Spirituality, Quality of Life, and associated health outcomes. A literature and scoping review of the evidence

Alexandra Mannarino

This report is submitted in partial fulfilment of the degree of Master of Psychology (Health)

School of Psychology

University of Adelaide

October 2017

Word count:

Literature review: 4266

Research report: 5120

Declaration

This report contains no material which has been accepted for the award of any other degree or diploma in any University, and, to the best of my knowledge, this report contains no materials previously published except where due reference is made.

I give permission for the digital version of my thesis to be made available on the web, via the University's digital research repository, the Library Search and also through web search engines, unless permission has been granted by the School to restrict access for a period of time.

Signature:

Alexandra Mannarino

[redacted]

October 9th, 2017

Table of contents

List of tables and figures

RESEARCH REPORT

List of appendices

Acknowledgements

I would like to express an incredible amount of gratitude to my primary supervisor, Dr Rachel Reilly, and my secondary supervisor, Dr Odette Gibson, for their assistance throughout the year. In particular, their warmth, interest, knowledge and expertise has been integral in guiding me throughout this project, and I thank them for providing me with the opportunity to research such a fascinating and important area of health.

I would also like to thank Sana Ishaque for the amount of time and enthusiasm she shared with me during the initial stages of the development of this report.

Finally, this report would not have been possible without collaboration with the Quality of Life working group team from the Wardliparingga Aboriginal Research Unit within the South Australian Health and Medical Research Institute (SAHMRI), and I thank them and Professor Alex Brown for allowing me the opportunity to explore an area of interest, and to learn invaluable information that will assist me in my understanding of health into the future.

Literature review: Considerations in the use of Quality of Life tools for Health Psychologists

Objectives: a) To explore the implications for use of Quality of Life (QoL) to health psychology from a clinical and public health perspective b) To discuss the future of QoL tools within health psychology, taking into account strengths and limitations c) To provide recommendations for future research and use

Introduction

Traditionally and frequently, objective measures with a biomedical basis are used to infer health status, with treatment aiming to eliminate disease (Britt, Miller, Henderson, Bayram, Valenti & Harrison, 2014). Gradually, however, it is being recognised that changes to functional impairment, when striving for the absence of disease, do not appropriately reflect an individual's general sense of well-being (World Health Organisation; WHO, 1947). As such, given that chronic disease is currently the leading cause of illness in Australia (Australian Institute of Health and Wellbeing; AIHW, 2014), it is becoming increasingly irrelevant for researchers and health practitioners to depend solely on physical health parameters when informing treatment or public health policy (Coghill, Danckaerts, Sonuga-Barket & Sergeant, 2009). As such, Quality of Life (QoL) instruments have gained prominence in their ability to address psychological and social factors associated with health and well-being, in addition to traditional biomedical health markers.

Contention about the definition and concept of QoL has existed since the term first became popularised following World War II (Poradzisz & Florczak, 2013), almost to be expected given its use by disciplines as varied as geography, economics and philosophy (Barcaccia, Esposito, Matarese, Bertolaso, Elvira & De Marinis, 2013). Whilst Eiser and Morse (2001) have identified QoL definitions to differ according to their associations with

psychological, medical, sociological, economic and philosophical associations, within the health literature, QoL is used to represent concepts as varied as happiness (Barcaccia et al., 2013), life satisfaction (Poradzisz & Florczak, 2013) and well-being (Camfield & Skevington, 2008). Conventionally, QoL within health disciplines is understood according to the World Health Organisation's definition, citing the individual's perspective of how the fit into their life within a context of physical, psychological, social, cultural and environmental domains (WHOQOL Group, 1995). Within such domains exist a variety of constructs embodied by particular domain, as selected by the designers of different QoL tools.

Health Related Quality of Life (HRQoL) is used interchangeably with QoL, but more frequently refers specifically to the impact of a particular health condition on overall wellbeing (Fayers, 2014), or experience of life (Poradzisz & Florczak, 2013). In this way, HRQoL measures tend to be disease-specific, as opposed to generic tools that provide a general assessment of QoL.

Evidently, even within health disciplines, variations in understandings of QoL exist. Adding to the definitional ambiguity of QoL, some QoL tools posit that QoL assesses only subjective life experiences, that is, how an individual feels about their condition or overall well-being (Coghill et al., 2009), whilst other QoL tools also include objective measures of health and functional status (Barcaccia et al., 2013). From a brief exploration of QoL, it becomes apparent that a considerable lack of cohesion exists in the definition, measurement and conceptualisation of QoL, which has been explored in greater detail other studies (Barcaccia et al., 2013; Fayers, 2014; Post, 2014) and is beyond the scope of this review.

Unfortunately, such ambiguity likely results in a reluctance for health professionals grounded in empirically-based research to adopt QoL tools, such as health psychologists, despite the relevance and applicability of these measures (Fitzpatrick, 2000).

Broadly, health psychologists are tasked with improving wellbeing at the individual or population level, in both clinical practice and health promotion (Australian Psychological Society (APS), 2017). As QoL is often considered to be analogous to well-being (WHOQOL Group, 1995), from a rudimentary perspective, the administration of QoL tools in an attempt to understand and improve well-being appears practical.

More profoundly, QoL tools are intrinsically multi-dimensional (Fernandez-Ballesteros & Santacreu, 2014) and commonly composed of physical, mental, social and environmental domains (Poradzisz & Florczak, 2013) that address related constructs within each domain. In this way, QoL tools acknowledge the association and interrelatedness of such domains, adhering to a biopscyhosocial perspective of health, and therefore integrating well with the framework that underpins the discipline of health psychology. Furthermore, the application of QOL tools has been in areas common to health psychology such as disease identification, prevalence and burden (Palermo, Long, Lewandowski, Drotar, Quittner & Walker, 2008), interventions at individual and community levels (Livneh, 2016), and in treatment evaluation (Kaplan & Bush, 1982; Fitzpatrick, 2000).

As it currently stands, QoL tools are increasingly used as a standard measure within health; however, their application to health psychology has not been commonplace. This article therefore aims to, firstly, discuss the implications for use of QoL tools within health psychology, and to explore how such tools might be implemented within the field, taking into account strengths and limitations through a thorough review of the relevant literature. Finally, suggestions for future directions in research and use will be explored.

Implications for use of Quality of Life tools within health psychology

Clinical practice at the individual level

Client-centred approach. QoL tools are client-centred in that they assess individual experience, and through measurement of specific constructs. Addressing patient preferences not only aligns with a core recommendation for best evidence-based practice within clinical psychology (Spring, 2007), but in this way also allows for more effective treatment. Additionally, expressing personal experience through subjectively rated constructs is powerful and validates the individual experience (Sing, 2013).

Clinical decision making in regards to treatment can also be more individualised through QoL administration, as it allows for a more comprehensive evaluation of treatment. For instance, Coghill and colleagues (2009) raise the idea that in treatment, the side-effects of a medication may outweigh its medical benefits through its impact on QoL, and thus measuring such factors allows for improvements in well-being that might not have been considered with conventional evaluation methods (Coghill et al., 2009).

Finally, in regards to QoL facilitating a client-centred approach to treatment, it is suggested that the concept of QoL is more familiar to, and better understood by, the public than medical or psychological diagnostic criteria (Jonsson, Alaie, Sofgren Wilteus, Zander, Marschick,, Coghill & Bolte, 2017). QoL tools have high face validity, which assists in instilling meaning and an understanding for individuals of their health situation, thereby improving treatment adherence and outcomes (Jonsson et al., 2017).

Biopsychosocial perspective. Whilst diagnostic criteria for mental health disorders are important in classifying and treating mental health conditions, they are unable to capture unique factors at the individual level (Coghill et al., 2009). QoL tools can provide greater detail of how mental health may impact upon daily functioning, and in identification of biological, social, or additional psychological determinants that may be exacerbating symptoms. For instance, a positive relationship has been observed to exist between social support and QoL in chronic health, particularly in patients with cancer (Allart, Soubeyran &

Cousson-Gelie, 2013), heart failure (Heo, Lennie, Moser & Kennedy, 2014) and spinal cord injury (Muller, Peter, Cieza, Post, Van Leeuwen, Werner, Geyh & SwiSCI Study Group, 2015), to name a few. In this way, measuring social support as a construct can aid in identifying factors to focus on during treatment, which would not usually be assessed when using conventional screening tools.

Furthermore, in chronic health or indeed terminal illness, intervention may not necessarily involve treatment with the intention of removing physical symptoms. QoL in this instance may instead attempt to understand what facets outside of disease symptoms may improve QoL, particularly as treatment adherence does not always relate positively with QoL (Poradzisz & Florczak, 2013).

It is also worth considering how psychosocial factors might impact on QoL and how these can become a focus for treatment. In a sample of 2089 adults with HIV, for example, those who reported higher QoL rated more positively on constructs measuring safety, home environment and positive feelings (Skevington, 2012). Additionally, by focusing on factors that may be more amenable to change, the proclivity towards engaging in more productive health behaviours might increase. For instance, Gallagher, Luttik and Jaarsma, (2011) found that for patients with chronic heart failure, those with higher self-reported levels social support had greater engagement in treatment adherence, such as taking medication, and observing diet and fluid restrictions (Gallagher, Luttik & Jaarsma, 2011). Furthermore, QoL tools would also be suitable in this context to provide an evaluation of treatment by measuring intervention effects.

Public health and health promotion

Health promotion. In Australia in 2011, mental health conditions accounted for 12% of the total disease burden (AIHW, 2016a). However, in the 2014-2015 Health Budget,

mental health was only allocated approximately 5% of the total health budget (AIHW, 2016b). From a health promotion perspective, familiarising the public and policy-makers with the economic, social and physical impact that psychological well-being may have on QoL, through the use of QoL tools, may increase the propensity for mental health to be acknowledged and considered more frequently.

In this way, psychological intervention can be promoted through the use of QoL tools, given the popularisation and familiarity of such tools within health disciplines (Fernández-Ballesteros, 2011). Simultaneously, use of these tools has exposed health practitioners to the biopsychosocial perspective that guides health psychology. Therefore, the utilisation of QoL tools within health psychology would not only contribute instrumental value to disease diagnosis and treatment, but also promote a shift from a purely biomedical perspective of health, in a format that is accessible and familiar to other health professionals.

Public health. Whilst QoL tools administered at the population level can provide information about health trends or health gaps, they are also uniquely valuable in assessing information not traditionally gathered from large-scale health surveys. For instance, although income has generally been used as a social indicator for well-being, Hagerty (2000) posits that inequality in income more appropriately reflects this relationship, given that higher income has also been related to lower subjective well-being, whilst communities with low incomes do not always report low subjective well-being (Camfield & Skevington, 2008). Conventionally, the measurement of income has been based on the principle that income and well-being have a positive relationship. However, assessing a subjective measure of income inequality might more aptly reflect QoL.

As such, an understanding of factors that influence QoL could help inform both health and governmental policy in more effective ways, in this instance, through targeting the subjective experience of income inequality. It is suggested by Camfield and Skevington

(2008) that more efficacious health policy may also be determined by including QoL in burden of disease assessments (in addition to the usual indices of mortality, morbidity and life-expectancy), given the great impact that chronic disease can have on QoL.

An additional contribution that QoL can make to public health is through increasing the evidence base for the identification of health conditions, by determining additional physical, social or psychological factors commonly present with particular conditions (Coghill et al., 2009).

Health intervention. The use of QoL as a health indicator enables the health force to reconceptualise how individuals with chronic disease or terminal illness receive care. Whilst it may have previously been perceived that only physical intervention can improve health and wellbeing, QoL tools illustrate how other determinants, such as environmental and sociocultural factors, can impact upon chronic disease (Stanton, Revenson & Tennen, 2007).

Additionally, it is in the interest of health psychologists to promote the use of QoL tools by health practitioners during standard diagnosis in order to identify mental health comorbidities that may have not otherwise been recognised. This is particularly relevant given Hopman and colleagues' (2016) findings that in a sample of 561 participants with a chronic health condition, 21.9% experienced problems with anxiety or depression (Hopman, Schellevis & Rijken, 2016). Promoting the use of QoL tools in this way would aid in more effective treatment, as well as raising awareness in other health disciplines of how mental health factors can impact upon treatment intervention.

Evaluation. QoL tools, like most screening measures, have the ability to detect changes following intervention (Poradzisz & Florczak, 2013). However, QoL uniquely has the capacity to detect changes in other domains that may not traditionally be accounted for. Interestingly, some HRQoL measures exclude constructs that are commonly included in

generic QoL tools, regarding them as being less relevant to health (Guyatt, Feeny & Patrick, 1993). However, excluding such items when looking at disease-specific trends may prevent valuable information about disease aetiology or prognosis from being gained. In this way, for health psychologists, evaluating treatment using QoL tools may not only provide information about treatment effects, but also strengthen understandings of how other biopscyhosocial factors relate to illness or recovery.

The future of QoL tools within health psychology

Strengths and limitations for use

The following suggestions are commonly referred to in QoL literature within health. Overwhelmingly, whilst there is recognition in the potential value of QoL tools, the lack of agreement on its definition, purpose and operationalisation restricts its application, and the common inability to ascertain psychometric properties limits its credibility within fields that requires evidence-based practice.

Definitional ambiguity. The most apparent complication for the use of QoL tools exists in the varied definitions of QoL. Barcaccia and colleagues (2013) highlight how a shared understanding of QoL is crucial, in matters as diverse as determining the most appropriate health interventions, at the public level, to drawing inferences about the continuation of life-support, for example, at the individual level (Barcaccia, 2013). Areas of difference include whether subjective or objective measures, or both, are used (Kistova, Pimenova, Zamaraeva & Reznikova, 2014), which domains and constructs are associated with QoL, and the implicit differences between disease-specific or more generic QoL tools. On a fundamental level, Costa (2015) notes that the definition of QoL can so much as change whether particular QoL construct items have a causal or reflective relationship with QoL or not.

Operationalisation. Another limitation often cited in the literature includes the fact that there is currently little consensus on which domains to include within QoL tools, and the constructs that fall within those domains. Resultantly, scores obtained from different QoL tools cannot be compared, which restricts analysis in meta-analyses (Fayers, 2014) whilst providing complications for the establishment of validity.

Adding to the lack of uniformity is the absence of comprehensive literature advising on relevant domains or constructs to be included for the purpose of health research and treatment. This is most evident in the way that QoL tools often measure similar constructs, but label them differently (Coghill et al., 2009).

Alternatively, non-uniformity in QoL tools, as has been the case since their popularised use, allows for the development of tools that take into account characteristics of specific populations, and in this way addresses varying combinations of biological, psychological and social factors that impact upon QoL.

Within disease-specific populations, the particular constructs unique to the disease prevent the comparison of QoL across different disease populations, considered to be a limitation by some (Matza, Swensen, Flood, Secnik & Leidy, 2015). However, disease-specific constructs make QoL tools more sensitive to detecting meaningful change (Palermo et al., 2008; Fayers, 2014). For instance, the HRQoL measures for breast cancer might assess sexuality or body image, whilst those for spinal cord injury usually incorporate measures of mobility and self-care (Post, 2014), neither being relevant constructs for the other.

Crucially, populations and communities need to be considered uniquely when determining constructs associated with QoL. For instance, age has been shown to impact upon how and what people identify good QoL to be (Jonsson et al., 2017; Ratcliffe, Lancsar, Flint, Kaambwa, Walker, Lewin, Lusczc & Cameron, 2017). As such, in a total sample of 1000 adults, aged between 18 and 88, Ratcliffe and colleagues (2017) observed that older

adults tended to view independence and self-care as being some of the most important constructs for good QoL, whilst younger adults generally viewed social relationships and mental health to be more important (Ratcliffe et al., 2017).

Whilst some constructs might have similar correlations with QoL across a range of populations or cultures, QoL tools are inherently non-cross-cultural due to variations in biopscyhosocial factors that inevitably exist between different populations. Whilst this may be perceived as a limitation, as it complicates uniformity of QoL tools (and therefore efforts to make tools more valid) it is moreover a unique strength.

For instance, when examining QoL for Indigenous people in Northern Russia, a commonly used indicator of high QoL is engagement with reindeer herding (Kistova et al., 2014). Reindeer herding constitutes not only a traditional activity, but is also a source of financial prosperity, food, social engagement and culturally significant practice for this community (Kistova et al., 2014). In this way, an indication of how many deer one owns is illustrative of QoL (Kistova et al., 2014), which would not be captured by a conventional QoL tool that enquired about socioeconomic status.

Similarly, Oji-Cree First Nation and Secwepemc First Nation community members in Canada helped to develop a tool that assessed well-being in their communities, highlighting the need to include constructs that measure the amount of time a person spent hunting or fishing (Kant, Vertinsky, Zheng & Smith, 2014).

Evidently, the flexibility that QoL tools have thus far utilised allows them to be culturally competent and to address the individual as living within a unique system. In this way, whilst there is still much effort needed to determine common constructs relating to QoL more generally, there is also the acknowledgement that specific constructs may be uniquely associated with the QoL of a community, and may be at risk of not being included if QoL tools became more uniform. This must be kept in mind so as to avoid the tendency to reduce

QoL tools to limited constructs in an aid to increase simplicity of the tool, as its multidimensionality is a unique feature and, therefore, attribute (Fernandez-Ballesteros & Santacreu, 2014).

Multi-dimensionality. The multi-dimensionality of QoL tools, often incorporating a variety of constructs, makes it impractical to compare QoL scores between different tools (Polinder, Haagsma, Belt, Lyons, Erasmus, Lund & Van Beeck, 2010), whilst preventing a single score demonstrative of overall QoL from being obtained. Although some studies have devised total QoL score calculations using the premise that construct items are either causal or reflective (Fayers, Hand, Bjordal & Groenvold, 1997), it is acknowledged that determination of a single score negates the benefit of the multi-dimensionality of QoL tools in observing how a variety of constructs may impact on QoL in differing ways (Jonsson et al., 2017).

It is suggested that having so many components to a single assessment tool may be burdensome for some individuals and time-consuming for studies (Fitzpatrick, 2000), thus lending to a disinclination to be completed or used. In attempting to resolve this issue, Coghill and colleagues (2009) suggest using the term QoL to encompass only the individual's subjective experience of well-being, and to therefore assess health status and functional impairment as separate tools (Coghill et al., 2009). However, as Jonsson and colleagues (2017) note, disentangling subjective well-being from functional impairment in mental health, for instance, is complicated, as diagnostic criteria for mental health disorders often stipulate that the disorder must have a functional impact on the person's life to be classified as such.

Establishing validity. Despite the encouraging implications for use of QoL for health psychologists, the reality of the current evidence base in QoL research demonstrates

difficulties in establishing validity with current tools. This is evidenced in a review exploring the impact of child mental health disorders on QoL, whereby Jonsson and colleagues (2017) examined 41 studies and concluded that the validity of the QoL tools was compromised due to variability in the definition, domains and constructs of the 14 different QoL tools used in the studies (Jonsson et al., 2017).

A significant difficulty in assessing the validity of QoL measures is due to the non-uniformity of QoL scales, therefore making it difficult to determine concurrent validity. Whilst it is possible to obtain an indication of content validity (Coghill et al., 2009), this is not necessarily indicative of construct validity (Costa, 2015). In this way the applicability of QoL to treatment and evaluation becomes questionable in the absence of psychometric information.

The intrinsic ability of disease-specific QoL tools to measure similar constructs, however, imply that reliability and validity can more readily be determined. In spite of this, Palermo and colleagues (2008) noted that in a study of 16 HRQoL tools assessing paediatric mental health and QoL, whilst many demonstrated convergent validity, only one study presented information on predictive validity (Palermo et al., 2008). Furthermore, definitional ambiguity also exists within HRQoL, becoming problematic in establishing construct validity for such tools.

Notably, Fitzpatrick and colleagues (1998) highlight that aspects other than reliability and validity are important, after reviewing the methodological components of quality of life within 391 articles and determining that in addition to the aforementioned aspects; appropriateness, responsiveness, precision, acceptability, feasibility and interoperability were also important properties of QoL tools, worthy of examination (Fitzpatrick, Davey, Buxton & Jones, 1998). This is a notable outcome, given the difficulty in finding the balance between

psychometrically sound tools whilst accounting for unique experiences of particular populations.

Subjectivity of measurements. A further criticism of QoL tools concerns the inclusion of subjective measures in determining QoL, based on poor correlations between subjective and objective measures (Fernandez-Ballesteros, Arias, Santacreu & Ruvalcaba, 2012). However, a great depth of information can be obtained from the subjective experience, which may be misrepresented when obtaining solely objective measures. For instance, individuals living in the slums of Calcutta reported high life satisfaction despite living in poverty (Biswas-Diener & Diener, 2001), whereas an objective measure of income might assume otherwise. Furthermore, the subjective experience of a person's health condition is rarely examined (Jonsson et al., 2017), seemingly counter-intuitive to treatment to not attempt to improve individual perception of the impact of health on QoL (Spitzer, Kroenke, Linzer, Hahn, Williams, Verloin, deGruy, Brody & Davies, 1995). This is particularly relevant for health psychologists working within chronic disease.

Notably, diagnoses of mental health disorders often rely on the subjective accounts (Jonsson et al., 2017); for instance, one diagnostic criterion for Major Depressive Disorder in the DSM-5 includes subjective reporting of depressed mood (e.g. feeling sad, empty or hopeless (American Psychiatric Association, 2013)). It is thus recommended that QoL tools control for items that may overlap with mental health diagnostic criteria to ensure QoL outcome scores are not confounded by the presence of mental health disorders or symptoms (Katschnig, 2006).

Recommendations for future research

Evidently, the inability to establish psychometric properties for many QoL tools (Palermo et al., 2008), largely due to the variation in its conceptualisation, has made the use

of QoL tools contentious (Post, 2014). Importantly, Costa (2015) posits that having a uniform definition of QoL is not necessarily feasible, and as such, it is imperative for tools to be explicit in what they mean by QoL. In this way, greater emphasis and effort is needed to establish what it is that health psychologists might mean by QoL and look for in such a tool, for instance, well-being; life satisfaction; functional impairment; or a combination of factors.

In acknowledging the length of QoL tools in an attempt to find a balance between encompassing population- and culturally-specific measures, whilst maintaining brevity, it is recommended that rather than prioritising internal consistency, similar items are instead minimised, as is often done with screening tools for mental health disorders (Fitzpatrick, 2000).

Whilst most QoL tools include physical, psychological, biological and social factors, the domains within each factor often differ. A more thorough theoretical exploration is thus needed to better understand variables that impact QoL for populations of interest. Future research is thus needed to consolidate and review the literature that addresses constructs related to QoL (Fitzpatrick, 2000). The available psychological literature on factors associated with life satisfaction and well-being (and other constructs synonymous with QoL) is vast, however, few studies have integrated the abundant information.

Therefore, an initial step in developing QoL tools that include clear conceptualisations and similar frameworks is to gain a greater understanding of the domains that impact upon QoL, acknowledging the variation that exists between cultures and communities. Importantly, variation in constructs is integral in reflecting more broadly the particular purpose of the tool (Fitzpatrick, 2000) and, more specifically, different disease conditions, population characteristics, and in maintaining cultural sensitivity. It is therefore integral that both individual and community factors are taken into account when developing a QoL for a particular population (Camfield et al., 2008).

Conclusion

Whilst issues concerning its validity will remain unresolved until clarification around the definition, conceptualisation and purpose of QoL become better understood (Coghill et al., 2009), QoL tools nevertheless add valuable information to an understanding of health at both the individual, and community level. Importantly, QoL tools do not need to replace current diagnosis methods, but rather complement them in gradually progressing towards approaching health from a biopsychosocial perspective.

QoL tools thus align well with the foundations of health psychology, in addressing biological, psychological and socioenvironmental factors that contribute to health, in their ability to identify public health issues, to develop client-centred interventions, and in their use as evaluation tools. Implications for use within the discipline are thus large. However, it is also in the interest of health service providers, government bodies and future research to develop greater clarity around the conceptualisation and development of QoL tools, so that the psychometrics of such tools can be assessed, in order to facilitate use in healthcare for diagnosis, intervention and treatment evaluation.

References

AIHW. (2014). *Australia's health 2014* (Australia's health series no. 14. Cat. no. AUS 178). Canberra: AIHW.

AIHW. (2016a). *Australian Burden of Disease Study: impact and causes of illness and death in Australia 2011* (Australian Burden of Disease Study series no. 3. Cat. no. BOD 4). Canberra: AIHW.

AIHW. (2016b). *Health expenditure Australia 2014–15*. (Health and welfare expenditure series no. 57. Cat. no. HWE 67). Canberra: AIHW

APS. (2017). Health psychology. Retrieved from https://www.psychology.org.au/public/health/

Allart, P., Soubeyran, P., & Cousson-Gélie, F. (2013). Are psychosocial factors associated with quality of life in patients with haematological cancer? A critical review of the literature. *Psycho-Oncology*, *22*(2), 241-249.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, D.C: American Psychiatric Association.

Barcaccia, B., Esposito, G., Matarese, M., Bertolaso, M., Elvira, M., & De Marinis, M. G. (2013). Defining quality of life: a wild-goose chase? *Europe's Journal of Psychology*, *9*(1), 185-203.

Biswas-Diener, R., & Diener, E. (2001). Making the best of a bad situation: Satisfaction in the slums of Calcutta. *Social Indicators Research*, *55*(3), 329 - 352.

Britt, H., Miller, G., Henderson, J., Bayram, C., Valenti, L., & Harrison, C. (2013). *General practice activity in Australia 2012–13.* General practice series no. 33. Sydney, NSW: Sydney University Press.

Camfield, L., & Skevington, S. M. (2008). On subjective well-being and quality of life. *Journal of Health Psychology*, *13*(6), 764-775.

Coghill, D., Danckaerts, M., Sonuga-Barke, E., & Sergeant, J. (2009). Practitioner review: quality of life in child mental health–conceptual challenges and practical choices. *Journal of Child Psychology and Psychiatry*, *50*(5), 544-561.

Costa, D. S. (2015). Reflective, causal, and composite indicators of quality of life: A conceptual or an empirical distinction? *Quality of Life Research*, *24*(9), 2057-2065.

Eiser, C., & Morse, R. (2001). A review of measures of quality of life for children with chronic illness. *Archives of disease in childhood*, *84*(3), 205-211.

Fayers, P. M., Hand, D. J., Bjordal, K., & Groenvold, M. (1997). Causal indicators in quality of life research. *Quality of life research*, *6*(5), 393-406.

Fayers, P. (2014). *Quality of Life: The assessment, analysis and reporting of patient reported outcomes.* Sydney, NSW: Wiley.

Fernández-Ballesteros, R. (2011). Quality of life in old age: Problematic issues. *Applied Research in Quality of life*, *6*(1), 21-40.

Fernández-Ballesteros, R., Arias-Merino, E. D., Santacreu, M., & Ruvalcaba, N. M. (2012). Quality of life in Mexico and in Spain. *The Global Dynamics of Aging*, *9*(30), 1-24.

Fernandez-Ballesteros, R., & Santacreu, M. (2014). Quality of life: Problematic issues. In *Encyclopedia of Quality of Life and Well-Being Research* (pp. 5363-5371). Springer Netherlands.

Fitzpatrick, R., Davey, C., Buxton, M. J., & Jones, D. R. (1998). Evaluating patient based outcome measures for use in clinical trials. *Health Technology Assessment, 2*, 1-74.

Fitzpatrick, R. (2000). Measurement issues in health-related quality of life:Challenges for health psychology. *Psychology and Health*, *15*(1), 99-108.

Gallagher, R., Luttik, M., & Jaarsma, T. (2011). Social support and self-care in heart failure. *Journal of Cardiovascular Nursing, 26*(6), 439 – 445.

Guyatt, G. H., Feeny, D. H., & Patrick, D. L. (1993). Measuring health-related quality of life. *Annals of Internal Medicine*, *118*, 622-629.

Hagerty, M. (2000). Social comparisons of income in ones community: Evidence from national surveys of income and happiness. *Journal of Personality and Social Psychology*, *78*(4), 764–771.

Hopman, P., Schellevis, F. G., & Rijken, M. (2016). Health-related needs of people with multiple chronic diseases: differences and underlying factors. *Quality of Life Research*, *25*(3), 651-660.

Heo, S., Lennie, T. A., Moser, D. K., & Kennedy, R. L. (2014). Types of social support and their relationships to physical and depressive symptoms and health related quality of life in patients with heart failure. *Heart & Lung: The Journal of Acute and Critical Care*, *43*(4), 299-305.

Jonsson, U., Alaie, I., Löfgren Wilteus, A., Zander, E., Marschik, P. B., Coghill, D., & Bölte, S. (2017). Annual Research Review: Quality of life and childhood mental and behavioural disorders–a critical review of the research. *Journal of child psychology and psychiatry*, *58*(4), 439-469.

Kant, S., Vertinsky, I., Zheng, B., & Smith, P. M. (2014). Multi-domain subjective wellbeing of two Canadian first nations communities. *World Development*, *64*, 140-157.

Kaplan, R. M., & Bush, J. W. (1982). Health-related quality of life measurement for evaluation research and policy analysis. *Health psychology*, *1*(1), 61.

Katschnig, H. (2006). Quality of life in mental disorders: challenges for research and clinical practice. *World Psychiatry*, *5*(3), 139-145.

Kistova, A. V., Pimenova, N. N., Zamaraeva, J. S., & Reznikova, K. V. (2014). Research possibilities for studying the indicators of quality of life of indigenous peoples of the North (based on the study of indigenous peoples of the North of Russia). *Life Science Journal*, *11*(6s), 593-600.

Livneh, H. (2016). Quality of life and coping with chronic illness and disability: A temporal perspective. *Rehabilitation Counseling Bulletin*, *59*(2), 67-83.

Matza, L. S., Swensen, A. R., Flood, E. M., Secnik, K., & Leidy, N. K. (2004). Assessment of health-related quality of life in children: a review of conceptual, methodological, and regulatory issues. *Value in health*, *7*(1), 79-92.

Müller, R., Peter, C., Cieza, A., Post, M. W., Van Leeuwen, C. M., Werner, C. S., Geyh, S., & SwiSCI Study Group. (2015). Social skills: a resource for more social support, lower depression levels, higher quality of life, and participation in individuals with spinal cord injury? *Archives of physical medicine and rehabilitation*, *96*(3), 447-455.

Palermo, T. M., Long, A. C., Lewandowski, A. S., Drotar, D., Quittner, A. L., & Walker, L. S. (2008). Evidence-based assessment of health-related quality of life and functional impairment in pediatric psychology. *Journal of pediatric psychology*, *33*(9), 983-996.

Polinder, S., Haagsma, J. A., Belt, E., Lyons, R. A., Erasmus, V., Lund, J., & van Beeck, E. F. (2010). A systematic review of studies measuring health-related quality of life of general injury populations. *BMC Public Health*, *10*(1), 783.

Poradzisz, M., & Florczak, K. L. (2013). Quality of life: input or outcome?. *Nursing Science Quarterly*, *26*(2), 116-120.

Post, M. (2014). Definitions of quality of life: what has happened and how to move on. *Topics in spinal cord injury rehabilitation*, *20*(3), 167-180.

Ratcliffe, J., Lancsar, E., Flint, T., Kaambwa, B., Walker, R., Lewin, G., Lusczc, M., & Cameron, I. D. (2017). Does one size fit all? Assessing the preferences of older and younger people for attributes of quality of life. *Quality of Life Research*, *26*(2), 299 309.

Singh, I. (2013). Brain talk: power and negotiation in children's discourse about self, brain and behaviour. *Sociology of Health & Illness*, *35*(6), 813-827.

Skevington, S. M. (2012). Is quality of life poorer for older adults with HIV/AIDS? International evidence using the WHOQOL-HIV. *AIDS care*, *24*(10), 1219-1225.

Spring, B. (2007). Evidence-based practice in clinical psychology: what it is, why it matters; what you need to know. *Journal of clinical psychology*, *63*(7), 611-631.

Spitzer, R. L., Kroenke, K., Linzer, M., Hahn, S. R., Williams, J. B., Verloin deGruy, F., Brody, D., & Davies, M. (1995). Health-related quality of life in primary care patients with mental disorders: results from the PRIME-MD 1000 study. *Jama*, *274*(19), 1511-1517.

Stanton, A. L., Revenson, T. A., & Tennen, H. (2007). Health psychology: Psychological adjustment to chronic disease. *Annual Review of Psychology*, *58*, 565-592.

World Health Organisation. (1947). *World Health Organisation Constitution*. Geneva: World Health Organisation.

WHOQOL Group. (1995). The World Health Organization Quality of Life Assessment (WHOQOL): Position paper from the World Health Organization. *Social Science and Medicine*, *41*(10), 1403–1409.

Paper Title:

Spirituality and associated health outcomes across different cultures: A scoping review

Alexandra Mannarino

School of Psychology

University of Adelaide

SA 5005

AUSTRALIA

[redacted]

This report contains no materials previously published except where due reference is made, and has not previously been published or submitted elsewhere.

This paper meets the Health Psychology journal mission by advancing research in health psychology, through its focus on the important health domain of spirituality, which thus contributes to an understanding of health from a biopsychosocial perspective. This paper further meets the journal mission by contributing information to the evidence-base regarding the associations between spirituality and both physical and mental health, and thus provides a basis for future research to include spirituality in health assessment, intervention or policy. The *Health Psychology* journal author guidelines are presented in Appendix A.

Abstract

Objective: Associations between spirituality and physical health, mental health, and quality of life are increasingly being acknowledged, aligning with Indigenous Australian understandings of the importance of spirituality in health. Spirituality has traditionally been misrepresented as synonymous to religion in its instrumentation. Despite the increased interest in spirituality, a review of tools that measure spirituality as distinct from religion has not been conducted since 2011. ***Methods:*** This systematic scoping review mapped studies utilising non-religious spirituality instruments in order to understand how spirituality relates to health, and to describe the cultural groups and countries in which these tools have been validated. ***Results*****:** Sixty-one studies were included in the review. The most commonly used spirituality instrument was the Functional Assessment of Chronic Illness Therapy-Spiritual Wellbeing Scale (39.3% of studies). A total of 41 health outcomes were explored in their relationship to spirituality, and of the physical health (35.7%) and mental or psychological health (66.7%) outcomes assessed, the most frequently reported associations were with depression (n = 29), anxiety (n = 15) and quality of life (n = 15). Identification of cultural orientation in these studies was low, and the majority of studies were conducted in the USA with mostly White populations. Only 3 studies utilised instruments developed for specific cultural groups. **Conclusion:** Few spirituality instruments have been developed to measure spirituality adequately across cultures or as distinct from religion. However, encouraging associations between spirituality and a broad range of health outcomes have been observed which provides implications for future healthcare research and practice.

Keywords: spirituality**;** surveys and questionnaires; patient reported outcome measures; health surveys

Background

Spirituality for many Indigenous Australian cultures is considered to incorporate sacred and significant interconnections between nature, humans and animals. These tend to embody cultural identity, traditions, and belief systems (Grieves, 2009; Purdie, Dudgeon & Walker, 2015). Spirituality is also understood as being integral to health and wellbeing, interacting with physical, social, cultural and environmental factors (Tse, Lloyd, Petchkovsky & Manaia, 2005; Zubrick et al., 2010).

Although research assessing the association between spirituality and health has almost doubled in the past two decades, spirituality has traditionally been conceptualised as being synonymous with religion by these studies (Lucchetti & Lucchetti, 2014; Monod, Brennan, Rochat, Martin, Rochat & Büla, 2011). As a result, cultural variation in the experience of spirituality is not well represented, particularly for cultural groups or individuals that do not affiliate with specific religions (Bussing, 2017). For instance, a frequently utilised instrument, the Daily Spiritual Experience Scale (DSES; Underwood & Teresi, 2002), contains questions that assume Christian-centric religious beliefs and practices, such as the item that enquires, "During worship, or at other times when connecting with God, I feel joy which lifts me out of my daily concerns". This type of instrument cannot, therefore, be extrapolated to measure spirituality for those who identify with non-religious forms of spirituality, such as many Indigenous Australian cultures (Sessanna, Finnell, Underhill, Chang & Peng, 2011). Moreover, aspects embedded in religious practice, such as the social support received at weekly gatherings, may confound and thus not validly represent the relationship between spirituality and health (Park, Edmonson, Hale-Smith & Blank, 2009).

As such, spirituality is increasingly being delineated from religion in its measurement (Kapuscinski & Masters, 2010; Pargament, Mahoney, Exline, Jones & Shafranske, 2013). As tools have not yet been developed to operationalise Indigenous Australian perceptions of

spirituality, instruments that define spirituality as a construct distinct from religion may enable parallels to be drawn with Indigenous understandings of spirituality (Grieves, 2009; Monod et al., 2011).

Whilst religion is defined as an organised system of practices, beliefs and rituals of a particular faith group that enable closer transcendence to a higher power or truth, spirituality, in contrast, is increasingly understood to be a universal human experience that can be secular or religious (Bjarnason, 2007; Koenig, 2012). Contemporary definitions also describe spirituality to include themes of connectedness (either to the self, others, nature, a higher power or a supreme being), transcendence (the ability to transcend the self) and life meaning or purpose (Weathers, McCarthy & Coffey, 2016). Spirituality is in this way a multidimensional construct, which may also include factors of awe, sacredness, power and journey (Sessana et al., 2011; Lepherd, 2015).

Understanding how spirituality is conceptualised in assessment is important in identifying whether associations to health are measuring spirituality or religiosity. Although numerous reviews have collated information regarding the relationship between spirituality and health previously, spirituality in these studies has been conceptualised as being synonymous to religion (Bonnelli & Koenig, 2013; de Jager Meezenbroek et al., 2012; Koenig, 2012; Moreira-Almeida, Koenig & Lucchetti, 2014). Clarification of this information is integral to informing potential health interventions, given the previously reported associations of the beneficial relationship that spirituality has with health. For instance, greater spirituality has been associated with lower levels of depression (Bonelli, Dew, Koenig, Rosmarin & Vasegh, 2012); anxiety (Brown, Carney, Parrish, Klem, 2013); addiction (Galanter, Dermatis, Bunt, Williams, Trujillo & Steinke, 2007); suicidality and mortality (Koenig, 2012). Such studies have largely been conducted in areas of chronic and terminal illness, such as cancer (Jim et al., 2015) and cardiovascular health (Koenig, 2015).

Moreover, acknowledging how spirituality has been conceptualised and operationalised when used in research exploring health outcomes within diverse populations recognises that, although spirituality is a universal experience, it may be expressed uniquely across cultures (Bussing, 2017; de Jager Meezenbroek et al., 2012). The acknowledgement of cultural diversity in spirituality is crucial, as health is embedded in culture, and could therefore be more comprehensively understood through its relationship to specific understandings of spirituality (Sessana et al., 2011; WHOQOL-SRPB Group, 2006).

Finally, efforts to define the term spirituality are met with the additional problem of delineating it from other related constructs, such as 'wellbeing'. For instance, critics of spiritual wellbeing (SWB) measures, often employed in Quality of Life (QoL) research as an indication of general spirituality, assert that SWB items presuppose wellness by enquiring about positive psychological states, such as sense of meaning and gratitude, and in this way measure wellbeing as opposed to spirituality (Koenig, 2008; O'Connell & Skevington, 2010). Migdal and MacDonald (2013) found support for this view in that spirituality was conflated with wellbeing in items assessing existential wellbeing as a subscale of spirituality. However, an exploratory factor analysis observed spiritual QoL to contribute significantly to overall QoL in the WHOQOL-SRPB QoL tool as distinct to the contributions from psychological, physical and social domains, (O'Connell & Skevington, 2010; WHOQOL-SRPB Group, 2006). Additionally, only two of the nine items assessing spiritual QoL had an association with psychological QoL, suggesting that spirituality is a distinct construct that contributes uniquely to overall QoL.

As it currently stands health promotion efforts have not adequately supported the integration of spirituality as a unique dimension in health (Lee, 2012). Given the beneficial relationship between spirituality and various health outcomes, including QoL, for non-Indigenous populations, and in light of the significance of spirituality for many Indigenous

Australians, this scoping review began with the consultation of a working group (Koenig, 2008; Grieves, 2009). This working group had identified spirituality to be a significant factor to QoL for Indigenous Australians, and were seeking suitable measurement approaches. It was determined that instruments had not yet been developed to measure Indigenous Australian understandings of spirituality, or whether such a measurement tool was feasible. As such, the research team for this review was established to identify tools that could inform future development of a spirituality tool for Indigenous Australian cultures.

Therefore, in order to identify trends, gaps and patterns to guide future analysis as well as the development of spirituality instruments, and in providing support for the inclusion of spirituality in perceptions of overall health and wellbeing, this scoping review aimed to map the evidence on non-religious measures of spirituality included in studies that reported associated health outcomes. However, only studies conducted following Monod and colleagues' (2011) comprehensive review were included, given their focus on non-religious instruments associated with health outcomes. Since this publication, the discussion surrounding spirituality as a concept distinct to religion has been amplified, yet no recent reviews have been conducted (McClure, 2017). An additional aim of this review was to identify the cultural populations that these instruments have been validated in.

Methods

A protocol was developed to document the objectives, inclusion criteria and methods intended for this scoping review (see Appendix B). However, the research objectives were modified due to the practicality and feasibility of reviewing all spirituality instruments. The methodology for this review was conducted based on the framework of the Joanna Briggs Institute Reviewers' Manual 2015 (JBI, 2015). Use of a scoping review was deemed appropriate to meet the research objectives of this study, given its function in charting

concepts and its ability to broadly identify gaps and trends in the available data, in this way providing the basis for systematic reviews to explore the data in greater depth.

Objectives

The scoping review focused on charting evidence on spirituality instruments to address the following questions:

1. What are the reported characteristics of tools that have been used to measure spirituality, (as a concept distinct from religiosity) that have reported associations with health outcomes?
2. What health outcomes have been associated with spirituality in these studies?
3. In which cultural groups or countries have these spirituality tools been validated?

Inclusion criteria

Participants. Studies that administered spirituality tools to both child and adult populations, from any cultural group or country were considered for inclusion.

Concept. Studies that included measurement of spirituality, through development or use of a spirituality tool, were considered for inclusion in this review. For the purpose of this review, spirituality was conceptualised as not explicitly pertaining to religion, in addition to encompassing at least one of the multidimensional aspects listed in table 1.

Table 1

Mulitidimensional understandings of spirituality

Dimension	Further clarification
Connectedness	To self, others, nature or land, the world, a higher power or a supreme being (invoking the sacred)
Transcendence	Ability to view life or a situation differently through transcending the self
Meaning in life	Providing a sense of purpose

Additionally, instruments that were multidimensional and contained religious and non-religious subscales were included if the subscale results were reported separately. This review thus only reported results from the non-religious subscales. Whereby studies measured general spirituality or SWB, the latter used as a measure of general spirituality, and reported associated health outcomes, these were considered for inclusion.

As such, studies that conceptualised spirituality as per the definition used by this review, but did not report health outcomes, were excluded. Moreover, tools that were uni-dimensional or measured a single factor, and therefore did not contain subscales, were excluded if any questionnaire item referred to religious beliefs or practices. These were indicated through words such as, “God” and “religion”, or through behaviours, such as church attendance or prayer.

Finally, instruments that advised substitution of the word, “God” for a more relevant divine or holy term, such as the DSES (Underwood & Teresi, 2002), were excluded if they did not elaborate on possible replacement options. Allowing for individual interpretation of items without guidelines alters the meaning of the question and therefore its construct

(Hwang, Hammer & Cragun, 2011) and concurrent validity (Hammer, Cragun & Hwang, 2013). A summary of the inclusion and exclusion criteria is provided in Table 2.

Context. The spirituality of individuals was of interest. While studies examining attitudes towards spirituality, for instance of health professionals, or that utilised spirituality tools in an organisational context, for instance, in exploring workplace spirituality or in the provision of spiritual care at work were not in scope of this review. No limits were placed on the geographical location of participants.

Types of Studies. This review included the following quantitative study designs; experimental (including quasi-experimental and randomised controlled trials) and correlational (case-controlled, descriptive, observational, longitudinal and cross-sectional studies). Qualitative approaches including ethnography, phenomenology and grounded theory, as well as mixed-methods studies were also considered. Meta-analyses, systematic reviews, opinion papers, letters or conference presentations were excluded. Although grey literature was considered, conference or journal abstracts were not included due to the limited information provided about the spirituality instruments. Studies published in English since January 2011 were included.

Table 2

Study inclusion and exclusion criteria

Inclusion
• All ages • All geographical locations • Published in English • Peer-reviewed and grey literature (doctoral theses) • Instruments of general spirituality of spiritual wellbeing
Exclusion
• Spirituality conceptualised by authors as synonymous to religion • Health outcomes not reported • Uni-dimensional instruments whereby one item contains wording specific to religious practice/beliefs • Non-religious subscale scores not reported separately • Conference/journal abstracts • Instructions to replace specific religious or spiritual term (e.g. "God") with any relevant belief, without providing examples • Spirituality of health professionals or in organisational context

Search strategy

Following Peters and colleagues (2015), this review utilised a three-step search strategy, including both published and unpublished studies. An initial search of PubMed and PsycInfo was conducted whereby relevant keywords and index terms were identified. Following this, the text words in the title and abstract, as well as the index terms used to describe the article, were analysed. The second search involved the use of keywords and index terms identified from the initial search, in consultation with a research librarian, including, but not limited to, a combination of terms such as: "spirituality", "spiritual*", "survey", "questionnaires" and "assessment tool". Finally, the reference lists of all studies selected for the review were considered in order to capture additional studies that were not located previously.

Databases were chosen based on their relevance to the health literature, the availability of psychometric tools, and access to unpublished studies. The databases therefore included PubMed, PsychInfo and Embase. The full search strategy for each database is available in Appendix C.

Study selection process. All citations identified from the initial search were uploaded to Endnote (Thomson Reuters, Version X8), where duplicate citations were removed. The title and abstract search was peer-reviewed by two additional reviewers, and disagreement on inclusion criteria was resolved through discussion with all three researchers. Whereby the abstract did not contain enough information about the type of spirituality instrument used, the full text was examined. The full text of citations that met title and abstract criteria were then imported into a new Endnote library (Thomson Reuters, Version X8), for a subsequent full text review. The articles that did not meet inclusion criteria following the full text review were excluded, with individual explanations for study exclusion listed in Appendix D.

Data extraction

The data was extracted and charted according to the specific objectives of the review. Each study was thus reviewed for pertinent information regarding the study design and methodology, including descriptive features of the spirituality instrument, as well as sample characteristics and study outcomes pertaining to health.

Appendix E lists extraction criteria of the included studies, as previously defined by an extraction tool initially developed in the protocol for this scoping review, which was

Results

Description of studies

The literature search initially retrieved 12423 citations. After 2037 duplicates and 8710 irrelevant citations were screened and discarded by the primary reviewer, a title and

abstract search removed 1479 further citations that did not meet inclusion criteria. Following this, the full texts of 197 studies were screened to determine eligibility, and a further 140 studies were excluded, leaving 57 included articles. During this stage, two additional reviewers reviewed 20% of the studies at random to ensure the exclusion criteria were being applied consistently. At the final stage of the search strategy, 4 articles were sourced from the reference lists of included studies and added to the total sample. Figure 1 outlines this search strategy process, and Table D2 in Appendix D outlines the reasons for exclusion for studies screened at the second step.

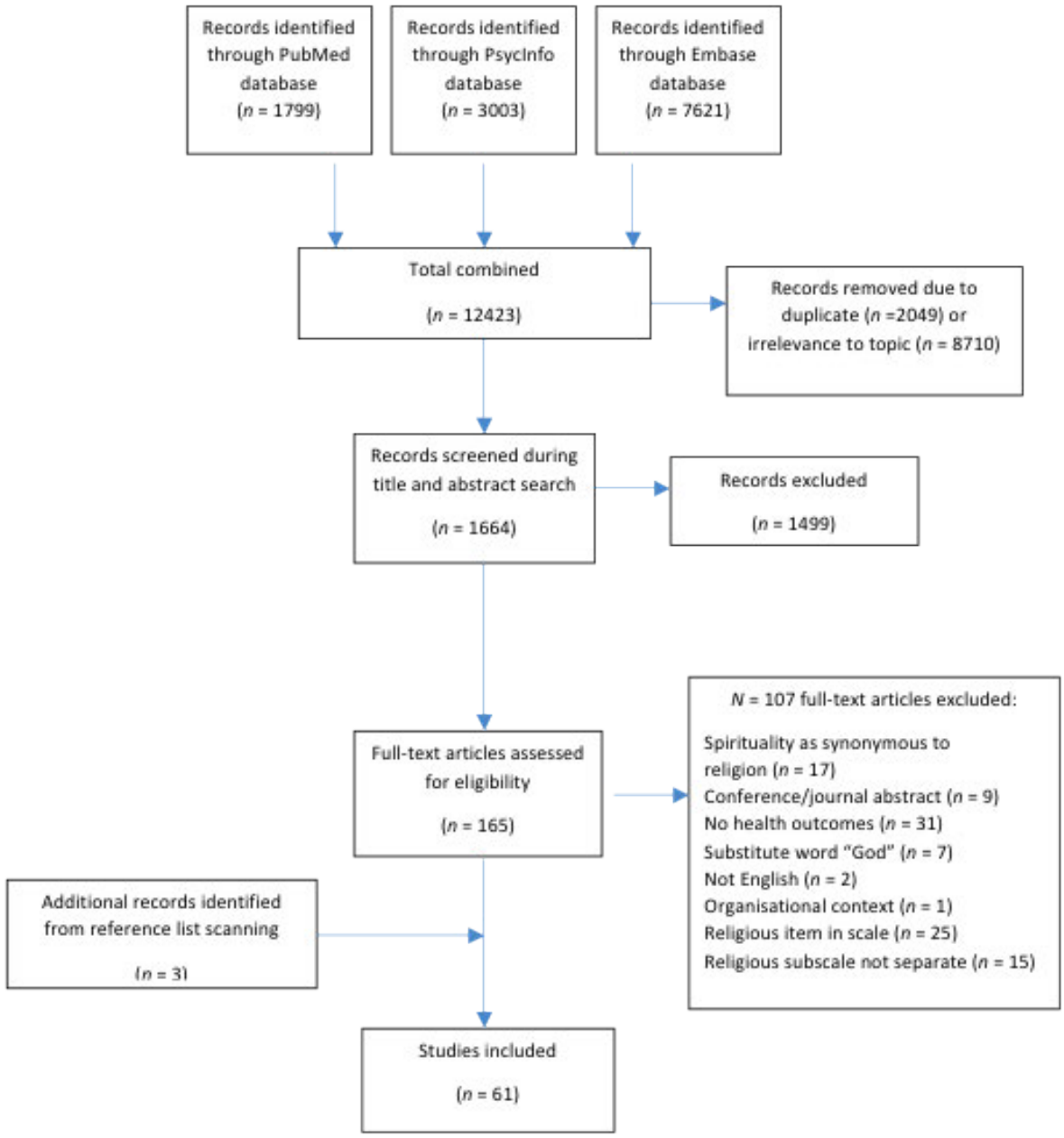


Figure 1. PRISMA flowchart for the scoping review selection process (Moher et al., 2009).

Study characteristics

The articles included in the final review were published between the years of 2011 to 2017, with the majority published in 2012 (n = 14), followed by those in 2016 (n = 12), 2011 (n = 11), 2014 (n = 8), 2015 (n = 8), 2013 (n = 7) and 2017 (n = 2). The participants for all included studies (n = 14366, age range = 10 – 104) most commonly had cancer (32.8% of

studies, *n* = 20), or were university students (*n* = 8). Participants who had depression (*n* = 6), cardiovascular health issues (n = 5), were older adults (*n* = 5) or who had unspecified psychiatric disorders (4.9%, *n* = 3) were also frequently included. The following populations were sampled twice, each accounting for 3.3% of the total review sample: kidney disease; spinal cord injury; school students; community members; and health professionals. The subsequent populations were represented only once, accounting for 1.6% each of the total review sample: unspecified terminal illness; HIV/AIDS; stroke; suicide; pain; multiple sclerosis; and drug or alcohol abuse.

Most studies employed the use of cross-sectional, correlational designs (78.6% of total studies), however prospective, longitudinal designs were also used. Furthermore, whilst correlation or regression analyses examined the associations between spirituality and health outcomes, five studies explored the mediational effects of spirituality (Bauer, 2016; Hirsch, Webb & Kaslow, 2014; Johnson, 2011; Nsamenang, Hirsch, Topciu, Goodman & Duberstein, 2016; Mollica, Underwood, Homish, Homish & Orom, 2016).

The following analysis presents information regarding the three research objectives of this scoping review. A detailed table with complete study characteristics is also presented in Appendix E.

Spirituality instrument information and characteristics

Within the 61 studies included in this review, 17 different spirituality instruments were utilised, as described in Table 3. The majority of instruments were developed prior to 2000 (52.9%, *n* = 9), whilst 17.6% (*n* = 3) and 29.4% (*n* = 5) were developed between 2000 to 2010, and 2010 to 2017, respectively. Spirituality was operationalised by the assessment tools according to two classification types: general spirituality (64.7%, *n* = 11) and SWB (35.3%, *n* = 6).

Although studies commonly utilised measures of SWB to explore the role of SWB as

an adjunct to QoL (Bai, Lazenby, Jeon, Dixon & McCorkle, 2015), others demonstrated intent to report on the level of participant spirituality, and in this way conceptualised SWB as being interchangeable with general spirituality (Davison & Jhangri, 2013). Further conceptualisation of spirituality included dimensionality, whereby 75% of the instruments utilised a multidimensional approach. Additionally, four spirituality tools recognised religiosity to be a dimension of spirituality (Expressions of Spirituality Inventory (ESI; MacDonald, 2000; the Ritualistic, Theistic, Existential measure of Spirituality (RiTE;Webb et al., 2014); 25-item Sky Spirituality Scale (SS-25; Kimura et al., 2016); Spirituality Transcendence Scale (STS; Piedmont et al., 1999); the Spiritual Wellbeing Scale (SWBS; Ellison & Paloutzian, 1983), as assessed by the inclusion of religious subscales, two of these being developed between the years 2010 to 2017.

Furthermore, as reported in table 3, of the 12 multidimensional instruments, the subscales most commonly reflected the following themes: meaning or purpose (75%), connection (41.7%), existentialism (33.3%) and transcendence (33.3%). In attempts to operationalise spirituality, 64.7% (n = 11) of instruments included the words “spiritual” or “spirituality” in at least one question item. For example, one of the ten WHOQOL-SPRB items that uses such terminology questions, ”To what extent do you have spiritual beliefs?” (WHOQOL SPRB Group, 2006).

Table 3

Characteristics of spirituality instruments utilised in review articles

Instrument name	Scale type (*n* of items, *n* of subscales)	Non-religious subscales (*n* of items)	Psychometric criteria met	Subscale exclusion rationale	Number of times utilised by included studies
General spirituality measures					
Expressions of Spirituality Inventory (ESI; MacDonald, 2000)	5-point Likert scale (98, 5) M	Cognitive Orientation to spirituality (40) Existential Wellbeing (9)	Construct, convergent, discriminant, criterion validity Internal consistency (Cronbach's αs = .85 - .97)	Paranormal Beliefs: B Experiential-Phenomenological: B Religiousness: P	1
GES Questionnaire (Benito et al., 2014)	5-point Likert scale (8, 3) M	Intrapersonal (4) Transpersonal (2) Interpersonal (2)	Concurrent, construct validity Internal consistency (α =.72)		1
Native American Spirituality Scale (NASS; Greenfield et al., 2015)	5-point Likert scale (2, 12) M	Spiritual behaviours (8) Spiritual beliefs (4)	Construct validity		1
The Ritualistic, Theistic, Existential measure of Spirituality (RiTE;Webb et al., 2014)	5-point Likert scale (30, 3)	Existential spirituality (10)	Construct, convergent, divergent validity Internal consistency (α = .91)	Ritualistic spirituality: B Theistic Spirituality: P	1

Instrument name	Scale type (*n* of items, *n* of subscales)	Non-religious subscales (*n* of items)	Psychometric criteria met	Subscale exclusion rationale	Number of times utilised by included studies
	M				
The Spiritual Assessment Scale (SAS; Howden, 1992)	5-point Likert scale (28, 4) M	Purpose/meaning in life (4) Interconnectedness (9) Inner resources (9) Transcendence (6)	Factorial validity Internal consistency (α =0.72 - .91)		2
Spiritual Intelligence Self-Report Inventory (SISRI-24; King, 2008)	5-point Likert scale (24, 4) M	Critical Existential Thinking (7) Personal Meaning Production (5) Transcendental Awareness (7) Conscious State Expansion (5)	Construct, discriminant, convergent validity Internal consistency (α =.92) Test-retest reliability (α =.89)		1
Spiritual Meaning Scale (SMS; Mascaro et al., 2004)	5-point Likert scale (15, 1) U	-	Convergent validity Predictive validity Internal consistency (α = .89)		1
Spiritual Orientation Inventory (SOI; MacDonald et al., 1999)	7-point Likert scale (85, 9)	Transcendent Dimension Meaning and Purpose in Life Mission in Life	Content validity Internal consistency (α = .71 - .95)		1

Instrument name	Scale type (*n* of items, *n* of subscales)	Non-religious subscales (*n* of items)	Psychometric criteria met	Subscale exclusion rationale	Number of times utilised by included studies
	M	Sacredness of Life Material Values Altruism Idealism Awareness of the tragic Fruits of Spirituality			
Spirituality measure (Kulis et al., 2012)	4-point Likert scale (2, 1) U	Two questions regarding importance of spirituality to life	Internal consistency (α = .79)		1
25-item Sky Spirituality Scale (SS-25; Kimura et al., 2016)	5-point Likert scale (25, 4) M	Social Connections (8) Life Satisfaction (4) Other (5)	Low construct validity (α = low for life satisfaction) Low Internal consistency	Pious Mind: P Other items (item 3): B	1
Spirituality Transcendence Scale (STS; Piedmont et al., 1999)	5-point Likert scale (24, 3) M	Prayer fulfilment (9) Connectedness (6)	Concurrent, criterion validity Internal consistency (prayer fulfilment: α = .85; connectedness: α = .65)	Universality: B	1
<u>Spiritual wellbeing measures</u>					

Instrument name	Scale type (*n* of items, *n* of subscales)	Non-religious subscales (*n* of items)	Psychometric criteria met	Subscale exclusion rationale	Number of times utilised by included studies
Functional Assessment of Chronic Illness Therapy-Spiritual Wellbeing Scale (FACIT-Sp; Petermnn et al., 2002; Canada et al., 2008)	5-point Likert scale (12, 3) M	Meaning (4) Peace (4) Faith (4)	Convergent, construct validity (2 or 3 factors) Internal consistency (αs = .84 - .85)		24
FACIT-Sp Extended Version (FACIT-SP-Ex; Brintz et al., 2016)	5-point Likert scale (23, 4) M	Meaning (4) Peace (4) Faith (4) Additional Spiritual Concerns (11)	Internal consistency (Additional Spiritual Concerns: α = .94)		2
Hua Oranga (Durie et al., 1999)	5-option response: Much worse; worse; no change; better; much better (4, 1) U	Spiritual (4)	Construct validity Responsiveness to change		1
Spiritual Wellbeing Scale (SWBS; Ellison & Paloutzian, 1983)	6-point Likert scale (20, 2)	Existential Wellbeing (10)	Convergent validity Factorial validity not confirmed	Religious Wellbeing: B	9

Instrument name	Scale type (*n* of items, *n* of subscales)	Non-religious subscales (*n* of items)	Psychometric criteria met	Subscale exclusion rationale	Number of times utilised by included studies
	M		Test-retest reliability Internal consistency (α = .82)		
WHOQOL-100 (extended version; Power et al., 1999)	5-point Likert scale (4, 1) U	Spirituality (4)			1
WHOQOL spirituality, religion and personal beliefs (WHOQOL-SRPB; WHOQOL SRPB Group, 2006)	5-point Likert scale (32, 8) M	Connectedness Meaning of life Awe Wholeness and Integration Spiritual Strength Inner peace/serenity/harmony Hope and optimism Faith	Concurrent validity Internal consistency (α = .91)		3

Note: M = multi-dimensional spirituality instrument,;U = uni-dimensional spirituality instrument; B = at least one item contain reference to specific religious/spiritual belief; P = at least one item contain reference to specific religious/spiritual practice

As is evident in table 3, the most commonly utilised instrument was the FACIT-Sp (39.3%); followed by the SWBS (14.8%), the WHOQOL-SPRB (4.9%), the FACIT-Sp-Ex (3.3%) and the SAS (3.3%). All other tools were represented only once by the studies included in this review.

In measuring spirituality, SWB or spiritual intelligence, 95.1% (n = 58) of studies used instruments that had been developed and validated previously, however, adapted them as necessary. For instance, two items in the FACIT-Sp pertaining to chronic illness were modified in order to more appropriately operationalise SWB for patients with depression (Gibbel, 2011), whilst others have been translated into various languages, as explored below.

Health outcomes associated with spirituality

Among the studies included in the review, 41 different health outcomes and their associations with spirituality were identified. Figure 2 charts these health factors according to number of studies reporting the outcomes. Of these, 35.7% included physical health outcomes, whilst 66.7% focused on mental health or psychological factors. Quality of life was a health outcome variable for 24.6% of studies.

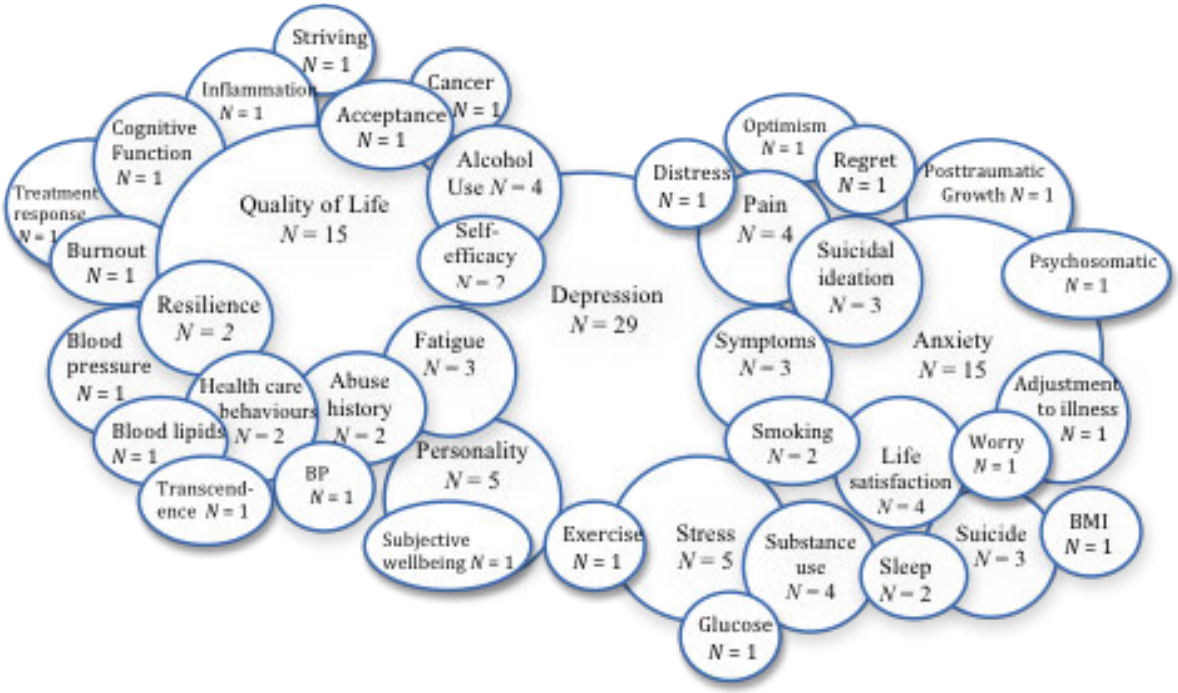


Figure 2. Types of health outcomes associated with spirituality and number of studies exploring these associations.

As table 4 demonstrates, correlations between health outcomes and spirituality were mostly small to moderate. In regards to the three most reported health outcomes, all relationships between both depression and anxiety and spirituality were inverse whereby higher spirituality related (most often significantly, $p > .001$ and $p > .01$ for depression and anxiety, respectively) to lower depression or anxiety symptoms. Similarly, significant associations were observed between QoL outcomes and spirituality, whereby the associations were mostly positive, implying greater QoL was related to higher levels or spirituality.

The strongest reported correlation was between depression and spirituality ($p > .001$) in a study of 50 patients with advanced cancer in hospice or palliative care settings, whereby higher scores of SWB were associated with lower ratings of depressive symptoms (Kandasamy, Chaturvedi & Desai, 2011). A strong, positive relationship was also observed between spirituality and resilience ($p > .05$), whereby greater SWB was associated with higher levels of resilience in patients with Cancer (Washburn, 2011). Table 4 reports further

the correlation and regression coefficients for studies with both cross-sectional and prospective designs observing the association between health outcomes and spirituality.

Table 4

Summary descriptions of associations between health outcomes and spirituality

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
Alcohol use a. Blood alcohol level b. Alcohol problems c. Consumption	Felker et al. (2012)	18.6 (8.5) *n* = 299	High alcohol consumption (G1) low alcohol consumption (G2) university students	SMS	a. G1: *r* = -.15 a. G2: *r* = -.01 b. G1: *r* = -.05 b. G2: *r* = -.09	
	Greenfield et al. (2015)	33.9 (10.9) *n* = 83	Substance use disorders/substance use disorder treatment program	NASS	SBH c. *r* = -.31** SB c. *r* = -.04	
	Holt-Lunstad et al. (2011)	28.3 (8.7) *n* = 100	Community sample	FACIT-Sp-Ex		SRA c. *p* > .20
	Kulis et al. (2012)	12.6 (0.7) *n* = 123	Native American high school students	Spirituality		OLS c. β = .11
Abuse (childhood)	Sansone et al. (2013)	43 (12.4)	Outpatients in medical clinic	FACIT-Sp	r_s = -.18**	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
		n = 317				
	Song et al. (2016)	37 (13.4) *n* = 305	Mood and anxiety disorders/unit patients	FACIT-Sp	*r* = -.30***	
Acceptance	Bauer (2017)	19.5 (3.4) *n* = 433	University students	STS	r_s = .09 (CN) r_s = .11* (PF)	
Adjustment to illness	Li et al. (2012)	40 (11.4) *n* = 493	Colorectal cancer and colostomy/medical centre patients	SWBS (EWB)	*r* = -.74***	
Ambulatory blood pressure a. 24hour systolic blood pressure b. 24hour diastolic blood pressure	Holt-Lunstad et al. (2011)	28.3 (8.7) *n* =100	Community sample	FACIT-Sp-Ex		SRA a. β = -.35*** b. β = -.24**
Anxiety a. GAD	Amrhein et al. (2016)	29.7 (10.7), 100	Community surfers	SAS	*r* = -.12	
b. Social phobia	Benito et al. (2014)	68.1 (12.7) *n* = 108	Terminal illness/palliative care services	GES Questionnaire	*r* = -.27**	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
c. Panic disorder d. Agoraphobia e. OCD f. Performance g. Cancer-related	Davis et al. (2017)	58.7 (11.2) *n* = 241	Ovarian cancer/pre- and post-surgery	FACIT-Sp		MLR g. β = -.20** (PC)
	Holzer (2011)	41 (11.2) *n* = 58	Government employees and psychotherapy clients	SWBS (EWB)	a. r_s = -.41*** b. r_s = -.37** c. r_s = -.24 d. r_s = -.14 e. r_s = -.18	
	Johnson et al. (2011)	66.6 (12.3) *n* = 210	Cancer, CHF, COPD/outpatients	FACIT-Sp		MLR β = -1.19*** (M/P) β = - 4.71*** (FT)
	Kandasamy et al. (2012)	49.7 (10.2) *n* = 50	Cancer/Hospice and palliative care centre	FACIT-Sp	*r* = -.06**	
	Leeson et al. (2015)	51 (not reported)	Hematopoietic stem cell transplant recipients/pre-	FACIT-Sp		MEL β = -.35***

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
		n = 220	and post-transplant			(M/P) β = -.02 (FT)
	Lucchetti et al. (2015)	40.0 (11.0) *n* = 493	Acute psychiatric disorders/inpatients	FACIT-Sp	*r* = -.50**	
	Martinez & Custodio (2014)	56.9 (13.4) *n* = 150	Hemodialysis/medical centre	SWBS (EWB)	f. *r* = -.08	
	Mawani (2011)	45.4 (12.6) *n* = 54	Chronic pain/pain clinic	SAS (change score)	*r* = -.45* (P/M)	
	Ong (2011)	71.3 (7.6) *n* = 160	Older adults/community sample	SWBS (EWB)		MLR β = -.41*
	Piacentine (2012)	34.8 (11.5) *n* = 108	Opioid addiction/methadone maintenance thearpy clinic	SWBS (EWB)	*r* = -.58**	
	Siddall et al. (2016)	57.8 (not reported) *n* = 106	Spinal cord injury/patient database	FACIT-Sp-Ex	*r* = -.48***	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
	Song et al. (2016)	37 (13.4) *n* = 305	Mood and anxiety disorders	FACIT-Sp	*r* = -.03	
	Unterrainer et al. (2012)	42.7 (12.9) *n* = 200	Anxious and depressive disorders	MI-RSWB	a. *r* = -.42*** (HI) a. *r* = -.22** (FO) a. *r* = -.03 (SM) e. *r* = -.50*** (HI) e. *r* = -.23** (FO) e. *r* = -.23 (SM)	
Borderline Personality Disorder a. Diagnostic criteria b. Self-harm	Sansone et al. (2012)	43 (12.4) *n* = 317	Outpatients in medical clinic	FACIT-Sp	a. r_s = -.56** *b.* r_s = -.35**	
Blood lipids	Holt-Lunstad et al. (2011)	28.3 (8.7)	Community members	FACIT-Sp		SRA

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
a. Triglycerides		*n* =100				a. β = -.21
b. VLDL						b. β = -.21
c. HDL						c. β = .06
d. LDL						d. β = -.02
Body Mass Index	Holt-Lunstad et al. (2011)	28.3 (8.7), 100	Community members	FACIT-Sp		SRA β = -.31**
Burnout	Hardiman & Graetz Simmonds (2013)	49.7 (8.1)	Counsellors & Psychotherapists	SWBS	a, *r* = -.41*	
a. Emotional exhaustion		*n* = 89		(EWB)	b. *r* = -.22*	
b. Depersonalisation					c. *r* = .27*	
c. Personal accomplishment						
Cancer	Lewis et al. (2014)	50.4 (13.1)	Cancer/active treatment	FACIT-Sp	a. r_s = -.19**	
a. Disease severity		*n* = 200			b. r_s = -.16*	
b. Type of cancer	Li et al. (2012)	40 (11.4)	Colorectal cancer and colostomy/medical centre patients	SWBS	c. *r* = -.35*	
c. Disease severity (self-		*n* = 493		(EWB)		

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
rated)	Samuelson et al. (2012)	61.1, (not reported) *n* = 406	Cancer/first radiotherapy treatment	FACIT-Sp		LRA β = 2.75**
Cognitive functioning	Agli et al. (2017)	86.6 (7.1) *n* = 63	Older adults/Nursing home	FACIT-Sp	*r* = -.45***	
Decisional regret (of treatment choice)	Mollica et al. (2016)	63.2 (7.8) *n* = 1093	Prostate cancer/pre- and post-treatment	FACIT-Sp		MLR β = -.39
Depression	Agli et al. (2017)	86.6 (7.1) *n* = 63	Older adults/Nursing home	FACIT-Sp	*r* = -.61** (MN) *r* = -.21 (PC) *r* = -.21 (FT)	
	Alvarez et al. (2016)	60 (13) *n* = 130	Heart failure/outpatients	WHOQOL-SRPB	r_s = -.49***	
	Amrhein et al. (2016)	29.7 (10.7) *n* = 100	Community surfers	SAS	*r* = - .31**	
	Benito et al. (2014)	68.1 (12.7) *n* =108	Terminal illness/palliative care services	GES Questionnaire	*r* = -.45***	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
	Davis et al. (2017)	58.7 (11.2) *n* =241	Ovarian cancer/pre- and post-surgery	FACIT-Sp		β = -.40***
	Gibbel (2011)	65 (not reported) *n* = 65	Depression/university students	FACIT-Sp	*r* = -.27**	
	Gonzalez et al. (2014)	59.1 (10) *n* = 102	Cancer/survivors in support groups	FACIT-Sp	*r* = -.41**	β = -.49***
	Gonzalez-Celis & Gomez-Benito (2013)	65 (9.4) *n* = 75	Older adults/health clinic	WHOQOL-100		Difference in SWB between depression groups not significant: *p* = .47
	Hirsch et al. (2014)	35.6 (11.4) *n* = 148	Suicide attempt/outpatients	SWBS (EWB)	*r* = -.49**	
	Holt-Lunstad et al. (2011)	28.3 (8.7) *n* = 100	Community sample	FACIT-Sp-Ex (SWB)		SRA β = -.38***

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
	Johnson et al. (2011)	66.6 (12.3) *n* = 210	Cancer, CHF, COPD/outpatients	FACIT-Sp		MLR β = -2.15*** (FT) β = - 6.99*** (M/P)
	Johnson (2011)	60.7 (9) *n* = 31	Nonmetastatic cancer/support groups	FACIT-Sp-Ex	*r* = -.60***	
	Kandasamy et al. (2012)	49.7 (10.2) *n* = 50	Cancer/Hospice and palliative care centre	FACIT-Sp	*r* = -.86***	
	Kimura et al. (2016)	not reported *n* = 509	University students	SS-25	*r* = -.13** (SC) *r* = -.39*** (LS)	
	Lee et al. (2014)	21.4 (not reported) *n* = 518	Nursing students	SWBS (EWB)	*r* = -.36*	
	Leeson et al. (2015)	51 (not reported)	Hematopoietic stem cell transplant recipients/pre- and post-transplant	FACIT-Sp		MEL β = -.76***

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
		n = 220				(M/P) β = -.03 (FT)
	Lucchetti et al. (2015)	40.0 (11.0) *n* = 493	Acute psychiatric disorders/inpatients	FACIT-Sp	*r* = -.71**	
	Mawani (2011)	45.4 (12.6) *n* = 54	Chronic pain/pain clinic	SAS (change score)	*r* = -.44*	
	McCaffrey (2015)	48.3 (not reported) *n* = 60	Major depressive disorder/treatment centre	SWBS (EWB)	Moderate levels of EWB (80.8%) had lower depression than low EWB (60%) or high EWB (42.9%, $\chi^2(2) = 6.08$*)	
	Mihaljevic et al. (2015)	48.3 (7.8) *n* = 85	Major depressive episode/first presentation to hospital	WHOQOL-SRPB	*r* = -.46**	
	Mills et al. (2015)	66.4 (10.3)	Stage B heart	FACIT-Sp	*r* = -.35**	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
		n = 186	failure/outpatients			
	Nsamenang et al. (2016)	51.1 (9.6) *n* = 81	Multiple sclerosis/outpatients	FACIT-Sp	*r* = -.52**	
	Ong (2011)	71.3 (7.6) *n* = 160	Older adults/community sample	SWBS (EWB)		MLR β = -.37
	Piacentine (2012)	34.8 (11.5) *n* = 108	Opioid addiction/methadone maintenance thearpy clinic	SWBS (EWB)	*r* = -.61**	
	Siddall et al. (2016)	57.8 (not reported) *n* = 106	Spinal cord injury/patient database	FACIT-Sp-Ex	*r* = -.59***	
	Song et al. (2016)	37 (13.4) *n* = 305	Mood and anxiety disorders/unit patients	FACIT-Sp	*r* = -.58***	MLR β = -.46***
	Unterrainer et al. (2012)	42.7 (12.9) *n* = 200	Anxious and depressive disorders	MI-RSWB	*r* = -.55** (HI) *r* = -.32*** (FG)	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
					r = -.10 (SM)	
	Xue et al. (2016)	39.5 (14.7) *n* = 61	Spinal cord injury/outpatients	BENEFIT		MLR β = -.31*
Exercise	Holt-Lunstad et al. (2011)	28.3 (8.7) *n* =100	Community sample	FACIT-Sp-Ex		SRA Exercise amount not related to SWB (*p* > .20)
Fasting glucose	Holt-Lunstad et al. (2011)	28.3 (8.7) *n* = 100	Community sample	FACIT-Sp-Ex		SRA β = -.28**
Fatigue	Leeson et al. (2015)	51 (not reported) *n* = 220	Hematopoietic stem cell transplant recipients/pre- and post-transplant	FACIT-Sp		MEL β = -.43*** (M/P) β = .09* (FT)
	Lewis et al. (2014)	50.4 (13.1) *n* =200	Cancer/active treatment	FACIT-Sp	r_s = -.28**	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
	Mills et al. (2015)	66.4 (10.3) *n* = 186	Stage B heart failure/outpatients	FACIT-Sp	*r* = -.50**	
Health care behaviours a. Utilisation of health services b. Medication adherence	Cannon et al. (2011)	59 (not reported) *n* = 551	Cancer/hospital outpatients	FACIT-Sp		a. Highly spiritual participants less likely to call their health-care providers compared to those with low spirituality (OR = 0.70, 95% CI 0.49-1.00, *p* = 0.04)
	Alvarez et al. (2016)	60 (13) *n* = 130	Heart failure/outpatients	WHOQOL-SRPB	b. r_s = .26**	
Inflammation	Holt-Lunstad et al. (2011)	28.3 (8.7)	Community sample	FACIT-Sp-Ex		SRA

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
a. C-reactive protein		*n* =100				β = -.23*
	Mills et al. (2015)	66.4 (10.3) *n* = 186	Stage B heart failure/outpatients	FACIT-Sp	*r* = -.10	
Life satisfaction	Chan & Siu (2016)	Not reported *n* = 213	University students	SISRI-24	*r* = .11	
	Siddall et al. (2016)	57.8 (not reported) *n* = 106	Spinal cord injury/patient database	FACIT-Sp-Ex	*r* = .69***	
	Velasco-Gonzalez et al. (2014)	77.5 (10.1) *n* =133	Older adults	SWBS (EWB)	*r* = -.27**	
	Wachelder et al. (2016)	63.2 (11.5) *n* =170	Cardiac arrest and myocardial infarction/outpatients	FACIT-Sp		MLR β = .50** (M/P) β = -.05 (FT)
Optimism	Lucchetti et al. (2015)	40.0 (11.0) *n* = 493	Acute psychiatric disorders/inpatients	FACIT-Sp	*r* = .63**	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
Pain a. Sensory b. Affective c. Evaluative d. Miscellaneous e. Point pain rating f. Total pain g. Pain interference h. Pain Self-Efficacy i. Pain intensity	Leeson et al. (2015)	51 (not reported), *n* =220	Hematopoietic stem cell transplant recipients/pre- and post-transplant	FACIT-Sp		MEL f. β = -.25** (M/P) f. β = .35 (FT)
	Mawani (2011)	45.4 (12.6) *n* = 54	Chronic pain/pain clinic	SAS (change score)	a. *r* = -.46* b. *r* = -.22 c. *r* = -.50** d. *r* = -.10 e. *r* = -.46* f. *r* = -.22	
	Nsamenang et al. (2016)	51.1 (9.6) *n* = 81	Multiple sclerosis/outpatients	FACIT-Sp	*r* = -.36**	
	Siddall et al. (2016)	57.8 (not reported) *n* = 106	Spinal cord injury/patient database	FACIT-Sp-Ex	*r* = -.48***	
Personality	Chang et al.	21.8 (4.7)	University students	RiTE	a. *r* = -.16**	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
<u>NEO-FFI</u>	(2015)	*n* = 325		(ES)	b. *r* = .23***	
a. Neuroticism					c. *r* = .14*	
b. Extraversion					d. *r* = .22***	
c. Openness					e. *r* = .27***	
d. Agreeableness	Mendez & MacDonald (2012)	21.2 (4.5)	University students	ESI	f. *r* = -.07 (COS)	
e. Conscientiousness		*n* = 239			f. *r* = -.70*** (EW)	
<u>MMPI-2</u>					g. *r* = -.09 (COS)	
f. Demoralisation					g. *r* = -.43*** (EW)	
g. Somatic Complaints					h. *r* = -.07* (COS)	
h. Low Positive Emotions					h. *r* = -.55*** (EW)	
i. Cynicism					i. *r* = -.14* (COS)	
j. Antisocial Behaviour						
k. Ideas of Persecution						
l. Dysfunctional						

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
Negative Emotions m. Aberrant Experiences n. Hypomanic Activation TCI o. Harm Avoidance p. Novelty Seeking q. Reward Dependence r. Aggressiveness					i. *r* = -.26*** (EW) j. *r* = .05 (COS) j. *r* = -.25*** (EW) k. *r* = -.11 (COS) k. *r* = -.19** (EW) l. *r* = -.02 (COS) l. *r* = -.47*** (EW) m. COS (*r* = -.12) m. *r* = -.24*** (EW) n. *r* = -.02 (COS) n. *r* = -.11	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
					(EWB)	
	Mihaljevic et al. (2015)	48.3 (7.8), *n* = 85	Major depressive episode/first presentation to hospital	WHOQOL-SRPB	o. *r* = -.30*	
					p. *r* = -.05	
					q. *r* = .15	
	Unterrainer et al. (2012)	42.7 (12.9), *n* = 200	Anxious and depressive disorders	MI-RSWB	a. *r* = -.46*** (HI)	
					a. *r* = -.25*** (FO)	
					a. *r* = -.05 (SM)	
					b. *r* = .19** (HI)	
					b. *r* = .29*** (FO)	
					b. *r* = .24** (SM)	
					c. -.16* (HI)	
					c. -.03 (FO)	
					c. *r* = .23**	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
					(SM) e. r = .09 (HI) e. r = .02 (FO) e. r = .12 (SM) r. r = -.17* (HI) r. r. -.54*** (FO) r. r = -.08 (SM)	
Posttraumatic growth	Eggleston (2016)	38.5 (12.3) *n* =191	HIV and AIDS/Community organisation	FACIT-Sp		β = .30**
Psychological distress	Salmoirago Blotcher (2012)	65 (10.5) *n* = 46	Cardiovascular disease/ICD outpatients	FACIT-Sp	r = -.62*	
Psychosomatic complaints	Martinez & Custodio (2014)	56.9 (13.4) *n* = 150	Hemodialysis/medical centre	SWBS (EWB)	r = -.1	
Quality of Life WHOQOL-100	Alvarez et al. (2016)	60 (13) *n* = 130	Heart failure/outpatients	WHOQOL-SRPB	r_s = .47***	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
a. Physical wellbeing b. Social/family wellbeing c. Emotional wellbeing d. Family wellbeing e. Palliative wellbeing f. Functional wellbeing g. Total Quality of Life <u>SF-36</u> h. Mental health i. Role function j. Role –emotional k. Role – physical l. Vitality	Bai et al. (2015) Frost et al. (2013) Harwood et al. (2013)	57.8 (11.6(, 153 65.6 (10.3) *n* = 1578 61.4 (13) *n* =172	Head, neck, gastrointestinal, lung and gynaecological cancer/outpatients Lung cancer/outpatients Stroke/inpatients	FACIT-Sp FACIT-Sp Hua Oranga	r_s = .74*** g. r_s = .52 h. r_s = .44 i. r_s = .42 l. r_s = .34 m. r_s = .33 n. r_s = .30 o. r_s = .29 p. r_s = .24 (significance not reported) h. *r* = .44 j. *r* = .40 k. *r* = .44	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
m. General health n. Social function o. Physical function p. Bodily pain					l. $r = .55$ m. $r = .57$ n. $r = .16$ o. $r = .37$ p. $r = .46$	
	Johnson (2011)	60.7 (9) *n* =31	Nonmetastatic cancer/support groups	FACIT-Sp-Ex	$r = .63$***	
	Kandasamy et al. (2012)	49.7 (10.2) *n* =50	Cancer/Hospice and palliative care centre	FACIT-Sp	a. $r = .68$*** b. $r = .52$*** c. $r = .68$*** d. $r = .66$*** e. $r = .81$***	
	Kelly (2011)	54.5 (not reported) *n* =195	Cancer/receiving chemotherapy treatment	FACIT-Sp	a. $r = 0.26$** (MN) a. $r = .33$** (PC) a. $r = .13$ (FT)	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
					b. r = .46** (MN) b. r = .35** (PC) b. r = .18* (FT) c. r = .40** (MN) c. r = .69** (PC) c. r = .34** (FT) f. r = .38** (MN) f. r = .58** (PC) f. r = .19** (FT)	
	Leeson et al. (2015)	51 (not reported) *n* = 220	Hematopoietic stem cell transplant recipients/pre- and post-transplant	FACIT-Sp		MEL a. β = .58*** (M/P)

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
						a. β = -.06 (FT) f. β = .68*** (M/P) f. β = -.01 (FT)
	Whitford & Olver (2012)	60.8 (12.9) *n* = 99	Cancer/outpatients	FACIT-Sp		HMR a. *r* = .37*** (PC) a. *r* = .30*** (MN) a. *r* =.03 (FT) b. *r* = .38*** (PC) b. *r* = .49*** (MN) b. *r* = .24*** (FT)

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
						c. $r = .61$*** (PC) c. $r = .35$*** (MN) c. $r = .20$*** (FT) f. $r = .64$*** (PC) f. $r = .56$*** (MN) f. $r = .24$*** (FT) g. $r = .68$*** (PC) g. $r = .58$*** (MN) g. $r = .25$*** (FT)
Quality of Life (health-	Davison et al.	59.5 (14.6)	Chronic kidney	SWBS	a. $r = .25$***	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
related) a. Total health-related quality of life b. Physical Health c. Mental Health d. Trial Outcome Index e. Emotional wellbeing f. Social/family wellbeing	(2013) Kim et al. (2011)	*n* = 253 59.9 (11.1) *n* = 308	disease/dialysis recipients Cancer/outpatients	(EWB) FACIT-Sp	b. *r* = .14* c. *r* = .27*** 	 SEM b. β = .19*** c. β = .62***
	Lucchetti et al. (2015)	40.0 (11.0), 493	Acute psychiatric disorders/inpatients	FACIT-Sp	b. *r* = .33** c. *r* = .69**	
	Salsman et al. (2011)	67 (not reported) *n* = 568	Colorectal (G1) and colon cancer (G2)/cancer registry	FACIT-Sp (M/P)		HMR G1: d. β = .53*** e. β = .54*** f. β = -.44*** G2: d. β = .69***

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
						e. β = .54*** f. β = .56***
Quality of Life (dementia-related)	Agli et al. (2017)	86.6 (7.1) *n* = 63	Older adults/Nursing home	FACIT-Sp	*r* = .42** (MN) *r* = .21 (FT) *r* = .50** (PC)	-
Resilience	Benito et al. (2014)	68.1 (12.7) *n* = 108	Terminal illness/palliative care services	GES Questionnaire	*r* = .33***	
	Washburn (2011)	44 (17) *n* = 37	Cancer	FACIT-Sp	*r* = .82*	
Self-efficacy (cardiac)	Mills et al. (2015)	66.4 (10.3) *n* = 186	Stage B heart failure/outpatients	FACIT-Sp	*r* = .46***	
Self-transcendence a. Interpersonal self-transcendence b. Transpersonal self-transcendence	Haugan et al. (2014)	86 (7.7), *n* = 202	Older adults/Nursing home	FACIT-Sp		SEM a. r^2 = .34* (MN) a. r^2 = .27* (PC) a. r^2 = .32*

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
						(FT) b. r^2 = .15 (MN) b. r^2 = .67* (PC) b. r^2 = .16 (FT)
Sleep a. Disturbance	Martinez & Custodio (2014)	56.9 (13.4) *n* = 150	Hemodialysis/medical centre	SWBS (EWB)	a. *r* = .26***	
	Mills et al. (2015)	66.4 (10.3) *n* = 186	Stage B heart failure/outpatients	FACIT-Sp	*r* = -.28**	
Smoking a. Pack-years b. Use	Frost et al. (2013)	65.6 (10.3) *n* = 1578	Lung cancer/outpatients	FACIT-Sp		MLR Higher pack-years associated with lower spiritual wellbeing (statistics not

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
						reported)
	Kulis et al. (2012)	12.6 (0.7) *n* = 123	Native American high school students	Spirituality		OLS β = .18
Striving (goal attainment) a. Perceived stress b. Commitment c. Expectations	Bauer (2016)	19.5 (3.4) *n* = 433	University students	STS	a. r_s = .05 (CN) a. r_s = .11* (PF) b. r_s = .14** (CN) b. r_s = .18** (PF) c. r_s = .03 (CN) c. r_s = .20** (PF)	
Stress	Holt-Lunstad et al. (2011)	28.3 (8.7) *n* = 100	Community sample	FACIT-Sp-Ex		SRA β = -.32**
	Johnson (2011)	60.7 (9) *n* =31	Nonmetastatic cancer/support groups	FACIT-Sp-Ex	*r* = .66***	
	Lee et al. (2014)	21.4 (not	Nursing students	SWBS	*r* = -.20**	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
		reported) *n* = 518		(EWB)		
	Siddall et al. (2016)	57.8 (not reported) *n* = 106	Spinal cord injury/patient database	FACIT-Sp-Ex	*r* = -.33**	
Subjective wellbeing a. Positive relationships with others b. Meaning in Life	Velasco-Gonzalez et al. (2014)	77.5 (10.1) *n* =133	Older adults	SWBS (EWB)	a. *r* = .22* b. *r* = .34**	
Substance use a. Abuse b. Poly-drug use c. Pro-drug attitudes d. Substance use exposure e. Positive decision making about drugs	Eggleston (2016)	38.5 (12.3) *n* =191	HIV and AIDS/Community organisation	FACIT-Sp	a. *r* = -.46**	
	Kulis et al. (2012)	12.6 (0.7) *n* = 123	Native American high school students	Spirituality		OLS b. β = .24 c. β = .25* d. β = .25* e. β = .06**

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
f. Use of drug resistant strategies g. Negative consequences of drug use h. Cannabis use	Greenfield et al. (2015)	33.9 (10.9) *n* = 83	Substance use disorders/substance use disorder treatment program	NASS	SBH h. *r* = -.26* SB h. *r* = -.07	f. β = .34** h. β = .11
	Piacentine (2012)	34.8 (11.5) *n* = 108	Opioid addiction/methadone maintenance thearpy clinic	SWBS (EWB)	g. *r* = -.22*	
Suicidal ideation a. Ideation b. Suicidal behaviours	Hirsch et al. (2014)	35.6 (11.4) *n* = 148	Suicide attempt/outpatients	SWBS (EWB)	a. *r* = -.55*** (HI) b. *r* = .05 (SM)	
	Martinez & Custodio (2014)	56.9 (13.4) *n* = 150	Hemodialysis/medical centre	SWBS (EWB)	*r* = .02	
	Unterrainer et al. (2012)	42.7 (12.9) *n* = 200	Anxious and depressive disorders	MI-RSWB	a. *r* = -.55*** (HI) a. *r* = -.23**	

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
					(FO) a. *r* = -.10 (SM) b. *r* = -.19* (HI) b. *r* = -.22** (FO) b. *r* = .05 (SM)	
Symptoms a. Physical symptom frequency b. Symptom severity c. Symptom distress	Kelly (2011)	54.5 (not reported) *n* =195	Cancer/receiving chemotherapy treatment	FACIT-Sp	a. *r* = .34** (MN) a. *r* = -.32** (PC) a. *r* = -.06 (FT)	
	Kim et al. (2015)	36.6 (12.7) *n* = 232	Depression/clinic patients	FACIT-Sp	b. *r* = -.47***	
	Kandasamy et al. (2012)	49.7 (10.2) *n* = 50	Cancer/Hospice and palliative care centre	FACIT-Sp	c. *r* = -.72***	
Treatment response	Kim et al. (2015)	36.6 (12.7) *n* = 232	Depression/clinic patients	FACIT-Sp		LRA High spirituality

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
						(OR = 2.26, 95% CI = 1.22 - 4.18) significantly predicted treatment responses, after controlling for covariates
Worry (health-related)	Cannon et al. (2011)	59 (not reported) *n* = 551	Cancer/hospital outpatients	FACIT-Sp		LRA Highly spiritual participants were significantly less likely to have health-related worries than survivors who reported lower

Health outcome	Study	Mean age in years (SD), *n* of participants	Disease/setting	Measure of spiritual assessment (subscale used in analysis)	Correlation coefficients (subscale used in analysis)	Regression coefficients
						spirituality (OR = 0.61, 95% CI 0.42 – 0.89, $p <$ 0.01)

Note: SRA = Simultaneous regression analysis, OLS = Ordinary least squares regression, MEL = Mixed effects linear regression, MLR = Multiple linear regression, HMR = Hierarchical multiple regression, LRA = Logistic regression analysis, SEM = Structural equation modelling; CN = Connectedness subscale of STS, PF = Prayer Fulfilment subscale of STS, EWB = Existential Wellbeing subscale of SWBS, M/P = Meaning/Peace subscale of FACIT-Sp, FT = Faith subscale of FACIT-Sp, MN = Meaning subscale of FACIT-Sp, PC = Peace subscale of FACIT-Sp, P/M = Purpose/Meaning in Life subscale of SAS, SC = Social Connections subscale of SS-25, LS = Life Satisfaction subscale of SS-25, HI = Hope imminent subscale of MI-RSWB, FG = Forgiveness subscale of MI-RSWB, SM = Sense of Meaning subscale of MI-RSWB, ES = Existential Spirituality subscale of RiTE, COS = Cognitive Orientation to Spirituality subscale of ESI, EW = Existential Wellbeing subscale of ESI; SBH = Spiritual Behaviours subscale of NASS

*: *$p =$ < .05; **$p =$ < .01; **; $p =$ < .001;

Additionally, when exploring the mediational influence of spirituality, Johnson (2011) found it to fully mediate the relationship between QoL and stress (change from $p < .001$ to $p = .14$), and to partially mediate the relationship between depression and QoL (change from $p < .001$ to $p = .04$), as demonstrated by the change in significance from the .01 to.05 level. Further mediational analyses in a sample of hospital outpatients with multiple sclerosis indicated that SWB had an indirect effect on the relationship between pain interference and depression ($ab = 0.31$, $CI = 0.13 – 0.64$; $Pm = .32$).

Validation of spirituality instruments in different countries or cultural groups

Figure 3 provides a visual representation of the populations in which the spirituality tools included in this review were validated. Most notably, only two studies (Greenfield et al., 2015; Harwood et al., 2012) described the validation of tools that had been developed specifically for particular cultural groups. The Hua Oranga tool in this way was developed to provide an assessment of spirituality in Maori populations, however, was adapted to also measure spirituality in Pacific People (Harwood et al., 2012), whilst the Native American Spirituality Scale (NASS) was developed for Native Americans in a Southwestern tribe in the USA (Greenfield et al., 2015).

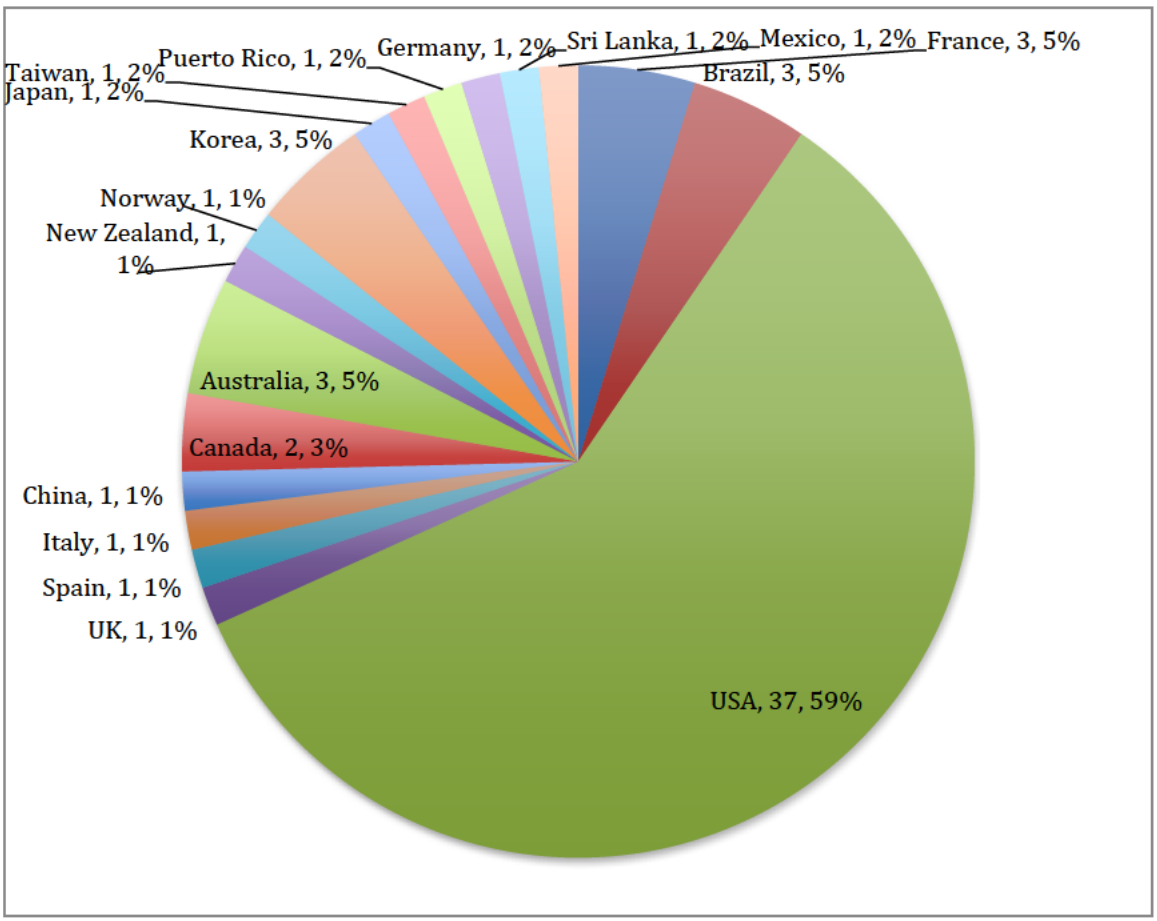


Figure 3. Population distribution of the development or validation of spirituality instruments from included studies.

Although participant race was described in 77.8% of studies undertaken in the USA, only Whitford and Olver (2012), Xue and colleagues (2016) and Harwood and colleagues (2012) provided information about the cultural orientation of their participants (conducted in Australia, Sri Lanka and New Zealand, respectively). For the studies carried out in the USA, the majority of participants most commonly reported being White (with a minimum of 45% of the total sample size; Gonzalez et al., 2014), although Black and Hispanic populations were commonly sampled but to a much lesser degree. Where Native American populations were represented in studies, their participation did not exceed 5.5% of the total sample size, excluding two studies that examined the relationship between spirituality and health exclusively in Native American samples (Greenfield et al., 2015; Kulis, Hodge, Ayers,

Brown & Marsiglia, 2012).

Furthermore, almost 20% of the included studies translated and validated the spirituality instruments in a range of populations, as described in Table E1 in Appendix E. The FACIT-Sp was translated into French (Agli, Bailly & Ferrand, 2017), Spanish (Gonzalez et al., 2014), Korean (Kim, Huh & Chae, 2015) and Portuguese (Lucchetti, Lucchetti, de Bernardin Goncalves & Vallada, 2015), whilst the SWBS was translated into Portuguese (Martinez & Custodio, 2014) and Chinese (Li, Rew & Hwang, 2012). Similarly, the WHOQOL-100 was translated into Spanish (González-Celis & Gómez-Benito, 2013), and the WHOQOL-SPRB into Croatian (Mihaljevic, Aukst-Margetic, Vuksan-Cusa, Karnicnik & Jakovljevic, 2015; Mihaljevic, Aukst-Margetic, Karnicnik, Vuksan-Cusa & Milosevic, 2016), whilst items in the Hua Oranga tool were adapted to include the experience of Pacific People (Harwood et al., 2012).

Discussion

This review presented information regarding studies that have used spirituality instruments between the years of 2011 -2017, that delineated religiosity from spirituality, and reported the associated health outcomes and populations in which the tools were validated. In examining information regarding the characteristics of the spirituality measures, of the 61 reviewed studies, it was noted that only four new instruments had been developed in the past 7 years. Thus, despite increased recognition in the literature regarding the need for more inclusive spirituality tools that capture both culturally diverse and non-religious expressions of spirituality, it has not been actualised within health research (O'Connell & Skevington, 2010). This information is particularly useful and evermore relevant, given both the marked increase in individuals identifying as non-religious in Australia (Australian Bureau of Statistics, 2017), and as spiritual but not religious elsewhere (Hilbers, Haynes & Kivikko, 2010; Ammerman, 2013),

This review also highlighted that within the field of health and spirituality, there is an overwhelming preference to use the FACIT-Sp and the SWBS to measure spirituality. Interestingly, the SWBS, comprised of Religious Wellbeing and Existential Wellbeing subscales, was utilised even when authors explicitly delineated spirituality from religiosity (Holzer, 2011). This is not only problematic in attempting to operationalise spirituality as being distinct to spirituality, but also given that spirituality is perceived to be a multidimensional construct (Whitford & Olver, 2012). Therefore, in reporting subscale scores as opposed to total scores, health outcomes may be associated with constructs of spirituality as opposed to overall spirituality.

Additionally, SWB scales, such as the FACIT-Sp and SWBS, have been cautioned against using to represent spirituality due to the concern that such measures operationalise wellbeing as opposed to spirituality (Koenig, 2008). For instance, it is contended that an item such as, "my life lacks meaning and purpose", from the FACIT-Sp would not accurately reflect spirituality for a spiritual person with depression, due to a lack of purpose being a common depressive symptom (Koenig, 2008). However, not all measures of SWB should be dismissed, as they are distinct constructs (Salmoirago-Blotcher et al., 2012), and some SWB scales do not conflate items with wellbeing through use of positive or negative affect (de Jager Meezenbroek et al., 2012).

Numerous health outcomes were also observed to relate, often significantly, to spirituality, in line with the second research objective. This review thus adds further support to the existence of a relationship between spirituality and health, as distinct from religion, building on other research demonstrating the unique contribution of spirituality to health, particularly within mental health (Glas, 2011; Holzer, 2011). This finding may prompt future research to benefit both health assessment and intervention by including an assessment of spirituality, which is currently lacking in healthcare (Sessana et al., 2011). This is particularly

evidenced by the disinclination for psychologists to talk about spirituality with their clients (Hage, 2006; Hathaway, Scott, Garver, 2004), which is significant given the preference of clients to discuss such issues with mental health professionals over other health practitioners (Curlin et al., 2007; Post & Wade, 2009). As it is recognised that barriers to discussing spirituality include unfamiliarity with the evidence-base surrounding spirituality and health (Moreira-Almeida et al., 2014), this review may provide further clarity regarding this relationship.

However, a caveat to interpreting these associations is that the samples with chronic health conditions may experience spirituality differently to other populations, particularly during significant or distressing periods such as disease diagnosis, and therefore such associations may not be generalisable (O'Connell & Skevington, 2010). For instance, Bai and colleagues (2015) found that spirituality levels changed from initial diagnosis to three-months post-diagnosis in a sample of patients with advanced cancer, without having had any spiritual intervention.

Finally, the results from the third research objective confirmed assertions that spirituality is not assessed adequately across cultures. For some cultures, such as Indigenous Australian communities, spirituality is not only integral, but also fundamental to understandings of wellbeing and daily life (Greenfield et al., 2015; Grieves, 2009). However, as this review highlights, there is an incredible dearth of tools available to measure such conceptualisations of spirituality, outside of a euro-centric context, thus posing a risk of different understandings of spirituality not being captured (Pargament et al., 2013). Importantly, it is being expressed that spirituality needs to be at the core of health assessment and intervention in regards to Indigenous Australian health (Grieves, 2009), as echoed by Native American cultures (Greenfield et al., 2015; Kulis et al., 2012). Thus, in consideration of the importance of spirituality to wellbeing for Indigenous Australians and other cultures,

and the demonstration that both physical and mental health relate to spirituality, as presented in this review, it is integral that future research explores different understandings of spirituality in order to strengthen the evidence base and thus justification for the inclusion of spirituality in healthcare.

Limitations

In order to chart the breadth of tools available and their association with health outcomes, a limitation of this review is that psychometric properties or analyses of the instruments were not conducted. However, it has been reported by previous reviews that the overall quality of spirituality tools are low, that information regarding discriminant and convergent and validity is not often reported (de Jager Meezenbroek et al., 2012), and whereby criterion validity is determined, it is through comparison with measures of religiosity and not spirituality (Monod et al., 2011)

Furthermore, in an attempt to exclude measures of religiosity, only non-religious subscale scores were reported, whilst for some studies, only the subscale scores were provided (Haugan, Rannestad, Hammervold, Garasen & Espnes, 2014; Leeson et al., 2015). For instance, a negative association observed between the Hope Imminent subscale of the MI-RSWB and suicidal ideation (Unterrainer, Schoeggl, Fink, Neurper & Kapfhammer, 2012) may only pertain to the construct of hope as opposed to spirituality in general, as highlighted earlier in the discussion.

Moreover, including studies relating only to health likely excluded valuable information regarding other ways that spirituality is interpreted and measured within the literature, for instance, within organisational settings. This review was also limited to studies and tools published in English, which, evidently, is a significant limitation when attempting to provide an overview of cultural variation in spirituality assessment.

Lastly, it was not an objective of this review to explore changes in spirituality and

health following a spirituality-focused intervention, despite a significant number of studies adopting prospective designs. Therefore, future research is recommended to consolidate such findings to explore the role of spirituality in health.

Conclusions

In line with the discourse within the literature (O'Connell & Skevington, 2010), this review further illustrates that few spirituality instruments have been developed to measure spirituality as distinct from religion. However, where studies do employ use of such tools, encouraging associations between spirituality and a broad range of health outcomes have been observed, as distinct from their relationship to religion (Holzer, 2011). Although the effect sizes for these relationships were generally small to moderate, their associations highlight the significance of spirituality as a distinct construct in health. Finally, this review draws attention to the fact that limited tools currently exist to account for cultural diversity in the experience of spirituality. Additionally, the available tools are not validated in diverse populations, including minority groups, even in the more frequently studied countries such as the USA. This holds implications for both research on the relationship between health and spirituality, and the practical application of such research including health assessment, interventions and healthcare.

Implications for research

Whilst this study highlights both current trends in the field of spirituality and health, some significant gaps and areas of development for future research are evident. Despite efforts to produce tools that delineate spirituality from religion, there is still a tendency for instruments to use undefined or ambiguous terms such as "spirituality", to include religious subscales and yet report a total spirituality score, or to conflate wellbeing with spirituality. Thus, in developing future spirituality instruments, such considerations should be taken into

account. When determining an appropriate tool for use within health research, judiciousness should be exercised in instrument selection, based on these aforementioned factors.

Furthermore, as Hilbers and colleagues (2010) astutely note, gaining an understanding of one's sense of spirituality provides insight into their understanding of health. In this way, and given the significance of spirituality for many cultures worldwide, future research conceptualising and operationalising spirituality in diverse populations is needed, to enable subsequent research and to more fully realise the broad implications of the relationship between spirituality and health.

End matter

Conflicts of interest

The author declares no conflict of interest.

Acknowledgments

This review was conducted in order to meet the completion requirements of a degree in Master of Psychology (Health), and to assist in research for a QoL working group at Wardliparingga Aboriginal Research Unit within the South Australian Health and Medical Research Institute.

References

Agli, O., Bailly, N., & Ferrand, C. (2017). Validation of the Functional Assessment of Chronic Illness Therapy—Spiritual Well-being (FACIT-Sp12) on French Old People. *Journal of Religion and Health*, *56*(2), 464-476.

Alvarez, J. S., Goldraich, L. A., Nunes, A. H., Zandavalli, M. C. B., Zandavalli, R. B., Belli, K. C., Rocha, N., Fleck, M., & Clausell, N. (2016). Association between spirituality and adherence to management in outpatients with heart failure. *Arquivos Brasileiros de Cardiologia*, *106*(6), 491-501.

Ammerman, N. T. (2013). Spiritual but not religious? Beyond binary choices in the study of religion. *Journal for the Scientific Study of Religion*, *52*(2), 258-278.

Amrhein, M., Barkhoff, H., & Heiby, E. M. (2016). Spirituality, depression, and anxiety among ocean surfers. *Journal of Clinical Sport Psychology*, *10*(2), 155-171.

Australian Bureau of Statistics. (2017). *Census of Population and Housing: Reflecting Australia - Stories from the Census, 2016* (cat. no. 2071.0). Retrieved from http://www.abs.gov.au

Bai, M., Lazenby, M., Jeon, S., Dixon, J., & McCorkle, R. (2015). Exploring the relationship between spiritual well-being and quality of life among patients newly diagnosed with advanced cancer. *Palliative & supportive care*, *13*(4), 927-935.

Bauer, A. (2016). *The role of mindfulness and spirituality in facilitating acceptance and striving towards goals* (Doctoral dissertation). Indiana State University, Indiana, USA.

Benito, E., Oliver, A., Galiana, L., Barreto, P., Pascual, A., Gomis, C., & Barbero, J. (2014). Development and validation of a new tool for the assessment and spiritual care of

palliative care patients. *Journal of Pain and Symptom Management*, *47*(6), 1008 1018.

Bjarnason, D. (2007). Concept analysis of religiosity. *Home Health Care Management & Practice*, *19*(5), 350-355.

Bonelli, R., Dew, R. E., Koenig, H. G., Rosmarin, D. H., & Vasegh, S. (2012). Religious and spiritual factors in depression: review and integration of the research. *Depression Research and Treatment*, *2012,* 1-8.

Bonelli, R. M., & Koenig, H. G. (2013). Mental disorders, religion and spirituality 1990 to 2010: a systematic evidence-based review. *Journal of religion and health*, *52*(2), 657 673.

Brown, D. R., Carney, J. S., Parrish, M. S., & Klem, J. L. (2013). Assessing spirituality: The relationship between spirituality and mental health. *Journal of Spirituality in Mental Health*, *15*(2), 107-122.

Büssing, A. (2017). Measures of Spirituality/Religiosity—Description of Concepts and Validation of Instruments. *Religions, 8*(11), 1-2.

Chan, A. W., & Siu, A. F. (2016). Application of the Spiritual Intelligence Self-Report Inventory (SISRI-24) Among Hong Kong University Students. *International Journal of Transpersonal Studies*, *35*(1), 3.

Chang, E. C., Jilani, Z., Yu, T., Fowler, E. E., Lin, J., Webb, J. R., & Hirsch, J. K. (2015). Fundamental dimensions of personality underlying spirituality: Further evidence for the construct validity of the RiTE measure of spirituality. *Personality and Individual Differences*, *75*, 175-178.

Curlin, F. A., Lawrence, R. E., Odell, S., Chin, M. H., Lantos, J. D., Koenig, H. G., & Meador, K. G. (2007). Religion, spirituality, and medicine: psychiatrists' and other physicians' differing observations, interpretations, and clinical approaches. *American Journal of Psychiatry*, *164*(12), 1825-1831.

Davis, L. Z., Cuneo, M., Thaker, P. H., Goodheart, M. J., Bender, D., & Lutgendorf, S. (2017). Changes in spiritual well-being and psychological outcomes in ovarian cancer survivors. *Psycho-Oncology*, *1*, 1-7.

Davison, S. N., & Jhangri, G. S. (2013). The relationship between spirituality, psychosocial adjustment to illness, and health-related quality of life in patients with advanced chronic kidney disease. *Journal of Pain and Symptom Management*, *45*(2), 170-178.

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.

Eggleston, J. J. (2015). *Posttraumatic growth in people living with HIV/AIDS: Psychological, spiritual and physical health-related outcomes* (Doctoral dissertation). Fordham University, New York, USA.

Felker, S. E. (2011). *Protective factors against alcohol abuse in college students: Spirituality, wisdom, and self-transcendence* (Doctoral dissertation). Colorado State University, Colorado, USA.

Frost, M. H., Novotny, P. J., Johnson, M. E., Clark, M. M., Sloan, J. A., & Yang, P. (2013). Spiritual well-being in lung cancer survivors. *Supportive Care in Cancer*, *21*(7), 1939-1946.

Galanter, M., Dermatis, H., Bunt, G., Williams, C., Trujillo, M., & Steinke, P. (2007). Assessment of spirituality and its relevance to addiction treatment. *Journal of Substance Abuse Treatment*, *33*(3), 257-264.

Gibbel, M. R. (2010). *Evaluating a spiritually integrated intervention for depressed college students* (Doctoral dissertation). Bowling Green State University, Ohio, USA.

Glas, G. (2011). Religious and spiritual issues in anxiety and adjustment disorders. In J. R. Peteet, F. G. Lu, & W. E. Narrow (Eds.), *Religious and spiritual issues in psychiatric diagnosis: A research agenda for DSM-V* (pp. 79-95). Washington, D.C.: American Psychiatric Association.

Gonzalez, P., Castañeda, S. F., Dale, J., Medeiros, E. A., Buelna, C., Nuñez, A., Espinoza, R. & Talavera, G. A. (2014). Spiritual well-being and depressive symptoms among cancer survivors. *Supportive Care in Cancer*, *22*(9), 2393-2400.

González-Celis, A. L., & Gómez-Benito, J. (2013). Spirituality and quality of life and its effect on depression in older adults in Mexico. *Psychology*, *4*(03), 178.

Greenfield, B. L., Hallgren, K. A., Venner, K. L., Hagler, K. J., Simmons, J. D., Sheche, J. N., Homer, E., & Lupee, D. (2015). Cultural adaptation, psychometric properties, and outcomes of the Native American Spirituality Scale. *Psychological Services*, *12*(2), 123.

Grieves, V. (2009). *Aboriginal spirituality: Aboriginal philosophy, the basis of Aboriginal social and emotional wellbeing*. Casuarina, NT: Cooperative Research Centre for Aboriginal Health.

Hage, S. M. (2006). A closer look at the role of spirituality in psychology training programs. *Professional Psychology: Research and Practice*, *37*(3), 303.

Hammer, J. H., Cragun, R. T., & Hwang, K. (2013). Measuring spiritual fitness: Atheist military personnel, veterans, and civilians. *Military Psychology*, *25*(5), 438-451.

Hardiman, P., & Simmonds, J. G. (2013). Spiritual well-being, burnout and trauma in counsellors and psychotherapists. *Mental Health, Religion & Culture*, *16*(10), 1044 1055.

Harwood, M., Weatherall, M., Talemaitoga, A., Alan Barber, P., Gommans, J., Taylor, W., McPherson, K., & McNaughton, H. (2012). An assessment of the Hua Oranga outcome instrument and comparison to other outcome measures in an intervention study with Maori and Pacific people following stroke. *The New Zealand Medical Journal, 125*(1364), 1-11.

Hathaway, W. L., Scott, S. Y., & Garver, S. A. (2004). Assessing religious/spiritual functioning: A neglected domain in clinical practice? *Professional Psychology: Research and Practice*, *35*(1), 97.

Haugan, G., Rannestad, T., Hammervold, R., Garåsen, H., & Espnes, G. A. (2014). The relationships between self-transcendence and spiritual well-being in cognitively intact nursing home patients. *International journal of older people nursing*, *9*(1), 65-78.

Hirsch, J. K., Webb, J. R., & Kaslow, N. J. (2014). Daily hassles and suicide ideation in African-American female suicide attempters: moderating effect of spiritual well being. *Mental Health, Religion & Culture*, *17*(5), 529-541.

Holt-Lunstad, J., Steffen, P. R., Sandberg, J., & Jensen, B. (2011). Understanding the connection between spiritual well-being and physical health: An examination of ambulatory blood pressure, inflammation, blood lipids and fasting glucose. *Journal of Behavioral Medicine*, *34*(6), 477-488.

Holzer, K. (2011). *Spiritual well-being and anxiety: The relationship and underlying constructs* (Doctoral dissertation). Adler School of Professional Psychology, Toronto, Vancouver, Canada.

Hwang, B., Moser, D. K., & Dracup, K. (2014). Knowledge is insufficient for self-care among heart failure patients with psychological distress. *Health Psychology*, *33*(7), 588-596.

Joanna Briggs Institute (JBI). (2015). *The Joanna Briggs Institute Reviewers' Manual 2015: Methodology for JBI Scoping Reviews.* Adelaide, SA: The Joanna Briggs Institute.

Jim, H. S., Pustejovsky, J. E., Park, C. L., Danhauer, S. C., Sherman, A. C., Fitchett, G., Merluzzi, T.V., Munoz, A.R., Login George, M., Snyder, M.A., & Salsman, J. M. (2015). Religion, spirituality, and physical health in cancer patients: A meta-analysis. *Cancer*, *121*(21), 3760-3768.

Johnson, A. V. (2011). *An investigation of spiritual mediators of quality of life and mood among cancer survivors participating in psycho-spiritual integrative therapy* (Doctoral dissertation). Institute of Transpersonal Psychology, California, USA.

Johnson, K. S., Tulsky, J. A., Hays, J. C., Arnold, R. M., Olsen, M. K., Lindquist, J. H., & Steinhauser, K. E. (2011). Which domains of spirituality are associated with anxiety and depression in patients with advanced illness? *Journal of General Internal Medicine*, *26*(7), 751-758.

Kandasamy, A., Chaturvedi, S. K., & Desai, G. (2011). Spirituality, distress, depression, anxiety, and quality of life in patients with advanced cancer. *Indian journal of cancer*, *48*(1), 55.

Kapuscinski, A. N., & Masters, K. S. (2010). The current status of measures of spirituality: A critical review of scale development. *Psychology of Religion and Spirituality*, *2*(4), 191.

Kelly, J. (2010). *Cancer patients' experiences: Exploring the biopsycosocial-spiritual model* (Doctoral dissertation). Purdue University, Indiana, USA.

Kim, N. Y., Huh, H. J., & Chae, J. H. (2015). Effects of religiosity and spirituality on the treatment response in patients with depressive disorders. *Comprehensive Psychiatry*, *60*, 26-34.

Kim, Y., Carver, C. S., Spillers, R. L., Crammer, C., & Zhou, E. S. (2011). Individual and dyadic relations between spiritual well-being and quality of life among cancer survivors and their spousal caregivers. *Psycho-Oncology*, *20*(7), 762-770.

Kimura, T., Sakuma, T., Isaka, H., Uchida, S., & Yamaoka, K. (2016). Depressive symptoms and spiritual wellbeing in Japanese university students. *International Journal of Culture and Mental Health*, *9*(1), 14-30.

Koenig, H. G. (2008). Concerns about measuring "spirituality" in research. *The Journal of Nervous and Mental Disease*, *196*(5), 349-355.

Koenig, H. G. (2012). Religion, spirituality, and health: the research and clinical implications. *ISRN Psychiatry*, *2012*, 1 – 33.

Koenig, H. G. (2015). Religion, spirituality, and health: a review and update. *Advances in Mind-Body Medicine*, *29*(3), 19-26.

Koessel, K. C. (2011). *The relationship between spirituality and personality* (doctoral thesis). Western Michigan University, Michigan, USA.

Kulis, S., Hodge, D. R., Ayers, S. L., Brown, E. F., & Marsiglia, F. F. (2012). Spirituality and religion: Intertwined protective factors for substance use among urban American Indian youth. *The American Journal of Drug and Alcohol Abuse*, *38*(5), 444-449.

Li, C. C., Rew, L., & Hwang, S. L. (2012). The relationship between spiritual well-being and psychosocial adjustment in Taiwanese patients with colorectal cancer and a colostomy. *Journal of Wound Ostomy & Continence Nursing*, *39*(2), 161-169.

Lee, E. (2012). *Relationships among depressive symptoms, spiritual well-being, and quality of life in primary liver cancer patients in Korea*. (Doctoral dissertation.) Case Western Reserve University, Ohio, USA.

Leeson, L. A., Nelson, A. M., Rathouz, P. J., Juckett, M. B., Coe, C. L., Caes, E. W., & Costanzo, E. S. (2015). Spirituality and the recovery of quality of life following hematopoietic stem cell transplantation. *Health Psychology*, *34*(9), 920.

Lepherd, L. (2015). Spirituality: everyone has it, but what is it? *International journal of nursing practice*, *21*(5), 566-574.

Lewis, S., Salins, N., Rao, M. R., & Kadam, A. (2014). Spiritual well-being and its influence on fatigue in patients undergoing active cancer directed treatment: A correlational study. *Journal of cancer research and therapeutics*, *10*(3), 676.

Li, C. C., Rew, L., & Hwang, S. L. (2012). The relationship between spiritual well-being and psychosocial adjustment in Taiwanese patients with colorectal cancer and a colostomy. *Journal of Wound Ostomy & Continence Nursing*, *39*(2), 161-169.

Lucchetti, G., & Lucchetti, A. L. G. (2014). Spirituality, religion, and health: Over the last 15 years of field research (1999–2013). *The International Journal of Psychiatry in Medicine*, *48*(3), 199-215.

Lucchetti, G., Lucchetti, A. L. G., de Bernardin Gonçalves, J. P., & Vallada, H. P. (2015). Validation of the Portuguese Version of the Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being Scale (FACIT-Sp 12) Among Brazilian Psychiatric Inpatients. *Journal of Religion and Health*, *54*(1), 112-121.

McCaffrey, T. (2014). *Spirituality and remission of major depression* (Doctoral dissertation). Adler School of Professional Psychology, Vancouver, British Colombia, Canada.

McClure, P. K. (2017). Something besides monotheism: Sociotheological boundary work among the spiritual, but not religious. *Poetics*, *62*, 53-65.

Martinez, B. B., & Custodio, R. P. (2014). Relationship between mental health and spiritual wellbeing among hemodialysis patients: a correlation study. *Sao Paulo Medical Journal*, *132*(1), 23-27.

Mawani, A. N. (2010). *Reducing chronic pain using mindfulness meditation: An exploration of the role of spirituality* (doctoral dissertation). University of Manitoba, Winnipeg, Canada.

Mendez, D. M., & MacDonald, D. A. (2012). Spirituality and the MMPI-2 Restructured Clinical Scales. *International Journal of Transpersonal Studies*, *31*, 1-10.

Migdal, L., & MacDonald, D. A. (2013). Clarifying the relation between spirituality and well-being. *The Journal of nervous and mental disease*, *201*(4), 274-280.

Mihaljević, S., Aukst-Margetić, B., Vuksan-Ćusa, B., Karničnik, S., & Jakovljević, M. (2015). Spirituality and its relationship with personality in depressed people: Preliminary findings. *Journal of Religion and Health*, *54*(6), 2099-2110.

Mihaljevic, S., Aukst-Margetic, B., Karnicnik, S., Vuksan-Cusa, B., & Milosevic, M. (2016). Do spirituality and religiousness differ with regard to personality and recovery from depression? A follow-up study. *Comprehensive psychiatry*, *70*, 17-24.

Mills, P. J., Redwine, L., Wilson, K., Pung, M. A., Chinh, K., Greenberg, B. H., Lund, O., Maissel, A., Raisinghani, A., Wood, A., & Chopra, D. (2015). The role of gratitude in spiritual well-being in asymptomatic heart failure patients. *Spirituality in Clinical Practice*, *2*(1), 5.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Prisma Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS medicine*, *6*(7), 264-269.

Mollica, M. A., Underwood, W., Homish, G. G., Homish, D. L., & Orom, H. (2016). Spirituality is associated with less treatment regret in men with localized prostate cancer. *Psycho‐Oncology*, *1*, 1-7.

Moreira-Almeida, A., Koenig, H. G., & Lucchetti, G. (2014). Clinical implications of spirituality to mental health: review of evidence and practical guidelines. *Revista Brasileira de Psiquiatria*, *36*(2), 176-182.

Monod, S., Brennan, M., Rochat, E., Martin, E., Rochat, S., & Büla, C. J. (2011). Instruments measuring spirituality in clinical research: A systematic review. *Journal of General Internal Medicine*, *26*(11), 1345 – 1357.

Nsamenang, S. A., Hirsch, J. K., Topciu, R., Goodman, A. D., & Duberstein, P. R. (2016). The interrelations between spiritual well-being, pain interference and depressive symptoms in patients with multiple sclerosis. *Journal of Behavioral Medicine*, *39*(2), 355-363.

O'connell, K. A., & Skevington, S. M. (2010). Spiritual, religious, and personal beliefs are important and distinctive to assessing quality of life in health: A comparison of theoretical models. *British Journal of Health Psychology*, *15*(4), 729-748.

Ong, T. M. (2010). *Anxiety, depression, and spiritual well-being in older adults* (Doctoral dissertation). Northern Arizona University, Arizona, USA.

Pargament, K. I., Mahoney, A., Exline, J. J., Jones, J. W., & Shafranske, E. P. (2013). *Envisioning an integrative paradigm for the psychology of religion and spirituality*. Washington, D.C.: American Psychological Association.

Park, C. L., Edmondson, D., Hale-Smith, A., & Blank, T. O. (2009). Religiousness/spirituality and health behaviors in younger adult cancer survivors: Does faith promote a healthier lifestyle? *Journal of Behavioral Medicine*, *32*(6), 582 591.

Peters, M. D., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., & Soares, C. B. (2015). Guidance for conducting systematic scoping reviews. *International Journal of Evidence-Based Healthcare*, *13*(3), 141-146.

Piacentine, L. B. (2013). Spirituality, religiosity, depression, anxiety, and drug-use consequences during methadone maintenance therapy. *Western Journal of Nursing Research*, *35*(6), 795-814.

Post, B. C., & Wade, N. G. (2009). Religion and spirituality in psychotherapy: a practice-friendly review of research. *Journal of clinical psychology*, *65*(2), 131-146.

Purdie, N., Dudgeon, P. & Walker, R. (Eds). (2010). *Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice*. Canberra: Commonwealth of Australia.

Salmoirago-Blotcher, E., Crawford, S., Tran, C., Goldberg, R., Rosenthal, L., & Ockene, I. (2012). Spiritual well-being may buffer psychological distress in patients with implantable cardioverter defibrillators. *Journal of Evidence-Based Complementary & Alternative Medicine*, *17*(3), 148-154.

Salsman, J. M., Yost, K. J., West, D. W., & Cella, D. (2011). Spiritual well-being and health related quality of life in colorectal cancer: a multi-site examination of the role of personal meaning. *Supportive Care in Cancer*, *19*(6), 757-764.

Sansone, R. A., Kelley, A. R., & Forbis, J. S. (2012). Religion/spirituality status and borderline personality symptomatology among outpatients in an internal medicine clinic. *International Journal of Psychiatry in Clinical Practice*, *16*(1), 48-52.

Sansone, R. A., Kelley, A. R., & Forbis, J. S. (2013). Abuse in childhood and religious/spiritual status in adulthood among internal medicine outpatients. *Journal of Religion and Health*, *52*(4), 1085-1092.

Sessanna, L., Finnell, D. S., Underhill, M., Chang, Y. P., & Peng, H. L. (2011). Measures assessing spirituality as more than religiosity: A methodological review of nursingand health-related literature. *Journal of Advanced Nursing*, *67*(8), 1677-1694.

Siddall, P. J., McIndoe, L., Austin, P., & Wrigley, P. J. (2017). The impact of pain on spiritual well-being in people with a spinal cord injury. *Spinal Cord*, *55*(1), 105-111.

Song, J. M., Min, J. A., Huh, H. J., & Chae, J. H. (2016). Types of childhood trauma and spirituality in adult patients with depressive disorders. *Comprehensive Psychiatry*, *69*, 11-19.

Tse, S., Lloyd, C., Petchkovsky, L., & Manaia, W. (2005). Exploration of Australian and New Zealand Indigenous people's spirituality and mental health. *Australian Occupational Therapy Journal*, *52*(3), 181-187.

Underwood, L. 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. *Annals of Behavioral Medicine*, *24*(1), 22 33.

Unterrainer, H. F., Schoeggl, H., Fink, A., Neuper, C., & Kapfhammer, H. P. (2012). Soul darkness? Dimensions of religious/spiritual well-being among mood-disordered inpatients compared to healthy controls. *Psychopathology*, *45*(5), 310-316.

Velasco-Gonzalez, L., & Rioux, L. (2014). The spiritual well-being of elderly people: A study of a French sample. *Journal of Religion and Health*, *53*(4), 1123-1137.

Wachelder, E. M., Moulaert, V. R. M. P., van Heugten, C., Gorgels, T., Wade, D. T., & Verbunt, J. A. (2016). Dealing with a life changing event: The influence of spirituality and coping style on quality of life after survival of a cardiac arrest or myocardial infarction. *Resuscitation*, *109*, 81-86.

Washburn, C. R. (2011). *Resiliency and Spirituality in Cancer Patients* (Doctoral dissertation). Alliant International University, California School of Professional Psychology, California, USA.

Weathers, E., McCarthy, G., & Coffey, A. (2016). Concept analysis of spirituality: An evolutionary approach. *Nursing Forum*, *51*(2), 79-96.

WHOQOL-SRPB Group. (2006) A cross-cultural study of Spirituality, Religion, and Personal Beliefs as components of quality of life. *Social Science and Medicine*, *62*, 1486-1497.

Whitford, H. S., & Olver, I. N. (2012). The multidimensionality of spiritual wellbeing: peace, meaning, and faith and their association with quality of life and coping in oncology. *Psycho-Oncology*, *21*(6), 602-610.

Xue, S., Arya, S., Embuldeniya, A., Narammalage, H., da Silva, T., Williams, S., & Ravindran, A. (2016). Perceived functional impairment and spirituality/religiosity as predictors of depression in a Sri Lankan spinal cord injury patient population. *Spinal Cord*, *54*(12), 1158-1163.

Zubrick, S.R., Dudgeon, P., Gee, G. Glaskin, B., Kelly, K., Paradies, Y., Scrine, C., & Walker, R. (2010). Social determinants of Aboriginal and Torres Strait Islander social and emotional wellbeing. In Purdie, N., Dudgeon, P. & Walker, R. (Eds), *Working together: Aboriginal and Torres Strait Islander mental health and wellbeing principles and practice*. Canberra: Commonwealth of Australia.

Appendix A

Author Guidelines for *Health Psychology* Journal

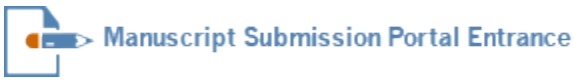
Prior to submission, please carefully read and follow the submission guidelines detailed below. Manuscripts that do not conform to the submission guidelines may be returned without review.

Submission

The main emphasis of *Health Psychology*® is on original research in health psychology. Systematic reviews (including meta-analyses) and narrative reviews are also considered for publication. Editorials, commentaries, scientific statements, and tutorials are by invitation only. Submissions are welcomed from authors in psychology and other health-related disciplines.

Submit manuscripts electronically (.rtf, PDF, or .doc) to

Kenneth E. Freedland, PhD, Editor-in-Chief
Professor of Psychiatry and Psychology
Washington University School of Medicine
St. Louis, Missouri, USA
Email



Keep a copy of the manuscript to guard against loss. Do not submit manuscripts via mail or email.

In recognition of the reality that institutional spam filters may capture files from the APA and the Journals Back Office, please take the following steps to facilitate communication with our editorial office:

- Provide an alternative email address which we can use to contact you in the event of technical difficulties with email communication using your primary address;
- Add "apa.org" to your list of "safe" addresses and consider asking your IT administrators to add it to their "white list;" and
- Contact Lindsay MacMurray if you do not receive confirmation of your submission within three business days or an editorial decision letter within three months.

General correspondence may be directed to the Editor's Office.

Information About Submissions

The page limit for research manuscripts, reviews, and meta-analyses is 30 pages. The page limit is inclusive of **all** parts of the manuscript, including the cover page, abstract, text, references, tables and figures.

Authors may request consideration of longer papers, in advance of submission, when there is clear justification for additional length (e.g., the paper reports on two or more studies or has

an unusual or complex methodology). If possible, excess material should be placed in an online supplement rather than in the manuscript.

Brief reports are acceptable for innovative work that may be premature for publication as a full research report because of small sample size, novel methodologies, etc. Brief reports should be designated as such and should not exceed a total of 12 pages, inclusive of **all**parts of the manuscript, including the cover page, abstract, text, references, tables and figures.

All manuscripts should be double-spaced, with margins of at least 1 inch on all sides and a standard font (e.g., Times New Roman) of 12 points.

On the submission portal you will be asked to provide contact information for three individuals who are qualified to serve as unbiased reviewers for your paper. These people must have published peer reviewed work in a relevant field. They must be without any real or perceived conflict of interest with you and your co-authors. They cannot be at the same institution as any author, cannot be a co-author on any recent publications, and must not be a former or current trainee, advisor or mentor, etc.

Submissions that exceed the page limits will be returned to the author for shortening prior to the initiation of peer review.

Submission Letter

The cover letter should indicate that the authors have read and followed the *Health Psychology* Instructions for Authors. It should also include a statement indicating that the paper has been seen and approved by all authors. The cover letter should describe how the paper advances research in health psychology, referring to the journal mission to assure that the submission fits with the scope of papers published in *Health Psychology*.

The full mailing address, telephone, fax, and email address for the corresponding author should be included in the cover letter and title page, along with the names and affiliations of all co-authors.

The cover letter must confirm that the manuscript has not been published, is not currently submitted elsewhere, and that it does not contain data that is currently submitted or published elsewhere.

When a manuscript contains data that is part of a larger study, authors should describe the larger study and provide references for other study papers. Authors must be prepared to provide copies of related manuscripts when requested as part of the editorial review process. Authors should clarify the relationship between their paper, including detailed specification of the overlap in participants, measures, and analysis, and others from the study. The value-added scientific contribution of their study must be clearly stated in the cover letter.

Authors of brief reports should indicate in the cover letter that the full report is not under consideration for publication elsewhere and similarly address potential overlap with other papers.

Manuscripts

The manuscript title should be accurate, fully explanatory, and no longer than 12 words. The title should reflect the content and population studied, and it should not be in the form of an

assertion or conclusion. If the paper reports a randomized clinical trial, this should be indicated in the title. The title of brief reports should start with the words "Brief Report". The title page should include the names of all authors and their affiliations at the time the research was done.

All research manuscripts must include a structured abstract containing a maximum of 250 words with the following sections:

- Objective (brief statement of the purpose of the study);
- Methods (summary of the participants, design, measures, procedure);
- Results (primary findings); and
- Conclusions (specific statement of the implications of the data).

Papers such as invited commentaries, for which a structured abstract would be inappropriate, should include an unstructured abstract containing a maximum of 250 words.

Please supply up to five keywords or brief phrases after the abstract. We recommend that you choose medical subject headings (MeSH) and/or psychological index terms for your keywords. The National Library of Medicine offers a free, searchable MeSH database for PubMed

. Also, APA publishes the *Thesaurus of Psychological Index Terms* for our family of databases.

The Introduction should not exceed 3–4 pages in length. The paper should be referenced appropriately but excessive citations should be avoided.

All research involving human participants must describe oversight of the research process by the relevant Institutional Review Boards, along with the name(s) of the approving institution(s), or an explanation of why no approval was needed. Consent and assent procedures should be described briefly in the Methods section.

All statistical tests should include an effect size with confidence intervals whenever possible.

First person language ("I", "we") should be avoided. Terminology should be sensitive to the individual who has a disease or disability. The journal endorses the concept of "people first, not their disability." Terminology should reflect the "person with a disability" (e.g., children with diabetes, persons with HIV infection, families of people with cancer) rather than the condition as an adjective (e.g., diabetic children, HIV patients, cancer families). Nonsexist language should be used.

It is important to highlight the significance and novel contribution of original work. Replications and extensions of previous studies are welcome, but the rationale and discussion should give due weight to the main purpose of the study (i.e., to confirm, disconfirm, or extend previous research), and it should not give excessive weight to minor innovations or superficially novel features.

Health Psychology publishes a variety of types of papers and work across the entire spectrum of translational research. The translational implications of the research should be discussed but not overstated. Programmatic research is especially welcome. If the study is integral to an

ongoing, well-focused program of research, the study's relationship to previous and planned work in the research program should be described.

Qualitative Research

Research papers that utilize qualitative methods should follow the general instructions to authors for style and format. We ask that authors of qualitative papers review the additional guidance below to assure that papers meet the following criteria utilized by *Health Psychology*.

The introduction should make a compelling case for the significance of the study and clearly identify whether it is a stand-alone study or if it fits into a larger research project. For example, qualitative manuscripts may inform the development of a survey, use small-incident samples, or establish feasibility. The specific qualitative paradigm should be specified (e.g., grounded theory, qualitative descriptive approach, interpretive phenomenology) with a rationale as to why it was selected to address the research question.

At the same time, authors are encouraged to avoid methodological tutorials and cite appropriate references for the methodology. Describe your sampling frame clearly and how the sample was selected, justifying the type and size of your sample using appropriate language for qualitative studies.

While many qualitative studies may not use a conceptual model, if you have done so, explain how the model may have shaped the design, data collection, analysis and interpretation. Explain carefully how you insured rigor in your study e.g., data analysis protocols (including how coders were trained), audit procedures, and demonstration of data saturation. Describe the data analysis and how it relates to your overall approach or paradigm. Present rich and compelling results with data that have been analyzed and interpreted appropriately for your method (e.g., discourse analytic results would be presented differently than those of a grounded theory).

The paper should convey how this research fills an important gap in the science and promises to change the way we approach future studies.

Scale Development

Empirical papers reporting the development of new instruments related to health psychology should follow the general guidelines for style and format of this journal. Authors should make a convincing case for the need and rationale for the new instrument, particularly with respect to new and innovative constructs. Included in this rationale should be the theoretical foundation on which their new instrument rests along with presentation of other, related scales currently in use. The instrument should be evaluated in the population(s) for which it is intended. If it is intended for use across a variety of populations and/or settings, evidence of its generalizability should be provided. Studies of instruments that are of limited clinical or research utility may be better suited for subspecialty journals.

Health Psychology will also consider studies of existing instruments that were developed in one population but that are now being validated and applied, with or without modification, in a different population that fits within the journal's scope. For example, a measure that was originally developed for otherwise medically well psychiatric patients may be evaluated in patients with cancer or heart disease, if there is a cogent rationale for this work. The journal

welcomes relevant health-related applications and evaluations of measures produced by major initiatives of the National Institutes of Health, such as PROMIS, NeuroQoL, ASCQ-ME, and the NIH Toolbox. Authors should clearly articulate the specifics of the study design and of the analytical techniques used. There should be strong consistency among the purpose statements, methods, and the manner in which findings are presented.

Some studies incorporate mixed-methods designs. The specifics of these designs should be presented in sufficient but not excessive detail. Attention should be given to the nature of the items, the basis for their creation, and the rationale for the response options.

The underlying theoretical structure of the approach should be evident, for example, whether one is premising a study on classical or modern theory (IRT, Rasch) techniques. The characteristics of the research will be in part dictated by the nature of the scale. For instance, large, nationally-normed tests may have a much different make-up than that of small, more narrowly-defined measures. Research involving both types of instruments will be considered.

Finally, all instrument development papers should convey how the literature base will be strengthened with the addition of the particular instrument along with a clear and convincing case for the clinical relevance of the information that it provides.

Letters to the Editor

Health Psychology will, at the discretion of the Editor-in-Chief, publish Letters to the Editor on the journal website. However, eligible authors are urged to consider posting a reader comment in PubMed Commons instead of, or in addition to, submitting a Letter to the Editor. Further information about PubMed Commons is available at www.ncbi.nlm.nih.gov/pubmedcommons.

Letters should be prepared in direct response to articles published in the journal, should include a reference to the published paper, and should be sent to the Editorial Manuscript Coordinator, Lindsay MacMurray within 60 days of the date when the relevant article is published in hard copy.

The text of the letter, excluding the title, references and author(s) name, title, affiliation and email, may not exceed 400 words. There should be no more than five references.

In a separate cover letter, the author should indicate that the submission is a Letter to the Editor for consideration of posting on the *Health Psychology* website and provide the full citation of the original article to which the letter refers. The cover letter should also indicate if the letter writer(s) have any conflicts of interest related to the article or correspondence.

Letters will not be a forum for ongoing dialogue.

Review Policy

Health Psychology has revised its peer review policies and now provides single-blinded rather than double-blinded reviews. In other words, the reviewers are anonymous but the authors are not. The title page of all submitted manuscripts should include the names of all authors and their affiliations at the time the research was done. Identifying information should **not** be masked on the title page or anywhere else in the manuscript.

Clinical Trials

Overview

In line with current publication standards, *Health Psychology* has implemented several requirements for randomized controlled trial (RCT) reports. These include 1) trial registration, 2) protocol submission, and 3) adherence to reporting guidelines.

Trial Registration

Health Psychology will publish reports of RCTs only if they have been duly registered at ClinicalTrials.gov or at another recognized, publicly accessible registry. A complete list of acceptable trial registries can be found via the WHO International Clinical Trials Registry Platform.

If recruitment commences on or after January 1, 2018, the trial must be registered prospectively (i.e., before recruitment begins). If recruitment commenced before January 1, 2018, the trial must be registered prior to submission of the manuscript, even if the registration is retrospective (i.e., filed after recruitment began). Trial registrations must include all elements of each primary and secondary outcome, including the times at which each outcome will be measured and analyzed. The name of the trial registry and the registration number should be listed below the abstract. All differences between (a) the reported methods and outcomes and (b) the registered methods and outcomes must be described and explained in the manuscript.

Protocol Submission

The complete trial protocol, including the entire a priori statistical analysis plan, should be readily available to readers of manuscripts reporting the results of clinical trials, both for primary outcome papers as well as for ones limited to secondary, exploratory, or *post hoc*outcome analyses. Few reports include the complete RCT protocol in the Methods section. We therefore advise authors to upload the complete protocol with their manuscript, along with a Standard Protocol Items: Recommendations for Intervention Trials (SPIRIT) checklist.

Both published and unpublished protocols are acceptable. Published protocols should be cited in the submitted manuscript. Previously unpublished protocols will be published as an online-only supplement if the trial report manuscript is accepted.

Adherence to Reporting Guidelines

All RCT reports must be accompanied by a completed CONSORT checklist. CONSORT extension checklists should be used when appropriate. The manuscript itself should include a CONSORT flow diagram. The CONSORT guidelines, checklists, and flow diagram templates are available at The EQUATOR Network.

Reporting Guidelines for Other Types of Studies

Reporting guidelines have been developed for many other types of studies besides clinical trials. For example, there are guidelines for reporting observational studies, meta-analyses, diagnostic and prognostic studies, and qualitative research. If a reporting guideline exists for the type of study that is being submitted to *Health Psychology*, the report must be accompanied by the associated checklist. If there is an associated flow diagram, it must be

included as a figure in the manuscript. Reporting guidelines, checklists, and flow diagrams for many different types of studies are available at www.equator-network.org.

Manuscript Preparation

Prepare manuscripts according to the *Publication Manual of the American Psychological Association* (6th edition)

. Double-space all copy. Other formatting instructions, as well as instructions on preparing tables, figures, references, metrics, and abstracts, appear in the *Manual*. Additional guidance on APA Style is available on the APA Style website.

Review APA's Checklist for Manuscript Submission before submitting your article.

Manuscripts may be copyedited for bias-free language (see Chapter 3 of the *Publication Manual*).

Below are additional instructions regarding the preparation of display equations, computer code, and tables.

Display Equations

We strongly encourage you to use MathType (third-party software) or Equation Editor 3.0 (built into pre-2007 versions of Word) to construct your equations, rather than the equation support that is built into Word 2007 and Word 2010. Equations composed with the built-in Word 2007/Word 2010 equation support are converted to low-resolution graphics when they enter the production process and must be rekeyed by the typesetter, which may introduce errors.

To construct your equations with MathType or Equation Editor 3.0:

- Go to the Text section of the Insert tab and select Object.
- Select MathType or Equation Editor 3.0 in the drop-down menu.

If you have an equation that has already been produced using Microsoft Word 2007 or 2010 and you have access to the full version of MathType 6.5 or later, you can convert this equation to MathType by clicking on MathType Insert Equation. Copy the equation from Microsoft Word and paste it into the MathType box. Verify that your equation is correct, click File, and then click Update. Your equation has now been inserted into your Word file as a MathType Equation.

Use Equation Editor 3.0 or MathType only for equations or for formulas that cannot be produced as Word text using the Times or Symbol font.

Computer Code

Because altering computer code in any way (e.g., indents, line spacing, line breaks, page breaks) during the typesetting process could alter its meaning, we treat computer code differently from the rest of your article in our production process. To that end, we request separate files for computer code.

In Online Supplemental Material
We request that runnable source code be included as supplemental material to the article. For more information, visit Supplementing Your Article With Online Material.

In the Text of the Article
If you would like to include code in the text of your published manuscript, please submit a separate file with your code exactly as you want it to appear, using Courier New font with a type size of 8 points. We will make an image of each segment of code in your article that exceeds 40 characters in length. (Shorter snippets of code that appear in text will be typeset in Courier New and run in with the rest of the text.) If an appendix contains a mix of code and explanatory text, please submit a file that contains the entire appendix, with the code keyed in 8-point Courier New.

Tables

Use Word's Insert Table function when you create tables. Using spaces or tabs in your table will create problems when the table is typeset and may result in errors.

Submitting Supplemental Materials

APA can place supplemental materials online, available via the published article in the PsycARTICLES® database. Please see Supplementing Your Article With Online Material for more details.

References

List references in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References section.

Examples of basic reference formats:

- **Journal Article:**
  Hughes, G., Desantis, A., & Waszak, F. (2013). Mechanisms of intentional binding and sensory attenuation: The role of temporal prediction, temporal control, identity prediction, and motor prediction. *Psychological Bulletin, 139,* 133–151. http://dx.doi.org/10.1037/a0028566
- **Authored Book:**
  Rogers, T. T., & McClelland, J. L. (2004). *Semantic cognition: A parallel distributed processing approach.* Cambridge, MA: MIT Press.
- **Chapter in an Edited Book:**
  Gill, M. J., & Sypher, B. D. (2009). Workplace incivility and organizational trust. In P. Lutgen-Sandvik & B. D. Sypher (Eds.), *Destructive organizational communication: Processes, consequences, and constructive ways of organizing* (pp. 53–73). New York, NY: Taylor & Francis.

Figures

Graphics files are welcome if supplied as Tiff or EPS files. Multipanel figures (i.e., figures with parts labeled a, b, c, d, etc.) should be assembled into one file.

The minimum line weight for line art is 0.5 point for optimal printing.

For more information about acceptable resolutions, fonts, sizing, and other figure issues, please see the general guidelines.

When possible, please place symbol legends below the figure instead of to the side.

APA offers authors the option to publish their figures online in color without the costs associated with print publication of color figures.

The same caption will appear on both the online (color) and print (black and white) versions. To ensure that the figure can be understood in both formats, authors should add alternative wording (e.g., "the red (dark gray) bars represent") as needed.

For authors who prefer their figures to be published in color both in print and online, original color figures can be printed in color at the editor's and publisher's discretion provided the author agrees to pay:

- $900 for one figure
- An additional $600 for the second figure
- An additional $450 for each subsequent figure

Permissions

Authors of accepted papers must obtain and provide to the editor on final acceptance all necessary permissions to reproduce in print and electronic form any copyrighted work, including test materials (or portions thereof), photographs, and other graphic images (including those used as stimuli in experiments).

On advice of counsel, APA may decline to publish any image whose copyright status is unknown.

- Download Permissions Alert Form (PDF, 13KB)

Publication Policies

APA policy prohibits an author from submitting the same manuscript for concurrent consideration by two or more publications.

See also APA Journals® Internet Posting Guidelines.

APA requires authors to reveal any possible conflict of interest in the conduct and reporting of research (e.g., financial interests in a test or procedure, funding by pharmaceutical companies for drug research).

- Download Disclosure of Interests Form (PDF, 38KB)

Authors of accepted manuscripts are required to transfer the copyright to APA.

- For manuscripts **not** funded by the Wellcome Trust or the Research Councils UK Publication Rights (Copyright Transfer) Form (PDF, 83KB)
- For manuscripts funded by the Wellcome Trust or the Research Councils UK Wellcome Trust or Research Councils UK Publication Rights Form (PDF, 34KB)

Ethical Principles

It is a violation of APA Ethical Principles to publish "as original data, data that have been previously published" (Standard 8.13).

In addition, APA Ethical Principles specify that "after research results are published, psychologists do not withhold the data on which their conclusions are based from other competent professionals who seek to verify the substantive claims through reanalysis and who intend to use such data only for that purpose, provided that the confidentiality of the participants can be protected and unless legal rights concerning proprietary data preclude their release" (Standard 8.14).

APA expects authors to adhere to these standards. Specifically, APA expects authors to have their data available throughout the editorial review process and for at least 5 years after the date of publication.

Authors are required to state in writing that they have complied with APA ethical standards in the treatment of their sample, human or animal, or to describe the details of treatment.

- Download Certification of Compliance With APA Ethical Principles Form (PDF, 26KB)

The APA Ethics Office provides the full Ethical Principles of Psychologists and Code of Conduct electronically on its website in HTML, PDF, and Word format. You may also request a copy by emailing or calling the APA Ethics Office (202-336-5930). You may also read "Ethical Principles," December 1992, *American Psychologist*, Vol. 47, pp. 1597–1611.

Appendix B

Scoping review protocol

Spirituality instruments and associated health outcomes: A scoping review of spirituality tools within culturally diverse populations

Review Objectives

The purpose of this scoping review is to explore and map the literature for instruments developed to measure spirituality. The focus will be on tools developed since 2011, which do not contain items pertaining specifically to religion, at the exclusion of other types of spirituality. Health outcomes associated with spirituality will also be mapped, where reported.

The questions for the scoping review are:

1. Which tools have been developed since 2011 to measure spirituality, as distinct from religion, and what are their features?
2. What health outcomes have been associated with spirituality in these studies?
3. Which countries and cultural groups have these spirituality tools been validated in?

Background

The relationship that spirituality has to health and Quality of Life (QoL) is increasingly being acknowledged in the literature (Bredle, Salsman, Debb, Arnold & Cella, 2011; Lucchetti & Lucchetti, 2014). Quality of Life (QoL) tools have tended to measure factors relating to biological, psychological and social domains (Barcaccia, Esposito, Matarese, Bertolaso, Elvira & De Marinis, 2013), and is broadly understood to represent both objective measures and the individual's perception of life within the context of these domains (WHOQOL Group, 1995). More frequently, however, spirituality is being recognised as

contributing significantly to Qol, most evident in the inclusion of a spirituality domain in QoL tools, such as the World Health Organisation's WHO-100.

Whilst some scholars maintain that spirituality is superfluous to an understanding of health or QoL (Paley, 2008), an increase in the prevalence of spirituality tools emphasises a growing awareness of its unique utility in health and QoL when compared to that of biological, psychological and social factors (Draper, 2012). For instance, an exploratory factor analysis found spiritual QoL to contribute significantly to overall QoL in the WHOQOL-SRPB QoL tool (WHOQOL-SRPB Group, 2006), as distinct to the contributions from psychological, physical and social domains, (O'Connell & Skevington, 2010). Additionally, only two of the nine items assessing spiritual QoL had an association with psychological QoL, contrary to the opinion that spirituality is captured in the assessment of psychological constructs (Goddard, 2001).

Constructs commonly ascribed to spirituality, such as meaning, have been proposed to explain the relationship between greater spirituality and better health outcomes, for instance, in their contribution to coping (Whitford & Olver, 2012). Whilst less is known about the function of spirituality in health (Park, 2007), associations between the two have been extensively explored within chronic and terminal illness research particularly in the areas of cancer (Jim, Pustejovsky, Park, Danhauer, Sherman, Fitchett, Merluzzi, Munoz, George, Snyder & Salsman, 2015) and cardiovascular health (Koenig, 2015). A meta-analysis of 101 studies exploring the physical health and spirituality of 32000 cancer patients found better physical health (in areas such as fatigue, sleep and pain) to be related to greater religiosity or spirituality (Jim et al., 2015). Furthermore, out of 121 studies examining the relationship between religion/spirituality and mortality, almost 70% reported a positive association between spirituality and life expectancy (Koenig, 2012).

Similarly, QoL outcomes are frequently explored in the relationship between spirituality and health (Faller, Schuler, Richard, Heckl, Weis & Kuffner, 2013).

Positive relationships between psychological health and spirituality have also been observed within depression (Bonelli, Dew, Koenig, Rosmarin & Vasegh, 2012), anxiety (Brown, Carney, Parrish, Klem, 2013), addiction (Galanter, Dermatis, Bunt, Williams, Trujillo & Steinke, 2007), suicidality (Koenig, 2012) and schizophrenia (Bonelli & Koenig, 2013). However, despite a growing awareness in the literature of the associations between spirituality and mental health in particular, it is not common practice for psychologists to discuss clients' spiritual beliefs or needs (Hage, 2006; Hathaway, Scott, Garver, 2004), which is significant given the preference of clients to discuss such issues with mental health professionals over other health practitioners (Curlin, Lawrence, Odell, Chin, Lantos, Koenig & Meador, 2007; Post & Wade, 2009). The disinclination for psychologists to assess spirituality include reasons as diverse as unfamiliarity with the evidence-base surrounding spirituality and health (Moreira-Almeida et al., 2014), to personal discomfort with the topic (Crossley & Salter, 2005). Moreover, it is recognised that even within the literature, spirituality is a nebulous concept (Oakes & Raphel, 2008), likely exacerbating the perception of spirituality as being elusive (Crossley & Salter, 2005). Spirituality as a concept is both operationalised and defined in varying ways (Kapuscinski & Masters, 2010).

A source of particular confusion is that whilst spirituality has traditionally been viewed as synonymous to religion (Watson, Lucas, Hoy & Back, 2005), an increase in individuals identifying as spiritual but not religious (Hilbers, Haynes & Kivikko, 2010; Ammerman, 2013) illustrates a perceived difference between the two concepts (Kapuscinski & Masters, 2010). Additionally, both globally (Pew Research Centre, 2015) and nationally, religious affiliation is declining, as illustrated by almost a third of Australians identifying with "no religion" in the 2016 census (Australian Bureau of Statistics, 2017). The literature,

however, has been slow to reflect these trends (Koenig, 2012; Jirasek, 2015), given that a significant number of spirituality tools include items that measure specific religious practices or beliefs (de Jager Meezenbroek, Garssen, van den Berg, van Dierendonck, Visser & Schaufeli, 2012; Bonelli & Koenig, 2013) that tend to reflect Judeo-Christian values (Sessanna, Finnell, Underhill, Chang & Peng, 2011). For instance, a frequently used instrument, the Daily Spiritual Experiences Scale (DSES; REF) refers to beliefs and practices specific to Christian denominations in its measure of spirituality when probing, "During worship, or at other times when connecting with God, I feel joy which lifts me out of my daily concerns".

In an attempt to address the definitional ambiguity of spirituality, a concept analysis reviewing 47 conceptual and empirical studies concluded that the themes of connectedness (to self, others, nature or land, the world, a higher power or a supreme being), transcendence (or the ability to view life or a situation differently through transcending the self) and meaning in life adequately represent more recent definitions of spirituality within the literature. Additional themes of awe, the experience of the sacred, power, journey and purpose have been identified in the conceptualisation of spirituality (lephard; sessana). Spirituality can thus be secular or religious, and in this way is increasingly being regarded as a universal human experience (meezenbroek) and as conceptually broader than religion (Weathers, McCarthy & Coffey, 2016), which refers to an organised system of practices, beliefs and rituals (Bjarnason, 2007) that enable closer transcendence to a higher power or truth (Koenig, 2012).

Instruments such as the DSES that in actuality measure religiosity as opposed to spirituality cannot be extrapolated to individuals who identify as spiritual but not religious (Sessanna et al., 2011), as they are measuring diverse constructs. Additionally, aspects embedded in religious practice may confound its relationship to health, such as the attendance

of weekly worship (Park, Edmonson, Hale-Smith & Blank, 2009), due to the benefits to health of receiving social support (Cohen & Wills, 1985).

Measuring religiosity as opposed to spirituality also excludes cultural variation in the understanding and expression of spirituality (Büssing, 2017), as it may be interpreted or expressed diversely between populations (Pargament, Mahoney, Exline, Jones & Shafranske, 2013). For instance, many Indigenous Australian cultures understand spirituality to be integral to cultural identity, health and wellbeing (Zubrick, Dudgeon, Gee, Glaskin, Kelly, Paradies, Scrine & Walker, 2010), to acknowledge the interconnectedness of nature, humans and animals (Dudgeon & Walker, 2015), and as interacting with physical, social, cultural and environmental factors to determine overall health (Tse, Lloyd, Petchkovsky & Manaia, 2005). The recognition of diverse cultural frameworks is therefore crucial when examining health outcomes associated with spirituality, and in enabling the shift towards patient-centred healthcare (Sessanna et al., 2011). In order to provide more holistic and culturally competent health interventions, a greater understanding of the link between spirituality and health is needed. Although some culture-specific spirituality tools have been developed (Lucchetti, Lucchetti & Vallada, 2013), no studies have thus far identified the cultural groups in which spirituality tools, which do not include religiosity items, have been validated.

In consideration of the global shift from traditional religions (Pew Research Centre, 2015), the confounding aspects of religiosity to health and cultural variations in the interpretation of spirituality, spirituality instruments are increasingly being developed without specific reference to religious belief or practice (Kapuscinski & Masters, 2010). However, since a comprehensive systematic review was conducted in 2011 (Monod, Brennan, Rochat, Martin, Rochat & Büla, 2011), no consolidation of such spirituality tools has been performed. In order to identify trends, gaps and patterns to guide the future analysis and development of spirituality instruments, this scoping review follows on from Monod and colleagues' (2011)

study. This review therefore aimed to map out non-religious measurements of spirituality which report associated health outcomes, and to identify the cultural populations that these instruments have been validated in, in order to inform future analyses and health interventions in the relationship between spirituality and health.

Methods

Inclusion Criteria

Participants. This review will include studies that utilise measures of spirituality assessment in both child and adult populations and include participants from any cultural group or country, in order to gain a representative understanding of the range of ways that spirituality is conceptualised and operationalised within different populations. Furthermore, no limits on participant inclusion criteria are necessary due to previous reporting of the spirituality instruments of interest being scarce (Monod et al., 2011).

Concept. Studies that assess spirituality, through development and use of a spirituality tool, will be considered in this scoping review. In particular, studies will only be included if they measure spirituality using its contemporary definition, that being inclusive of, but not explicitly pertaining to religion (Weathers et al., 2016). In excluding items that measure religiosity, the confounding effects of religiosity in its relationship to health outcomes (Park et al., 2009) are accounted for, in addition to acknowledging that spirituality can be, and is, experienced outside the bounds of religion. Furthermore, mapping of such instruments will enable future research to understand how different cultural groups conceptualise and therefore operationalise spirituality, beyond identifying gaps in the literature regarding cultural diversity in assessment. In this way, spirituality tools that therefore operationalise spirituality as being synonymous with religion, or that contain items querying specific religious beliefs or practices will not be included.

Health outcomes will also be reported for the studies in which they are observed to relate to spirituality. Although numerous reviews have collated information regarding the relationship between spirituality and health (Koenig, 2012; Moreira-Almeida et al., 2013; Bonnelli & Koenig, 2013), spirituality has traditionally been conceptualised as analogous to religion in these studies, and the results are therefore susceptible to being confounded by variables common to religious affiliation.

Context. No limits will be placed on cultural identification or geographical location of participants in studies, given the study's aim to capture the diversity in the experience of spirituality.

Types of Studies. The types of study designs to be considered in this review will include experimental, semi-experimental, descriptive and correlational designs, utilising quantitative, qualitative or mixed-methods measures. Meta-analyses and systematic reviews will be included in as far as being alternative sources for seeking information regarding existing spirituality tools that are not identified from the database searches. Opinion papers and letters will not be included.

Studies published prior to January, 2011 will be excluded, as a previous review by Mondon and colleagues (2011) comprehensively identified spirituality tools that did not have a specific focus on religiosity up until this date. However, since this publication, the discussion surrounding spirituality as a concept distinct to religion has been amplified (McClure, 2017). Studies in languages other than English will be not be included, due to limited language proficiencies of the researcher.

Search Strategy

This review will utilise a three-step search strategy, including both published and unpublished studies in addition to reviews. The first step will involve a search of PubMed

and Psycinfo to identify relevant keywords and index terms. Following this, the text words in the title and abstract, as well as the index terms used to describe the article, will be analysed. The second search will involve the use of keywords and index terms identified from the initial search, in consultation with a research librarian. Finally, the reference lists of all studies selected for the review will be considered in order to capture additional studies that were not located previously.

Databases were chosen based on their relevance to the health literature and psychometric tools, and will include PubMed, Psychinfo and Embase. Databases used to identify unpublished studies will include Proquest Dissertations and Theses. Authors of primary studies will be contacted for further information or missing data if necessary. The full search strategy for each database will be available in Appendix B.

Study Selection. All citations identified from the initial search will be uploaded to Endnote (Thomson Reuters, Version X8), where duplicate citations will be removed. The title and abstract search will be peer-reviewed by two additional reviewers, and disagreement on inclusion criteria will be resolved through discussion with all three researchers. The full text of citations that meet title and abstract criteria will then be imported to the web-based review software, Covidence (Veritas Health Innovation), for a subsequent full text review. The articles that do not meet inclusion criteria will be excluded, and these citations in addition to the reasons for exclusion will be explored in Appendix D. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart (Moher, Liberati, Tetzlaff, Altman & Prisma Group (2009), Figure 1) will document the search results and illustrate the numbers of included and excluded studies, with further clarification within the results section of the final scoping review.

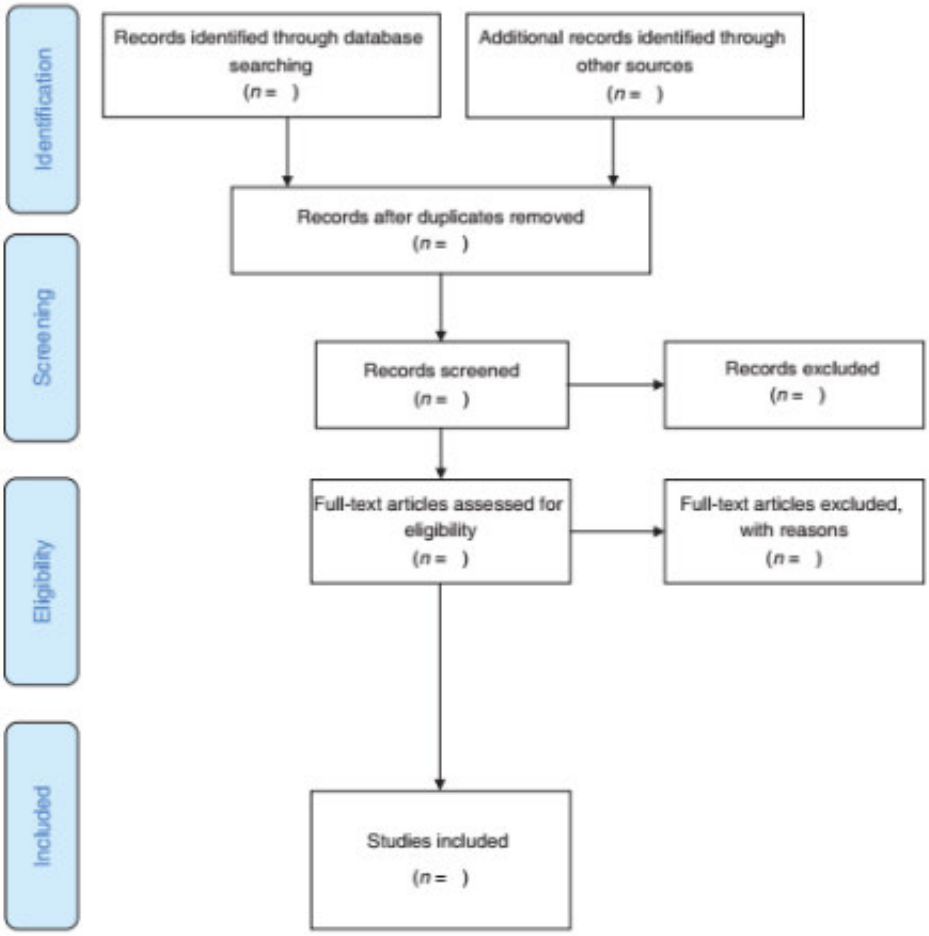


Figure B1. PRISMA flowchart for the scoping review process (Moher et al., 2009; Peters, Godfrey, Khalil, McInerney, Parker & Baldini Soares, 2015).

Data Extraction

The data will be extracted and charted according to the specific objectives of the review. Data will thus chart descriptive information, population characteristics, study design and methodology, and study outcomes pertaining to health for the spirituality instruments of the included studies. The relevant extraction fields will thus be: study identifiers (first author, year of publication), instrument name, population/cultural orientation, instrument development methodology, scale type (number of items), spirituality constructs, other populations tool validated in, disease/setting, and health outcome measures (see Table A1).

These fields may be revised during the review process in light of additional, pertinent information.

Table B1.

Proposed extraction tool for study characteristics including type of spirituality instrument used and reported health outcomes

Study identifiers (first author, year of publication)	Instrument name	Population / cultural orientation	Instrument design (development, adaption)	Scale type (*n* of items)	Spirituality constructs	Other populations tool validated in	Disease /setting	Health outcome measures

Data Presentation

A map of the extracted data will be presented in both tabular and diagrammatic formats, with an accompanying descriptive overview of the findings, in line with the review objectives. Study characteristics in addition to spirituality instrument specifics will be presented in a table similar to the one used in the extraction process. Distribution of studies by country, as a pie chart diagram, will be presented to assist in an understanding of the populations in which the instruments have been developed (Figure 2), whilst a map will be used to illustrate health outcomes reported by studies (Figure 3). Narratives will accompany all figures and tables.

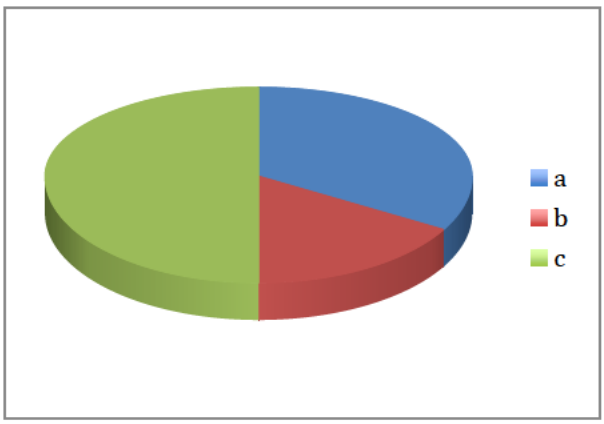


Figure B2. Distribution of spirituality instruments by country/cultural orientation

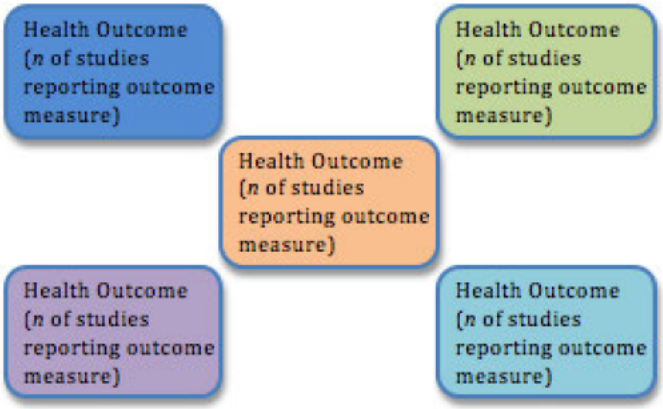


Figure B3. Map of health outcomes by number of studies (where reported)

Appendix C
Complete search strategy

Table C1

Pubmed search terms

Spirituality	Measurement	limits
"Spirituality"[mh] OR spiritual*[tiab]	"Surveys and questionnaires"[mh:noexp] OR "instrumentation"[sh] OR "patient reported outcome measures"[mh] OR "health care surveys"[mh] OR "health surveys"[mh:noexp] OR survey[tiab] OR surveys[tiab] OR measure*[tiab] OR assessment tool*[tiab] OR instrument*[tiab]	Since 2011 human english

Search results = 5066

w/human limit = 4391

w/ English limit = 4220

w/ 2011 limit = 1799

Therefore total Pubmed = 1799

Table C2

PsycInfo search terms

Spirituality	Measurement	limits
Spirituality.sh OR Spiritual*.tw	Surveys.sh OR questionnaires.sh OR measurement.sh OR survey*.tw OR questionnaire*.tw OR measurement*.tw OR general health questionnaire.sh OR measure*.tw OR assessment tool*.tw OR instrument*.tw	Since 2011 human english

Search results = 7706

w/limits = 3003

Therefore total PsycInfo = 3003

Table C3

Embase search terms

Spirituality	Measurement	limits
spirituality/de OR spiritual*:ti,ab OR "spiritual care"/exp	"surveys and questionnaires"/de OR questionnaire/de OR "health care survey"/de OR "health survey"/de OR "health care survey"/de OR questionnaire*:ti,ab OR survey*:ti,ab OR measure*:ti,ab OR "assessment tool*":ti,ab OR instrument*:ti,ab	Since 2011 English

Search results = 16232

w/limits = 7621

Therefore total embase = 7621

Appendix D
Excluded studies

Table D1
Excluded studies and reason for exclusion

Author (year)	Spirituality instrument used (adaptation notes)	Sample characteristics (*n*, setting, demographic information)	Country or cultural identification	Reason for exclusion							
				Spirituality conceptualised as religiosity	Health outcomes not reported	Religious item(s) in scale	Instructions to substitute specific religious belief/practice	Non-religious subscale scores not reported separately	Organisational context	Conference/journal abstract	Not English language
Previously validated spirituality instruments											
Abdollahi & Abu Talib (2015)	Index of Core Spiritual Experiences (ICSE)	202 children, psychiatric inpatients	Iran				X				
Adams et al. (2014)	FACIT-Sp	70 family caregivers of newly diagnosed cancer patients	USA		X						
Anand et al. (2015)	Spirituality Scale	526 university students	Birmingham, UK			X					

Anye et al. (2003)	SWBS	225 university students	USA				X		
Anyfantakis et al. (2013)	Royal Free Interview for Spiritual and Religious Beliefs (RFI-SRB) (translated into Greek)	220 adults	Greece		X				
Ashraf & Fatima (2014)	Spiritual Attitude Scale	210 university students	Pakistan		X				
Bai et al. (2015)	FACIT-Sp	52 patients newly diagnosed with advanced cancer undergoing treatment	USA					X	
Ballew et al. (2011)	Daily Spiritual Expereinces Scale (DSES)	164 adults in retirement community	USA			X			
Berg Torskenæs & Kalfoss (2013)	WHOQOL-SRPB (translated in Norwegian)	33 health professionals and patients	Norway	X					
Bennett &	DSES	278 women	Australia			X			

Shepherd (2012)										
Bergman et al. (2011)	FACIT-Sp	35 men with prostate cancer	USA	X						
Biccheri et al. (2016)	Evaluation de La Spiritualité	590 adults with fibromyalgia	France							X
Boisvert & Harrell (2012)	SWBS	603 men	Canada				X			
Bormann et al. (2011)	FACIT-Sp	66 war veterans with PTSD	USA	X						
Bovero et al. (2016)	FACIT-Sp	115 patients with terminal cancer	Italy	X						
Bratkovich (2011)	Spirituality Involvement and Beliefs Scale	131 university students	USA				X			
Bronn & McIlwan (2015)	Spiritual Emergencies Scale (SES)	212 adults	Australia		X					
Brown et al. (2012)	Assessment of Spirituality and Religious Sentiments Scale (ASPIRES)	1534 adults	USA	X						

Bulkley et al. (2013)	City of Hope Quality of Life – Ostomy (spiritual wellbeing subscale)	283 patients with colorectal cancer	USA		X					
Canada et al. (2012)	FACIT-Sp	9105 adults with cancer	USA (comparisons between White, Black and Hispanic participants)	X						
Chaiviboontham et al. (2015)	SWBS (modified for Thai population)	196 hospital inpatients	Thailand		X					
Cheadle (2016)	Community Child Health Netweork Survey (religious and spiritual background subscale)	2399 women interviewed post-partum	USA			X				
Christ-Lakin (2011)	PsychoMatrix Spiritual Inventory	115 adults	USA						X	
Comeau (2012)	SWBS	226 university students	USA					X		
Dorji et al. (2017)	Spirituality survey instrument	337 adults	Bhutan			X				

da Rocha & Fleck (2011)	WHOQOL-SRPB	241 adults	Brazil	X					
de Camargos et al. (2015)	WHOQOL-SRPB	1050 adults	Brazil	X					
Dalmida et al. (2011)	SWBS	118 African-American women with HIV/AIDS	USA	X				X	
Debnam et al. (2016)	Spirituality Measure	5217 youth	USA				X		
Deering (2012)	ASPIRES	184 adults who have experienced domestic violence	USA					X	
Delgado-Guay et al. (2011)	FACIT-Sp-Ex	100 patients with advanced cancer	USA			X			
Delgado-Guay et al. (2013)	FACIT-Sp-Ex	43 caregivers of patients with advanced cancer	USA			X			
Diaz et al. (2014)	SWBS	77 adult receiving substance abuse treatment	USA	X					

Douglas et al. (2013)	FACIT-Sp	226 patients (with cancer)-caregiver dyads	USA	X						
Edara (2016)	Spiritual Transcendence Scale (STS)	616 adults	USA						X	
Fauver (2012)	FACIT-Sp-Ex	41 adults with cancer	USA			X				
Fung et al. (2013)	Activity Questionnaire (with Spiritual Activities subdomain)	380 older adults	China (Hong Kong)				X			
Gallagher (2015)	20-item Beliefs and Values Scale	32 parents caring for children with developmental disabilities	USA							
George & Park (2017)	DSES	301 patients with heart failure and cancer	USA					X		
Givlings (2014)	The Spirituality Scale	237 women	USA						X	
Grabb & Higgins	FACIT-Sp	39 homeless youth	USA			X				

(2011)									
Hartman (2017)	Spiritual Wellbeing Questionnaire (SWBQ)	883 school students	South Africa			X		X	
Holt et al. (2012)	The Spiritual Capital Scale	803 African American adults	USA			X			
Huber (2012)	Expressions of Spirituality Inventory	209 university students	USA	X				X	
Hurlbut et al. (2011)	SWBS	90 female residents in homeless shelters	USA	X					
Ihara (2012)	FACIT-Sp	200 female adults	Japan						X
Ivtzan et al. (2013)	Spiritual Transcendence Scale	205 adults	UK					X	
Jacobs et al. (2012)	SWBS	267 Afrikaans-speakng school students	South Africa	X					
Jafari et al. (2014)	FACIT-Sp (translated into Persian)	153 patients with cancer undergoing treatment	Iran	X					

Jahani et al. (2014)	SWBS (translated into Persian)	364 patients with acute coronary syndrome	Iran		X				
Jennings (2016)	SWBS	110 human service professionals	USA					X	
Johnny (2014)	SWBS	158 Black British West Indian Americans	USA	X				X	
Jones (2011)	DSES	171 gay men	USA				X		
Khumalo et al. (2014)	SWBS	326 university students	South Africa	X					
Knapp et al. (2011)	FACIT-Sp	129 parents of children in palliative care	USA		X				
Krageloh et al. (2015)	WHOQOL-SRPB	275 medical students	New Zealand		X				
Kyle (2013)	SWBS	243 university students	USA	X					
Lago-Rizzardi et al. (2014)	Spiritual Perspective Scale	48 women with and without chronic orofacial	Brazil			X			

		pain							
Lee (2013)	SWBS	96 patients with cancer	Korea				X		
Lester (2012)	Spiritual Assessment Inventory	149 university students	USA		X				
Leurent et al. (2013)	RFI-SRB	8318 Adults	Spain, Slovenia, Estonia, the Netherlands, Portugal, Chile		X				
Lucette et al. (2014)	European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC-QLQ) (translated into French)	12 adults	France	X					
Malafaia et al. (2015)	FACIT-Sp	507 patients with coronary artery disease	Brazil					X	
Martens et al. (2014)	FACIT-Sp	114 patients with head and neck cancer	USA					X	

Meniru (2015)	The Spirituality Scale	122 Nigerian Americans	USA			X					
Michaelson et al. (2016)	Fisher's Spiritual Wellbeing Scale	11-15 year old school children	Canada, the Czech Republic, England, Israel, Poland, Scotland		X						
Mihaljevic et al. (2011)	SWBS	17 war veterans with PTSD	Croatia					X			
Miller et al. (2012)	FACIT-Sp	743 women with cancer	USA							X	
Mohebbifar et al. (2015)	EORTC-QLQ	210 patients with cancer	Iran	X							
Monroe (2012)	SWBS	105 university students	USA					X			
Munoz et al. (2015)	FACIT-Sp	8864 survivors of cancer	USA		X						
Ng (2014)	DSES	129 parents	China (Hong Kong)				X				
Ottaviani et al. (2014)	Pinto Pais-Ribeiro Spirituality Scale (PP-RSS)	127 patients of renal replacement	Brazil			X					

		unit								
Papazisis et al. (2014)	RFI-SRB	23 nursing students	Greece			X				
Peterman et al. (2014)	FACIT-Sp	2923 adults with cancer or HIV/AIDS	USA		X					
Price (2014)	Spirituality Survey Instrument	106 women	USA			X				
Randazzo (2013)	DSES	34 patients with chronic obstructive pulmonary disease	USA				X			
Randazzo et al. (2014)	FACIT-Sp	845 patients with brain tumours	USA						X	
Rosik & Soria (2012)	SWBS	131 adults	USA	X						
Rusa et al. (2014)	WHOQOL-SRPB	110 adults	Brazil		X					
Schnell (2012)	Sources of Meaning and Meaning in Life Questionnaire (SoMe) (translated into german)	135 adults	Germany			X				

Serpentini et al. (2013)	WHOQOL-SRPB	80 elderly patients	Italy					X		
Serrano et al. (2016)	FACIT-Sp (translated into Spanish)	195 patients with cancer	Spain					X		
Silva et al. (2013)	SWBS	100 nursing students	Brazil						X	
Skolarus et al. (2012)	Religiosity Scale (Strawbridge et al., 1998; using two non-religious items)	1151 patients experienced stroke	Mexico		X					
Staton-Tindall et al. (2013)	SWBS	206 African American women	USA	X						
Strada et al. (2015)	FACIT-Sp	103 patients with congestive heart failure	USA	X						
Subandi et al. (2014)	Spirituality Scale	60 survivors following a natural disaster	Indonesia				X			
Trinkaus et al. (2011)	FACIT-Sp	123 patients with advanced cancer	USA		X					
Warber et al. (2011)	Irvine's Spiritual Wellbeing Scale	41 patients with acute coronary	USA							

		syndrome								
Whitford et al. (2012)	FACIT-Sp-Ex	132 survivors of cancer	USA							X
Wiggins (2014)	SWBS	35 mother-daughter dyads	USA					X		
Wutoh et al. (2011)	DSES	33 African Americans	USA				X			
Initial development of spirituality instruments										
Astin et al. (2011)	College Students' Beliefs and Values Survey (CSBV)	14527 university students	USA	X						
Barber et al. (2012)	Service User Recovery Evaluation Scale (SeRvE)	107 mental health service users	USA	X						
Bélanger-Lévesque et al. (2016)	Spirituality Scale	200 parents recruited post-partum	Canada			X				
Burke et al. (2015)	Spirituality questions	2312 university students	USA			X				
de Jager Meezenbroek et al. (2012)	Spiritual Attitude and Involvement List (SAIL)	950 university students	The Netherlands	X						

Good et al. (2017)	Sprituality/religiosity measure	1132 university students	Canada		X
Jang (2016)	Existential Spirituality	1714 adults	USA	X	
Ludema et al. (2015)	Spirituality Questions	1013 African American women	USA		X
Miller (2011)	The African American Cultural-Spiritual Experiences Scale	32 African American adults	USA	X	
Rominger (2011)	Human Spirituality Scale	37 adults	India, USA, Australia, Canada, Mexico, Nigeria, South Africa, Ukraine	X	
Sink & Bultsma (2014)	Life Perspectives Inventory (LPI)	531 high school students	USA	X	X
Skevington et al. (2013)	WHOQOL-SRPB BREF (short form)	230 community members	UK	X	
Sterner & Cherry (2015)	Spirituality and Religious Reintegration Scale	279 active military personnel	USA		X

References

Excluded studies

Abdollahi, A., & Abu Talib, M. (2015). Spirituality Moderates Hopelessness, and Suicidal Ideation among Iranian Depressed Adolescents. *Death studies, 39*(10), 579-583.

Adams, R. N., Mosher, C. E., Cannady, R. S., Lucette, A., & Kim, Y. (2014). Caregiving experiences predict changes in spiritual well-being among family caregivers of cancer patients. *Psycho-Oncology, 23*(10), 1178-1184.

Anand, V. (2015). The relationship between spirituality, health and life satisfaction of undergraduate students in the UK: An online questionnaire study. *Journal of religion and health, 54*(1), 160-172.

Anye. (2013). The relationship between spiritual well-being and health-related quality of life in college students. *Journal of American College Health, 61*(7), 414-421.

Anyfantakis, D., Symvoulakis, E. K., Panagiotakos, D. B., Tsetis, D., Castanas, E., Shea, S., Lionis, C. (2013). Impact of religiosity/spirituality on biological and preclinical markers related to cardiovascular disease. Results from the SPILI III study. *Hormones, 12*(3), 386-396.

Ashraf, R. & Fatima, I. (2014). Role of personality and spirituality in nonviolent behavior in young adults. *Journal of Behavioural Sciences, 24*(1), 57-70.

Astin, A., & Astin, H. (2011). Assessing students' spiritual and religious qualities. *Journal of College Student Development, 52*(1), 39-61.

Bai, M., Dixon, J., Williams, A. L., Jeon, S., Lazenby, M., & McCorkle, R. (2015). Exploring the individual patterns of spiritual well-being in relation to quality of life outcomes in people newly diagnosed with advanced cancer: A cluster analysis. *Psycho-Oncology, 24*, 71-79.

Bai, M., Dixon, J., Williams, A. L., Jeon, S., Lazenby, M., & McCorkle, R. (2015). Exploring the individual patterns of spiritual well-being in relation to quality of life outcomes in people newly diagnosed with advanced cancer: A cluster analysis. *Psycho-Oncology, 24*, 71. doi: 10.1002/pon.3873

Ballew, S. H., Hannum, S. M., Gaines, J. M., Marx, K. A., & Parrish, J. M. (2012). The Role of Spiritual Experiences and Activities in the Relationship Between Chronic Illness and Psychological Well-Being. *Journal of religion and health, 51*(4), 1386-1396. doi: 10.1007/s10943-011-9498-0

Barber, J. M., Parkes, M., Parsons, H., & Cook, C. C. H. (2012). Importance of spiritual well-being in assessment of recovery: The Service-user Recovery Evaluation (SeRvE) scale. *Psychiatrist, 36*(12), 444-449. doi: 10.1192/pb.bp.111.037838

Bélanger-Lévesque, M. N., Dumas, M., Blouin, S., & Pasquier, J. C. (2016). "That was intense!" Spirituality during childbirth: A mixed-method comparative study of mothers' and fathers' experiences in a public hospital. *BMC Pregnancy and Childbirth, 16*(1). doi: 10.1186/s12884-016-1072-z

Bennett, K. S., & Shepherd, J. M. (2013). Depression in Australian women: the varied roles of spirituality and social support. *Journal of health psychology, 18*(3), 429-438. doi: 10.1177/1359105312443400

Berg Torskenaes, K., & Kalfoss, M. H. (2013). Translation and focus group testing of the WHOQOL spirituality, religiousness, and personal beliefs module in Norway. *J Holist Nurs, 31*(1), 25-34. doi: 10.1177/0898010112461976

Bergman, J., Fink, A., Kwan, L., Maliski, S., & Litwin, M. S. (2011). Spirituality and end-of-life care in disadvantaged men dying of prostate cancer. *World J Urol, 29*(1), 43-49. doi: 10.1007/s00345-010-0610-y

Biccheri, E., Roussiau, N., & Mambet-Doué, C. (2016). Fibromyalgia, Spirituality, Coping and Quality of Life. *Journal of religion and health, 55*(4), 1189-1197. doi: 10.1007/s10943-016-0216-9

Boisvert, J. A., & Harrell, W. A. (2012). Ethnicity and spirituality as risk factors for eating disorder symptomatology in men. *International Journal of Men's Health, 11*(1), 36-62. doi: 10.3149/jmh.1101.36

Bormann. (2012). Spiritual wellbeing mediates PTSD change in veterans with military-related PTSD. *International Journal of Behavioral Medicine, 19*(4), 496-502.

bovero. (2016). Spirituality, quality of life, psychological adjustment in terminal cancer patients in hospice. *European Journal of Cancer Care, 25*(6), 961-969.

Bratkovic, K. B. (2011). The relationship of attachment and spirituality with posttraumatic growth following a death loss for college students. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 71*(10-A).

bronn. (2015). Assessing spiritual crises: Peeling off another layer of a seemingly endless onion. *Journal of Humanistic Psychology, 55*(3), 346-382.

brown. (2013). Age and gender effects on the Assessment of Spirituality and Religious Sentiments (ASPIRES) scale: A cross-sectional analysis. *Psychology of Religion and Spirituality, 5*(2), 90-98.

Bulkley, J. (2013). Spiritual well-being in long-term colorectal cancer survivors with ostomies. *Psycho Oncology, 22*(11), 2513-2521.

burke. (2014). Re-examining religiosity as a protective factor: Comparing alcohol use by self-identified religious, spiritual, and secular college students. *Journal of religion and health, 53*(2), 305-316.

Canada, A. L., Fitchett, G., Murphy, P. E., Stein, K., Portier, K., Crammer, C., & Peterman, A. H. (2013). Racial/ethnic differences in spiritual well-being among cancer survivors. *J Behav Med, 36*(5), 441-453. doi: 10.1007/s10865-012-9439-8

Chaiviboontham, S., Phinitkhajorndech, N., Hanucharurnkul, S., & Noipiang, T. (2016). Psychometric properties of the Thai Spiritual Well-Being Scale. *Palliat Support Care, 14*(2), 109-117. doi: 10.1017/s1478951515000024

Cheadle. (2017). Religiousness, spirituality, and mechanisms of health effects in mothers during the first postpartum year. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 77*(10-B(E).

Christ-latkin. (2011). A correlation analysis of transformational leadership and spiritual intelligence. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 72*(2-A), 657.

Clark. (2011). The role of personality and spirituality in the relationships between daydreaming styles and meaning in life. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 72*(1-B), 525.

Comeau. (2013). Exploring the relationship between connectedness to nature, wellness, and spiritual well-being. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 74*(5-B(E).

D'orji. (2017). Quality of life among senior citizens in Bhutan: Associations with adverse life experiences, chronic diseases, spirituality, and social connectedness. *Asia Pacific Journal of Public Health, 29*(1), 35-46.

da Rocha, N. S., & da Almeida Fleck, M. P. (2011). Evaluation of quality of life and importance given to spirituality/religiousness/ personal beliefs (SRPB) in adults with and without chronic health conditions. *Revista de Psiquiatria Clinica, 38*(1), 20-23.

Dalmida. (2011). Spiritual well-being and health-related quality of life among African-American women with HIV/AIDS. *Applied Research in Quality of Life, 6*(2), 139-157.

De Camargos, M. G., Paiva, C. E., Barroso, E. M., Carneseca, E. C., & Paiva, B. S. R. (2015). Understanding the differences between oncology patients and oncology health professionals concerning spirituality/religiosity: A cross-sectional study. *Medicine (United States), 94*(47), e2145. doi: 10.1097/MD.0000000000002145

de Jager Meezenbroek, E. (2012). Measuring spirituality as a universal human experience: Development of the spiritual attitude and involvement list (sail). *Journal of Psychosocial Oncology, 30*(2), 141-167.

debnam. (2016). The role of stress and spirituality in adolescent substance use. *Substance Use & Misuse, 51*(6), 733-741.

Deering. (2012). Forgiveness and empathy in victims of domestic violence and their relationship with spirituality. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 73*(6-B).

Delgado Guay, M. O. (2013). Spirituality, religiosity, and spiritual pain among caregivers of patients with advanced cancer. *American Journal of Hospice & Palliative Medicine, 30*(5), 455-461.

Delgado-Guay, M. O. (2011). Spirituality, religiosity, and spiritual pain in advanced cancer patients. *Journal of Pain and Symptom Management, 41*(6), 986-994.

diaz. (2014). Attachment style, spirituality, and depressive symptoms among individuals in substance abuse treatment. *Journal of Social Service Research, 40*(3), 313-324.

Douglas, S. L., & Daly, B. J. (2013). The impact of patient quality of life and spirituality upon caregiver depression for those with advanced cancer. *Palliat Support Care, 11*(5), 389-396. doi: 10.1017/s1478951512000570

Edara. (2016). Relation of individualism-collectivism and ethnic identity to spiritual transcendence among European Americans, Asian Indian Americans, and Chinese Americans. *Counseling and Values, 61*(1), 44-63.

Fauver. (2012). The healing wisdom within: A preliminary experimental trial of psycho-spiritual integrative therapy for people with cancer. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 73*(6-B).

Fung, A. W., & Lam, L. C. (2013). Spiritual activity is associated with better cognitive function in old age. *East Asian Arch Psychiatry, 23*(3), 102-107.

Gallagher, S., Phillips, A. C., Lee, H., & Carroll, D. (2015). The association between spirituality and depression in parents caring for children with developmental disabilities: social support and/or last resort. *Journal of religion and health, 54*(1), 358-370. doi: 10.1007/s10943-014-9839-x

George, L. S. (2017). Does spirituality confer meaning in life among heart failure patients and cancer survivors? *Psychology of Religion and Spirituality, 9*(1), 131-136.

Glivings. (2014). The effect of spirituatlity on the level of resiliency and chosen coping strategies in adult women. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 75*(1-B(E).

Good. (2017). A longitudinal investigation of the relation between nonsuicidal self-injury and spirituality/religiosity. *Psychiatry Research, 250*, 106-112.

Grabb. (2012). Spirituality development for homeless youth: A mindfulness meditation feasibility pilot. *Journal of Child and Family Studies, 21*(6), 925-937.

Hartman. (2017). Spirituality and happiness of English-speaking South African school children: A psychometric analysis of Spirituality and Well-Being Instruments. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 78*(3-B(E).

Holt. (2012). Social, religious and spiritual capital and physical/emotional functioning in a national sample of African Americans. *Journal of Community & Applied Social Psychology, 22*(4), 346-362.

Huber. (2015). An investigation of the relations between aggression and spirituality. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 76*(5-B(E).

Hurlbut, J. M., Robbins, L. K., & Hoke, M. M. (2011). Correlations between spirituality and health-promoting behaviors among sheltered homeless women. *Journal of Community Health Nursing, 28*(2), 81-91. doi: 10.1080/07370016.2011.564064

Ihara, C. (2012). Spirituality and meaning in life of the Japanese female breast cancer patients. *Asia-Pacific Journal of Clinical Oncology, 8*, 234-235. doi: 10.1111/ajco.12030

Ivtzan, I., Chan, C. P., Gardner, H. E., & Prashar, K. (2013). Linking religion and spirituality with psychological well-being: examining self-actualisation, meaning in life, and personal growth initiative. *J Relig Health, 52*(3), 915-929. doi: 10.1007/s10943-011-9540-2

Jacobs, A. C. (2012). Spiritual well-being and lifestyle choices in adolescents: A quantitative study among Afrikaans-speaking learners in the North West province of South Africa. *Journal of Child and Adolescent Mental Health, 24*(1), 89-98.

Jafari, N., Zamani, A., Lazenby, M., Farajzadegan, Z., Emami, H., & Loghmani, A. (2014). Translation and validation of the persian version of the functional assessment of chronic illness therapy-spiritual well-being scale (FACIT-Sp) among muslim iranians in treatment for cancer. *Psycho-Oncology, 23*, 212-213. doi: 10.1111/j.1099-1611.2014.3695

jahani. (2014). Spiritual wellbeing of iranian patients with acute coronary syndromes: A cross-sectional descriptive study. *Journal of Research in Nursing, 19*(6), 518-527.

Jang. (2016). Existential spirituality, religiosity, and symptoms of anxiety-related disorders: A study of belief in ultimate truth and meaning in life. *Journal of Psychology and Theology, 44*(3), 213-229.

Jennings. (2016). Spiritual well-being and responding to secondary trauma among human service professionals. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 77*(6-A(E).

Johnny. (2014). Race-related stress, spiritual well-being, and help-seeking in Black British west Indian Americans. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 75*(1-B(E).

Jones, J. (2011). Spirituality and depression in gay men and gay fathers: Understanding the cultural contradiction. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 72*(6-B).

Khumalo. (2014). Presence of meaning and search for meaning as mediators between spirituality and psychological well-being in a South African sample. *Journal of Psychology in Africa, 24*(1), 61-72.

Knapp, C. (2011). Spirituality of parents of children in palliative care. *Journal of Palliative Medicine, 14*(4), 437-443.

Krageloh, C. U., Henning, M. A., Billington, R., & Hawken, S. J. (2015). The relationship between quality of life and spirituality, religiousness, and personal beliefs of medical students. *Acad Psychiatry, 39*(1), 85-89. doi: 10.1007/s40596-014-0158-z

Kulis, S., Hodge, D. R., Ayers, S. L., Brown, E. F., & Marsiglia, F. F. (2012). Spirituality and religion: intertwined protective factors for substance use among urban American

Indian youth. *Am J Drug Alcohol Abuse, 38*(5), 444-449. doi: 10.3109/00952990.2012.670338

Kyle, J. (2013). Spirituality: Its role as a mediating protective factor in youth at risk for suicide. *Journal of Spirituality in Mental Health, 15*(1), 47-67.

Lago-Rizzardi, C. D., de Siqueira, J. T., & de Siqueira, S. R. (2014). Spirituality of chronic orofacial pain patients: case-control study. *J Relig Health, 53*(4), 1236-1248. doi: 10.1007/s10943-013-9768-0

Lee. (2013). Relationships among depressive symptoms, spiritual well-being, and quality of life in primary liver cancer patients in Korea. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 73*(12-B(E).

Leeson, L. A., Nelson, A. M., Rathouz, P. J., Juckett, M. B., Coe, C. L., Caes, E. W., & Costanzo, E. S. (2015). Spirituality and the recovery of quality of life following hematopoietic stem cell transplantation. *Health Psychol, 34*(9), 920-928. doi: 10.1037/hea0000196

Lester, D. (2012). Spirituality and religiosity as predictors of depression and suicidal ideation: An exploratory study. *Psychological Reports, 110*(1), 247-250.

Leurent, B., Nazareth, I., Bellon-Saameno, J., Geerlings, M. I., Maaroos, H., Saldivia, S., . . . King, M. (2013). Spiritual and religious beliefs as risk factors for the onset of major depression: an international cohort study. *Psychol Med, 43*(10), 2109-2120. doi: 10.1017/s0033291712003066

Lewis, S., Salins, N., Rao, M. R., & Kadam, A. (2014). Spiritual well-being and its influence on fatigue in patients undergoing active cancer directed treatment: a correlational study. *J Cancer Res Ther, 10*(3), 676-680. doi: 10.4103/0973-1482.138125

Li, C. C., Rew, L., & Hwang, S. L. (2012). The relationship between spiritual well-being and psychosocial adjustment in Taiwanese patients with colorectal cancer and a

colostomy. *J Wound Ostomy Continence Nurs, 39*(2), 161-169; quiz 170-161. doi: 10.1097/WON.0b013e318244afe0

Lucchetti, A. L. (2015). Validation of the Portuguese version of the Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being scale (FACIT-Sp 12) among Brazilian psychiatric inpatients. *Journal of religion and health, 54*(1), 112-121.

lucette. (2014). Pilot-testing the French version of a provisional European Organisation for Research and Treatment of Cancer (EORTC) measure of spiritual well-being for people receiving palliative care for cancer. *European Journal of Cancer Care, 23*(2), 221-227.

Ludema. (2015). Religiosity, spirituality, and HIV risk behaviors among African American women from four rural counties in the Southeastern U.S. *Journal of Health Care for the Poor and Underserved, 26*(1), 168-181.

Malafaia, F., Nishida, G., Barreto, G., Amato, V. L., & Avezum, A. (2015). Spirituality and depression in patients with coronary artery disease. *European Heart Journal, 36*, 285. doi: 10.1093/eurheartj/ehv399

Martens, K., Quispe, J., Geller, J., Madore, S., & Kilbourn, K. (2014). Spirituality and psychosocial distress in head and neck cancer survivors. *Psycho-Oncology, 23*, 114. doi: 10.1002/pon.3478

Martinez, B. B., & Custodio, R. P. (2014). Relationship between mental health and spiritual wellbeing among hemodialysis patients: a correlation study. *Sao Paulo Med J, 132*(1), 23-27. doi: 10.1590/1516-3180.2014.1321606

Mawani. (2011). Reducing chronic pain using mindfulness meditation: An exploration of the role of spirituality. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 72*(4-B).

mccaffrey. (2015). Spirituality and remission of major depression. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 76*(5-B(E).

Mendez. (2012). Spirituality and the MMPI-2 Restructured Clinical Scales. *International Journal of Transpersonal Studies, 31*(1), 1-10.

meniru. (2015). The influence of degree of Afrocentric spirituality on psychological help seeking attitudes, intentions and stigma among Nigerian Americans. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 76*(5-B(E).

Michaelson, V., Brooks, F., Jirásek, I., Inchley, J., Whitehead, R., King, N., . . . Kolarcik, P. (2016). Developmental patterns of adolescent spiritual health in six countries. *SSM - Population Health, 2*, 294-303. doi: 10.1016/j.ssmph.2016.03.006

Mihaljevic, S. (2015). Spirituality and its relationship with personality in depressed people: Preliminary findings. *Journal of religion and health, 54*(6), 2099-2110.

Mihaljevic, S., Aukst-Margetic, B., Karnicnik, S., Vuksan-Cusa, B., & Milosevic, M. (2016). Do spirituality and religiousness differ with regard to personality and recovery from depression? A follow-up study. *Comprehensive Psychiatry, 70*, 17-24. doi: 10.1016/j.comppsych.2016.06.003

Mihaljević, S., Vuksan-Ćusa, B., Marčinko, D., Koić, E., Kušević, Z., & Jakovljević, M. (2011). Spiritual Well-Being, Cortisol, and Suicidality in Croatian War Veterans Suffering from PTSD. *Journal of religion and health, 50*(2), 464-473. doi: 10.1007/s10943-010-9383-2

miller. (2011). Ancestral indigenous culture and historical-transgenerational trauma: Rethinking schizophrenia in African Americans. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 71*(10-B).

Miller, D. B., Thomas, B. L., & Kim, H. S. (2012). African American and Caucasian women: Differences in spiritual and social support in experiencing cancer. *Psycho-Oncology, 21*, 101. doi: 10.1111/j.1099-1611.2011.03029_1.x

Mohebbifar, R., Pakpour, A. H., Nahvijou, A., & Sadeghi, A. (2015). Relationship between Spiritual Health and Quality of Life in Patients with Cancer. *Asian Pac J Cancer Prev, 16*(16), 7321-7326.

Mollica, M. A., Underwood, W., Homish, G. G., Homish, D. L., & Orom, H. (2016). Spirituality is associated with less treatment regret in men with localized prostate cancer. *Psycho-Oncology*. doi: 10.1002/pon.4248

Monroe. (2012). Spirituality as a moderator of the relationship between peer group behaviors and health-compromising behaviors among college students. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 73*(6-B).

Munoz, A. R., Salsman, J. M., Stein, K. D., & Cella, D. (2015). Reference values of the Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being: a report from the American Cancer Society's studies of cancer survivors. *Cancer, 121*(11), 1838-1844. doi: 10.1002/cncr.29286

Ng. (2014). Spirituality and differentiation of self of parents living in the "City of Sadness". *Mental Health, Religion & Culture, 17*(7), 655-664.

Nsamenang, S. A., Hirsch, J. K., Topciu, R., Goodman, A. D., & Duberstein, P. R. (2016). The interrelations between spiritual well-being, pain interference and depressive symptoms in patients with multiple sclerosis. *J Behav Med, 39*(2), 355-363. doi: 10.1007/s10865-016-9712-3

Ong. (2011). Anxiety, depression, and spiritual well-being in older adults. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 71*(11-B).

Ottaviani, A. C., Souza, E. N., Drago Nde, C., de Mendiondo, M. S., Pavarini, S. C., & Orlandi Fde, S. (2014). Hope and spirituality among patients with chronic kidney disease undergoing hemodialysis: a correlational study. *Rev Lat Am Enfermagem, 22*(2), 248-254. doi: 10.1590/0104-1169.3323.2409

Papazisis, G., Nicolaou, P., Tsiga, E., Christoforou, T., & Sapountzi-Krepia, D. (2014). Religious and spiritual beliefs, self-esteem, anxiety, and depression among nursing students. *Nurs Health Sci, 16*(2), 232-238. doi: 10.1111/nhs.12093

Peterman, A. H., Reeve, C. L., Winford, E. C., Cotton, S., Salsman, J. M., McQuellon, R., . . . Campbell, C. (2014). Measuring meaning and peace with the FACIT-spiritual well-being scale: distinction without a difference? *Psychol Assess, 26*(1), 127-137. doi: 10.1037/a0034805

Piacentine, L. B. (2013). Spirituality, religiosity, depression, anxiety, and drug-use consequences during methadone maintenance therapy. *Western Journal of Nursing Research, 35*(6), 795-814.

price. (2014). A preliminary study of mothers' social support, spirituality, knowledge, and acceptability of the HPV vaccine for daughters. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 75*(3-A(E).

randazzo. (2016). Anxiety, depression, loneliness, spirituality, and disease exacerbation in COPD patients. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 76*(12-B(E).

Randazzo, D., Affronti, M., Lipp, E., McSherry, F., Herndon, I. J., Flahiff, C., . . . Peters, K. (2014). Spiritual well-being and its association with health-related quality of life in primary brain tumor patients. *Neuro-Oncology, 16*, v182-v183. doi: 10.1093/neuonc/nou269.20

Rominger, R. A. (2011). Spirituality Scale ceiling effects and near-death experiences: An exploratory study. *Journal of Near Death Studies, 30*(2), 83-105.

Rosik, C. H., & Soria, A. (2012). Spiritual well-being, dissociation, and alexithymia: examining direct and moderating effects. *J Trauma Dissociation, 13*(1), 69-87. doi: 10.1080/15299732.2011.606739

Rusa. (2014). Quality of life/spirituality, religion and personal beliefs of adult and elderly chronic kidney patients under hemodialysis. *Revista Latino Americana de Enfermagem, 22*(6), 911-917.

Salmoirago-Blotcher, E. (2012). Spiritual well-being may buffer psychological distress in patients with implantable cardioverter defibrillators. *Journal of Evidence Based Complementary & Alternative Medicine, 17*(3), 148-154.

Salsman, J. M., Yost, K. J., West, D. W., & Cella, D. (2011). Spiritual well-being and health-related quality of life in colorectal cancer: a multi-site examination of the role of personal meaning. *Support Care Cancer, 19*(6), 757-764. doi: 10.1007/s00520-010-0871-4

Samuelson, B. T., Fromme, E. K., & Thomas, C. R. (2012). Changes in Spirituality and Quality of Life in Patients Undergoing Radiation Therapy. *American Journal of Hospice and Palliative Medicine, 29*(6), 449-454. doi: 10.1177/1049909111428607

Sansone, R. A., Kelley, A. R., & Forbis, J. S. (2012). Religion/spirituality status and borderline personality symptomatology among outpatients in an internal medicine clinic. *Int J Psychiatry Clin Pract, 16*(1), 48-52. doi: 10.3109/13651501.2011.605956

Sansone, R. A., Kelley, A. R., & Forbis, J. S. (2013). Abuse in Childhood and Religious/Spiritual Status in Adulthood Among Internal Medicine Outpatients. *Journal of religion and health, 52*(4), 1085-1092. doi: 10.1007/s10943-012-9582-0

Schnell, T. (2012). Spirituality with and without religion-Differential relationships with personality. *Archiv fur Religionspsychologie / Archive for the Psychology of Religions, 34*(1), 33-61.

Serpentini, S., Pasquin, E., Del Bianco, P., Berti, C., Busa, F., & Capovilla, E. (2013). Quality of life, spirituality and hope in elderly palliative care patients: An Italian experience. *Psycho-Oncology, 22*, 178. doi: 10.1111/j.1099-1611.2013.3394

Serrano, S. G., Jara, C., Calderon, C., Del Mar Muñoz, M., García, T., Rubi, D. R., . . . Fonseca, P. J. (2016). Multidimensionality of spiritual well-being: Meaning of life, peace, and faith in a prospective sample of patients with cancer. *Psycho-Oncology, 25*, 87. doi: 10.1002/pon.4272

Siddall, P. J., McIndoe, L., Austin, P., & Wrigley, P. J. (2017). The impact of pain on spiritual well-being in people with a spinal cord injury. *Spinal Cord, 55*(1), 105-111. doi: 10.1038/sc.2016.75

Silva, R. P., de Souza, P., Nogueira, D. A., Moreira, D. S., & Chaves, E. C. L. (2013). Relationship between spiritual well-being, sociodemographic characteristics and use of alcohol and other drugs by students. *Jornal Brasileiro de Psiquiatria, 62*(3), 191-198. doi: 10.1590/S0047-20852013000300003

Sink. (2014). Psychometric analysis of the Life Perspectives Inventory and implications for assessing characteristics of adolescent spirituality. *Measurement and Evaluation in Counseling and Development, 47*(2), 150-167.

Skevington, S. M., Gunson, K. S., & O'Connell, K. A. (2013). Introducing the WHOQOL-SRPB BREF: developing a short-form instrument for assessing spiritual, religious and personal beliefs within quality of life. *Qual Life Res, 22*(5), 1073-1083. doi: 10.1007/s11136-012-0237-0

Skolarus, L. E., Lisabeth, L. D., Sánchez, B. N., Smith, M. A., Garcia, N. M., Risser, J. M., & Morgenstern, L. B. (2012). The prevalence of spirituality, optimism, depression, and fatalism in a bi-ethnic stroke population. *Journal of religion and health, 51*(4), 1293-1305. doi: 10.1007/s10943-010-9438-4

Song, J. M. (2016). Types of childhood trauma and spirituality in adult patients with depressive disorders. *Comprehensive Psychiatry, 69*, 11-19.

Staton-Tindall, M., Duvall, J., Stevens-Watkins, D., & Oser, C. B. (2013). The roles of spirituality in the relationship between traumatic life events, mental health, and drug use among African American women from one southern state. *Subst Use Misuse, 48*(12), 1246-1257. doi: 10.3109/10826084.2013.799023

sterner. (2015). The influence of spirituality and religion on coping for combat-deployed military personnel. *Counseling and Values, 60*(1), 48-66.

Strada, E. A., Homel, P., Tennstedt, S., Billings, J. A., & Portenoy, R. K. (2013). Spiritual well-being in patients with advanced heart and lung disease. *Palliat Support Care, 11*(3), 205-213. doi: 10.1017/s1478951512000065

Subandi. (2014). Spirituality, gratitude, hope and post-traumatic growth among the survivors of the 2010 eruption of Mount Merapi in Java, Indonesia. *Australasian Journal of Disaster and Trauma Studies, 18*(1), 19-26.

Trinkaus, M. (2011). Spirituality and use of complementary therapies for cure in advanced cancer. *Psycho Oncology, 20*(7), 746-754.

Unterrainer, H. F. (2012). Soul darkness? Dimensions of religious/spiritual well-being among mood-disordered inpatients compared to healthy controls. *Psychopathology, 45*(5), 310-316.

verlasco-gonzalez. (2014). The spiritual well-being of elderly people: A study of a French sample. *Journal of religion and health, 53*(4), 1123-1137.

Wachelder, E. M., Moulaert, V. R. M. P., van Heugten, C., Gorgels, T., Wade, D. T., & Verbunt, J. A. (2016). Dealing with a life changing event: The influence of spirituality and coping style on quality of life after survival of a cardiac arrest or myocardial infarction. *Resuscitation, 109*, 81-86. doi: 10.1016/j.resuscitation.2016.09.025

Warber, S. L., Ingerman, S., Moura, V. L., Wunder, J., Northrop, A., Gillespie, B. W., . . . Rubenfire, M. (2011). Healing the heart: A randomized pilot study of a spiritual retreat for depression in acute coronary syndrome patients. *Explore: The Journal of Science and Healing, 7*(4), 222-233. doi: 10.1016/j.explore.2011.04.002

Washburn, C. R. (2013). Resiliency and spirituality in cancer patients. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 73*(9-B(E).

Whitford, H., Bond, M., & Collins, K. (2014). Aging and the existential: Spiritual wellbeing, quality of life, and psychological morbidity in older adult cancer survivors. *Asia-Pacific Journal of Clinical Oncology, 10*, 256-257. doi: 10.1111/ajco.12332

Whitford, H. S., & Olver, I. N. (2012). The multidimensionality of spiritual wellbeing: peace, meaning, and faith and their association with quality of life and coping in oncology. *Psychooncology, 21*(6), 602-610. doi: 10.1002/pon.1937

wiggins. (2014). Mother and adult daughter relationships and the impact on emotional health, self-efficacy, and spiritual well-being. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 74*(9-B(E).

Wutoh, A. K. (2011). Pilot study to assess HIV knowledge, spirituality, and risk behaviors among older African Americans. *Journal of the National Medical Association, 103*(3), 265-268.

Xue, S., Arya, S., Embuldeniya, A., Narammalage, H., da Silva, T., Williams, S., & Ravindran, A. (2016). Perceived functional impairment and spirituality/religiosity as

predictors of depression in a Sri Lankan spinal cord injury patient population. *Spinal Cord, 54*(12), 1158-1163. doi: 10.1038/sc.2016.56

Appendix E

Table E1
Extraction criteria and study characteristics of included studies

Study identifiers (first author, year of publication)	Sample characteristics (e.g. n of participants; gender; country; cultural identification)	Study design (e.g. cross sectional. Longitudinal)	Purpose	Conceptualisation of spirituality	Instrument name (adaption/translation/original development)	Disease/setting	Health outcomes measured
Agli et al. (2017)	N = 63 (70% female) Mean age = 86.6 ± 7.1 years France	Cross-sectional	To develop French version of Functional Assessment of Chronic Illness Therapy-Spiritual Well-being scale (FACIT-Sp), to provide a measure for French people	Search for meaning; questioning life; relationship with sacred/ transcendent	FACIT-sp (translated into French language)	Nursing home residents	Cognitive functioning Depression QoL
Alvarez et al. (2016)	N = 130 (33% female) Mean age = 60 ± 13 years Brazil	Cross-sectional	To assess whether spirituality influences adherence to management of outpatients with heart failure	One's "state of affairs"	WHOQOL-SRPB	Heart failure/hospital outpatients	Adherence Depression QoL
Amrhein et	N = 100 (22% female)	Cross-sectional	To examine how spirituality relates to	Belief/faith; connectedness;	Spiritual Assessment	Surfers contacted	Anxiety

al. (2016)	Mean age = 29.7 ± 10.7 years USA		depression and anxiety for surfers	inner peace; transcendence; meaning in life	Scale (SAS)	on beaches	Depression
Bai et al. (2015)	N = 153 (46.2% female) Mean age = 57.8 ± 11.6 years USA	Longitudinal (Secondary data analysis)	To examine SWB and QoL as well as their interrealationship in patients with advanced cancer	No clarification	FACIT-Sp	Newly diagnosed head, neck, gastrointestinal, lung or gynaecological cancer patients/hospital clinics	QoL
Bauer (2016)	N = 433 (76% female) Mean age = 19.5 ± 3.4 years USA	Cross-sectional	To examine how spirituality and mindfulness relate to acceptance and striving towards goals	Transcendence; search for the sacred; personal beliefs, values and behaviour	Spiritual Transcendence Scale (STS)	University students	Acceptance Striving (goal attainment)
Benito et al. (2014)	N = 108 (51.9% female) Mean age = 68.1 ± 12.7 years Spain	Cross-sectional	To develop and validate a new brief measure of spirituality	Relationships with selves (need for meaning and coherence); relationships with others (harmony and need for love); Transcendence (need for hope	Grupo de Espiritualidad de la SECPAL (GES) Questionnaire (original development)	Advanced terminal illness (85% cancer)/Palliative care health care services	Anxiety Depression

				and sense of belonging)			
Chan & Siu (2016)	N = 213 (66.7% female) China	Cross-sectional	To examine the psychometric properties of the Chinese version of the Spiritual Intelligence Self-Report Inventory (SISRI-24)	Self-transcendence; holistic thinking; intuition; sanctifying everyday experiences; consciousness; harmony with people/nature; self-introspection; openness; flexibility	SISRI-24	University students	Satisfaction with life
Chang et al. (2015)	N = 325 (65.2% female) Mean age = 21.8 ± 4.7 years USA	Cross-sectional	To examine the construct validity of the RiTE as a multidimensional measure of spirituality in relation to the five-factor model of personality	Personal connection with transcendent	RiTE	University students	Personality
Davis et al. (2017)	N = 241 (100% female) Mean age = 58.7 ± 11.2 years USA	Prospective longitudinal	To examine spiritual growth as a domain of posttraumatic growth and its contribution to longitudinal emotional	Meaning; Peace; Faith	FACIT-Sp	Ovarian cancer/Hospital clinic pre- and post-	Anxiety (cancer-specific) Depression

			outcomes in ovarian cancer			surgery	
Davison et al. (2013)	N = 253 Mean age = 59.5 ± 14.6 years Canada	Cross-sectional	To explore the relationship between psychosocial adjustment to illness, existential wellbeing and health-related quality of life in patients with advanced kidney disease	Search for meaning of life; illness and death; May or may not involve belief in higher power/organised religion	SWBS	Chronic Kidney Disease/Renal program patients receiving or enrolled to receive dialysis	HRQoL (Physical and Mental subdomains)
Eggleston (2016)	N = 191 (0% female) 38.5 ± 12.3 years USA	Cross-sectional	To examine the relationships between posttraumatic growth, religious coping, spiritual wellbeing, psychiatric distress, health status, quality of life and health behaviours	Not stated	FACIT-Sp	HIV/AIDS/ Community Health Organisation	Substance abuse Posttraumatic growth
Felker (2012)	N total = 299 (63% female) Group 1 (violated alcohol policy): N = 80, Mean age = 18.7 ± .8 years Group 2 (control):	Cross-sectional	To further understand factors contributing to students' alcohol abuse by examining how spirituality, wisdom and self-transcendence impact	Transcendence; Connectedness to self, others; Meaning in life; Relationship to pervasive power or essence	SMS	University students who had violated university's alcohol policy;	Alcohol abuse

	N = 219, Mean age = 18.4 ± .9 years USA		drinking behaviours of college students			Control group of students who had not	
Frost et al. (2013)	N = 1578 (48% female) Mean age = 65.6 ± 10.3 years USA	Longitudinal	To examine the spiritual wellbeing (SWB) of individuals with a diagnosis of lung cancer and to assess the stability of SWB over time, and to identify factors associated with SWB	Multidimensional concepts of faith; meaning of life; peace of mind	FACIT-Sp	Lung cancer/Clinic patients	QoL Smoking
Gibbel (2011)	N = 65 (83% female) USA	Longitudinal	To evaluate the effects of a spirituality integrated intervention as compared to a secular intervention and no treatment control condition	Search for the sacred	FACIT-Sp (Adapted: Wording for items 11 and 12 to reflect experience of depression)	Depression/ University students	Depression
Gonzalez et al. (2014)	N = 102 (91.2% female) Mean age = 59.1 ± 10 years Country: USA	Cross-sectional	To examine the association between spiritual wellbeing and depressive symptoms	Not stated	FACIT-Sp (translated: English and Spanish versions used)	Cancer survivors/cancer support groups	Depression
Gonzalez-Celis &	N = 75 (64.2% female)	Cross-sectional	To evaluate the impact of psychological	Not stated	WHOQOL-100 (translated into	Elderly/He	Depression

Gomez-Benito (2013)	Mean age = 65 ± 9.4 years Mexico		variables associated with QoL in Mexican elderly		Spanish)	alth clinic	
Greenfield et al. (2015)	N = 83 (30% female) Mean age = 33.9 ± 10.9 years USA (Native American Southwestern tribe)	Longitudinal	To create the Native American Spirituality Scale (NASS) and to measure changes in NASS over the course of treatment for substance use disorders	Spiritual connection to land and all living things	NASS	Substance use disorders/substance use disorder treatment program	Alcohol use Cannabis use
Hardiman & Graetz Simmonds (2013)	N = 89 (80% female) Mean age = 49.7 ± 8.1 years Australia	Cross-sectional	To explore the relationship between spiritual wellbeing and burnout	Not stated	SWBS	Counsellors and Psychotherapists	Burnout
Harwood et al. (2012)	N = 172 (52.3% female) Mean age = 61.4 ± 13 years New Zealand	Longitudinal	To compare the psychometric properties of the Hua Oranga with other QoL tools	Not stated	Hua Oranga (Adapted wording for Pacific people e.g. substituting 'Pacific person' for Maori)	Stroke/Hospital patients	QoL
Haugan et al. (2014)	N = 202 (72.3% female) Mean age = 86 ± 7.7 years	Cross-sectional	To identify the relationships between self-transcendence and SWB in cognitively intact nursing home	Personal search for faith; meaning; inner peace through connections with	FACIT-Sp	Nursing home patients	Self-transcendence

	Norway		patients	others, nature, transcendent; connection to self, others, nature, life force or God			
Hirsch et al. (2014)	N = 148 (100% female) Mean age = 35.6 ± 11.4 years USA	Cross-sectional	To examine the influence of daily hassles on suicidal ideation and the moderating role of SWB	Meaning of life; transcendence; inner strength	SWBS	Previous suicide attempt/Hospital outpatients	Depression Suicidal ideation
Holt-Lunstad et al. (2011)	N = 100 (50% female) Mean age = 28.3 ± 8.7 years USA	Cross-sectional	To examine the influence of SWB on physiological risk factors for heart disease	Sense of meaning; peace with oneself; compassionate and giving relationships; practice of forgiveness	FACIT-Sp-Ex	Community sample	Ambulatory blood pressure Alcohol consumption Body Mass Index Cholesterol Depression Fasting glucose Inflammation Smoking Stress
Holzer (2012)	N = 58 (59% female) Mean age = 41 years ± 11.2 years	Cross-sectional	To assess the relationship between SWB and anxiety	Personal quest; life purpose/meaning; relationships to	SWBS	Government employees and	Anxiety

	USA			sacred/transcendent		psychotherapy clients	
Johnson et al. (2011)	N = 210 (41.4% female) Mean age = 66.6 ± 12.3 years USA	Cross-sectional	To examine the association of spiritual history and current SWB with symptoms of anxiety and depression in patients with advanced illness	Not stated	FACIT-Sp	Cancer, CHF, COPD/hospital outpatients	Anxiety Depression
Johnson (2011)	N = 31 (97% female) Mean age = 60.7 ± 9 years USA	Longitudinal (8 weeks, 2 time points)	To investigate the spiritual mediators of QoL and mood among 31 cancer survivors participating in spiritual therapy	Meaning; comfort; inner peace; hope	FACIT-Sp-Ex	Non-metastatic cancer survivors/cancer support groups	Stress Depression QoL
Kandasamy et al. (2011)	N = 50 (56% female) Mean age = 49.7 ± 10.2 years India	Cross-sectional	To study the influence of SWB on symptoms of distress, depression and QoL in advanced cancer patients receiving palliative care	Spirituality: search for meaning; purpose in life; relationships with self and others; transcendent	FACIT-Sp	Advanced cancer/Hospice and palliative care centre	Distress symptoms Depression QoL
Kelly (2011)	N = 195 (65.6% female) Mean age = 54.5 years	Cross-sectional	To examine whether empirical evidence can support the addition of spirituality	Connection with force that brings meaning to life; connection to people; sets moral	FACIT-Sp	Cancer patients receiving chemotherapy/Hospital	QoL Physical symptoms

	USA		to a QoL model	standard for living		patients	
Kim et al. (2015)	N = 232 (56.9% female) Mean age = 36.6 ± 12.7 years Korea	Longitudinal	To investigate the role of spirituality in predicting treatment response among psychiatric patients with depressive disorders	Transcendent; Search for ultimate reality	FACIT-Sp (translated into Korean)	Depressive disorders/ Mood and Anxiety Disorder Unit patients	Treatment response
Kim et al. (2011)	N = 308 (52.4% female) Mean age = 59.9 ± 11.1 years USA	Cross-sectional	To examine individual and dyadic associations of SWB with QoL of couples dealing with cancer	Not stated	FACIT-Sp	Cancer survivors	QoL
Kimura et al. (2016)	N = 509 (49% female) Japan	Cross-sectional	To assess spirituality and to examine the association between depressive symptoms and spiritual attitudes of Japanese university students	Life purpose; humanism; morality; connectedness to others, nature; transcendent	25-item Sky Spirituality Scale (SS-25; Original development)	University students	Depression
Koessel (2012)	N = 254 (63% female) Mean age = 25 ± 7 years USA	Cross-sectional	To examine the relationship between spirituality and personality within a population of students	Transcendent connection to self, others, nature, life; meaning in life	SOI	University students	Personality
Kulis et al.	N = 123 (52%	Cross-sectional	To explore the aspects	Deeply cultural;	Spirituality	Native	Alcohol use

(2012)	female) Mean age = 12.6 ±.7 years USA		of spirituality and religious involvement that may be protective factors against substance abuse among urban Native American youth	holistic; separate to religion	(Original development)	American high school students	Smoking Substance use Pro-drug attitudes
Lee et al. (2014)	N = 518 (9.5% female) Mean age = 21.4 years Korea	Cross-sectional	To identify the relationship among SWB, depression and perceived stress	Distinct from religion	SWBS (translated into Korean)	Nursing students	Depression Stress
Leeson et al. (2015)	N = 220 (38.2% female) Mean age = 51 years USA	Longitudinal	To investigate changes in spirituality in hematologic cancer patients during recovery and relationships between spirituality and dimensions of QoL following therapy	Meaning and purpose; connectedness to the moment, self, others, nature and significant or sacred	FACIT-Sp	Hematopoietic stem cell transplantation/recipients pre- and post-transplant	Emotional wellbeing Fatigue Pain Physical wellbeing
Lewis et al. (2014)	N = 200 (39% female) Mean age = 50.4 years Country: Not stated	Prospective longitudinal	To explore SWB and its influence on fatigue in patients undergoing active cancer directed treatment	Not stated	FACIT-Sp	Cancer/In active treatment	Fatigue

Li et al. (2012)	N = 45 (49% female) Mean age = 62.9 ±11.5 years Taiwan	Cross-sectional	To explore the relationships between SWB and psychosocial adjustment in Taiwanese patients with colorectal cancer and a colostomy	Not stated	SWBS (translated into Chinese	Colorectal cancer colostomy patients/Medical centre	Adjustment to illness
Lucchetti et al. (2015)	N = 493 (36.1% female) Mean age = 40 ± 11.04 years Brazil	Cross-sectional	To validate the Portuguese version of the FACIT-Sp among Brazilian psychiatric inpatients	Distinct from religion	FACIT-Sp (translated into Portuguese)	Acute psychiatric inpatients/ Mental health hospital	Depression Anxiety Optimism QoL
Martinez & Custodio (2014)	N = 150 (37% female) Mean age = 56.9 ± 13.4 years Brazil	Cross-sectional	To evaluate the relationship between mental health and SWB among heart haemodialysis patients	Not stated	SWBS (translated into Portuguese)	Haemodialysis patients/Medical centre	Stress Suicidal ideation Performance anxiety Sleep disturbance Psychosomatic complaints
Mawani (2011)	N = 54 (76% female) Mean age = 45.4 years ± 12.6 years Mindfulness	Repeated measures	To measure changes in reported pain and spirituality to determine if changes are associated with a	Meaning in life; transcendence; power/force; dynamic and integrative in	SAS	Chronic pain patients/Pain clinic	Anxiety Depression Pain

	intervention group: Mean age = 46.2 ± 12.1 years Control group: Mean age = 44.7 ± 13.2 years Canada		mindfulness meditation intervention in patients with chronic pain	nature; connectedness to oneself, others, nature, higher being			
McCaffrey (2015)	N = 60 (43.3% female) Mean age = 48.3 years USA	Experimental, longitudinal	To investigate whether SWB contributed to the remission of depressive symptoms for individuals diagnosed with major depression	Meaning in life; relating to others; unity with the transcendent	SWBS	Major Depressive Disorder/Treatment centre	Depression
Mendez & MacDonald (2012)	N = 239 (73% female) Mean age = 21.2 ± 4.5 years USA	Cross-sectional	To examine the relationship between spirituality and personality	Not stated	ESI Expressions of Spirituality Inventory	University students	Personality
Mihaljevic et al. (2015)	N = 85 (57.5% female) Mean age = 48.3 ± 7.8 years Croatia	Cross-sectional	To examine the interconnection between spiritual QoL and personality in patients with depression	Meaning/purpose in life	WHOQOL-SPRB (translated into Croatian)	Major Depressive Episode/First presentation to hospital	Depression Personality

Mihaljevic et al. (2016)	N = 99 (56.6% female) 48.3 ± 8.4 years Croatia	Longitudinal	To explore the influence of spirituality and religiousness on course and outcome of depression in patients with depressive episode, controlled for personality dimensions	Meaning/purpose in life; relations with higher values	WHOQOL-SPRB (translated into Croatian)	Major Depressive Episode/First presentation to hospital	Depression Personality
Mills et al. (2015)	N= 186 (4.7% female) Mean age = 66.4 ± 10.3 years USA	Cross-sectional	To examine associations between gratitude, SWB, sleep, mood, fatigue, self-efficacy and inflammation in adults with Stage B asymptomatic heart failure	Not stated	FACIT-Sp	Stage B heart failure/outpatients	Depression Sleep Fatigue Self-efficacy Inflammation
Mollica et al. (2016)	N = 1093 (0% female) Mean age = 63.2 ± 7.8 years USA	Longitudinal	To find whether spirituality is associated with lower decisional regret 6 months after treatment in men with prostate cancer	Not stated	FACIT-Sp	Prostate cancer/pre- and post-treatment experience	Decisional regret
Nsamenang et al. (2016)	N = 81 (83% female)	Cross-sectional	To explore the associations between	Meaning/purpose; connectedness to	FACIT-Sp	Multiple Sclerosis/H	Pain interference

	Mean age = 51.1 ± 9.6 years		SWB, pain interference and depressive symptoms, assessing each as a potential mediator, in patients being treated for multiple sclerosis	moment, self, others, nature, significant/sacred		ospital outpatients	Depression
Ong (2011)	N = 160 Mean age = 71.3 ± 7.6 years USA	Cross-sectional	To examine the extent to which depression and anxiety can be predicted by SWB	Sense of purpose/meaning in life; distinct from religion	SWBS	Older adults/senior volunteers	Anxiety Depression
Piacentine (2012)	N = 108 (39% female) Mean age = 34.8 ± 11.5 years USA	Cross-sectional	To describe spirituality and religiosity, among persons enrolled in methadone maintenance therapy and to examine associations between spirituality, religiosity, anxiety, depression and drug-use consequences	Distinct from religion; transcendence; purpose/meaning in life	SWBS	Opioid addiction/ Methadone Maintenance Therapy clients	Psychological distress Substance use
Salmoirago-Blotcher et al. (2012)	N = 46 (30.4% female) Mean age = 65 years USA	Cross-sectional	To examine whether SWB is associated with reduced psychological distress in patients with	Not stated	FACIT-Sp	Cardiovascular Disease/Implantable Cardioverte	Anxiety Depression

			implantable cardioverter defibrillators			r Defibrillato r outpatients	
Salsman et al. (2011)	N = 826 (48% female) Mean age = 61 years USA and Puerto Rico	Cross-sectional	To examine associations between SWB and health-related QoL	Not stated	FACIT-Sp	Colorectal cancer/Stat e Cancer Registry	Physical wellbeing specific to colorectal cancer Emotional wellbeing Social/family wellbeing
Samuelson et al. (2012)	N = 406 (33.5% female) Mean age = 61.1 USA	Longitudinal	To evaluate potential changes in spirituality over the course of radiation therapy	Not stated	FACIT-Sp	Cancer/Rec eiving first treatment of radiation therapy	QoL
Sansone et al. (2012)	N = 308 (74% female) Mean age = 43 ± 12.4 years USA	Cross-sectional	To assess religion/spirituality status over the preceding 12 months in relationship to borderline personality symptomatology status	Distinct from religion; purpose of universe	FACIT-Sp	Internal medicine outpatients/ Non-emergent medical care	Borderline Personality Disorder
Sansone et	N = 317 (72.8% female)	Cross-sectional	To explore the relationship between	Not stated	FACIT-Sp	Internal medicine	Childhood abuse (sexual

al. (2013)	Mean age = 43 ± 12.4 years USA		childhood abuse and spirituality status			outpatients/ Non-emergent medical care	and/or physical)
Siddall et al. (2016)	N = 106 (46% female) Mean age = 57.8 Australia	Cross-sectional	To determine whether spinal cord injury and pain have an impact on SWB and whether there is an association between SWB and measures of pain and psychological function	Meaning; purpose; identity; distinct from religion	FACIT-Sp-Ex	Spinal Cord Injury/spinal cord injury participant database	Depression Anxiety Stress Pain Life satisfaction
Song et al. (2016)	N = 305 (56.9% female) Mean age = 37 ± 13.4 years Korea	Cross-sectional	To investigate the differences in spirituality among adult patients with depressive disorders who had suffered various types of abuse or neglect in childhood	Distinct from religion; meaning; peace; transcendent	FACIT-Sp	Mood and Anxiety Disorders Unit patients	Psychological symptoms Depression Childhood trauma
Unterrainer et al. (2012)	N = 200 (69% female) Mean age = 42.7 ± 12.9 years Austria	Cross-sectional	To find out more information about the religious/spiritual needs of anxious/depressive inpatients	Transcendent	MI-RSWB	Anxious/Depressive inpatients	Anxiety Depression Personality Psychopathology

Velasco-Gonzlez et al. (2014)	N = 133 (63% female) Mean age = 77.5 ± 10.1 years France	Cross-sectional	To identify predictors of SWB of elderly people	Transcendence; connectedness: meaning; distinct from religion	SWBS (translated into French)	Elderly people	Life satisfaction Subjective wellbeing
Wachelder et al. (2016)	Sample 1: Cardiac arrest N = 72 (8% female) Mean age = 59.8 ± 11.5 years Sample 2: Myocardial Infarction N = 98 (28% female) Mean age = 66.6 ± 11.7 years Netherlands	Cross-sectional	To determine the relationship between spirituality, coping and QoL in cardiac patients both with and without cardiac arrest	Purpose/meaning in life	FACIT-Sp	Cardiac arrest and myocardial infarction patients	Life satisfaction
Washburn (2011)	N = 37 (70% female) Mean age = 44 ± 17 years USA	Cross-sectional	To examine the relationship between spirituality and resiliency for individuals with cancer	Meaning/purpose; connectedness; distinct from religion	FACIT-Sp	Cancer	Resilience
Whitford & Olver (2012)	N = 99 (46.8% female) Mean age = 60.8	Cross-sectional	To explore associations between the FACIT-Sp, QoL	Distinct from religion	FACIT-Sp	Cancer/Hospital outpatients	QoL

	± 12.9 years Australia		and coping in an oncology population				
Xue et al. (2016)	N = 61 (9.8% female) Mean age = 39.5 ± 14.7 years Sri Lanka	Cross-sectional	To test the hypothesis that self-perceived functional impairment and religiosity/spirituality predict depression among traumatic spinal cord injury patients	Not stated	BENEFIT (translated into Sinhala)	Spinal Cord Injury/	Depression/Hospital outpatients