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Abstract
The aim was to subject the Dimensions of Religiosity Scale to principal-components analysis in order to investigate the proposed component structure among a sample of 656 paticipants in England. Four components were identified, preoccupation, guidance, conviction, and emotional involvement. A main finding, however, was that the factor structure of the DR Scale was a function of the number of people in the sample who were religious.

Introduction

A variety of self-report measures are available for research into religiosity. Some of these have been developed to assess attitudes towards religion, such as the Francis scale of Attitude toward Christianity (FSAC)(Francis & Stubbs, 1987). Others assess intrinsic and extrinsic orientation towards religion (e.g., Maltby & Lewis, 1996) or the quest orientation (e.g., Maltby & Day, 1998). Hall, Tisdale and Brokaw (1994) note that although some instruments are useful clinically, in terms of providing information which might be useful for formulating interventions, not all are, and there is a need to develop measures with clinical relevance.

To understand the relation between religiosity and mental health more fully, we think we have to reformulate our understanding of the measurement of religiosity beyond attitudinal and motivational constructs to get at the core of religious cognitive-emotional systems. DiDuca and Joseph (1997) conceptualized religiosity using constructs taken from the literature on delusional thinking.

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The relevance of this theoretical framework rests on the observation of similarity between psychosis and religious experience (e.g., Chadwick, 2000).

Within the delusional literature, what has been found is that it is not so much holding a belief *per se* which characterizes delusional thinking, but rather it is the preoccupation with the belief, the conviction with which it is held, the guidance it provides in life, and the emotional feelings associated with holding the belief (Garety & Hemsley, 1987). Thus, DiDuca and Joseph (1997) developed the 24-item Dimensions of Religiosity Scale (DR Scale), to assess four dimensions of religious thinking and behaviour: (1) preoccupation (e.g., my thoughts often drift to God), (2) guidance (e.g., I pray for guidance in everyday matters), (3) conviction (e.g., I am sure that Christ exists) and (4) emotional involvement (e.g., I feel happy when I think of God). However, although arguing for the theoretical separability of these four dimensons, factor-analytic investigation of the structural properties of the DRS were not reported by DiDuca and Joseph (1997). Thus, this remains a focus for investigation. The aim of the present study was to explore the structure of religiosity as assessed by the DiDuca and Joseph (1997) items in order to test whether these really are four statistically separable dimensions.

Method

The sample consisted of 656 participants: 395 women (age range 16–80, mean = 36.9, SD = 15.9) and 261 men (age range 16–81, mean = 41.3, SD = 15.7). Of these, 432 were adults in employment in the Suffolk and Essex area of England, 94 were undergraduates at the University of Essex, and 130 were lay readers for the church of England, in the Essex area. These data were pooled from three unrelated investigations all of which used the DR Scale (see DiDuca, 1999). All respondents reported that they were from a Christian background, even if they were now not believers or practicing Christians.

Measures

All respondents completed the 24-item DR Scale reported in DiDuca and Joseph (1997). There are four groups of 6 items reflecting each of the four proposed dimensions of religiosity: preoccupation, guidance, conviction, and emotional involvement (see Table I). Each item is answered on a 5-point Likert scoring system, ranging from strongly agree (5) to strongly disagree (1), with the scoring reversed for negatively worded items. A subsample of 202 respondents also completed the Francis Scale of Attitude towards Christianity (Francis & Stubbs, 1987) in order to test for convergent validity.

Results

Reliability analyses on each of the four 6-item scales were conducted. The Reliability of each of the four scales was satisfactory with Cronbach's alphas (Cronbach, 1951) of 0.93 for Emotional Involvement, 0.94 for

Table I. Principal-components analysis of the Dimensions of Religiosity Scale: 20-item version (Christians only: $n = 413$).

Item	Factor 1	Factor 2	Factor 3	Factor 4
Preoccupation				
My thoughts often drift to God.	**0.60**			
I think about God all the time.	**0.86**			
My thoughts turn to Jesus every day.	**0.55**			
Everything that happens to me reminds me of God.	**0.79**			
I like to talk about Jesus.	**0.55**			
Conviction				
I will always believe in God.		**0.70**		
I am sure that Christ exists.		**0.70**		
I know that God hears my prayers.		**0.60**		
I know that Jesus will always be there for me.		**0.60**		
I am certain that God is aware of everything I do.		**0.74**		
Emotional Involvement				
I feel happy when I think of God.			**0.72**	
Being a Christian is a joyous way to live.			**0.66**	
Prayer lifts my spirits.			**0.43**	
When I'm feeling miserable, thinking about Jesus helps cheer me up.	0.43		**0.48**	
God fills me with love.	0.40	0.40	**0.40**	
Guidance				
I pray for guidance.				**0.54**
God does not help me to make decisions. (R)				**0.72**
I try to follow the laws laid down in the Bible.			0.67	**0.46**
I cannot make important decisions without God's help.				**0.56**
Jesus' life is an example to me.		0.43	0.44	**0.51**

Note: All loadings greater than 0.40 are reported. (R) indicates that the item is reverse-scored. All items located above 0.40 on their proposed subscales shown in bold.

Conviction, 0.94 for Preoccupation, and 0.87 for Guidance. Although internal reliability was satisfactory for each of the four scales, we noted that one item per subscale showed markedly lower item-total correlations than the remaining items in their subscales. Therefore, we decided to omit these 4 items to produce a new 20-item version of the DR Scale (see Appendix).

Reliability analyses of the new five-item subscales gave alpha values now of 0.94 for Emotional Involvement, 0.95 for Conviction, 0.94 for Preoccupation, and 0.90 for Guidance. Despite their separate conceptualization, the subscales were highly inter-correlated (lowest $r = 0.83$, $p < 0.001$), and the total scale was also highly internally reliable with a Cronbach's alpha of 0.95 (Cronbach, 1951).

Convergent validity was shown through an association between the total DR Scale and the FSAC ($r = 0.94$, $n = 202$, $p < 0.0001$).

A principal-components analysis was conducted on the 20 items, which all loaded on one component, with an eigenvalue of 14.50, accounting for 72.5% of the variance.

However, it is known that when non-Christians are included in factor-analytic studies of religiosity questionnaires, one component usually emerges

(e.g., Wearing & Brown, 1972). But if the sample consists of Christians only, a multidimensional solution is more likely (e.g., Caird, 1988). Therefore, religiosity can be seen as unidimensional or multidimensional, depending upon the population under investigation. With a large number of non-religious people in a sample, all of whom would be expected to score at the floor on each of the items, the correlation between items will be substantially increased, thus producing a one-component solution.

To explore the possibility that dimensionality is a function of the mean religiosity of the sample, individuals were excluded from further analysis if they had scored under the mid-point of the total DR Scale. This exclusion procedure left a total of 413 participants. This high-religiosity sample consisted of 171 men (age range 17–81, $M = 44.2$, SD $= 15.5$) and 242 women (age range 16–80, $M = 41.3$, SD $= 16.6$).

Principal-components analysis was conducted on the 20 items, and four components with eigenvalues above 1.00 were now extracted (eigenvalues of 9.15, 1.35, 1.18 and 1.0, respectively). After varimax rotation, chosen because of the theoretical independence of the subscales, components corresponding to preoccupation, guidance, conviction, and emotional involvement were clearly shown (see Table I). All of the items loaded above 0.40 on their subscales, although some items showed some cross-loadings on different factors.

Discussion

The present study reports results on the internal consistency reliability and structural validity of the 20-item DR Scale. What is different about the DR Scale compared with other attitudinal measures is its underlying conceptualization in terms of cognitive-emotional processes. Thus, we think that the DR Scale provides a useful new way of asking clinically relevant questions about the relation of religious beliefs to mental health.

A main finding was that the factor structure of the DR Scale appears to be a function of the number of people in the sample who are not religious. We would emphasize that we only found that the four components were only observable in the high-religiosity grouping, not in the overall sample which contained a spread of highly religious and non-religious people, all from a Christian background. Other research has previously reported that in general samples, the multifactorial nature of religious beliefs are not evident. In non-religious groupings, people will score at the floor of each of the subscales creating a single component, and it is only in more religious samples that the differing beliefs can emerge. Thus, we caution that although the subscales are intercorrelated, their strength of association is likely to be related to the extent of religiosity.

In conclusion, this research reports results on the internal consistency reliability and structural validity of the DR Scale supporting its four-factor structure and presents a revised 20-item version of the scale.

Appendix. 20-item Dimensions of Religiosity Scale (DR Scale) (© 2006 Stephen Joseph)

Please read the following statements and indicate to what extent you agree or disagree with each one.
Strongly disagree = 1
Disagree = 2
Neither disagree or agree = 3
Agree = 4
Strongly agree = 5

1. I feel happy when I think of God	1	2	3	4	5
2. I will always believe in God	1	2	3	4	5
3. My thoughts often drift to God	1	2	3	4	5
4. Being a Christian is a joyous way to live	1	2	3	4	5
5. I am sure that Christ exists	1	2	3	4	5
6. I think about God all the time	1	2	3	4	5
7. I pray for guidance	1	2	3	4	5
8. My thoughts turn to Jesus every day	1	2	3	4	5
9. God does not help me to make decisions*	1	2	3	4	5
10. I know that God hears my prayers	1	2	3	4	5
11. Prayer lifts my spirits	1	2	3	4	5
12. Everything that happens to me reminds me of God	1	2	3	4	5
13. I try to follow the laws laid down in the Bible	1	2	3	4	5
14. I know that Jesus will always be there for me	1	2	3	4	5
15. I cannot make important decisions without God's help	1	2	3	4	5
16. I am certain that God is aware of everything I do	1	2	3	4	5
17. When I'm feeling miserable, thinking about Jesus helps to cheer me up	1	2	3	4	5
18. I like to talk about Jesus	1	2	3	4	5
19. Jesus' life is an example to me	1	2	3	4	5
20. God fills me with love	1	2	3	4	5

Note: *Item 9 is reverse-scored.

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