

Chronic kidney disease, spirituality and religiosity: a systematic overview with the list of eligible studies

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Abstract

Chronic Kidney Disease (CKD) has a tremendous psychological burden, which sometimes is overlooked or underestimated in the daily clinical routine practice, since in the health care process physicians prefer to focus on the objective aspects of the pathology. In this contribution, we make a systematic overview of the relationship between spirituality/religiosity and CKD, an emerging theme which only recently has raised interest from the scientific community despite its importance. We investigate different variables, axis and categories (from the quality of life to customer's satisfaction, treatment adherence and therapeutic alliance, clinical parameters, as well as overall survival, and coping strategies adopted by the patient). Moreover, we underpin the principal clinically relevant implications (like the possibility of psycho-therapeutic interventions based on the spiritual and religious attitudes of the patient) and we discuss the main gaps, methodological barriers and difficulties in the field, fostering and advocating further research and clinical studies. This last aspect, together with the quality assessment of the studies, will be further explored in the second part of the study.

Introduction

Chronic kidney disease

Chronic kidney disease (CKD) is an important public health problem with a tremendous burden and social-economical implications,¹⁻³ affecting only in the USA more than 20 million people (that is to say, 10% of the overall population) and with an expected increasing prevalence in the near future.¹ It is a condition in which the kidneys damage leads to a loss of their physiological functions (filtering blood,

regulating the pressure, maintaining acids and bases homeostasis, regulating fluids and electrolytes). Thus, wastes are not properly removed, their level tends to increase and this leads to other complex health problems and comorbidities, including above all complications such as cardiovascular disease (CVD),⁴ hypertension,⁵ anemia,⁶ malnourishment (in particular, protein-energy malnutrition, or PEM),⁷ endocrinological disorders (impaired balance of electrolytes, erythropoietin deficiency, secondary hyperparathyroidism, hyperinsulinism, growth hormone impairment, sexual dysfunctions),⁸ bone diseases (osteoporosis, osteomalacia, osteitis fibrosa, osteodystrophy, adynamic bone and other bone abnormalities that are included in the complex clinical syndrome termed as *renal bone disease*, or *renal osteodystrophy*, or *CKD-mineral and bone disorder*),⁹ infections (especially, hepatitis C),¹⁰ cancer,¹¹ and mental disorders like dementia and cognitive impairment.¹²⁻¹⁴ People with early CKD tend not to feel any kind of symptom and the only ways to detect CKD as earlier as possible are through a blood test to estimate kidney function, and a urine test to quantitatively assess the entity of kidney damage.

For this reason, CKD is often diagnosed when patients need replacement therapy (that is to say, kidney transplantation, chronic haemodialysis or peritoneal dialysis), since CKD is usually an irreversible and progressive disease and can lead to kidney failure, also called CRF (Chronic Renal Failure), whose last stage is termed End Stage Renal Disease (ESRD), which is fatal if it is not properly treated. Once detected, CKD can be managed through medication and lifestyle changes to slow down the disease progression, and to prevent or delay the onset of kidney failure as much as possible.

CKD is more common among women than men, more than 35% of people aged 20 years or older with diabetes have CKD, more than 20% of people aged 20 years or older with hypertension have CKD.¹⁻³ CKD is a complex and chronic disease, and patients experience a daily suffering, dependence on others and on machine and have to undergo to continuous medication. Thus many psychological variables could be involved, from anxiety and depression,¹⁵⁻¹⁹ as well as patient's personality,²⁰ sexual functioning to self-esteem and to patient's beliefs and preferences,^{21,22} including patient-reported measures (PROM), such as HRQoL (health-related quality of life).^{23,24} These parameters are worthy being investigated and understood by the clinicians, since they could impact on patient's compliance and adherence to the therapy and to the clinical outcome.²⁵⁻²⁸ Moreover, recently, medicine has shifted from a P0 (paternalistic and not patient-centered) model to a highly participatory and interactive P6 paradigm, in which psycho-cognitive

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aspects are considered and integrated into the bio-psycho-social framework,²⁹⁻³² whose natural evolution is called the bio-psycho-social-spiritual model. We have to consider that the six Ps stay for personalized, predictive, participatory, preventive, psycho-cognitive, and public, that is to say a holistic and highly integrated framework of health-care process. Investigating the psychological aspects of CKD could have profound clinically relevant implications and could pave the way for a personalized treatment, based on the spiritual, religious and existential attitudes of the patient and fully integrated in the entire health-care process.³³ The religious beliefs and spirituality of patients on replacement therapy, peritoneal dialysis, or haemodialysis therapy, as well as waiting for a kidney transplant or living with a transplanted organ have not been studied extensively so far. Studies of the dialysis and transplantation population seem to indicate that religion may be associated with increased patient satisfaction with life and increased levels of social support, even if in some cases the results are mixed and do not reach the consistency of a scientific evidence. In this manuscript, we identify the relationships that have been studied so far, the gaps in the research field, together with the methodological difficulties and barriers, in order to foster further advancements and to help physicians.

Religious beliefs and spirituality: gaps, methodological barriers and difficulties

Scholars tend to distinguish between reli-

giosity (as an institutionalized, structured, organized array of creed items and of sacred-related rituals and practices) and spirituality (as an existential need for transcendence and connection with the Universe, the experience of the divine, the search for a meaning and a purpose, the sense of inner peace, spiritual strength, well-being and completeness, as well as a perception of hope, optimism and faith, according to the World Health Organization Quality Of Life-Spirituality Religion and Personal Beliefs group), even though this distinction, if clear in theory, is poorly respected in the psychological practice and literature. Indeed there is no universal scientific consensus about an operational definition of *spirituality*. This represents the first barrier. Moreover, some scholars maintain that there would be a *publication bias* about the putative relationship between spiritual attitudes and clinical outcome in chronic pain patients, since only positive results have been published and lack of spirituality is poorly investigated. Another hurdle is that, despite the North American Nursing Diagnosis Association-International (NANDA-I) acknowledged the *spiritual anguish* response, originally *spiritual distress*, as a pertinent nursing diagnosis, there is apparently few interest in the spiritual

category from the clinicians.³⁴ Other biases may be due to the fact that the available religiosity and spirituality scales could fail to quantify religiosity or spirituality, capturing instead other factors directly or indirectly related to them, as suggested by Berman and co-workers.³⁵ In fact, it is rather difficult to rigorously assess and precisely measure both religiosity and spirituality, and thus a quantitative study should be coupled with a qualitative one. A further limitation of the studies could be linked with the so-called *center-effect*, defined by Berman *et al.* as the *extent to which the unit and staff reflect the dominant religious modes of their patient population*.³⁵

Method

This umbrella systematic review was conducted searching on PubMed/MEDLINE, Scopus, SCIELO, LILACS, CINAHL, EMBASE Nursing, ISI Web of Knowledge, using a combination of strings and MeSH (Medical) where appropriate. Duplicate references were eliminated. Only peer-reviewed articles and studies written in English were selected; reviews, and editorials were not included.³⁵⁻⁸⁹ The eligible studies are summarized in Supplementary Table 1. A brief recall to the stages of ESRD and

the investigated categories are summarized in Tables 1 and 2.

Main findings

In this contribution, we made a systematic overview of the relationship between spirituality/religiosity and CKD, an emerging theme which only recently has raised interest from the scientific community despite its importance, investigating different axis and categories (from the quality of life to customer's satisfaction, treatment adherence and therapeutic alliance, from clinical parameters, as well as overall survival, to the coping strategies adopted by the patient).

These investigated relationships are summarized as follows.

Spirituality versus religiosity

Some authors observed a different correlation between spirituality and religiosity, for example Song and collaborators,³⁶ Spinale *et al.*,³⁷ Tanyi,³⁸ on the contrary Valcanti and co-workers,³⁹ found that spiritual coping could not be reduced to a non-religious form of coping, and also other authors such as Theofilou,⁴⁰ Reig-Ferrer,⁴¹ Davison,⁴² Martin,⁴³ observed a strict link between religiosity and spirituality. However, some authors, such as Rambod,⁴⁴ did not make any distinction between religiosity and spirituality and used these two terms/domains as interchangeable. Moreover, some authors reported differences among the different creed and religious affiliations, while others emphasized that there is no need to tailor nephrology nursing to ethnic variables, such as the work by O'Brien.⁴⁵ While spirituality, spiritual well-being and religiosity are well-known categories, the concept of *impaired spirituality* and *spiritual anguish* are emerging ones, for example in the work by De Cássia Lopes Chaves.⁴⁶

Table 1. A summary of end-stage renal disease stages (modified from KDOQI, clinical practice guidelines for chronic kidney disease: evaluation, classification, and stratification).

Stage	Comment	GFR (mL/min/1.73 M ²)
1	Kidney damage with normal or relatively high GFR	≥90
2	Mild reduction in GFR	60-89
3	Moderate reduction in GFR	30-59
4	Severe reduction in GFR	15-29
5	Established kidney failure	<15

GFR, glomerular filtration rate.

Table 2. Parameters investigated in this study.

Investigated parameters	Examples
Demographic data	Age, gender, ethnicity
Laboratory data	Serum sodium, potassium, calcium, phosphorus, chloride, creatinine, uric acid, BUN, CO ₂ concentration, systolic and diastolic pressure, hematocrit, weight and weight change
Clinical data	Cause of the CRF (chronic glomerulonephritis, diabetes mellitus, hypertension), ESRD stage, time since the diagnosis, kind of treatment, psychopathology (suicide attempt, depression, anxiety), EEG, co-morbidities, nutritional assessment (SGA, triceps skinfolds, mid upper arm circumference, mid arm muscle circumference, albumin, transferrin)
Clinical outcome	Survival and mortality rate, QOL
Psychosocial parameters	Psychosocial adjustment, illness beliefs, representation and awareness, emotional reaction to the disease, locus of control, body perception and image, self-perception, personality correlates, perceived social support and social networks, stressors and stress levels, coping skills and strategies
Spirituality and religiosity	Religious affiliation, attendance, literature, pray, spiritual well-being
Patient's behaviors	Sick role behavior, compliance, adherence, and willingness to cooperate and collaborate with the medical staff, treatment choice and preference

BUN, Blood Urea Nitrogen; CRF, Chronic Renal Failure; ESRD, End-Stage Renal Disease; QOL, Quality Of Life; SGA, Subjective Global Assessment.

Spirituality/religiosity and demographic characteristics of the studied population

Authors such as Reig-Ferrer,⁴¹ Valcanti,³⁹ Kao,⁴⁷ Kimmel,⁴⁸ Lai,⁴⁹ found that spiritual beliefs were higher among women. No differences has been observed as far as ethnicity is concerned, for example in the survey conducted by Welch and collaborators,⁵⁰ but some scholars instead found some differences, such as Weisbord *et al.*⁵¹

Spirituality/religiosity and quality of life

Many studies show that religious and spiritual beliefs are associated with decreased perception of burden of illness, decreased level of depression, increased perception or use of social support, and higher perception of quality of life in a CKD/ESRD population, such as in the work by Wechpradit,⁵² Lucchetti,⁵⁵ Patel,⁵⁶ even if some authors reported only partial or weaker correlations, like in the studies by Davison.^{42,53} Quality of life and spirituality score are negatively correlated, since as the physical condition of the patient deteriorates the spiritual need increases and becomes stronger. However other studies, such as the research carried out by Kao and co-workers,⁴⁷ have found mixed results, since both patients with no spiritual/religious beliefs and those with strong attitudes have reported high scores using SF-36.

Spirituality/religiosity and customer satisfaction

Some studies have found that religious beliefs are related strongly to measures of satisfaction with life, whereas religious behaviors are related to satisfaction with medical care. Berman and co-workers have found that higher spiritual scores on a 74 HD population correlated with higher customer satisfaction and perception of quality of the medical care.³⁵

Spirituality/religiosity and treatment adherence

Spirituality/religiosity and treatment adherence, which is defined as the extent to which an individual chooses behavior that coincides with a clinical prescription. Scholars found a positive relationship, such as Weil,⁵⁷ Tany.⁶¹ However, Berman and co-workers did not find a correlation.³⁵ Other studies present mixed or negative results, such as the work by Kranenburg and co-workers.⁵⁸

Spirituality/religiosity and treatment choice and preference

Spirituality/religiosity and treatment choice and preference (end-of-life care *versus* dialysis withdrawal), like in the study carried out by Davison.^{59,60}

Spirituality/religiosity and therapeutic alliance

Patient are supposed to be more collaborative with the physicians and to be more involved or feeling like to being involved in the health-care process.

Spirituality/religiosity and clinical parameters

Despite some studies have found no relationship between spirituality and clinical factors, other scholars have reported a profound impact of spiritual attitudes on sleep disturbs, which are very frequent in dialysis patients,^{62,63} such as the research by Young and co-workers,^{64,65} the outcome of the palliative care,^{66,67} the nutritional status,⁶⁸ but for example intriguingly no relationship was found between spirituality scores and co-morbidity (as assessed using the Charlson co-morbidity index), as emerging in the work by Finkelstein and co-workers.⁶⁹ However, a correlation between spirituality/religiosity and symptom severity was found by Schwartz and co-workers.⁷⁰

Spirituality/religiosity and mental health

There is a good consensus about the positive impact of spiritual well-being and depression and anxiety, such as in the work by Theofilou,⁴⁰ Lucchetti,⁵⁵ even though Ko and collaborators failed to find any correlation.⁷¹

Spirituality/religiosity and locus of control

There are very few studies focusing on this topic, some interesting exceptions are given by the study carried out by Theofilou,⁴⁰ Ibrahim and co-workers,⁵⁴ Davison *et al.*⁵⁰⁻⁶⁰

Spirituality/religiosity and survival

This is a topic that has raised interest only recently and very few studies exist about this relationship, because of different difficulties and methodological barriers. Foster and collaborators were the first to investigate the relationship between a religious affiliation and survival rate.⁷² Greenberg *et al.*⁷³ confirmed this result. Spinale and co-workers,³⁷ for example, have been able to prove a positive correlation between spiritual beliefs and involvement and survival, in a sample of 166 ESRD patients, finding that religion is used more as a psycho-social support than as a coping strategy. However, the impact on survival remains only partially explained, since after applying adjustment not only the scores and data have confirmed the correlation, and thus further studies are needed in order to replicate these findings and to shed light on this relationship.

Spirituality/religiosity and coping strategies

In general, there is a consensus that spirituality and religion can be used as a coping strategies in order to overcome the psychological burden of CKD. There seems to be two principal coping strategies categories: the first dimension is using religion in order to enhance the psychological adjustment and to experience greater existential well-being (EWB), such as in the work by Elliott,⁷⁴ Breckenridge,⁷⁵ Baldree,⁷⁶ Walton,⁷⁷ Tanyi,^{78,79} Caress,⁸⁰ the second one is the social support mediated by religion itself, like in the work by Spinale,³⁷ Shah.⁸¹ The last strategy apparently is less used.

Spirituality/religiosity and psychotherapeutic interventions

On the basis of the possible relationship between spirituality and better clinical outcome in CKD populations, some scholars have put forward the proposal of introducing meditation or spiritual counseling as complementary supporting therapy.⁸²⁻⁸⁶ Spiritual counseling, in fact, is expected to make the patient search for a meaning or a purpose of his/her disease and the presence of a chaplain or a religious figure could make the patient more self-aware of his/her own spiritual resources and subsequently better cope with the disease. However, once again, too few studies exist and a randomized clinical trial would be needed. Some scholars, such as Davison, speculate that the advent of new and modern medical technologies and devices could have lead to an underestimation of spiritual and pastoral needs and thus to an under-treatment. The author advocates that religious/spiritual services and resources should be made more available in the hospitals, integrated into a holistic nursing and health-care process. Another interesting point is whether or not this psychological intervention should be tailored to the kind of treatment (hemodialysis *versus* peritoneal dialysis), but few authors found differences between the two treatments, such as Parker and collaborators.⁸⁷ Psycho-spiritual interventions should be applied at the light of the evidence-based spirituality, avoiding those practices which did not reach an adequate level of evidence, such as the intercessory prayer, as emerging in the beautiful demonstration by Matthews *et al.*⁸⁸

The biological and cellular basis of these relationships are still unclear, but a major role may be played by regulation of stressors and immunological/inflammatory axis (release of cytokines and interleukines, resistance to infection).⁸⁹

As a further remark we should notice that most of these studies are cross-sectional and not longitudinal, so a causal inference cannot

be extrapolated. They are not randomized, apart from few exceptions, and the sample is often selected as convenience sample, thus the results cannot be generalized to the general population.

Conclusions

Patient's spiritual attitudes, coping strategies, preferences and health-related beliefs and behaviors, as well as end-of-life care needs, are poorly routinely reported by the nephrology staff and are not currently systematically integrated into their renal care, such as pain and symptom management, advance care planning, and psychosocial and spiritual support even though some surveys have shown that CKD have diffuse spiritual needs. An integrated, holistic, approach in the framework of P6 medicine is thus advocated as necessary to provide the patient with his/her demands and needs and to deliver a true patient-centered treatment. Only recently spiritual beliefs are being investigated by scholars, a theoretical foundation is still lacking and further studies are needed to establish a scientifically sound impact on health-care.

References

- Centers for Disease Control and Prevention. National chronic kidney disease fact sheet: general information and national estimates on chronic kidney disease in the United States, 2010. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2010.
- Plantinga LC. Socio-economic impact in CKD. *Nephrol Ther*. 2013 Jan 11. [Epub ahead of print]
- Couser WG, Remuzzi G, Mendis S, Tonelli M. The contribution of chronic kidney disease to the global burden of major non-communicable diseases. *Kidney Int* 2011; 80:1258-70.
- Herzog CA, Asinger RW, Berger AK, et al. Cardiovascular disease in chronic kidney disease. A clinical update from kidney disease: improving global outcomes (KDIGO). *Kidney Int* 2011;80:572-86.
- Peixoto AJ, Orias M, Desir GV. Does kidney disease cause hypertension? *Curr Hypertens Rep* 2013 Jan 24. [Epub ahead of print]
- Dmitrieva O, de Lusignan S, Macdougall IC, et al. Association of anaemia in primary care patients with chronic kidney disease: cross sectional study of quality improvement in chronic kidney disease (QICKD) trial data. *BMC Nephrol* 2013; 14:24.
- Kuhlmann MK, Kribben A, Wittwer M, Horl WH. OPTA - malnutrition in chronic renal failure. *Nephrol Dial Transplant* 2007;22:13-9.
- Leavey SF, Weitzel WF. Endocrine abnormalities in chronic renal failure. *Endocrinol Metab Clin North Am* 2002;31: 107-19.
- Martin KJ, González EA. Metabolic bone disease in chronic kidney disease. *J Am Soc Nephrol* 2007;18:875-85.
- Al-Freah MA, Zeino Z, Heneghan MA. Management of hepatitis C in patients with chronic kidney disease. *Curr Gastroenterol Rep* 2012;14:78-86.
- Hartmann A, Jenssen T, Holdaas H. Diabetes, chronic kidney disease and cancer risk. *Nephrol Dial Transplant* 2012;27: 3018-20.
- Sasaki Y, Marioni R, Kasai M, et al. Chronic kidney disease: a risk factor for dementia onset: a population-based study. The Osaka-Tajiri Project. *J Am Geriatr Soc* 2011;59:1175-81.
- Yaffe K, Ackerson L, Hoang TD, et al. Retinopathy and cognitive impairment in adults with CKD. *Am J Kidney Dis* 2013;61:219-27.
- Nasser Mel T, Shawki S, El Shahawy Y, Sany D. Assessment of cognitive dysfunction in kidney disease. *Saudi J Kidney Dis Transpl* 2012;23:1208-14.
- Theofilou P. Depression and anxiety in patients with chronic renal failure: the effect of sociodemographic characteristics. *Int J Nephrol* 2011;2011:1-6.
- Karamanidou C, Theofilou P, Ginieri-Coccosis M, et al. Anxiety, depression and health beliefs in end-stage renal disease (ESRD) patients. Poster presentation. 17th European Congress of Psychiatry, European Psychiatric Association. *European Psychiatry* 2009;24 Suppl 1:651.
- Theofilou P. Anxiety and depression: a comparison among hemodialysis and kidney transplantation patients. *J Depression Anxiety* 2011;1:1-2.
- Vasilios K, Vasilios K. Depression in patients with CKD: a person centered approach. *J Psychol Psychother* 2012; S3:002.
- Feng L, Bee Yap K, et al. Depressive symptoms in older adults with chronic kidney disease: mortality, quality of life outcomes, and correlates. *Am J Geriatr Psychiatry* 2012 Aug 14. [Epub ahead of print]
- Muehrer RJ, Becker BN. Psychosocial factors in patients with chronic kidney disease: life after transplantation: new transitions in quality of life and psychological distress. *Sem Dial* 2005;18:124-31.
- Theofilou P. Sexual functioning in chronic kidney disease: the association with depression and anxiety. *Hemodial Int* 2012;16:76-81.
- Theofilou P. Self-esteem in Greek dialysis patients: the contribution of health locus of control. *Iran J Kidney Dis* 2012;6:136-40.
- Gokal R. Quality of life in patients undergoing renal replacement therapy. *Kidney Int* 1993;40:S23-7.
- Merkus MP, Jager KJ, Dekker FW, et al. Quality of life in patients on chronic dialysis: self-assessment 3 months after the start of treatment. The Necosad Study Group. *Am J Kidney Dis* 1997;29:584-92.
- Theofilou P. The effect of sociodemographic features and beliefs about medicines on adherence to chronic kidney disease treatment. *J Clin Res Bioethics* 2012; 3:1-5.
- Theofilou P. Identifying risk factors associated with compliance to medication in elderly kidney transplant patients. *J Transplant Technologies Res* 2012;2:1-2.
- Theofilou P. Factors affecting level of compliance in chronic patients. *Internal Med* 2012;2:e106.
- Theofilou P. Interventions to support medication adherence in individuals with chronic disease: the role of health professionals. *J Community Med Health Edu* 2012; 2:e104.
- Bragazzi NL. From P0 to P6 medicine, a model of highly participatory, narrative, interactive, and augmented medicine: some considerations on Salvatore Iaconesi's clinical story. *Patient Prefer Adherence* 2012. [In press].
- Bragazzi NL, Del Puente G. The bio-psycho-social model and beyond: its limitations and the need for a new model. A response to Eid's editorial the bio-psycho-social model: how accurate and valid is it? *Open Access Scientific Reports* 2012. [In press].
- Bragazzi NL. Children, adolescents, and young adults participatory medicine: involving them in the health care process as a strategy for facing infertility issue. *Am J Bioethics* 2013;13:43-4.
- Bragazzi NL, Del Puente G. Why P6 medicine needs clinical psychology and a trans-cultural approach. *Health Psychology Research* 2013;1:e5.
- Blumenfield M. Consultation-liaison psychiatry. Philadelphia: Lippincott Williams and Wilkins; 2003.
- Twibell RS, Wieseke AW, Marine M, Schoger J. Spiritual and coping needs of critically ill patients: validation of nursing diagnoses. *Dimens Crit Care Nurs* 1996; 15:245-53.
- Berman E, Merz JF, Rudnick M, et al. Religiosity in a hemodialysis population and its relationship to satisfaction with

- medical care, satisfaction with life, and adherence. *Am J Kidney Dis* 2004;44:488-97.
36. Song MK, Hanson LC. Relationships between psychosocial-spiritual well-being and end-of-life preferences and values in African American dialysis patients. *J Pain Symptom Manage* 2009;38:372-80.
 37. Spinale J, Cohen SD, Khetpal P, et al. Spirituality, social support, and survival in hemodialysis patients. *Clin J Am Soc Nephrol* 2008;3:1620-7.
 38. Tanyi RA, Werner JS. Adjustment, spirituality, and health in women on hemodialysis. *Clin Nurs Res* 2003;12:229-45.
 39. Valcanti CC, Chaves Ede C, Mesquita AC, et al. Religious/spiritual coping in people with chronic kidney disease undergoing hemodialysis. *Rev Esc Enferm USP* 2012;46:838-45.
 40. Theofilou P. The relationship between religion/spirituality and mental health in patients on maintenance dialysis. *J Women's Health Care* 2012;S2:001.
 41. Reig-Ferrer A, Arenas MD, Ferrer-Cascales R, et al. Evaluation of spiritual well-being in haemodialysis patients. *Nefrologia* 2012;32:731-42.
 42. Davison SN, Jhangri GS. Existential and religious dimensions of spirituality and their relationship with health-related quality of life in chronic kidney disease. *Clin J Am Soc Nephrol* 2010;5:1969-76.
 43. Martin JC, Sachse DS. Spirituality characteristics of women following renal transplantation. *Nephrol Nurs J* 2002;29:577-81.
 44. Rambod M, Rafii F. Perceived social support and quality of life in Iranian hemodialysis patients. *J Nursing Scholarship* 2010;42: 242-9.
 45. O'Brien ME. Religious faith and adjustment to long-term hemodialysis. *J Relig Health* 1982;21:e80.
 46. De Cássia Lopes Chaves E, De Carvalho EC, De Souza Terra F, De Souza L. Clinical validation of impaired spirituality in patients with chronic renal disease. *Rev Lat Am Enfermagem* 2010;18:309-16.
 47. Kao TW, Chen PC, Hsieh CJ, et al. Correlations between spiritual beliefs and health-related quality of life of chronic hemodialysis patients in Taiwan. *Artif Organs* 2009;33:576-9.
 48. Kimmel PL, Emont SL, Newmann JM, et al. ESRD patient quality of life: symptoms, spiritual beliefs, psychosocial factors, and ethnicity. *Am J Kidney Dis* 2003;42:713-21.
 49. Lai CF, Kao TW, Wu MS, et al. Impact of near-death experiences on dialysis patients: a multicenter collaborative study. *Am J Kidney Dis* 2007;50:124-32.
 50. Welch JL, Austin JK. Quality of life in black hemodialysis patients. *Adv Ren Replace Ther* 1999;6:351-7.
 51. Weisbord SD, Fried LF, Unruh ML, et al. Associations of race with depression and symptoms in patients on maintenance haemodialysis. *Nephrol Dial Transplant* 2007;22:203-8.
 52. Wechpradit A, Thaiyuenwong J, Kanjanabuch T. Health promotion behaviors and related factors in end stage renal disease patients treated with continuous ambulatory peritoneal dialysis. *J Med Assoc Thai* 2011;94 Suppl 4:S113-8.
 53. Davison SN, Jhangri GS. The relationship between spirituality, psychosocial adjustment to illness, and health-related quality of life in patients with advanced chronic kidney disease. *J Pain Symptom Manage* 2012 Aug 20. [Epub ahead of print].
 54. Ibrahim N, Desa A, Chiew-Tong NK. Religious coping as mediator between illness perception and health-related quality of life among chronic kidney disease patients. *Asian Social Sci* 2012;8:23-31.
 55. Lucchetti G, de Almeida LG, Lucchetti AL. Religiousness, mental health, and quality of life in Brazilian dialysis patients. *Hemodial Int* 2012;16:89-94.
 56. Patel SS, Shah VS, Peterson RA, Kimmel PL. Psychosocial variables, quality of life, and religious beliefs in ESRD patients treated with hemodialysis. *Am J Kidney Dis* 2002;40:e1022.
 57. Weil C. Exploring hope in patients with end stage renal disease on chronic hemodialysis. *Nephrol Nurs J* 2000;27:219-23.
 58. Kranenburg LW, Kerssens C, Ijzermans JN, et al. Reluctant acceptance of xenotransplantation in kidney patients on the waiting list for transplantation. *Soc Sci Med* 2005;61:1828-34.
 59. Davison SN. End-of-life care preferences and needs: perceptions of patients with chronic kidney disease. *Clin J Am Soc Nephrol* 2010;5:195-204.
 60. Davison SN. Facilitating advance care planning for patients with end-stage renal disease: the patient perspective. *Clin J Am Soc Nephrol* 2006;1:1023-8.
 61. Tanyi RA, Werner JS. Women's experience of spirituality within end-stage renal disease and hemodialysis. *Clin Nurs Res* 2008;17:32-49.
 62. Parker KP. Sleep disturbances in dialysis patients. *Sleep Med Rev* 2003;7:131-43.
 63. Stepanski E, Faber M, Zorick F, et al. Sleep disorders in patients on continuous ambulatory peritoneal dialysis. *J Am Soc Nephrol* 1995; 6:192-7.
 64. Yang JY, Huang JW, Kao TW, et al. Impact of spiritual and religious activity on quality of sleep in hemodialysis patients. *Blood Purif* 2008;26:221-5.
 65. Yang JY, Huang JW, Peng YS, et al. Quality of sleep and psychosocial factors for patients undergoing peritoneal dialysis. *Perit Dial Int* 2007;27:675-80.
 66. Kimmel PL. Psychosocial factors in adult end-stage renal disease patients treated with hemodialysis, correlates and outcomes. *Am J Kidney Dis* 2000;35:171-84.
 67. Kimmel PL. Psychosocial factors in dialysis patients. *Kidney Int* 2001;59:1599-13.
 68. Laws RA, Tapsell LC, Kelly J. Nutritional status and its relationship to quality of life in a sample of chronic hemodialysis patients. *J Ren Nutr* 2000;10:139-47.
 69. Finkelstein FO, West W, Gobin J, et al. Spirituality, quality of life and the dialysis patient. *Nephrol Dial Transplant* 2007;22: 2432-4.
 70. Schwartz CE, Merriman MP, Reed G, Byock I. Evaluation of the Missoula-vitas quality of life index - revised: research tool or clinical tool? *J Palliat Med* 2005;8:121-35.
 71. Ko B, Khurana A, Spencer J, et al. Religious beliefs and quality of life in an American inner-city haemodialysis population. *Nephrol Dial Transplant* 2007;22: 2985-90.
 72. Foster FG, Cohn GL, McKegney FP. Psychobiologic factors and individual survival on chronic renal hemodialysis. A two year follow-up. I. *Psychosom Med* 1973;35: 64-82.
 73. Greenberg IM, Weltz S, Spitz C, Bizzozero OJ Jr. Factors of adjustment in chronic hemodialysis patients. *Psychosomatics* 1975;16:178-84.
 74. Elliott BA, Gessert CE, Larson P, Russ TE. Religious beliefs and practices in end-stage renal disease: implications for clinicians. *J Pain Symptom Manage* 2012; 44:400-9.
 75. Breckenridge DM. Decisions regarding dialysis treatment modality: a holistic perspective. *Holist Nurs Pract* 1997;12:54-61.
 76. Baldree KS, Murphy SP, Powers MJ. Stress identification and coping patterns in patients on hemodialysis. *Nurs Res* 1982;31:107-12.
 77. Walton J. Finding a balance: a grounded theory study of spirituality in hemodialysis patients. *Nephrol Nurs J* 2002;29:447-56.
 78. Tanyi RA, Werner JS, Recine AC, Sperstad RA. Perceptions of incorporating spirituality into their care: a phenomenological study of female patients on hemodialysis. *Nephrol Nurs J* 2006;33:532-8.
 79. Tanyi RA, Werner JS. Adjustment, spirituality, and health in women on hemodialysis. *Clin Nurs Res* 2003;12:229-45.
 80. Caress AL, Luker KA, Owens RG. A descriptive study of meaning of illness in chronic renal disease. *J Adv Nurs* 2001;33:716-27.
 81. Shah VS, Ananth A, Sohal GK, et al. Quality of life and psychosocial factors in renal transplant recipients. *Transplant Proc* 2006;38:1283-5.

82. Straveler R. Meditation in the dialysis clinic. *Nephrol News Issues* 2006;20:34.
83. Goyal M, Haythornthwaite J, Levine D, et al. Intensive meditation for refractory pain and symptoms. *J Altern Complement Med* 2010;16:627-31.
84. Davison SN. Chronic kidney disease: psychosocial impact of chronic pain. *Geriatrics* 2007;62:17-23.
85. Carosella J. Incorporating spirituality into the delivery of dialysis care: one team's perspective. *Adv Ren Replace Ther* 2002;9:149-51.
86. Davison SN, Jhangri GS. Existential and supportive care needs among patients with chronic kidney disease. *J Pain Symptom Manage* 2010;40:838-43.
87. Parker KP, Kutner NG, Bliwise DL, et al. Nocturnal sleep, daytime sleepiness, and quality of life in stable patients on hemodialysis. *Health Qual Life Outcomes* 2003;1:68.
88. Matthews WJ, Conti JM, Sireci SG. The effects of intercessory prayer, positive visualization, and the expectancy on the well being of kidney dialysis patients. *Altern Ther Health Med* 2001;7:42-52.
89. Koenig HG, Cohen HJ, George LK, et al. Attendance at religious services, interleukin-6, and other biological indicators of immune function in older adults. *Int J Psychiatry Med* 1997;27:233-50.

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