion, neuroticism, and psychoticism. Eysenck's instruments designed to operationalise this model also routinely include a lie scale (Eysenck & Eysenck, 1991).

Research agenda

Against this background the present study has been designed to build on previous research by exploring three main issues.

The first issue concerns the role of sex, school year and personality in shaping individual differences in the three key constructs with which the study is concerned. The first three hypotheses are that sex, school year and personality each predict individual differences in 1) prayer frequency, 2) purpose in life, and 3) attitude toward substances.

The second issue concerns the role of prayer frequency in shaping individual differences in purpose in life and attitude toward substances. The next two hypotheses are that, after controlling for sex, school year and personality, prayer frequency adds further predictive power to individual differences in 1) purpose in life, and 2) attitude toward substances.

The third issue concerns the paths of association between prayer frequency and attitudes toward substances and whether this association is mediated wholly through purpose in life. The final hypothesis is that, after controlling for purpose in life as well as sex, school year and personality, prayer frequency adds further predictive power to individual differences in attitude toward substances.

Method

Sample

The Teenage Values Survey was completed by a random sample of 2,563 13- to 15-year-old pupils (1235 males and 1328 females) attending year-nine (1333 pupils) and year-ten (1230 pupils) classes in 11 secondary schools in England and Wales. Pupils were asked *not* to write their name on the booklet and to complete the inventory under examination-like conditions. Although pupils were given the choice not to participate, very few decided not to take part in the survey. They were assured of confidentiality and anonymity. They were informed that their response would not be read by anyone in the school, and that the questionnaires would be dispatched to the University of Wales for analysis. The large majority of the participants (93%) described themselves as 'white', with 3% from mixed racial backgrounds, and small groups of Asian, African and Caribbean young people. Two-thirds (64%) came from intact families. Two-fifths (42%) had no religious affiliation; 28% were Anglicans, and 14% Roman Catholics; most of the others belonged to smaller Christian denominations or sects, with a few Buddhists, Hindus, Jews, Muslims and Sikhs who together accounted for just over 2% of the total participants. The majority of the participants never attended church or other place of worship (58%), with 9% attending at least once a month and 33% attending less frequently than this.

Measures

Personality was assessed by the abbreviated form of the Junior Eysenck Personality Questionnaire Revised (JEPQR-A: Francis, 1996). This instrument proposes four six-item indices of extraversion, neuroticism, psychoticism, and a lie scale. Each item was rated on a two-point scale: *yes* and *no*. Francis (1996) reported the following *alpha* reliabilities for three scales: extroversion, .66; neuroticism, .70; psychoticism, .61; lie scale .57. Eysenck's extraversion scales measure sociability and impulsivity. The opposite of extraversion is

introversion. The high scorers on the extraversion scale are characterised by Eysenck and Eysenck (1975) in the test manual as sociable individuals, who like parties, have many friends, need to have people to talk to and prefer meeting people to reading or studying alone. Typical extraverts crave excitement, take chances, act on the spur of the moment, are carefree and easy-going. Eysenck's neuroticism scales measure emotional lability and over-reactivity, and identify the underlying personality traits which at one extreme define neurotic mental disorders. The opposite of neuroticism is emotional stability. The high scorers on the neuroticism scale are characterised by Eysenck and Eysenck (1975) in the test manual as anxious, worrying individuals, who are moody and frequently depressed, likely to sleep badly, and to suffer from various psychosomatic disorders. Eysenck's psychoticism scales identify the underlying personality traits which at one extreme define psychotic mental disorder. The opposite of psychoticism is normal personality. The high scorers on the psychoticism scale are characterised by Eysenck and Eysenck (1976), in their study of psychoticism as a dimension of personality, as being cold, impersonal, hostile, lacking in sympathy, unfriendly, untrustful, odd, unemotional, unhelpful, lacking in insight, strange, with paranoid ideas that people were against them. The Eysenkian measure of personality also routinely includes a lie scale designed to detect the tendency of some respondents 'to fake good' (O'Donovan, 1969). The lie scale is generally interpreted as a measure of social acquiescence or social conformity (Finlayson, 1972; Massey, 1980; Furnham, 1986).

Purpose in life was measured by the item, 'I feel my life has a sense of purpose', rated on a five-point Likert type scale: *agree strongly, agree, not certain, disagree, and disagree strongly*.

Personal prayer was measured by the item, 'Do you pray by yourself?' rated on a five-point scale: *never, occasionally, at least once a month, at least once a week, and nearly every day*.

Attitude toward substances was assessed by the nine-item Robbins Attitude toward Substances Scale (RASS: Robbins and Francis, in press). Each item was rated on a five-point Likert-type scale: *agree strongly*, *agree*, *not certain*, *disagree*, and *disagree strongly*.

Robbins and Francis (in press) reported an *alpha* coefficient of .83.

Analysis

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

Results

The following *alpha* coefficients (Cronbach, 1951) were reported by the measures employed in the study: attitudes toward substances, .83, extraversion, .70, neuroticism, .72; psychoticism, .61; lie scale, .56. The measure of attitude toward substances, extraversion and neuroticism achieved *alpha* coefficients well in excess of De Vellis' (2003) recommended threshold of .65. The lower *alpha* coefficients achieved by the psychoticism scale and by the lie scale are nonetheless acceptable for such short instruments and consistent with their performance in the wider literature (Francis, 1996).

— insert table 1 about here

Table one displays the bivariate associations between purpose in life, attitude toward substances, extraversion, neuroticism, psychoticism, lie scale, school year and sex in terms of the Pearson correlation coefficients. In view of the large size of the sample and the number of associations being tested simultaneously, the probability level has been set at .01. The following associations are worthy of comment.

Sex was important in respect of personality and prayer: females recorded higher scores than males on the neuroticism scale, the extraversion scale and the lie scale, while males recorded higher scores than females on the psychoticism scale, females recorded a higher level of prayer activity than males. There were no significant associations with sex in

respect of purpose in life scores or in respect of scores recorded on the index of attitudes toward substances.

School year was important in respect of attitude toward substances and three of the four Eysenkian measures: year ten pupils compared with year nine pupils recorded lower scores on the lie scale, higher scores on the psychoticism scale, higher scores on the neuroticism scale, and lower scores on the scale of attitude toward substances (indicates a more permissive attitude). There were no significant associations with school year in respect of prayer activity or purpose in life scores.

Personality was important in terms of purpose in life scores, prayer activity and attitudes toward substances: higher levels of prayer were associated with higher neuroticism scores (emotionality), lower extraversion scores (introversion), lower psychoticism scores (tendermindedness) and higher lie scale scores (social conformity). Greater sense of purpose in life was associated with higher extraversion scores, lower neuroticism scores, and lower psychoticism scores, but independent of lie scale scores. Greater rejection of substances was associated with lower extraversion scores, lower psychoticism scores and higher lie scale scores, but independent of neuroticism scores.

Prayer activity was important in respect of purpose in life and attitude toward substances: greater frequency of prayer was associated with a greater sense of purpose in life and with a lower acceptance of substance use.

Purpose in life was important in respect of attitude toward substances: a greater sense of purpose in life was associated with a lower acceptance of substance use.

— insert table 2 about here -

In the light of the correlations discussed above, table 2 presents the hierarchical multiple regression statistics designed to test the following three-stage model. Stage one of the model proposes prayer activity as the dependent variable and examines the cumulative

predictive power of sex, school year, extraversion, neuroticism, psychoticism, and lie scale scores, entered step-wise in that fixed order. The model accounts for just 3% of the variance in prayer activity scores. A higher level of prayer activity is associated with being female, with emotionality (higher neuroticism scores), and with introversion (lower extraversion scores). Stage two of the model proposes purpose in life as the dependent variable and examines the cumulative predictive power of sex, school year, extraversion, neuroticism, psychoticism, lie scale scores, and prayer, entered step-wise in that fixed order. The model accounts for 5% of the variance in purpose in life scores. A higher sense of purpose in life is associated with tenderminded stable extraversion (lower psychoticism scores, lower neuroticism, scores, and higher extraversion scores). After taking personality into account, prayer activity continues to contribute additional predictive power. Greater frequency of prayer is associated with a greater sense of purpose in life. Indeed, prayer accounts for a higher proportion of variance (3%) than the combined personality variables (2%).

Stage three of the model proposes attitude toward substances as the dependent variable and examines the cumulative predictive power of sex, school year, extraversion, neuroticism, psychoticism, lie scale scores, purpose in life, and prayer, entered step-wise in that fixed order. The model accounts for 24% of the variance in scores of attitude toward substances. Personality accounts for a large proportion of this variance (20%). A more proscriptive attitude toward substances is associated with tenderminded introversion (lower psychoticism scores and lower extraversion scores). After taking personality into account, purpose in life continues to contribute additional predictive power. After taking personality and purpose in life into account, prayer frequency continues to contribute additional predictive power.

Discussion and conclusion

The present study set out to test three groups of hypotheses. The first group of hypotheses proposed that sex, school year and personality each predict individual differences in 1) prayer frequency, 2) purpose in life, and 3) attitude toward substances. These three hypotheses have been supported by the data. A complex pattern of bivariate associations indicated: that prayer frequency was associated with being female, higher neuroticism scores, higher lie scale scores, lower extraversion scores, and lower psychoticism scores; that purpose in life was associated with higher extraversion scores, lower neuroticism scores, and lower psychoticism scores; and that lower tolerance of substances was associated with being older, lower extraversion scores, lower psychoticism scores, and higher lie scale scores. Given the basis of Eysenckian personality theory in biological and inherited characteristics (Eysenck & Eysenck, 1975, 1976), it is reasonable to reformulate these associations to suggest that the basic features of sex, age and personality lead to small, but statistically significant differences in prayer frequency, purpose in life, and attitude toward substances. If this is so, it is clearly necessary to take such influences into account when examining the apparent associations between prayer frequency, purpose in life and attitude toward substances.

The second group of hypotheses proposed that prayer frequency adds further predictive power to individual differences in 1) purpose in life, and 2) attitude toward substances. These two hypotheses were supported by the data. Multivariate analyses indicated: that greater frequency of prayer is associated with a greater sense of purpose in life; and that greater frequency of prayer is associated with lower tolerance of substances.

The third hypothesis proposed that, after controlling for purpose in life as well as for sex, school year and personality, prayer frequency adds further predictive power to individual differences in attitude toward substances. This hypothesis was supported by the data. Multivariate analysis indicated that prayer frequency contributed additional predictive power

to scores of attitudes toward substances after controlling for these other factors. In other words, the association between prayer frequency and attitudes toward substances cannot be seen as being mediated wholly through purpose in life.

These data build on and help to consolidate a developing body of knowledge in several ways. First, the data confirm the conclusion of Francis and Burton (1994), Francis and Evans (1996) and Francis (2005) that frequency of personal prayer is a significant predictor of purpose in life. This finding is consistent with the hypothesised psychological mechanism which proposes that prayer directly influences sense of purpose in life. The theory suggests that young people who pray are, consciously or unconsciously, acknowledging and relating to a transcendence beyond themselves. Acknowledging such a transcendence and relating to that transcendence through prayer places the whole of life into a wider context of meaning and purpose. Furthermore, the practice of prayer implies both a cognitive and an affective component. The cognitive component assumes at least the possibility, if not the certainty, of a transcendent power. Such a belief system is likely to support a purposive view of the nature of the universe. Living in a universe which itself has meaning and purpose is likely to lend a sense of meaning and purpose to the individual who is part of that universe. The affective component assumes at least the possibility, if not the certainty, of that transcendent power being aware of and taking an interest in the individual engaged in prayer. The affective component supports the relational potential of a personal rather than an impersonal transcendent power. Living in relationship to such a personal transcendence is likely to support a sense of value and purpose for the individual.

Second, the data confirm previously published findings that purpose in life is a significant predictor of pro-social attitudes in general (Shek, Ma, & Cheung, 1994) and of substance-related attitudes and behaviours in particular (Coleman, Kaplan, & Downing, 1986; Schlesinger, Susman, & Koenigsberg, 1990). This finding is consistent with the

hypothesised psychological mechanism which proposes that purpose in life directly influences social attitudes and behaviours. The theory suggests that antisocial attitudes and antisocial behaviour are compensatory functions which reflect a low level of meaning and purpose in life.

Third, the data confirm the findings of Francis (1992) and Montgomery and Francis (1996) that personal prayer is a significant predictor of social attitudes among young people. This finding is consistent with the hypothesised psychological mechanism which proposes the following causal route: greater frequency of personal prayer is associated with a higher sense of meaning and purpose in life and, in turn, a higher sense of meaning and purpose in life is associated with more pro-social attitudes and behaviours. According to this theory, purpose in life is the key psychological construct which mediates the beneficial effects of prayer on social attitudes. The final step in the data analysis, however, qualifies this conclusion in an important way.

Fourth, the data confirm the findings of Francis and Robbins (2006) that *some* of the effect of personal prayer on pro-social attitudes is mediated through enhanced purpose in life. In this sense the hypothesised psychological mechanism whereby prayer influences purpose in life and purpose in life influences pro-social attitudes is supported. At the same time, the data demonstrate that this hypothesised psychological mechanism is not sufficient to explain the total effect of prayer on pro-social attitudes. In other words, prayer is able to effect in young lives greater psychological and social benefits than can be achieved solely by enhancing a sense of purpose in life.

The present study has supported the beneficial correlates of prayer among a sample of 2,563 13- to 15-year-old secondary pupils in terms of a small (but statistically significant) enhanced sense of purpose in life, and in terms of a small (but statistically significant) enhanced tendency to reject substances. Within the broader field of the psychology of

religion conflicting views exist on the way in which small correlations, *betas* and MR coefficients should be interpreted. The proportions of variance accounted for in the present study are broadly consistent with those often found in the relevant literature. Future research building on these foundations would benefit from addressing two methodological limitations with the present study. The first limitation concerns the relatively crude way in which prayer was measured in the present study. Future research may wish to include broader assessment regarding the form and content of prayer as well as frequency, following the lead given by Poloma and Pendleton (1989, 1991a, 1991b). The second limitation concerns the way in which purpose in life was assessed in the present study by a single item measure. Future research may wish to include a more sophisticated index of purpose in life like the Purpose in Life Scale (PILS) proposed by Robbins and Francis (2000).

Two somewhat different practical conclusions could be drawn from these findings for work in educational counselling and guidance among young people. The first practical conclusion is the straightforward one which claims scientific support for the beneficial psychological and social effects of prayer among young people. Knowing whether or not young people practise prayer may provide further insight into their levels of purpose in life and their attitudes towards substance. Moreover, a pedagogical strategy built on this conclusion would encourage the practice of prayer among young people wholly on psychological and social grounds, irrespective of theological persuasion or commitment. The second practical conclusion is one which sidesteps the religious and theological implications of the scientific findings and proposes the identification of secular substitutes which can synthesise similar enhancement of purpose in life among young people. Such secular substitutes may explore aspects of meditation practices, mindfulness and stilling as appreciated, exercised and experienced within wholly secular environments.

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Table 1

Correlation matrix

	Purpose in life	S	L	P	N	E	Year	Sex
Prayer	.14***	.15***	.06**	-.07***	.14***	-.08***	-.01	.09***
Sex	.00	-.01	.08***	-.28***	.24***	.11***	.00	
School year	-.03	-.10***	-.05**	.06**	.07***	.02		
Extraversion (E)	.09***	-.19***	-.15***	.07***	.04			
Neuroticism (N)	-.07***	.04	.04	-.10***				
Psychoticism (P)	-.09***	-.39***	-.37***					
Lie scale (L)	.02	.30***						
Substances (S)	.16***							

Note ** = $p < .01$; *** $p < .001$.

Table 2

Multiple regression significance tests

Predictor variable	r ²	increase			Beta	t	p<
		r ²	F	p<			
<i>Personal prayer</i>							
sex	0.01	0.01	19.7	.001	0.05	2.5	.05
school year	0.01	0.00	0.2	NS	-0.01	-0.7	NS
extraversion	0.02	0.01	21.0	.001	-0.06	-2.8	.01
neuroticism	0.03	0.01	29.8	.001	0.11	5.5	.001
psychoticism	0.03	0.00	3.5	NS	-0.03	-1.3	NS
lie scale	0.03	0.00	2.0	NS	0.03	1.4	NS
<i>Purpose in life</i>							
sex	0.00	0.00	0.0	NS	-0.03	-1.3	NS
school year	0.00	0.00	2.4	NS	-0.02	-1.0	NS
extraversion	0.01	0.01	20.3	.001	0.10	4.7	.001
neuroticism	0.01	0.00	8.2	.01	-0.08	-3.8	.001
psychoticism	0.02	0.01	26.0	.001	-0.10	-4.6	.001
lie scale	0.02	0.00	0.0	NS	0.00	-0.1	NS
personal prayer	0.05	0.03	65.1	.001	0.16	8.1	.001
<i>Attitudes toward substance</i>							
sex	0.00	0.00	0.1	NS	-0.11	-5.7	.001
school year	0.01	0.01	24.3	.001	-0.06	-3.5	.001
extraversion	0.04	0.03	89.8	.001	-0.13	-7.0	.001
neuroticism	0.04	0.00	0.3	NS	0.01	0.4	NS
psychoticism	0.19	0.14	454.4	.001	-0.33	-16.8	.001
lie scale	0.21	0.02	70.4	.001	0.16	8.4	.001
purpose in life	0.23	0.02	66.5	.001	0.13	7.2	.001
prayer	0.24	0.01	29.1	.001	0.10	5.4	.001