

Assessing Spiritual Wellbeing: Development of a Short-Form for the Spiritual Attitude and Involvement List (SAIL)

Master Thesis: Positive Clinical Psychology & Technology

Name: Leon Frielingsdorf

Student Number: 1938479

1st Supervisor: Dr Peter ten Klooster

2nd Supervisor: Prof Dr Ernst Bohlmeijer

External Supervisor: Dr Anja Visser-Nieraeth

Abstract

Background: The 26-item Spiritual Attitude and Involvement List (SAIL) is currently the most comprehensive instrument for measuring spiritual wellbeing. It was developed as a psychometrically robust and content-valid instrument to conceptualise and measure 7 domains of spiritual wellbeing. However, an issue arising with the SAIL is the length of the instrument which makes it inappropriate for various research settings and populations.

Objective: To develop a comprehensive yet concise tool for the measurement of spiritual wellbeing, the present study worked towards a unidimensional, seven-item short form of the SAIL (SAIL-SF) which ought to maintain the psychometric properties of the original instrument.

Methods: The present study included secondary data of two datasets including both nurses (N = 458) and cancer patients (N = 445) which were analysed in an iterative process. Therefore, the most representative items of each domain were preselected using CFA results for both samples. Then, a focus group meeting was held with two content experts and a psychometrician to select the final items for the short-form. Finally, parallel analyses, PCAs and Cronbach's alpha analyses were adopted to determine the dimensionality and internal consistency of the final items.

Results: The short-form development process resulted in a final seven-item SAIL-SF which demonstrated essential unidimensionality with sufficient factor loadings in a range between .567 and .752 for each item. Cronbach's Alpha analyses finally revealed acceptable coefficients ($\alpha_{nurses} = .792$; $\alpha_{cancer\ patients} = .745$) for both datasets.

Conclusion: The SAIL-SF seems an internally valid and concise instrument for measuring spiritual wellbeing in both nurses and cancer patients. Nonetheless, the development of the scale is still in an early phase so that consecutive work in form of further validation studies is necessary to get a final understanding of its validity, utility and applicability in different contexts.

Keywords: wellbeing, spirituality, confirmatory factor analysis, principal component analysis

Introduction

In the past decades, the conceptualization of spirituality underwent a reincarnation in a broad majority of western populations. As the past was characterised by rather authoritarian, institutionalised spirituality in a religious sense, people have changed to a more individualised, subjective approach (Hellemans, & Jonkers, 2015). This phenomenon is defined by scholars as *new spirituality* (Hellemans, & Jonkers, 2015; Sutcliffe, & Gilhus, 2014). A driving force in the establishment of such a new perspective on spirituality is so-called secularisation, which refers to a decline of the cultural significance of religiosity (Dobbelaere, 2002). For this, Bruce (2002, p.30) elucidates that “[...] individualism, diversity and egalitarianism in the context of liberal democracy undermine the authority of religious beliefs”. Therefore, changes in religious expression are attributable to societal developments in the political landscape of western societies. Consequently, people started to distinguish more precisely between being spiritual and being religious. Visser, Garssen and Vingerhoets (2017, p.234) define spirituality as “[...] the extent to which people live in harmony in relationship with themselves, others, nature and the transcendent”. This is similar to de Jager Meezenbroek and colleagues (2012, p.338) who specify spirituality as “[...] one’s striving for and experience of connectedness with the essence of life”. Religion may share some of these properties but refers to a rather institutionalised, traditional exhibition of spirituality (Powell, Shababi, & Thoresen, 2003). Consequently, spirituality refers to broader and more subjective perceptions as compared to religiosity (Fisher, 2011; Lucchetti et al., 2015).

Various scholars appreciate the positive effects spirituality has on individuals (e.g., Fisher, 2011; Lindberg, 2005; Meisenhelder, & Chandler, 2002; Powell, Shababi, & Thoresen, 2003). For example, Fisher (2011) states that spirituality alters peoples’ perceptions concerning quality of life and meaning in the personal, communal, environmental, and transcendental domains. In the personal domain, spirituality can help individuals to find meaning, purpose, and values for their lives. This is a core theme of spirituality, as a central motivation for individuals to engage in spiritual conduct is the search for the ultimate purpose of one’s existence (Frankl, 1985). Holocaust survivor and psychiatrist Viktor Frankl (1985) proposed that “From the viewpoint of man’s spirituality [...] being human can be described as being responsible”. Thus, spirituality can serve as a directing force towards meaning in life as a matter of gaining responsibility for oneself (Fisher, 2011). Secondly, personal relationships can be altered to a deeper interaction guided by love, trust, and forgiveness. Here, religion as

an institution used to play a more dominant role than spirituality in general, but current developments show that members of new age spirituality also seem to organise themselves in communities (Aupers, & Houtman, 2006; Gallardo-Peralta, 2017; Hellemans, & Jonkers, 2015). Thirdly, spirituality raises awareness of the connection individuals have with their environment (Fisher, 2011). This awareness refers to a sense of appreciation of nature manifested in a perceived unity with the environment (Fisher, 2011). Studies have shown that especially individuals committed to new spiritual lifestyles are more often involved in organisations fostering environmental protection than the general population (Berghuijs, Bakker, & Pieper, 2013). Lastly, spirituality comprises transcendental experiences of something greater than humanity like feeling the presence of God in Christianity.

In terms of psychological effects, it has been shown that frequent engagement in spiritual practices positively impacts the mental health of individuals (de Jager Meezenbroek et al., 2012). This accounts especially for anxiety and depressive symptoms in elderly, cancer patients, and adolescents (King, & Benson, 2005; Lindberg, 2005; Meisenhelder, & Chandler, 2002; Visser, Garssen, & Vingerhoets, 2010). Here, a contributing factor is so-called spiritual coping, which incorporates distress management through techniques like meditation, social interaction with like-minded people, hope, appreciation of nature and supporting others (Baldacchino, & Draper, 2001). For physical health, similar positive effects of spirituality have been reported. For instance, Seybold and Hill (2001) found positive effects of spiritual experiences on levels of blood pressure, chronic pain, and kidney failure (Musick, Traphagen, Koenig, & Larson, 2000; Rippentrop et al., 2005). It is assumed that a contributing factor to the positive effects of spirituality on individuals' physical health is social engagement. Yet, positive experiences related to spiritual conduct also seem to play a decisive role in the perception of positive physical effects (Seybold, & Hill, 2001; Thoresen, 1999). However, spirituality does not only have positive effects. Over-identification with authoritarian values and conflict-ridden conduct may have negative effects. Therefore, extremist expressions of spirituality are associated with child abuse, conflict and violence without the previously introduced positive effects on individuals (Seybold, & Hill, 2001).

The acknowledgement of the beneficial effects that spirituality has on individuals resulted in the term spiritual wellbeing being coined. Ellison (1983) defined spiritual wellbeing as “[...] the affirmation of life in a relationship with God, self, community, and environment that nurtures and celebrates wholeness”. Here, God ought to be seen in a broader sense as a

greater, self-transcending entity instead of God in a religious sense. What distinguishes spiritual wellbeing from general spirituality is not solely the belief in something greater, but a positive attitude gained from the aspects of one's spirituality (de Jager Meezenbroek et al., 2012). Nonetheless, a uniform conceptualisation is not as easy as it seems at first sight. Hence, Visser and colleagues (2017) state that certain conceptualisations of spiritual wellbeing show an overlap with existential wellbeing, which raises the question of whether spiritual wellbeing is an independent construct per se. In the same paper, however, it is argued that several facets like *transcendent experiences* are unique to spirituality, which substantiates the deviation of spiritual wellbeing from conventional wellbeing measures (Visser et al., 2017).

Even though there seem to be certain commonalities between conventional conceptualisations of wellbeing and spiritual wellbeing, a spiritual component is often lacking in wellbeing measurements. Thus, widely used instruments like the Mental Health Continuum (MHC-SF; Lamers et al., 2011) only contain three dimensions of wellbeing (emotional, psychological, social) without the notion of a spiritual component. Other instruments that measure wellbeing without a spiritual component are for instance the Composite 12-Item Wellbeing Questionnaire (W-BQ12) (Pouwer et al., 1999) and the Authentic Happiness Inventory (Zabihi, Ketabi, Tavakoli, & Ghadiri, 2014). However, other, less frequently used, wellbeing instruments like the Life Assessment Questionnaire (Cooke, Melchert, & Connor, 2016), the Optimal Living Profile (OLP) (Renger et al., 2000) and the Perceived Wellness Survey (PWS) (Adams, Bezner, Garner, & Woodruff, 1998) do include a dimension referring to spirituality. This sends an ambiguous message as it remains unclear whether spiritual wellbeing is part of conventionally conceptualised wellbeing. According to Visser and colleagues (2017), connectedness with nature and transcendent experiences seem to differ from wellbeing. On the other hand, meaningfulness for instance shows clear commonalities with wellbeing and is already covered by the MHC-SF in the psychological wellbeing dimension (Lamers et al., 2011; Van Dierendonck, 2004). Consequently, certain aspects of spirituality already seem to belong to the current conceptualization and operationalisation of the wellbeing domain, while other aspects seem to be extending the scope of current measures.

Swinton (2001) provides two possible explanations for the lack of spiritual wellbeing measures in some of the most prominent wellbeing instruments. First, in some parts of society spiritual practices are still oftentimes perceived as non-evidence-based, leading to a deprivation of its scientifically relevant status so that it remains a domain for itself explained

in its own terms (Bruce, 2000; Stolz et al., 2016). Second, an issue of reductionism is raised. Thus, especially in Western societies, the world is explained in either materialistic or psychological terms. A spiritual domain is mostly ignored here as it can neither be explained materialistically nor psychologically (Swinton, 2001). This also attributes to a flawed public perception of spirituality, which largely ignores the beneficial effects of spiritual wellbeing (Bruce, 2000).

Many measurement instruments for spiritual wellbeing have been developed, such as the Spiritual Wellbeing Scale of the Functional Assessment of Chronic Illness Therapy (FACIT-Sp-12) (Brady et al., 1999), the Mental, Physical, and Spiritual Wellbeing Scale (SWB) (Vella-Brodrick, & Allen, 1995), the Spirituality Assessment Scale (SAS) (Howden, 1992) and the Spiritual Transcendence Scale (STS) (Piedmont, 1999). Nonetheless, the psychometric properties of these instruments are either unsatisfactory or inconsistent (Brady et al., 1999; de Jager Meezenbroek et al., 2012; Fowler, 1995; George, Larson, Koenig, & McCullough, 2000; Howden, 1992; Piedmont, 1999). Another issue is that most spirituality questionnaires do not capture the whole range of spirituality, as they focus mainly on beliefs relating to Christianity or religion in general. Therefore, de Jager Meezenbroek and colleagues (2012) developed a questionnaire aiming at the conceptualisation of a broader perspective on spiritual attitudes, in such a way that also non-religious individuals with occasional spiritual experiences are sufficiently represented (de Jager Meezenbroek et al., 2012). The resulting Spiritual Attitude and Involvement List (SAIL) measures spiritual wellbeing as a seven-dimensional construct, including *meaningfulness*, *trust*, *acceptance*, *caring for others*, *connectedness with nature*, *transcendent experiences* and *spiritual activities* (de Jager Meezenbroek et al., 2012). Visser and colleagues (2017) recently argued that the *trust* dimension may be redundant as it was found to belong to the domain of existential wellbeing, but more research is necessary to draw a conclusion on this.

A psychometric investigation of the 26-item scale demonstrated sufficient fit of the seven-factor measurement model of the SAIL across diverse samples of students, healthy populations and cancer patients with high factor loadings and sufficient factorial, convergent and discriminant validity. Moreover, internal consistency across the different subscales is consistently good, which also supports its internal construct validity (de Jager Meezenbroek et al., 2012). A study by Visser and colleagues (2017) using CFA revealed a good fit in cancer patients as well as associations of spiritual wellbeing and existential wellbeing. Moreover,

research on Polish nurses showed satisfactory psychometric properties. However, in this study, a six-dimensional model was retrieved from exploratory factor analysis, so that the *meaningfulness* and *caring for others* dimensions were merged. Regarding construct validity, the previous study utilised Pearson's correlations with the Polish versions of the Brief RCOPE questionnaire, the Self-Description Questionnaire and the Spiritual Transcendence Scale. Here, positive and significant correlations were found with almost every subscale of the previously introduced inventories (Deluga et al., 2020). However, as these findings applied a different factor model they ought to be interpreted with some caution.

One issue limiting the use of the SAIL in both research and practice is that it is rather long. For this, a major concern is that long questionnaires are frequently perceived as burdensome by participants, resulting in a variety of response effects. One practical effect of long instruments is that individuals tend to select rather identical response options with increasing item numbers (Herzog, & Bachman, 1981). Here, a contributing factor is a decrease in motivation when it comes to long questionnaires (Bradburn, Sudman, & Wansink, 2004). Next, as spirituality measurements are frequent in the assessment of impaired and elderly individuals, a cognitively burdening component should not be dismissed as well (Kleka, & Soroko, 2018). Yet, as the positive effects of spiritual wellbeing are increasingly appreciated in psychological literature, a more convenient measurement instrument for spiritual wellbeing is urgently required.

However, short-form development is a risky endeavour that oftentimes comes at the cost of both content validity and psychometric properties. For instance, Cronbach's Alpha tends to be underestimated with too few items in a questionnaire (Abdelmoula, Chakroun, & Akroun, 2015). Moreover, the reduction of items often comes at the cost of construct validity (Smith, McCarthy, & Anderson, 2000). So, the original factor structure of the initial instrument needs to be maintained as accurately as possible with reduced item number. For this, the development of an appropriate short form requires a careful balancing of content criteria and psychometric properties. Another important limitation in short-form development is that oftentimes the same sample used for the short-form development is used for the validation as well which overestimates psychometric properties leading to exaggerated results (Marsh et al., 2005; Silverstein, 1990). The reason behind this is that the re-use of data is likely to overestimate the overlap of variance in both measurements leading to overly optimistic results on psychometric properties (Smith et al., 2000).

To conclude, in mental health care and society there is increasing attention to wellbeing as an important outcome and value. So far, wellbeing is primarily measured in emotional, psychological, and social terms. To realize a more holistic picture of wellbeing it is vital to include spiritual wellbeing as well. Hence, a feasible yet comprehensive measure of spiritual wellbeing may be very helpful. The SAIL was developed as an instrument tailored to a variety of different populations with different spiritual and religious backgrounds and various levels of expression. However, a feasible short form that can be used in both research and (clinical) practice is currently lacking, which manifests a research gap in this domain.

The present study aimed at the development of a reliable and valid short form of the Spiritual Attitude and Involvement List (SAIL-SF) retaining the content validity of the full version as a broad measure of spirituality. For this, previously collected data from two large studies that used the SAIL across diverse populations were used to develop the SAIL-SF by using an iterative combination of exploratory and confirmatory factor analyses.

Methods

As the goal of the present study was to develop a psychometrically valid short form of the SAIL, several methodical steps were necessary. Here, data from two samples from different populations (nurses, cancer patients) were used to consider both individuals from a clinical population as well as a non-clinical population for the development of the short form. These samples were derived from two studies by Van Leeuwen and Schep-Akkerman (2015) and Visser and colleagues (2017) and had already been collected before so that the present study included secondary analyses of the data.

Participants

Sample 1

The sample of the article by Van Leeuwen and Schep-Akkerman (2010) consisted of data from 458 healthcare workers employed in three different nursery settings who completed the SAIL ($N_{hospital\ care} = 197$, $N_{mental\ health\ care} = 152$, $N_{home\ care} = 87$). All care institutions were in the Netherlands and the gender distribution was 84.5% female and 15.5% male. Most included individuals considered themselves Christian (50%), or atheistic (11.8%). The initial sampling strategy specifically aimed at qualified nurses who had completed their job training and were employed for the previous five years at least. Therefore, the predominant age group was in a range from 41 to 50. Further information on the demographics of the sample can be found in the table below (see Table 1).

Sample 2

The second sample had its origin in a study by Visser and colleagues (2017) and included 445 individuals suffering from various forms of cancer. In the data collection, the researchers recruited patients from four hospitals and two radiotherapy institutions in the Netherlands. The participants' ages were in a range between 24 and 83 with a mean of 59 years of age. Concerning gender, the sample included 27.2 % male participants. Moreover, 49.7% of individuals in the sample considered themselves as being spiritual while 52.5% reported being religiously minded (see Table 1).

Table 1*Frequency Table of the Samples' Demographic properties*

Sample	N	Setting	Age (Mean)	Gender Distribution	Education
Sample 1	458	Nurses	<31y: 155 31 – 50y: 180 >50y: 112 Missing: 11	84.5% female 15.5% male	Secondary Vocational Education: 164 Higher Vocational Education: 148 In-Service training: 143 Missing: 3
Sample 2	445	Cancer patients	24 – 83y (59) Missing: 0	72.8% female 27.2% male	Lower Education: 83 Middle Education: 182 Higher Education: 178

Note. Sample 1 is from the Van Leeuwen, & Schep-Akkerman, 2015 study, and Sample 2 is from the Visser et al., 2010 study.

Spiritual Attitude and Involvement List (SAIL)

The SAIL consists of seven dimensions with 26 items in total. All items are to be answered on a six-point Likert scale from 1 (“not at all” or “never”) to 6 (“to a very high degree” or “very often”) (de Jager Meezenbroek et al., 2012). Considering the scale’s psychometric properties, Visser and colleagues (2017) found alpha coefficients ranging from $\alpha = .75$ to $.89$ for the different subscales in a sample of cancer patients. The same sample indicated a 6-month test-retest reliability in a range from $r = .64$ to $.72$ and a 12-month test-retest reliability from $r = .66$ to $.87$. This conforms with findings from the initial scale development study where alpha coefficients for five different groups (students, healthy individuals, healthy and interested individuals, curative cancer patients, palliative cancer patients) were in a range from $.73$ to $.86$ (de Jager Meezenbroek et al., 2012). Test-retest reliability in these five samples after one month displayed sufficient coefficients for each group. Results from factor analyses in the same study indicated a good model fit with a Comparative Fit Index (CFI) of the model for a healthy population above 0.90 with factor loadings in a range from $.44$ to $.96$ ($M = .71$) (de Jager Meezenbroek et al., 2012). CFAs on Polish nurses revealed a sufficient fit respecting Root

Mean Square Error of Approximation (RMSEA) and Standardised Root Mean Square Residuals (SRMR). However, the previous model fit refers to a six-factor solution instead of the initial seven-factor solution (Deluga, 2020).

Criteria for Item Selection

As the aim of the present study was to develop a psychometrically robust short form, with seven items covering the entire construct and content validity of the full version, guidelines for an appropriate development process are inevitable. For this, the criteria described by Marsh and colleagues (2005) served as the main guidelines for the development of the SAIL short form.

First, the main criterion for the item selection was based on their standardised factor loadings resulting from a confirmatory factor analysis (CFA) in both samples. Thus, items with the highest factor loadings for each subscale, that measure the intentional subdimension most accurately, as obtained from the CFAs were considered. Secondly, items needed to clearly differ in linguistic content, which also served as a criterion to avoid unacceptable item similarity. Lastly, an additional content criterion was added, which required items to display a least possible amount of overlap with items from the existing dimensions of psychological, emotional and social wellbeing of the MHC-SF (Lamers et al., 2011), which also served the purpose of uniqueness of the items for the measurement of spiritual wellbeing.

Preliminary item selection was based on CFA results in both samples. In a focus group meeting, the results of the CFAs and preliminary items were then exchanged and ambiguities respecting the item selection were discussed. Here, a content expert on spirituality, an expert in the wellbeing domain as well as a psychometrician examined and discussed the results in consideration of the previously introduced criteria. The findings from this meeting were used to explore the dimensionality and internal consistency of the seven remaining items in both samples.

Data Analysis

For the statistical analyses, the package *lavaan* for R Studio and SPSS Statistics version 26 were utilised. As the aim of the study was to develop a short form of the SAIL with a robust factor structure, CFAs served the aim of investigating the model fit statistics and factor loadings of the two samples at hand. Weighted Least Square Mean and Variance (WLSMV) adjusted estimators were adopted to account for the ordinal nature of Likert-type data (Brown, 2006).

To determine the fit of the model, the Tucker-Lewis Index (TLI) and CFI indexes were utilised with values ≥ 0.90 indicating an adequate fit and the ≥ 0.95 criterion marking an excellent fit (Marsh, Balla, & McDonald, 1988). Moreover, the Root Mean Square Errors of Approximation (RMSEA) and Standardised Root Mean Square Residuals (SRMR) were employed with values ≤ 0.01 , 0.05 and 0.08 indicating an excellent, good or sufficient fit (Hu, & Bentler, 1999; Kenny, Kaniskan, & McCoach, 2015). For the interpretation of factor loading strengths, the criteria by Costello and Osborne (2005) were used. Thus, coefficients equal to or higher than .8 were considered high, coefficients equal to or higher than .7 were considered moderate and values still equal to or higher than .4 were considered acceptable.

In the following step, the results from the previous analyses were shared with an expert team to discuss the final item selection based on the previously introduced criteria aiming at a seven-item scale. Next, Principal Component Analyses (PCA) for the final items were executed in both samples to evaluate the dimensionality and factor loadings of the 7 items. For this, the number of empirical dimensions underlying the items was firstly determined by adopting PCA Parallel Analyses. A component was considered relevant if its observed eigenvalue in the actual data exceeded the 95th percentile of its respective eigenvalue generated from 1000 randomly permuted datasets (O'Connor, 2000). Next, the number of dimensions in the PCA's was fixed to the results of the parallel analyses to obtain the final factor loadings. For the interpretation of these factor loadings, the criteria by Costello and Osborne (2005) were adopted again.

In the last step, the internal consistency of the final SAIL-SF was examined by utilising Cronbach's Alpha analyses. Here, coefficients below .70 were considered unacceptable, in a range between .70 and .79 they were considered acceptable, between .80 and .89 they were considered good and at .90 or above they would mean an excellent value (Cicchetti, 1994).

Results

Confirmatory Factor Analyses

First, CFAs were executed for both samples and model fit statistics, as well as factor loadings were extracted. As derived from the TLIs and CFIs, Sample 1 demonstrated a poor fit for the proposed correlated 7-item model with a CFI of 0.743 and a TLI of 0.700 (see Table 2). However, coefficients of the RMSEA and SRMS analyses indicated a sufficient fit with 0.064 and 0.067, respectively. For Sample 2, indexes revealed a sufficient fit of the proposed model with 0.928 for the CFI and 0.916 for the TLI. This was confirmed by the RMSEA and the SRMS with 0.043 for the former and 0.048 for the latter.

Table 2

Fit Indexes for Sample 1 and Sample 2

Fit Index	Sample 1	Sample 2
Comparative Fit Index (CFI)	0.743	0.928
Tucker-Lewis Index (TLI)	0.700	0.916
Root Mean Square Error of Approximation (RMSEA)	0.064	0.043
Standardised Root Mean Square Residual (SRMS)	0.067	0.048

Note. Sample 1 is from the Van Leeuwen, & Schep-Akkerman, 2015 study, and Sample 2 is from the Visser et al., 2010 study.

Next, factor loadings were calculated for each item separately (see Table 3). For the *meaningfulness* dimension, item 12 displayed the highest factor loading with .717 for Sample 1 while for Sample 2 the highest loading was .819 for item 17. Concerning *trust*, results for both samples uniformly indicated item 13 as the strongest with .762 for Sample 1 and .751 for Sample 2. The same accounted for the *acceptance* dimension where for both samples the factor loaded highest on item 15 with .735 in Sample 1 and .772 in Sample 2. Regarding *caring for others*, Sample 1 indicated the strongest fit of item 16 with a coefficient of .795. Sample 2, on the contrary, loaded highest on item 18 with a factor loading of .835. Moreover, Table 3

shows for *connectedness with nature* the highest factor loading for Sample 1 in item 14 with .886 and for Sample 2 in item 5 with .804. For *transcendent experiences*, once again, both samples demonstrated the highest loadings on one item, which is item 21. Here, the loading in Sample 1 was .870 and in Sample 2 it was .904. The same accounts for *spiritual activities*, where item 24 is strongest. Hence, in Sample 1 the factor loading for item 24 was .844, while in Sample 2 it was .873.

Table 3

Factor Loadings of CFAs for Sample 1 and Sample 2 (highest loadings in bold)

Nr.	Dimension	Item Text	Sample 1	Sample 2
4	Meaningfulness	I know what my position is in life	0.594	0.545
12		I experience the things I do as meaningful	0.717	0.753
17		My life has meaning and purpose	0.636	0.819
1	Trust	I approach the world with trust	0.607	0.514
3		In difficult times I maintain my inner peace	0.645	0.580
9		Whatever happens, I am able to cope with life	0.583	0.637
13		I try to take life as it comes	0.762	0.751
6	Acceptance	I accept that I am not in full control over the course of my life	0.606	0.705
8		I accept that I am not able to influence everything	0.574	0.517
11		I am aware that each life has its own tragedy	0.662	0.674
15		I accept that life will inevitably sometimes bring me pain	0.735	0.772
2	Caring for	It is important to me that I can do things for others	0.708	0.736
7	Others	I am receptive to other people's suffering	0.631	0.656
16		I try to make a meaningful contribution to society	0.795	0.748
18		I want to mean something to others	0.645	0.835
5	Connectedness with Nature	The beauty of nature moves me	0.805	0.804
14		When I am in nature, I feel a sense of connection	0.886	0.798
19	Transcendent Experiences	I have had experiences during which the nature of reality became apparent to me	0.713	0.734
20		I have had experiences in which I seemed to merge with a power or force greater than myself	0.825	0.831

21		I have had experiences in which all things seemed to be part of a greater whole	0.870	0.904
23		I have had experiences where everything seemed perfect	0.626	0.603
25		I have had experiences where I seemed to rise above myself	0.729	0.756
10	Spiritual Activities	There is a God or higher power in my life that gives me guidance	0.653	0.760
22		I talk about spiritual themes with others (themes such as the meaning of life, death or religion)	0.699	0.730
24		I meditate or pray, or take time in other ways to find inner peace	0.844	0.873
26		I attend sessions, workshops etc. that are focused on spirituality or religion	0.740	0.629

Note. Sample 1 is from the study by Van Leeuwen, & Schep-Akkerman, 2015, and Sample 2 is from the Visser et al., 2010 study.

Item Selection

After conducting the CFAs for both samples, the results were used for item selection purposes in a focus group meeting (see Table 4). For the first dimension, the results of both samples indicated a different item to be most relevant with Sample 1 pointing towards item 12, while Sample 2 pointed towards item 17. Here, item 12 (“I experience the things I do as meaningful”) was preferred due to an observable overlap of SAIL item 17 with item 14 from the psychological wellbeing dimension of the MHC-SF (“During the past month how often did you feel that your life has a sense of direction or meaning to it”). As this would violate the previously introduced criterion of uniqueness in wellbeing content, item 12 was selected for the final short form.

For *trust*, item 13 (“I try to take life as it comes”) displayed the highest factor loadings in both datasets. Therefore, it was considered most suitable for an appropriate short form of the SAIL.

Concerning the *acceptance* dimension, there was also one item sticking out psychometrically. Item 15 (“I accept that life will inevitably sometimes bring me pain”) scored

the highest factor loadings in both samples. On a content level, this could be confirmed as the experience of pain is a common part of human experience, which makes it applicable to a variety of individuals. However, a potential shortcoming of this item is that it is not further specified what kind of pain is meant so that individuals possibly mix physical pain with psychological pain. Nonetheless, the analyses revealed moderate factor loadings in both samples so that the previous claim seems redundant.

For *caring for others*, again, no clear decision could be made based on CFA results. Sample 1 pointed towards item 16 while for Sample 2, item 18 seemed most relevant. Consequently, no decision was possible on a psychometrical level so that content criteria were considered. Basically, item 18 (“I want to mean something to others”) does not essentially grasp the content of caring for others as it points more towards a need for affiliation. For this, Wiesenfeld, Raghuram and Garud (2001) explained that affiliation is defined as “a personality attribute corresponding to individuals’ desire for social contact or belongingness”. As the latter definition shows substantial overlap with item 18, item 16 (“I try to make a meaningful contribution to society”) was selected for further analyses. This decision was also reasoned by the fact that the attempt to contribute to society as in item 16 is easier to measure than wanting to mean something to others as in item 18, as the latter is defined rather broadly.

For *connectedness with nature* again both samples indicated different items based on factor loadings, so it had to be decided between item 5 and item 14. An apparent feature in the *connectedness with nature* dimension is that factor loadings for each item across both samples were sufficient to justify its selection. On a content level, there was also no clear decision possible as both items are quite different in their approach. Accordingly, item 5 (“The beauty of nature moves me”) refers to an emotional appraisal of the effects exposure to nature has on individuals, whereas item 14 (“When I am in nature, I feel a sense of connection”) reflects a relationship with natural phenomena which transcends the self. As there is reason to argue for both items, it was decided that both items should be tested for their effect on dimensionality in the final PCA’s.

Concerning *transcendent experiences*, factor loadings for both samples pointed towards item 21 (“I have had experiences in which all things seemed to be part of a greater whole”). As this could also be confirmed on a content level, reasoned by the distinct formulation of the item and distinctiveness from different conceptualisations, item 21 seemed

most appropriate for the SAIL-SF. Lastly, *spiritual activities* seemed unambiguous as well, as results from the CFAs demonstrated the best fit for item 24 (“I meditate or pray, or take time in other ways to find inner peace”). The selection of the latter item could also be confirmed on a content level as it is inclusive of different kinds of spiritual engagement.

Table 4

Overview Over Selected Items

Selected Item	Dimension	Reason for Choice
12	Meaningfulness	Uniqueness
13	Trust	Factor Loadings
15	Acceptance	Factor Loading
16	Caring for Others	Most accurate description of concept
5 / 14	Connectedness with Nature	Undecided
21	Transcendent Experiences	Factor Loadings
24	Spiritual Activities	Factor Loadings

Principal Component Analyses

Parallel analyses for Principal Component Analyses were conducted in both samples for the preliminary items of the SAIL-SF. These were used to investigate the number of underlying factors in the remaining items. As for each sample and each item for *connectedness with nature* one analysis had to be conducted, four parallel analyses were necessary. As derived from Table 5, parallel analyses for each combination of items in both samples suggested a one-factor model as the 95th percentile of the second component in the random data was consistently greater than the observed eigenvalue in the raw data. For visual representation purposes, Figure 1 – 4 illustrate the scree plots with observed Eigenvalues, Means and 95 Percentiles of the bootstrapped eigenvalues from the permuted raw data.

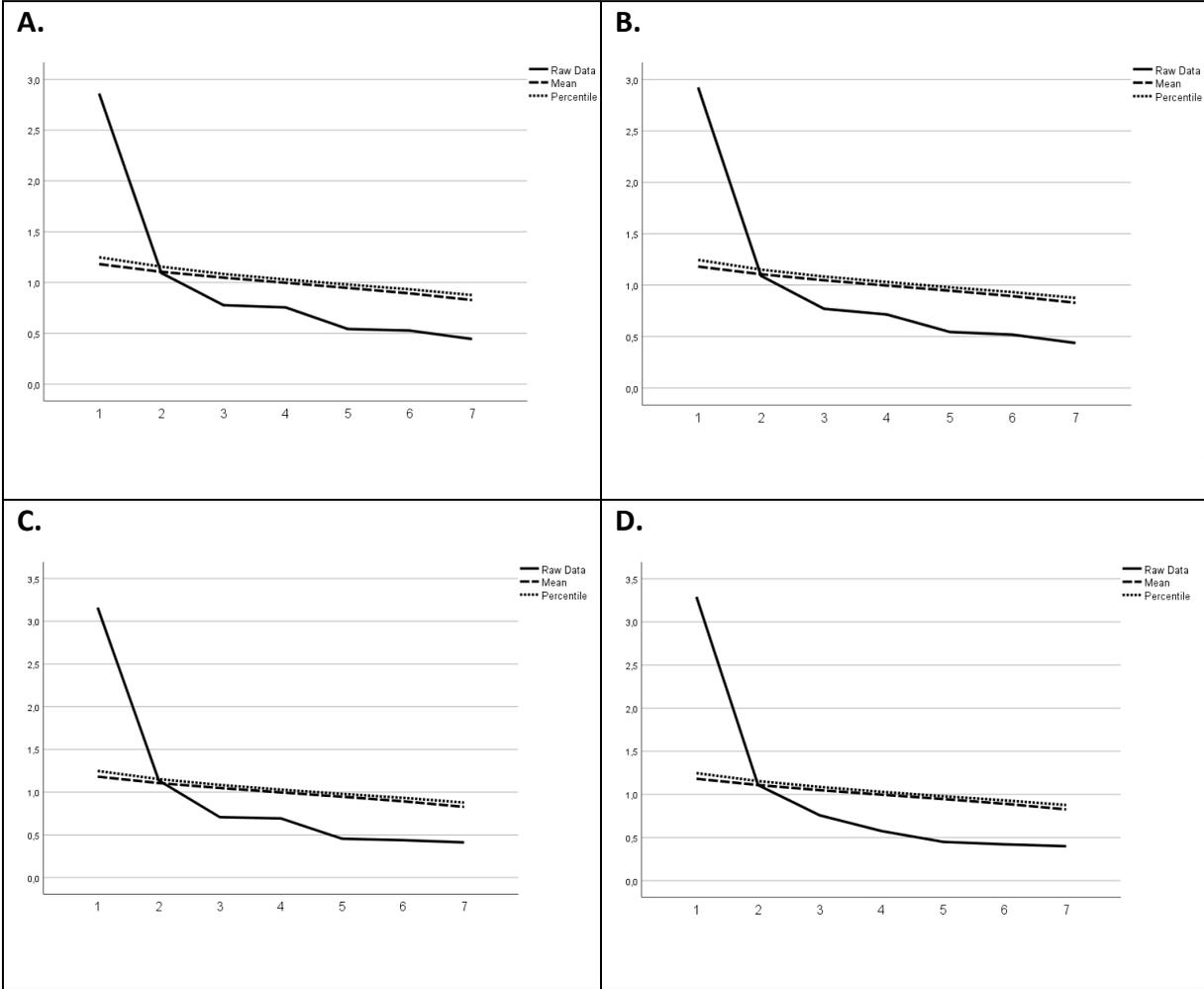
Table 5*Parallel Analyses*

Sample (Item)	Component	Observed Eigenvalue	Mean Eigenvalue	Random 95 Percentile Random Eigenvalue
Sample 1 (item 5)	1	3.160	1.181	1.248
	2	1.137	1.106	1.152
Sample 1 (item 14)	1	3.290	1.181	1.246
	2	1.107	1.109	1.154
Sample 2 (item 5)	1	2.861	1.181	1.248
	2	1.094	1.105	1.156
Sample 2 (item 14)	1	2.924	1.181	1.245
	2	1.090	1.106	1.151

 $N_{\text{Datasets}} = 1000$

Figure 1

Visual Representations of the Results from Parallel Analyses



Note. Panel A refers to Visser et al., 2010 with item 5, Panel B refers to Visser et al., 2010 with item 14, Panel C refers to Van Leeuwen, & Schep-Akkerman, 2015 with item 5 and Panel D refers to Van Leeuwen, & Schep-Akkerman, 2015 with item 14.

Next, simple Principal Component Analyses were conducted to validate the final SAIL-SF and to decide on which item to take for *connectedness with nature*. Here, the number of factors to extract was limited to one based upon the previous findings from the parallel analyses. In Sample 1 with item 5 for *connectedness with nature*, the model explained about 45% of the variance with factor loadings between .579 and .752. For Sample 2, the proposed model explained about 41% of the variance and displayed values in a range from .567 to .720 (see Table 6).

Table 6*Component Matrix for both samples with item 5*

Dimension (Item Number)	Sample 1	Sample 2
Meaningfulness (12)	.752	.707
Trust (13)	.671	.606
Acceptance (15)	.746	.720
Caring for Others (16)	.617	.629
Connectedness with Nature (5)	.579	.567
Transcendent Experiences (21)	.659	.592
Spiritual Activities (24)	.661	.639
% of Variance	45.139	40.866

The analyses were repeated with item 14 for *connectedness with nature*. For Sample 1, the one-factor model accounted for about 47% of the variance with factor loadings from .590 to .761. In Sample 2 the proposed model was found to explain around 42% of the variance with coefficients in a range from .576 to .722 (see Table 7).

Table 7*Component Matrix for both samples with item 14*

Dimension (Item Number)	Sample 1	Sample 2
Meaningfulness (12)	.761	.719
Trust (13)	.668	.603
Acceptance (15)	.757	.722
Caring for Others (16)	.590	.634
Connectedness with Nature (14)	.690	.636
Transcendent Experiences (21)	.658	.576
Spiritual Activities (24)	.659	.636
% of Variance	46.994	41.776

Based on the previous analyses, a decision on the final item for the *connectedness with nature* dimension could be made. For this, analyses with item 5 revealed a loading of .579 for Sample 1 and .567 for Sample 2 (see Table 6). Concerning item 14, Principal Component Analyses revealed higher coefficients for both samples. Thus, a loading of .690 was found in Sample 1 and .636 in Sample 2 (see Table 7). Moreover, in both analyses including item 14 for *connectedness with nature*, the proposed factor exceeded the amount of explained variance in comparison to the analyses including item 5 (see Table 6). This also provided a substantial argument for item 14. Therefore, the final SAIL-SF consists of the following: item 12 for *meaningfulness*, item 13 for *trust*, item 15 for *acceptance*, item 16 for *caring for others*, item 14 for *connectedness with nature*, item 21 for *transcendent experiences* and item 24 for *spiritual activities* (see Table 8).

Table 8

Final Version of the SAIL-SF

Item	Dimension	Text
12	Meaningfulness	I experience the things I do as meaningful
13	Trust	I try to take life as it comes
15	Acceptance	I accept that life will inevitably sometimes bring me pain
16	Caring for Others	I try to make a meaningful contribution to society
14	Connectedness with Nature	When I am in nature, I feel a sense of connection
21	Transcendent Experiences	I have had experiences in which all things seemed to be part of a greater whole
24	Spiritual Activities	I meditate or pray, or take time in other ways to find inner peace

Reliability Analysis

Lastly, reliability analyses were conducted to check for the internal consistency of the final short form. Cronbach's alpha for the final scale in Sample 1 was .792. For Sample 2, a coefficient of $\alpha = .745$ was found, which is both acceptable. Thus, the statistical robustness of the final SAIL-SF could be confirmed from an internal consistency perspective as well.

Discussion

Overall, the present study resulted in a seven-item short form of the SAIL that incorporates all proposed theoretical dimensions of spiritual wellbeing and that demonstrated essential unidimensionality and adequate reliability in both nurses and cancer patients.

To construct a robust short form considering both psychometric properties and content criteria, the present study performed secondary analyses of data obtained from previous research on nurses and cancer patients. On the one hand, this increased the results' range of applicability, as the participants were selected from a clinical and a non-clinical background (Levy, 1968). On the other hand, the adoption of two samples increased the overall sample size increasing the confidence in the final results (Abdelmoula et al., 2015; Marsh et al., 1988). The analysis of the data included an iterative approach consisting of CFAs and PCAs to continuously monitor the psychometric properties of the present data concerning factor loadings and model fit. Therefore, CFAs were adopted to check for the factor loadings of the original data in the seven-factor model (Bohlmeijer et al., 2011; Sommers-Spijkerman et al., 2018). This gave the basis for a focus group meeting including a psychometrician and two content experts to decide on the final items by keeping content and psychometrics balanced (Marsh et al., 2005; Smith et al., 2000). Parallel analyses, then, examined the dimensionality of the final SAIL-SF, so that PCAs could be adopted to retrieve the factor loadings for the one-factor solution (O'Connor, 2000). To finally increase the confidence in the results, Cronbach's alpha analyses were utilised for internal consistency (Smith, & McCarthy, 1995).

These steps resulted in a unidimensional seven-item SAIL-SF. As content criteria like differing linguistic content and least possible overlap with different wellbeing conceptualisations were adopted in the item selection process, robustness on the content level could be granted (Smith et al., 2000). Concerning psychometrics, factor loadings for both samples were in an acceptable range for *trust*, *caring for others*, *connectedness with nature*, *transcendent experiences*, and *spiritual activities*. Concerning *meaningfulness* and *acceptance*, moderate loadings were found. Cronbach's alpha analyses revealed acceptable coefficients in both samples. Thus, the robustness of the SAIL-SF could also be verified psychometrically.

The analytic approach in the present paper is comparable to the steps taken in various different papers on short-form development. Bohlmeijer and colleagues (2011) for instance

also adopted CFAs for their investigation on the factor structure of the Five Facet Mindfulness Questionnaire (FFMQ). The results were then utilised for the screening of suitable items for their short-form under consideration of content coverage and the maintenance of psychometric properties. Besides minor differences in approach, a major distinction refers to the approach concerning the prevalent factor structure. As the comparative study executed several CFAs before the item selection to check for the best fitting factor solution, the present paper adopted parallel analyses for this. Besides the more economical way of doing parallel analyses instead of an analysis for each pre-defined model, the present approach fit the research goal best as the construction of a unidimensional scale to extract a single score for spiritual wellbeing was the aim of this paper. However, an advantage of the analyses by Bohlmeijer and colleagues (2011) is the cross-validation of the FFMQ-SF in an independent clinical sample by examining psychometric properties like convergent validity, discriminant validity and sensitivity to change. Even though the cross-validation data was also gathered with the long-form, this enabled a more independent validation. Moreover, corrected correlation coefficients between the FFMQ-SF and the original form were computed to account for the shared measurement error between short and original form as well as to estimate the overlap of variance (Smith et al., 2000). This states a true advantage to the present approach as shared error and overlapping variance were not investigated in this paper. Nonetheless, two dimensions were found to show correlations below an acceptable threshold which underlines the necessity to pay close attention to the maintenance of psychometric properties with reduced item number (Bohlmeijer et al., 2011).

More than this, Sommers-Spijkerman and colleagues (2018) executed another comparable short-form development study. Again, CFAs were adopted to check for the proposed factor structure. However, no content criteria were introduced, so that it was solely relied on psychometrics. In the present paper, a different approach respecting both content criteria and psychometrics as proposed in several studies on guidelines for short-form development was chosen (Marsh et al., 2005; Silverstein, 1990; Smith et al., 2000). This had the practical reason that psychometrics are prone to overestimation in studies using development data for the validation. By also introducing content criteria, the maintenance of psychometric and content validity was granted (Silverstein, 1990; Smith et al., 2000).

Strengths and Limitations

Concerning the strengths of the present study, the availability of two large and diverse samples for the item selection displays an advantage. This enabled a more extensive evaluation of the short form, which strengthened its psychometric qualities. Thus, the availability of a clinical, as well as a non-clinical sample, increased the range of applicability of the results as clinical and non-clinical samples usually show substantial different response behaviour in psychological assessments (Braet, Mervielde, & Vandereycken, 1997; Levy, 1968). Moreover, the adoption of two different samples could guarantee sufficient responses as it could be drawn on a larger pool of data leading to more confidence in the results (Abdelmoula et al., 2015; Marsh et al., 1988). Another strength of this paper is that it was possible to extract one item from each dimension of the full SAIL, so the resulting short-form essentially measures one underlying dimension of spiritual wellbeing. This has the advantage that the short form can be scored as a single summed or average score of the seven items. However, for a final statement on this further research is still necessary as the unidimensionality still needs to be confirmed in other samples that were administered the short-form to avoid exaggerated psychometrics (Smith et al., 2000). More than this, the consultation of experts in a focus group meeting constitutes a strength of this paper, as it enabled access to a pool of expert knowledge in different domains. Thus, content criteria, which are to a strong extent a matter of interpretation, could be reliably evaluated through the involvement of experts. This process required a careful balancing of psychometrics and content as psychometric theory suggests a loss of both with reduced item number (Smith et al., 2000). To prevent this, it was relied on expert knowledge to respect both domains of scale development equally.

Nonetheless, the present study also has several limitations which also need to be outlined. First, only Dutch samples from quite specific populations were used for the item selection, so that nurses and cancer patients, most certainly middle-aged and female, were overrepresented in both samples. This might have impacted the representativeness of the data (Omair, 2014). Thus, further analyses including more heterogeneous samples are inevitably necessary to increase the scale's range of applicability. Additionally, the study at hand only included data that was gathered with the long SAIL. Hence, possible systematic errors like question order effects could not be considered (McFarland, 1981). Thus, effects resulting from the arrangement of items from the long-form were probably adopted into the

short-form despite the different item order (Smith et al., 2000). This has the practical disadvantage that analyses with the newly established SAIL-SF may yield differences in factor structure through the replication of error and the overestimation of psychometric properties due to an overlap of variance caused by the re-use of data (Marsh et al., 2005; Silverstein, 1990). Even though an overlap of variance between a long-form and a short-form is one of the main goals in short-form development, the re-use of data would lead to an inflated overestimation. As suggested by Smith and colleagues (2000) a sensible solution for this would be to present both forms to the same population separately and to observe the correlations between both forms to estimate their overlap, which was also done by Bohlmeijer and colleagues (2011). Moreover, it is stated that further validation studies are needed to observe the psychometric properties in independent samples. Finally, the model fit for the original seven-factor structure of the long-form SAIL in the first sample could only partly be verified. Thus, CFI and TLI for Sample 1 were found below an acceptable threshold. Therefore, the original factor structure of the SAIL could not be entirely confirmed in the nursing sample based upon these coefficients. However, results from RMSEA and SRMS analyses contrarily indicated a sufficient fit for the proposed model. So even though a sufficient fit could finally be confirmed, the fit of the proposed seven-factor model in the nursing sample needs to be interpreted with caution.

Practical Utility of Findings

As the SAIL captures the broad perspective of spiritual wellbeing most sufficiently in comparison to different conceptualisations, the construction of a suitable short form offers a variety of practical applications. First, the SAIL-SF may be incorporated into test batteries to monitor different domains of wellbeing or spirituality as the result of interventions, which was already proven to be effective by Elham and colleagues (2015). This may find application in the public health sector or clinical contexts as a matter of increasing different domains of (mental) health by fostering spiritual wellbeing. Previous research introduced the positive effects of spiritual coping for elderly and impaired individuals particularly concerning anxious and depressive symptoms (Baldacchino, & Draper, 2001; Meisenhelder, & Chandler, 2002). But not only impaired individuals seem to profit here as healthy adults and adolescents can also enhance their quality of life with spiritual practices (Fisher, 2011; King, & Benson, 2005).

For this, a rather extensive monitoring tool like the initial SAIL would, especially when used in test batteries, increase participant burden with a variety of side effects especially for elderly and cognitively impaired individuals (Bradburn et al., 2004; Herzog, & Bachman, 1981; Kleka, & Soroko, 2018). Moreover, the SAIL-SF also has practical utility for the field of (spiritual) wellbeing research in general. It offers a robust measurement instrument that may be of advantage for further research on the role of spirituality in the wellbeing domain. For instance, as further investigations are still necessary to evaluate whether conventional wellbeing measures need an extension for a spiritual component or what role spirituality plays in the field of existential wellbeing, the SAIL-SF offers a feasible tool for different contexts and populations by keeping participant burden low (Visser et al., 2017).

Implications for Future Research

First, the SAIL-SF still needs to be validated in its final form, as the validation so far only contained data gathered with the full SAIL. This means that further validation studies will be needed to get conclusive evidence on its psychometrics. First and foremost, the model fit needs to be verified. For this, a repetition of parallel analyses and CFAs in independent samples seems sensible to confirm the unidimensionality found in the present paper. For this, it can also be sensible to determine the overlap of variance and shared error with the long SAIL by computing corrected and uncorrected correlations between both forms in independent samples (Bohlmeijer et al., 2011; Smith et al., 2000). Next, further psychometrics need to be examined. For instance, it is still unclear whether the SAIL-SF displays temporal stability. Even though the initial SAIL displayed sufficient test-retest reliability among five clinical and non-clinical samples, the temporal stability of its short-form still requires investigation to get evidence on the representativeness of single measurements (de Jager Meezenbroek et al., 2012). Moreover, like in the study by Bohlmeijer and colleagues (2011) convergent and discriminant validity may add substantial value to the new scale. For the former, it may be useful to investigate possible similarities with other spirituality or wellbeing instruments like for instance existential wellbeing measured with the Health and Disease Inventories (HDI) as examined by Visser and colleagues (2011). For the latter, previous validation studies on the long SAIL revealed discriminant validity among several populations concerning locus of control (LOC) (de Jager Meezenbroek et al., 2012). Thus, it may be of

interest to see whether these results may be replicated with the SAIL-SF. As a possible extension of wellbeing instruments for a spiritual component was already discussed, an examination of the scale's incremental validity would add substantial value to the field of spiritual research. Thus, such an investigation could give final evidence for a probable need to extend instruments like the MHC-SF to a spiritual dimension. Additionally, especially when it comes to spiritual wellbeing as a result of interventions responsiveness to change is a crucial factor. Therefore, further studies as conducted by Elham and colleagues (2015) are inevitably necessary for this as it estimates the extent to which spirituality interventions may be a fruitful addition in the public health sector or clinical contexts. For these validation steps, research on independent samples under consideration of sample representativeness is required (Smith et al., 2000). Hence, a consecutive step would include repeating the analyses with more heterogeneous samples to gather evidence on its range of applicability. Here, a random sampling approach seems sensible as it reduces the impact of uncontrolled factors within the data (Emerson, 2015).

Conclusion

In sum, the present study was able to develop a robust SAIL-SF respecting content criteria as well as psychometric properties. Thus, essential unidimensionality, as well as adequate internal consistency, could be demonstrated for the final seven-item instrument implying good potential for a novel short-form measuring spiritual wellbeing. Nonetheless, the development of the SAIL-SF is still in an early phase so that consecutive studies are inevitably necessary to get a broader perspective on the scale's psychometric properties among different populations in different contexts.

Acknowledgements

Special thanks to Dr Anja Visser-Nieraeth from the University of Groningen, who supported the development of this paper by sharing her professional expertise concerning spiritual wellbeing during the item selection process.

References

- Abdelmoula, M., Chakroun, W., & Akrouf, F. (2015). The effect of sample size and the number of items on reliability coefficients: alpha and ρ : a meta-analysis. *International Journal of Numerical Methods and Applications*, 13(1), 1-20.
- Adams, T., Bezner, J., Garner, L., & Woodruff, S. (1998). Construct validation of the perceived wellness survey. *American Journal of Health Studies*, 14(4), 212.
- Aupers, S., & Houtman, D. (2006). Beyond the spiritual supermarket: The social and public significance of new age spirituality. *Journal of contemporary religion*, 21(2), 201-222.
- Berghuijs, J., Bakker, C., & Pieper, J. (2013). New spirituality and social engagement. *Journal for the Scientific Study of Religion*, 52(4), 775-792.
- Bohlmeijer, E., Ten Klooster, P. M., Fledderus, M., Veehof, M., & Baer, R. (2011). Psychometric properties of the five facet mindfulness questionnaire in depressed adults and development of a short form. *Assessment*, 18(3), 308-320.
- Bradburn, N. M., Sudman, S., & Wansink, B. (2004). *Asking questions: the definitive guide to questionnaire design--for market research, political polls, and social and health questionnaires*. John Wiley & Sons.
- Brady, M. J., Peterman, A. H., Fitchett, G., Mo, M., & Cella, D. (1999). A case for including spirituality in quality of life measurement in oncology. *PsychoOncology*, 8, 417-428.
- Braet, C., Mervielde, I., & Vandereycken, W. (1997). Psychological aspects of childhood obesity: a controlled study in a clinical and nonclinical sample. *Journal of pediatric psychology*, 22(1), 59-71.
- Brown, T. (2006). *Confirmatory Factor Analysis for Applied Research*. New York: Guildford.
- Bruce, S. (2000). The new age and secularisation. *Beyond new age: Exploring alternative spirituality*, 228.
- Bruce, S. (2002). *God is dead: Secularization in the West* (Vol. 3). Oxford: Blackwell.
- Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment*, 64(4), 284-290.

- Cooke, P. J., Melchert, T. P., & Connor, K. (2016). Measuring well-being: A review of instruments. *The Counseling Psychologist, 44*(5), 730-757.
- Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical assessment, research, and evaluation, 10*(1), 7.
- de Jager Meezenbroek, E., Garssen, B., van den Berg, M., Van Dierendonck, D., Visser, A., & Schaufeli, W. B. (2012). Measuring spirituality as a universal human experience: A review of spirituality questionnaires. *Journal of religion and health, 51*(2), 336-354.
- Deluga, A., Dobrowolska, B., Jurek, K., Ślusarska, B., Nowicki, G., & Palese, A. (2020). Nurses' spiritual attitudes and involvement—Validation of the Polish version of the Spiritual Attitude and Involvement List. *Plos one, 15*(9), e0239068.
- Dobbelaere, K. (2002). *Secularization: An analysis at three levels* (Vol. 1). Peter Lang.
- Elham, H., Hazrati, M., Momennasab, M., & Sareh, K. (2015). The effect of need-based spiritual/religious intervention on spiritual well-being and anxiety of elderly people. *Holistic nursing practice, 29*(3), 136-143.
- Ellison, C. W. (1983). Spiritual well-being: Conceptualization and measurement. *Journal of psychology and theology, 11*(4), 330-338.
- Emerson, R. W. (2015). Convenience sampling, random sampling, and snowball sampling: How does sampling affect the validity of research?. *Journal of Visual Impairment & Blindness, 109*(2), 164-168.
- Fisher, J. (2011). The four domains model: Connecting spirituality, health and well-being. *Religions, 2*(1), 17-28.
- Fisher, J. W., Francis, L. J., & Johnson, P. (2000). Assessing spiritual health via four domains of spiritual wellbeing: The SH4DI. *Pastoral psychology, 49*(2), 133-145.
- Fowler, F. J. (1995). Improving survey questions—Design and evaluation (Applied Social Research Methods Series, 38). London, UK: Sage.
- Frankl, V. E. (1985). *Man's search for meaning*. Random House.

- Gallardo-Peralta, L. P. (2017). The relationship between religiosity/spirituality, social support, and quality of life among elderly Chilean people. *International Social Work, 60*(6), 1498-1511.
- George, L. K., Larson, D. B., Koenig, H. G., & McCullough, M. E. (2000). Spirituality and health: What we know, what we need to know. *Journal of Social and Clinical Psychology, 19*, 102–116.
- Hellemans, S., & Jonkers, P. (2015). *A Catholic minority church in a world of seekers*. Council for Research in Values and Philosophy.
- Herzog, A. R., & Bachman, J. G. (1981). Effects of questionnaire length on response quality. *Public opinion quarterly, 45*(4), 549-559.
- Howden, J. W. (1992). Development and psychometric characteristics of the Spirituality Assessment Scale. Ann Arbor, MI: UMI Dissertation Services.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal, 6*(1), 1-55.
- Kenny, D. A., Kaniskan, B., & McCoach, D. B. (2015). The performance of RMSEA in models with small degrees of freedom. *Sociological Methods & Research, 44*(3), 486-507.
- King, P. E., & Benson, P. L. (2005). Spiritual development and adolescent well-being. *The handbook of spiritual development in childhood and adolescence, 384*.
- Kleka, P., & Soroko, E. (2018, January). How to Avoid the Sins of Questionnaires Abridgement?. In *Survey Research Methods* (Vol. 12, No. 2, pp. 147-160).
- Lamers, S. M., Westerhof, G. J., Bohlmeijer, E. T., ten Klooster, P. M., & Keyes, C. L. (2011). Evaluating the psychometric properties of the mental health continuum-short form (MHC-SF). *Journal of clinical psychology, 67*(1), 99-110.
- Levy, P. (1968). Short-form tests: A methodological review. *Psychological Bulletin, 69*(6), 410.
- Lindberg, D. A. (2005). Integrative review of research related to meditation, spirituality, and the elderly. *Geriatric Nursing, 26*(6), 372-377.

- Lucchetti, G., Koenig, H. G., Pinsky, I., Laranjeira, R., & Vallada, H. (2015). Spirituality or religiosity: is there any difference?. *Brazilian Journal of Psychiatry, 37*(1), 83-83.
- Marsh, H. W., Balla, J. R., & McDonald, R. P. (1988). Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size. *Psychological bulletin, 103*(3), 391.
- Marsh, H. W., Ellis, L. A., Parada, R. H., Richards, G., & Heubeck, B. G. (2005). A short version of the Self Description Questionnaire II: operationalizing criteria for short-form evaluation with new applications of confirmatory factor analyses. *Psychological assessment, 17*(1), 81.
- McFarland, S. G. (1981). Effects of question order on survey responses. *Public Opinion Quarterly, 45*(2), 208-215.
- Meisenhelder, J. B., & Chandler, E. N. (2002). Spirituality and health outcomes in the elderly. *Journal of religion and health, 41*(3), 243-252.
- Musick, M. A., Traphagan, J. W., Koenig, H. G., & Larson, D. B. (2000). Spirituality in physical health and aging. *Journal of Adult Development, 7*(2), 73-86.
- Newman, D. A. (2009). Missing data techniques and low response rates. *Statistical and methodological myths and urban legends: Doctrine, verity and fable in the organizational and social sciences, 7*.
- O'Connor, B. P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instruments, and Computers, 32*(3), 396-402. <https://doi.org/10.3758/bf03200807>
- Pouwer, F., Van Der Ploeg, H. M., Ader, H. J., Heine, R. J., & Snoek, F. J. (1999). The 12-item well-being questionnaire. An evaluation of its validity and reliability in Dutch people with diabetes. *Diabetes Care, 22*(12), 2004-2010.
- Powell, L. H., Shahabi, L., & Thoresen, C. E. (2003). Religion and spirituality: Linkages to physical health. *American psychologist, 58*(1), 36.
- Piedmont, R. L. (1999). Does spirituality represent the sixth factor of personality? Spiritual transcendence and the five-factor model. *Journal of Personality, 67*, 985-1013.

- Renger, R. F., Midyett, S. J., Soto Mas, F. G., Erin, T. D., McDermott, H. M., Papenfuss, R. L., Eichling, P. S., Baker, D. H., Johnson, K. A., & Hewitt, M. J. (2000). Optimal Living Profile: An inventory to assess health and wellness. *American journal of health behavior, 24*(6), 403-412.
- Rennie, K. M. (1997). Exploratory and Confirmatory Rotation Strategies in Exploratory Factor Analysis.
- Rippentrop, A. E., Altmaier, E. M., Chen, J. J., Found, E. M., & Keffala, V. J. (2005). The relationship between religion/spirituality and physical health, mental health, and pain in a chronic pain population. *Pain, 116*(3), 311-321.
- Seybold, K. S., & Hill, P. C. (2001). The role of religion and spirituality in mental and physical health. *Current Directions in Psychological Science, 10*(1), 21-24.
- Silverstein, A. B. (1990). Critique of a doppelgänger-type short form of the WAIS-R. *Journal of clinical psychology, 46*(3), 333-339.
- Smith, G. T., & McCarthy, D. M. (1995). Methodological considerations in the refinement of clinical assessment instruments. *Psychological Assessment, 7*(3), 300.
- Smith, G. T., McCarthy, D. M., & Anderson, K. G. (2000). On the sins of short-form development. *Psychological assessment, 12*(1), 102.
- Sommers-Spijkerman, M., Trompetter, H., Ten Klooster, P., Schreurs, K., Gilbert, P., & Bohlmeijer, E. (2018). Development and validation of the forms of Self-Criticizing/Attacking and Self-Reassuring Scale—Short Form. *Psychological Assessment, 30*(6), 729.
- Stolz, J., Könemann, J., Purdie, M. S., Englberger, T., & Krüggeler, M. (2016). *(Un) believing in modern society: religion, spirituality, and religious-secular competition*. Routledge.
- Sutcliffe, S. J., & Gilhus, I. S. (2014). *New age spirituality: rethinking religion*. Routledge.
- Swinton, J. (2001). Spirituality and mental health care: Rediscovering a 'forgotten' dimension.
- Thoresen, C. E. (1999). Spirituality and health: Is there a relationship?. *Journal of health psychology, 4*(3), 291-300.

- Van Dierendonck, D. (2004). The construct validity of Ryff's Scales of Psychological Well-being and its extension with spiritual well-being. *Personality and individual differences, 36*(3), 629-643.
- Van Leeuwen, R., & Schep-Akkerman, A. (2015). Nurses' perceptions of spirituality and spiritual care in different health care settings in the Netherlands. *Religions, 6*(4), 1346-1357.
- Veehof, M. M., Peter, M., Taal, E., Westerhof, G. J., & Bohlmeijer, E. T. (2011). Psychometric properties of the Dutch Five Facet Mindfulness Questionnaire (FFMQ) in patients with fibromyalgia. *Clinical rheumatology, 30*(8), 1045-1054.
- Vella-Brodrick, D. A., & Allen, F. C. (1995). Development and psychometric validation of the mental, physical, and spiritual well-being scale. *Psychological Reports, 77*(2), 659-674.
- Visser, A., Garssen, B., & Vingerhoets, A. (2010). Spirituality and well-being in cancer patients: a review. *Psycho-Oncology: Journal of the Psychological, Social and Behavioral Dimensions of Cancer, 19*(6), 565-572.
- Visser, A., Garssen, B., & Vingerhoets, A. J. (2017). Existential well-being: Spirituality or well-being?. *The Journal of nervous and mental disease, 205*(3), 234-241.
- Wiesenfeld, B. M., Raghuram, S., & Garud, R. (2001). Organizational identification among virtual workers: The role of need for affiliation and perceived work-based social support. *Journal of management, 27*(2), 213-229.
- Zabihi, R., Ketabi, S., Tavakoli, M., & Ghadiri, M. (2014). Examining the internal consistency reliability and construct validity of the Authentic Happiness Inventory (AHI) among Iranian EFL learners. *Current Psychology, 33*(3), 377-392.