

Canadian Journal on Aging / La Revue canadienne du vieillissement

<http://journals.cambridge.org/CJG>

Additional services for *Canadian Journal on Aging / La Revue canadienne du vieillissement*:

Email alerts: [Click here](#)

Subscriptions: [Click here](#)

Commercial reprints: [Click here](#)

Terms of use : [Click here](#)



The Daily Spiritual Experience Scale (DSES): Validation of the Short Form in an Elderly French Population

Nathalie Bailly and Nicolas Roussiau

Canadian Journal on Aging / La Revue canadienne du vieillissement / Volume 29 / Issue 02 / June 2010, pp 223 - 231

DOI: 10.1017/S0714980810000152, Published online: 14 May 2010

Link to this article: http://journals.cambridge.org/abstract_S0714980810000152

How to cite this article:

Nathalie Bailly and Nicolas Roussiau (2010). The Daily Spiritual Experience Scale (DSES): Validation of the Short Form in an Elderly French Population. Canadian Journal on Aging / La Revue canadienne du vieillissement, 29, pp 223-231 doi:10.1017/S0714980810000152

Request Permissions : [Click here](#)

The Daily Spiritual Experience Scale (DSES): Validation of the Short Form in an Elderly French Population

Nathalie Bailly
Université François Rabelais

Nicolas Roussiau
Université de Nantes

RÉSUMÉ

L'objectif de notre étude était de valider en langue française l'échelle des expériences de spiritualité quotidienne (EESQ) auprès d'une population âgée française. Deux études ont été menées afin d'examiner les propriétés psychométriques de l'EESQ. Les résultats de l'analyse factorielle (Etude 1-2) et de l'analyse factorielle confirmatoire (Etude 2) ont mis en évidence l'unidimensionnalité de l'échelle. La fidélité interne (Etude 1-2) ainsi que la fidélité temporelle (Etude 2) sont satisfaisantes. Comme prévu, des scores élevés ont été mis en corrélation avec la satisfaction de vie et l'évaluation de sa santé. En revanche, aucune corrélation n'a été mise en évidence avec la dépression. Cette étude préliminaire met en évidence les bonnes propriétés psychométriques de l'EESQ et semble être un bon outil d'investigation pour tous les chercheurs et professionnels intéressés par le maintien et la promotion du bien-être et de la spiritualité chez les âgés.

ABSTRACT

The study's purpose was to evaluate the psychometric properties of the short form of the Daily Spiritual Experience Scale (DSES) in an elderly French population. Two studies were conducted to examine the psychometric properties of the DSES. Results of factor analysis (studies 1-2) and confirmatory factor analysis (Study 2) indicated that the DSES can be conceptualized on a single general factor. The reliability of the DSES appeared to be satisfactory with good internal consistency (studies 1-2) and good temporal stability (Study 2). As expected, higher scores were correlated with good life satisfaction and good self-evaluation of health, but no correlation was found with depression. Study results provided preliminary evidence of the psychometric properties of the French translation of the DSES short version. This short version indicates the potential benefit of encouraging the spiritual aspects of life and could be used in a variety of health-related research.

Manuscript received: / manuscrit reçu : 29/09/08

Manuscript accepted: / manuscrit accepté : 11/09/09

Mots clés : dépression, personnes âgées, santé, satisfaction avec la vie, religion, spiritualité

Keywords: depression, elderly, health, life satisfaction, religiosity, spirituality

Correspondence concerning this article should be addressed to / La correspondance concernant cet article doit être adressée à:

Nathalie Bailly
Maître de Conférences en Psychologie Sociale
Université François Rabelais
3 rue des Tanneurs
37041 Tours Cedex (France)
(bailly@univ-tours.fr)

Introduction

The role of spirituality and religion in people's lives has interested researchers over the past 30 years. Studies have focused on the role of spirituality and religion in physical as well as mental health (George, Ellison, & Larson, 2002; Koenig, George, & Titus, 2004; Thoresen & Harris, 2002). Although findings are not unambiguous, most studies indicate that various aspects of religiosity and spirituality may enhance

well-being (Ellison & Fan, 2007; Krause, 2003); reduce levels of depression and psychological distress (Braam, Van Den Edde, Prince, Beekman, Kivela, Lawlor et al., 2001; Smith, McCullough, & Poll, 2003 – meta-analysis); improve cognitive functioning (Hill, Burdette, Angel, & Angel, 2006; Kaufman, Anaki, Binns, & Freedman, 2007); and preserve physical health (George, 2002; Powell, Shahabi, & Thorensen, 2003; Seeman, Dubin, & Seeman, 2003).

In addition, spirituality and religion seem to be more closely linked to psychological well-being among older adults than among younger people (Ellison, 1991). Spirituality and religion emerge as a particularly important resource for people coping with stress in later life (Reyes-Ortiz, Avele, Mulligan, Espino, Berges, & Markides, 2006). With acute and chronic physical health problems, the loss of close friends and family, approaching death, and other significant life events, spiritual concerns might become increasingly important. Moreover, studies have shown increased spirituality with age in a number of populations (Ahmadi, 2001; Thomas, 2006; Wink & Dillon, 2002). According to Dalby (2006), spirituality corresponds to a search for meaning and purpose at a time of life when earlier sources of meaning and purpose may be diminishing.

One interesting explanation of the link between spirituality and age is the theory of gerotranscendence based on Erikson's (1982) model. Tornstam (2005) defined gerotranscendence as a shift in meta-perspective, from a materialistic and rational view of the world to a more cosmic and transcendent one, normally accompanied by an increase in life satisfaction. In the empirically based theory, the individual moving towards gerotranscendence may experience a series of gerotranscendental changes or developments. These typically include a redefinition of the self and of relationships with others, and a new understanding of fundamental existential and spiritual questions. Crowther, Parker, Larimore, Achenbaum, Koenig, and Cohen (2002) emphasized that spirituality is an important, but often forgotten, factor in the lives of older people. It is thus important to include aspects of spirituality and religiosity in the psychological care of older people (Ortiz & Langer, 2002). For these reasons, we chose to investigate spirituality and religiosity in an elderly population.

Concepts of spirituality and religiosity are often poorly defined in these multidimensional aspects. Hill and Pargament (2003) defined *religiosity* as a reference to external, institutionalized, formal, and doctrinal aspects of religious life, whereas *spirituality* is a personal and subjective experience including the concept of God and the divine. In general, religiosity refers to group affiliation and practices (Crowther et al., 2002). On the other hand, spirituality is distinguished from material reality and as such refers to the transcendent: something beyond the self (Miller & Thoresen, 2003). Spirituality is a search for meaning, involving the questioning of life and the relationship with the sacred or transcendent, which may or may not stem from the development of religious rituals and the formation of a community (Koenig, McCullough, & Larson, 2001; Dalby, 2006; Moreira-Almeida & Koenig, 2006). Thus, *spirituality* seems to be a broader term than *religiosity*. In fact, the two constructs are closely linked; a few

people engage in religious activity with no spiritual sense of it, while a small group of people experience spirituality that is not connected to any form of religious belief or activity (Underwood, 2006).

Multiple instruments have been developed to address the construct of spirituality. One such instrument, which seems to be particularly promising, is the Daily Spiritual Experience Scale (DSES). This scale was initiated by the National Institute of Aging and the Fetzer Institute (Fetzer, 1999). The DSES was developed to measure everyday spiritual experiences and is of interest because it is not rooted in any institutionalized or organisational religious activity, nor is it limited to any particular tradition (Ellison & Fan, 2007; Underwood, 2006; Underwood & Teresi, 2002). "This scale is intended to measure a person's perception of the transcendent (God, the divine) in daily life and his or her perception of his or her interaction with or involvement of the transcendent in life" (Underwood & Teresi, p. 23).

The original version of the DSES was developed from in-depth interviews and focus groups with individuals from many religious backgrounds (agnostics, atheists, Buddhists, Christians, Hindus, Jews, and Muslims). The use of the word *God* caused some concern; although various words were used to refer to the transcendent or divine, the predominant word used was *God*. Consequently, the introduction to the scale included advising people who were not comfortable with the word *God* that they could substitute another word for it that better represented their perception of the divine or holy (Underwood, 2006; Underwood & Teresi, 2002). The original scale consisted of 16 items (self-report measures) and demonstrated a high internal consistency (Cronbach's $\alpha = .90-.96$ [Ellison & Fan, 2007; Harris, Sherritt, Holder, Kulig, Shrier, & Knight, 2007; Loustalot, Wyatt, Boss, & McDyess, 2007; Underwood & Teresi]) and good temporal stability ($r = .77$: Loustalot et al.; $r = .85$: Underwood & Teresi). In addition, principal component analysis (PCA) supported a one-factor structure (Underwood & Teresi), even though some research divides the DSES items into "God" and "non-God" items (Ellison & Fan; Zemore & Kaskutus, 2004).

Finally, links were established between the DSES (see <http://www.dsesc.org>) and health and mental health outcomes. It has been translated into a variety of languages, such as Spanish, Korean, Hebrew, and Vietnamese, and used in Jewish, Muslim, Roman Catholic, and Protestant religious cultures (French, Eisenberg, Vaughan, Purwono, & Suryanti, 2008; Kalkstein & Tower, 2008; Underwood & Teresi).

A six-item scale of the DSES was developed for inclusion in the General Social Survey (GSS, 1998–2004). In the GSS, internal consistency of the short version was .91 (Ellison & Fan, 2007). In another study, Loustalot

et al. (2007) evaluated the psychometric properties of this shortened version among African-Americans. Internal consistency and test-retest reliability were good (Cronbach's $\alpha = .81-.86$; 2 weeks later, stability $r = .79$). Although Underwood and Teresi (2002) recommended utilization of a 16-item version of the DSES, recent studies by Ellison and Fan indicate that there is no clear evidence that the long form predicts positive outcomes more effectively than the short form. Cross-version comparisons of the DSES have shown no clear differences in the magnitude or statistical significance of relationships between the DSES and measures of well-being (Ellison & Fan). In addition, concurrent validity between the two versions is similar ($r = .85$ [Loustalot et al.]). Using the shorter form of the DSES, researchers linked DSES measures with desirable outcomes in studies of inner-city elders, adolescents, and caregiver burnout (Dunn, Chapelski, Stinson, & Massanari, 2004; Holland & Neimeyer, 2005; Pearce, Little, & Perez, 2003).

Although the short version of the DSES seems to have adequate psychometric properties, it needs to be validated in different groups. First, because of the need for a short measure, designed especially for use with elderly people, it is important to validate the six-item version. Second, most of the studies and scales in the field of spirituality were developed in the U.S., and there is an urgent need for more trans-culturally validated scales and replication of studies in different countries. Although studies from North America and Europe (Braam et al., 2001) suggest that religiosity and spirituality help to protect against depression and to enhance well-being, there are differences between the two continents with respect to religious traditions. For example, studies have shown that adherence to traditional Christian beliefs is stronger in North America than in Europe (Halman & de Moor, 1993). In Europe, particularly in France, a sharp decline has been observed in institutional religion (Braam, Delespaul, Beekman, Deeg, Pèrès, Dewey et al., 2004), which stands in contrast to the vitality of different kinds of religion and a strong belief in God that can be observed in the U.S. (Gallup, 1996; Koenig, 2003; Kosmin & Lachman, 1993). In particular, contextual information about religious phenomena remains problematic in France. Because of the private nature of religious affiliation (only private institutes or research using the quota method can ask for religious affiliation) and the background of mid-20th century history in France, no current public statistical survey records religious affiliation. In 2005, for the first time, a specific question concerning religious affiliation was included in a demographic study (Régnier-Loilier & Prioux, 2008). Results indicated Catholicism is the predominant religion (80% expressed a link with Roman Catholicism, 5% with Islam, and 2% with Protestantism while 11% stated no link with a religion). Major differences according to age emerged from

the study results. The proportion of Catholics was lower among younger people. Of those who had a religion, 88 per cent of the 18 to 24 age group stated that they were Catholic, compared with 95 per cent of the group aged 65 and over. Above all, the proportion of regular attendance at services was different: 47 per cent of the 75 to 79 age group attended at least once a week compared with 17 per cent of the 20 to 24 age group.

The purpose of this study was, therefore, to translate the DSES into French and replicate the psychometric findings with the translated version. Two separate studies were conducted to validate the short version: Study 1 examined the factor structure, internal consistency, and test-retest reliability of the French translation of the short version, while Study 2 provided confirmatory factor analysis, test-retest reliability, and links with mental and physical health.

Study 1: Translation, principal component analysis, internal consistency

Overview

For Study 1, the short version of the DSES was adapted and translated into French. The factor structure of the DSES was examined using PCA. Study 1 also provided data on the internal consistency of the DSES.

Method

Participants

A total of 195 adults, aged 65 and over, were recruited from local senior centers and retirement homes and participated voluntarily in the study. Volunteers were screened for cognitive impairment using the French adaptation of Folstein's Mini Mental Status Examination (MMSE; Desrosiers & Hébert, 1997) and were excluded if they scored less than 20. Mean age of the participants was 77.44 years ($SD = 5.12$; 65–94) with 120 women (61.53%, M age = 77.81, $SD = 5.45$) and 75 men (38.47%, M age = 76.84, $SD = 4.54$). Of those participants, 51.28 per cent were married or had a partner, 34.87 per cent were widowed, and 13.84 per cent lived alone. Regarding religious orientation, the great majority of participants were Catholic (86.73%); the others had no stated religious belief.

Measure

The six-item version of the DSES used in the General Social Survey (GSS) was used. This scale is intended to assess a person's perception of the transcendent (God, the divine) in daily life. The six items were scored using a Likert scale, in which the response categories were "many times a day, every day, most days, some days, once in a while, and never or almost never". Lower scores reflected a more frequent DSE.

Translation of the DSES

The DSES was translated into French, on the basis of the methods proposed by Vallerand (1989), by two independent professional bilingual translators. These versions were then translated back into English by an independent third translator and compared with the initial English version. A consensus meeting – consisting of one translator, one French researcher, and a professional on spirituality – was organized. These three specialists age-checked and agreed on a version of the DSES that best reflected the linguistic and conceptual matter of the original scale. As Underwood & Teresi (2002) had found, the three found difficulty primarily in the translation process with the use of the word *God* in some of the items. However, the word *God* seems to be easily understood, most people being able to “translate” it into their own concept of the divine. As in the original version, the introduction of the DSES advised participants to substitute the word *God* with another concept that corresponded better to their perception of the divine or holy.

Finally, we pilot-tested the DSES with 10 elderly people. All the participants stated that they had no difficulty understanding the items and expressed their willingness to complete all the items, which took approximately 4 to 7 minutes.

Results

Principal component analysis of the DSES

Bartlett's chi-square test was used to determine whether the sample size was appropriate for the PCA and whether the data came from a normally distributed sample of the population. This test was statistically significant ($\chi^2 = 879, p < .001$).

To establish the factor structure of the DSES, the six items were subjected to PCA with oblimin rotation. This was carried out for all participants together (see Table 1). The principal component factor analysis for the DSES revealed only one factor with an eigenvalue greater than 1. This factor accounts for 67 per cent of the variance, with an eigenvalue of 4.05, and loadings ranging from .55 to .91. All the others factors have an eigenvalue of less than 1.

Internal consistency of the DSES

Cronbach's alpha was .89 indicating a high internal consistency. Removal of one or more weakly correlated items did not significantly affect the alpha value. The mean item correlation for the DSES was .55 (min = .35, max = .86).

Study 2: Confirmatory analysis, internal consistency, test-retest, correlations with health measures

Overview

Study 2 examined the factor structure of the DSES using confirmatory factor analysis (CFA). On the basis of Study 1's results, this study first examined a one-factor model. Internal consistency and test-retest were evaluated. Measures of life satisfaction, depression, and physical health were evaluated in order to assess the construct validity of the DSES. Correlations with other participants' characteristics were also examined.

Methods

Participants and Procedure

A total of 338 participants, aged 65 and older, were recruited from local senior centers and advertisements

Table 1: Principal components factor analysis of the DSES (Study 1 and Study 2)

Items	Study 1 (<i>n</i> = 195) Factor 1	Study 2 (<i>n</i> = 338) Factor 1
1. I feel God's presence <i>Je ressens la présence de Dieu</i>	.91	.89
2. I find strength and comfort in my religion or spirituality <i>Ma religion ou spiritualité m'apporte force et réconfort</i>	.90	.91
3. I feel deep inner peace or harmony <i>Je ressens une paix et harmonie profonde</i>	.67	.80
4. I feel God's love for me, through others <i>Je ressens l'amour de Dieu directement ou à travers les autres</i>	.90	.90
5. I am spiritually touched by the beauty of creation <i>Je suis spirituellement touché par la beauté de la création</i>	.90	.81
6. I desire to be closer to God or in union with the divine <i>J'aspire à être plus proche ou en harmonie avec Dieu</i>	.55	.76
Eigenvalues	4.05	4.38
Percentage of the variance	67.0%	73.0%
Cronbach's alpha	.89	.92

in specialized magazines (aimed at retirement groups). All participants were volunteers. Mean age of the participants was 77.87 years ($SD = 5.46$; 65–94 years). They included 212 women (62.60%, M age = 78.30, $SD = 5.82$) and 126 men (37.40%, M age = 76.96, $SD = 4.57$). Of these individuals, 53 per cent were married or had a partner, 38.33 per cent were widowed, and 8 per cent lived alone. The great majority of participants were Catholic (80%); the others had no stated religious belief.

Two weeks after the initial test, a sub-sample of 40 participants completed the DSES again to test temporal stability. The retest participants did not differ from the full sample on demographics characteristics (sex, marital status, religious orientation), nor did they differ on any variables (life satisfaction, depression, and physical health) examined in this study (all t -test results < 2) except for age. Indeed, the sub-sample of 40 participants was younger than original participants (respectively, 75 years old versus 77.87 years old; $p < .001$).

Measures

All participants completed the short version of the DSES (developed in Study 1). Life satisfaction was evaluated using the French version of the Satisfaction With Life Scale (SWLS) developed by Diener, Emmons, Larsen, and Griffin (1985) and adapted by Blais, Vallerand, Pelletier, and Brière (1989). The SWLS is a five-item scale in a seven-point Likert format, with higher scores indicating greater life satisfaction. The French version of the SWLS has good internal consistency (Cronbach's $\alpha = .81$ – $.82$) and stability over time ($r = .64$ over a 2-month interval [Blais et al.]). Factor analysis revealed a one-factor structure, and construct validity seemed to be acceptable (Blais et al.). The internal consistency of the SWLS in this study was deemed good (Cronbach's $\alpha = .89$).

Depression was measured using the geriatric depression scale (GDS; Yesavage, Brink, Rose, Lum, Huang, Adey et al., 1983). French validation of the scale was achieved by Bourque, Blanchard, & Vézina (1990). This is the first depression screening measure developed for, and validated among, older people. The sensitivity and specificity of the GDS have been evaluated in a variety of elderly populations and geriatric inpatients (Shah, Phongsathorn, Bielawska, & Katona, 1996) and subjects over age 85 (De Craen, Heeren, & Gussekloo, 2003), with an optimal cut-off point for depression found to be a score of five or above (D'Ath, Katona, & Mullan, 1994; Weintraub, Oehlberg, Katz, & Stern, 2006). The French version of the GDS has good internal consistency (Cronbach's $\alpha = .84$ – $.90$) and stability over time ($r = .83$ – $.70$ over a 4-week interval [Bourque et al.]). Factor analysis revealed a one-factor structure, and the GDS has also been shown to corre-

late with the Beck Depression Scale (QBD; Bourque & Beaudette, 1982). The internal consistency of the GDS in this study was deemed good (Cronbach's $\alpha = .75$).

Physical health was assessed by two questions. First, "How is your health in general?" on a Likert-type scale ranging from 1 (poor) to 5 (excellent), higher scores indicating better health. Second, the question used in the Quebec Health Survey: "In general, compared to other people of your age, how good would you say your health is?" on a Likert-type scale ranging from 1 (poor) to 5 (excellent). Researchers have recommended this second question for elderly people to assess their general physical health (Rodin & McAvay, 1993).

Results

Confirmatory factor analysis (CFA)

In order to examine the one-factor structure of the DSES (Study 1), a confirmatory analysis was conducted using the Statistica. Given the numerous inherent potential problems of the chi-square measure of goodness-of-fit (Tabachnik & Fidell, 2001), four other indices of the model fit were assessed: (a) the *root mean square error of approximation* (RMSEA) index (RMSEA values $< .05$ indicated good fit, and RMSEA $< .08$ indicated acceptable fit [Hu & Bentler, 1999]) and its 90 per cent confidence intervals (90% CI); (b) the *goodness-of-fit* (GFI) index (GFI values $> .90$ indicated good fit [Tabachnik & Fidell]); (c) the *adjusted goodness-of-fit* (AGFI) index (AGFI values $> .90$ indicated good fit [Tabachnik & Fidell]); and (d) the *non-normed fit* (NNFI) index (NNFI values $> .95$ indicated good fit [Hu & Bentler]).

To continue exploration of the structure of the DSES, two models were tested. The first was a one-factor model. The second was a two-factor model in reference to recent studies (Ellison & Fan, 2007; Zemore & Kaskutus, 2004) that make a distinction between "God Items" (items 1, 4, and 6) and "Non-God Items" (or self-transcendence, non-theist – items 2, 3, and 5) in their exploration of the DSES. Results of the CFA are presented in Table 2. The indices showed the goodness-of-fit of the DSES one-factor model. Analysis showed a GFI of .95, and an NNFI of .96 revealed a good model fit. The RMSEA was slightly above .05 (RMSEA = .08; 90% CI) indicating not a good but an acceptable fit of the model. The AGFI of .88 was slightly under .90. For the two-model factors, only one index was acceptable (GFI = .92). Finally, the one-factor model showed a better fit than the two-factor model.

Likewise, we conducted a principal component factor analysis. As in Study 1, the analysis revealed only a single underlying construct, which accounted for 73 per cent of the variance, with an eigenvalue of 4.38 and loadings ranging from .76 to .91 (see Table 1).

Table 2: Model indices of Daily Spiritual Experience Scale (DSES)

Model	RMSEA	GFI	AGFI	NNFI
One factor	.08	.95	.88	.96
Two factor	.12	.92	.75	.88

Internal consistency and test-retest reliability

The Cronbach's alpha value was .92, indicating a high internal consistency for the DSES. Removal of one or more weakly correlated items did not have major consequences on the alpha value. The mean item correlation for the DSES was .65 (min = .53, max = .80).

Test-retest data were collected on a sub-sample of 40 participants (interval time = 2 weeks). Test-retest reliability of the DSES was high ($r = .85$), indicating good temporal stability.

Correlation with participant characteristics and other health-related measures

To assess the construct validity of the DSES short version, we examined the links between the DSES and measures of life satisfaction, depression, and physical health. In addition, the participants' characteristics and DSES scores were documented and are presented in Table 3. The DSES scores were significantly correlated with age, with older participants scoring higher. The DSES was significantly associated with life satisfaction and with the two measures of physical health: Participants with higher DSES scores had greater life satisfaction and better health evaluation (in general and in comparison with other elderly people). No significant correlation occurred with sex, marital status, or depression.

Discussion

The aim of the studies was to validate the DSES short form in an elderly French population. Similar problems were encountered in the use of the word *God* in

Table 3: Descriptive statistics and correlation between the DSES and psychosocial and other health-related measures

Measures	Mean	Standard Deviation	Range	Correlation
Age				.30**
Sex				-.09
Marital status				-.02
Life satisfaction (SWLS)	26.14	5.76	7–35	.22**
Depression (GDS)	3.41	7.66	0–10	-.002
General self-rated health	2.88	0.61	1–4	.16*
Comparative self-rated health	3.24	0.62	1–4	.15*

* $p < .05$, ** $p < .01$.

a Sex: 1 = men/2 = women; Marital status: 1 = single/2: married or living with a partner.

the French translation of the scale. In line with Underwood and Teresi (2002), participants were told that they could substitute the word *God* with another concept representing for them the divine or holy.

Some items are noteworthy. The item "I feel a deep sense of peace and inner harmony" is conceived as a transcendent dimension that may be affected but not determined by events and affect, and this question was designed to elicit something other than positive mood or psychological well-being (Ellison & Fan, 2007). Even if a sense of wholeness and internal integration is frequently referred to in the spiritual literature, this item can be problematic because many things in addition to religion and spirituality can give a person a deep sense of peace and inner harmony. In addition, the item: "I find strength and comfort in my religion and spirituality" has been described as "social support from God". This item intends to measure a direct sense of support and comfort from the transcendent, but rather than assess what spirituality is, it could instead represent what spirituality may or may not produce. Because these items are likely to be confounded with both positive and negative aspects of mental health, further research should investigate more thoroughly what, exactly, they measure.

The results of PCA from Study 1 and of CFA from Study 2 indicated that the DSES can be conceptualized on a single general factor. This confirms previous studies (Exploratory Factorial Analysis [EFA]) by Underwood and Teresi (2002) on the long 16-item version of the DSES and by Ellison and Fan (2007) on the short form. To our knowledge, our study is the first to have examined the construct validity of the DSES using CFA. The overall goodness-of-fit of the one-factor model is near or above that recommended by conventional standards (Hu & Bentler, 1999; Tabachnik & Fidell, 2001). These first results confirm the uni-dimensionality of the short version of the DSES. In particular, items referring explicitly to God did not factor out independently from the others, in contrast to previous results (Ellison & Fan; Zemore & Kaskutis, 2004). Even if the word *God* is not always used to refer to the transcendent or divine, the short version of the DSES addresses a possible common ground that transcends religious boundaries. Finally, our results demonstrate strong support for the construct validity of the DSES short form.

The DSES appeared strong psychometrically, evidencing adequate to good internal consistencies and good test-retest reliability. Internal consistency (.89 and .92 for studies 1 and 2 respectively) was higher than that found in the English version (.81–.86 [Loustalot et al., 2007]). The test-retest Pearson r was high (.85) indicating good consistency of the result over time. This result is also higher than Loustalot's results for the same time interval. Overall, the results attest to the good reliability of the DSES short form.

With regard to the role of the DSES in mental and physical health, the results are a little less convincing. As expected, higher scores were correlated with good life satisfaction and good self-evaluation of health. Previous studies with the DSES short version have also reported its link with quality of life (Ellison & Fan, 2007; Underwood & Teresi, 2002). "Ordinary" spiritual experiences may enhance the feelings of joy, comfort, love, and spiritual peace in everyday life and so promote good psychological outcomes. In contrast to these findings and contrary to our expectations, the DSES was not correlated with depression. However, most studies indicate that people with high spirituality or religiosity scores are less depressive than others (Braam et al., 2001; Parker, Roff, Klemmack, Koenig, & Baker, 2003; Smith et al., 2003 – meta-analysis). Furthermore, Underwood and Teresi established a positive correlation between the DSES and a depression scale (CES-D). Nevertheless, our results are similar to those of another recent study (Ellison & Fan) suggesting a robust association between the DSES (short version) and psychological well-being, while it appears to have little bearing on negative affect. Two points can be highlighted. First, the depression measure depended considerably on the sample and methods used. In our study, we chose the GDS scale because it had been validated among an elderly population. But it is possible that the GDS scale is not the most appropriate tool to assess depression in this population. Depression in old age is often ignored or misdiagnosed (Cole, Bellavance, & Mansour, 1999; Cole & Yaffe, 1996) because older adults frequently present atypical symptoms compared to younger adults (Dreyfus, 1998). Further research is needed using recognized indicators of clinically relevant aspects of psychopathology, such as diagnostic measures based on the DSM-IV to confirm this absence of association. Secondly, according to the properties of GDS (D'Ath et al., 1994; Weintraub et al., 2006) a cut-off of 5 (or more) is usually acknowledged as indicative of depression in the elderly population. In our sample, the mean score of depression is far lower than 5. Participants are rarely (or not at all) depressed, and this could also explain the absence of links between DSES and depression.

Finally, our results indicated that the oldest people had higher scores on the DSES than the younger participants. This confirms the increase of spirituality with age (Dalby, 2006). As people grow older, they face challenges related to a decline in physical health and changes in social and family networks, and it is during this time that religious and spiritual beliefs may be particularly important in maintaining well-being.

Our study has several limitations. For a better validation of the DSES short form, concurrent, discriminant, and predictive validity need to be tested. Further research on the psychometric properties of this instrument should include the examination of larger sample

sizes in different populations. The sample of our studies is heavily Catholic, and it would be interesting to investigate other religious groups. A recent meta-analysis investigated values and religiosity across different countries and regions and religious groups, and it indicated impressive similarities across a variety of religions (Christianity, Islam, and Judaism), denominations (Catholics, Orthodox, and Protestants) and different countries and regions (Europe, U.S., and Middle East) (Saraglou, Delpierre, & Dernelle, 2004). Differences seem to depend more on the socio-economic development of the countries or regions concerned than on religious affiliation. In the same way, Braam et al. (2001, 2004) found no specific pattern between religious denomination and depression, although Kim (2003) found that Protestants were more satisfied with life, followed by Catholics and Buddhists (Korean population). It would also be particularly interesting to explore cross-religious and cross-cultural differences versus trans-religious and trans-cultural constants.

A second limitation is that the combination of the DSES with other religious measures could warrant future work. Studies investigating the association between spirituality and religiosity and depression highlight the impact of different aspects of spirituality and religiosity. More precisely, these studies suggest that the relationships of religiosity with mental health vary with the dimension of religiosity considered (church attendance, religious meetings, prayer, meditation, etc.) (Parker et al., 2003; Smith et al., 2003). Finally, because of the implications on health and well-being, it would be extremely helpful to conduct longitudinal studies.

Nonetheless, the results of the studies presented provide preliminary evidence of the psychometric properties of the French translation of the DSES short version, which helps understand the potential benefit of encouraging the spiritual aspects of life, and we hope it will be used in a variety of health-related research.

References

- Ahmadi, L.F. (2001). Gerotranscendence and different cultural settings. *Ageing and Society*, 13, 13–27.
- Blais, M.R., Vallerand, R.J., Pelletier, L.G., & Brière, N.M. (1989). L'échelle de satisfaction de vie: validation canadienne-française du "Satisfaction With Life Scale". *Revue Canadienne des Sciences du Comportement*, 21, 210–223.
- Bourque, P., & Beaudette, D. (1982). Étude psychométrique du questionnaire de dépression de Beck auprès d'un échantillon d'étudiants universitaires francophones. *Revue Canadienne des Sciences du Comportement*, 14, 211–218.
- Bourque, P., Blanchard, L., & Vézina, J. (1990). Étude psychométrique de l'échelle de dépression gériatrique. *Revue Canadienne du Vieillessement*, 9, 348–355.

- Braam, A.W., Delespaul, P., Beekman, A.T.F., Deeg, D.J.H., Pèrès, K., Dewey, M., et al. (2004). National context of healthcare, economy and religion, and the association between disability and depressive symptoms in older Europeans: Results from the EURODEP concerted action. *European Journal of Ageing*, 1, 26–36.
- Braam, A.W., Van Den Edden, P., Prince, M.J., Beekman, A.T.F., Kivela, S.L., Lawlor, B.A., et al. (2001). Religion as a cross-cultural determinant of depression in elderly Europeans: Results from the EUROPEDE collaboration. *Psychological Medicine*, 31, 803–814.
- Cole, M.G., Bellavance, F., & Mansour, A. (1999). Prognosis of depression in elderly community and primary care populations: A systematic review and meta-analysis. *American Journal of Psychiatry*, 156, 1182–1189.
- Cole, M.G., & Yaffe, M.J. (1996). Pathway to psychiatric care of the elderly with depression. *International Journal of Geriatric Psychiatry*, 11(2), 157–161.
- Crowther, M., Parker, M., Larimore, W., Achenbaum, A., & Koenig, H. (2002). Rowe and Kahn's model of successful aging revisited: Positive spirituality—The forgotten factor. *The Gerontologist*, 42(5), 613–620.
- Dalby, P. (2006). Is there a process of spiritual change or development associated with ageing? A critical review of research. *Ageing and Mental Health*, 10(1), 4–12.
- D'Ath, P., Katona, P., & Mullan, E. (1994). Screening detection and management of depression in elderly primary care attenders I: The acceptability and performance of the 15 item Geriatric Scale and the development of short version. *Family Practices*, 11, 260–266.
- De Craen, A.J., Heeren, T.J., & Gussekloo, J. (2003). Accuracy of the 15-item geriatric depression scale (GDS-15) in a community sample of the oldest old. *International Journal of Geriatric Psychiatry*, 18, 63–66.
- Desrosiers, J., & Hébert, R. (1997). Principaux outils d'évaluation en clinique et en recherche. In M. Arcand & R. Hébert (Eds.), *Précis Pratique de Gériatrie* (pp. 77–107). Edisem.
- Diener, E., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71–75.
- Dreyfus, J.K. (1998). Depression assessment and interventions in the medically ill frail elderly. *Journal of Gerontological Nursing*, 14, 27–36.
- Dunn, K.S., Chapelski, E., Stinson, L.W., & Massanari, R.M. (2004). Everyday spirituality in central city elders. *Journal of Religious Gerontology*, 15(3), 41–59.
- Ellison, C.G. (1991). Religious involvement and subjective well-being. *Journal of Health and Social Behavior*, 32, 80–99.
- Ellison, C.G., & Fan, D. (2007). Daily spiritual experiences and psychological well-being among us adults. *Social Indicators Research, Online Prepublication*, 88, 247–271.
- Erikson, E. H. (1982). *The Life Cycle Completed*. New York: W.W. Norton.
- Fetzer Institute (1999). *Multidimensional measurement of religiousness/spirituality for use in health research*. Kalamazoo, MI: John E. Fetzer Institute.
- French, D.C., Eisenberg, N., Vaughan, J., Purwono, U., & Suryanti, A. (2008). Religious involvement and the social competence and adjustment of Indonesian Muslim adolescents. *Developmental Psychology*, 44(2), 597–611.
- Gallup, G. (1996). *The Gallup poll: Public opinion 1995*. Wilmington, DE: Scholarly Resources.
- George, L.K. (2002). The links between religion and health: Are they real? *Public Policy and Aging report*, 12(4), 1–6.
- George, L.K., Ellison, C.G., & Larson, D.B. (2002). Explaining relationships between religious involvement and health. *Psychological Inquiry*, 13, 190–200.
- Halman, L., & de Moor, R. (1993). Religion, churches and moral values. In P. Ester, L. Halman, & R. de Moor (Eds.), *The individualizing society: Value change in Europe and North America* (pp. 37–65). Tilburg, The Netherlands: Tilburg University Press.
- Harris, S.K., Sherritt, L.R., Holder, D.W., Kulig, J., Shrier, L.A., & Knight, J.R. (2007). Reliability and validity of the brief multidimensional measure of religiousness/spirituality among adolescents. *Journal of Religion and Health, Online*, 47(4), 438–57.
- Hill, P.C., & Pargament, K.I. (2003). Advances in the conceptualization and measurement of religion and spirituality. Implications for physical and mental health research. *American Psychologist*, 58(1), 64–74.
- Hill, T., Burdette, A., Angel, J., & Angel, R. (2006). Religious attendance and cognitive functioning among older Mexican Americans. *Journal of Gerontology: Psychological Sciences*, 61, 3–9.
- Holland, J.M., & Neimeyer, R.A. (2005). Reducing the risk of burnout in end-of-life care settings: The role of daily spiritual experiences and training. *Palliative & Supportive Care*, 3(3), 173–181.
- Hu, L., & Bentler, P.M. (1999). Fit indices in covariance structure modelling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3, 424–453.
- Kalkstein, S., & Tower, R.B. (2008). The daily spiritual experiences scale and well-being: Demographics comparisons and scale validation with older Jewish adults and a diverse internet sample. *Journal of Religion and Health*, 48(4), 402–417.
- Kaufman, Y., Anaki, D., Binns, M., & Freedman, M. (2007). Cognitive decline in Alzheimer disease: Impact of spirituality, religiosity, and QOL. *Neurology*, 68, 1509–1514.
- Kim, A.E. (2003). Religious influences on personal and societal well-being. *Social Indicators Research*, 62, 149–170.

- Koenig, H.G. (2003). Religion, spirituality and health: An American physician's response. *Medical Journal of Australia*, 178, 51–52.
- Koenig, H.G., George, L.K., & Titus, P. (2004). Religion, spirituality, and health in medically ill hospitalized older patients. *Journal of the American Geriatrics Society*, 52(4), 554–562.
- Koenig, H.G., McCullough, M., & Larson, D.B. (2001). *Handbook of religion and health: A century of research reviewed*. New York: Oxford University Press.
- Kosmin, B.A., & Lachman, S.P. (1993). *One nation under God: Religion in contemporary American Society*. New York: Harmony Books.
- Krause, N. (2003). Religious meaning and subjective well-being in late life. *Journal of Gerontology B*, 58(3), 160–170.
- Loustalot, F.V., Wyatt, S.B., Boss, B., & McDyess, T. (2007). Psychometric examination of the daily spiritual experience scale. *Journal of Cultural Diversity*, 13(3), 162–167.
- Miller, W.R., & Thoresen, C.E. (2003). Spirituality, religion, and health. *American Psychologist*, 58(1), 24–35.
- Moreira-Almeida, A., & Koenig, H.G. (2006). Retaining the meaning of the words religiousness and spirituality: A commentary on the WHOQOL SRPB groups "a cross-cultural study of spirituality, religion, and personal beliefs as components of quality of life". *Social Science and Medicine*, 63, 843–845.
- Ortiz, L.P.A., & Langer, N. (2002). Assessment of spirituality and religion in later life: Acknowledging clients' needs and personal resources. *Journal of Gerontology Social Work*, 37, 5–21.
- Parker, M., Roff, L.L., Klemmack, D.L., Koenig, H.G., & Baker, P. (2003). Religiosity and mental health in southern, community-dwelling older adults. *Aging and Mental Health*, 7(5), 390–397.
- Pearce, M.J., Little, T., & Perez, J.E. (2003). Religiousness and depressive symptoms among adolescents. *Journal of Clinical Child and Adolescent Psychology*, 32(2), 267–276.
- Powell, L.H., Shahabi, L., & Thoresen, C.E. (2003). Religion and spirituality: Linkages to physical health. *American Psychologist*, 58(1), 36–52.
- Régnier-Loilier, A., & Prioux, F. (2008). La pratique religieuse influence-t-elle les comportements familiaux? *Population et Sociétés*, 447, 1–4.
- Reyes-Ortiz, C.A., Avele, H., Mulligan, T., Espino, D.V., Berges, I.M., & Markides, K.S. (2006). Higher church attendance predicts lower fear of falling in older Mexican-Americans. *Aging and Mental Health*, 10(1), 13–18.
- Rodin, J., & McAvay, G. (1993). Determinants of change in perceived health in a longitudinal study of older adults. *Journal of Gerontology*, 47, 373–384.
- Saraglou, V., Delpierre, V., & Dernelle, R. (2004). Values and religiosity: A meta-analysis of studies using Schwartz's model. *Personality and Individual Differences*, 37, 721–734.
- Seeman, T.E., Dubin, L.F., & Seeman, M. (2003). Religiosity/spirituality and health: A critical review of the evidence for biological pathways. *American Psychologist*, 58(1), 53–63.
- Shah, A., Phongsathorn, V., Bielawska, C., & Katona, C. (1996). Screening for depression among geriatric inpatients with short versions of the geriatric depression scale. *International Journal of Geriatric Psychiatry*, 11, 915–918.
- Smith, T.B., McCullough, M.E., & Poll, J. (2003). Religiousness and depression: Evidence for a main effect and the moderating influence of stressful life events. *Psychological Bulletin*, 129(4), 614–636.
- Tabachnik, B.G., & Fidell, L.S. (2001). *Using multivariate statistics* (4th ed.). Needham Heights, MA: Allyn and Bacon.
- Thomas, L.E. (2006). The job hypothesis: Gerotranscendence and life satisfaction among elderly Turkish Muslims. In H. Susan, S.H. McFadden, & R.C. Atchley (Eds.), *Aging and the meaning of time*. (pp. 207–229). New York: Springer.
- Thoresen, C.E., & Harris, A.H.S. (2002). Spirituality and health: What's the evidence and what's needed. *Annals of Behavioural Medicine*, 24(1), 3–13.
- Tornstam, L. (2005). *Gerotranscendence: A developmental theory of positive aging*. New York: Springer Publishing.
- Underwood, G. (2006). Ordinary spiritual experience: Qualitative research, interpretive guidelines, and population distribution for the daily spiritual experience scale. *Archive for the Psychology of Religion*, 28, 181–218.
- Underwood, G., & Teresi, J.A. (2002). The daily spiritual experience scale: Development, theoretical description, reliability, exploratory factor analysis, and preliminary construct validity using health-related data. *Annual Behavioral Medicine*, 24(1), 22–33.
- Vallerand, R.J. (1989). Vers une méthodologie de validation transculturelle, de questionnaires psychologiques: Implication pour la recherche en langue française. *Psychologie Canadienne*, 30(4), 663–679.
- Weintraub, D., Oehlberg, K.A., Katz, I.R., & Stern, M.B. (2006). Test characteristics of the 15-items Geriatric depression scale and Hamilton depression rating scale in Parkinson Disease. *American Journal of Geriatric Psychiatry*, 14, 169–175.
- Wink, P., & Dillon, M. (2002). Religiousness, spirituality and psychosocial functioning in late adulthood: Findings from a longitudinal study. *Psychology and Aging*, 18(4), 916–924.
- Yesavage, J.A., Brink, T.L., Rose, T.L., Lum, O., Huang, V., Adey, M., et al. (1983). Development and validation of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research*, 17, 37–49.
- Zemore, S.E., & Kaskutus, L.A. (2004). Helping, spirituality, and alcoholics anonymous in recovery. *Journal of Studies on Alcohol*, 65, 383–391.