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REVIEW

Self-transcendence among adults 65 years and older: A meta-analysis

Gørill Haugan PhD, RN, Professor[1,2] | **Ayşe Deliktaş Demirci PhD, Research Assistant**[3] | **Kamile Kabukcuoglu PhD, Professor**[3] | **Ingvild Aune Msc, Professor**[4]

[1]Department of Public Health and Nursing, NTNU Norwegian University of Technology and Science, Trondheim, Norway

[2]Faculty of Nursing and Health Sciences, Nord University, Levanger, Norway

[3]Faculty of Nursing, Akdeniz University, Antalya, Turkey

[4]NTNU Department of Clinical and Molecular Medicine, Trondheim, Norway

Correspondence
Gørill Haugan, Department of Public Health and NURSING, NTNU Norwegian University of Technology and Science, Pb 8905, 7491Trondheim, Norway.
Email: gorill.haugan@ntnu.no

Abstract

Introduction: Self-transcendence is a human capacity for wellbeing by expanding one's personal boundaries and may act as a health-promoting resource among adults ≥65 years. Therefore, the objectives of this meta-analysis were to determine the mean score of self-transcendence based on place of residence and gender, and to evaluate the correlations of self-transcendence with meaning, sense of coherence, resilience and depression.

Methods: Based on inclusion criteria, 13 studies were included. Orwin Safe N and Egger's test assessed publication bias. The mean score of self-transcendence and the correlation coefficients of the selected variables were estimated by random effects models.

Results: The self-transcendence mean score (n = 1634) was low (M = 43.6) and a bit lower among those staying in care facilities (M = 42.8), but did not vary significantly across gender. The correlation coefficients were self-transcendence_depression (r = −0.40), self-transcendence_meaning-in-life (r = 0.53), self-transcendence_resilience (r = 0.50) and self-transcendence_sense of coherence (r = 0.28). The correlation coefficients, except for meaning-in-life, were homogeneous.

Conclusion: In a health-promoting perspective, the concept of self-transcendence can help to better understand wellbeing among older individuals and provide guidance for health professionals in facilitating wellbeing and health. The concept and theory of self-transcendence can inspire health professionals in realising new health-promoting approaches to support older individuals in maintaining health, wellbeing and independency.

KEYWORDS

health promotion, meaning-in-life, meta-analysis, resilience, self-transcendence, sense of coherence, wellbeing

INTRODUCTION

The world's population is rapidly ageing, facing a shift to an older population; 125 million people are now aged 80 years or older (1). According to the World Health Organization, 65 years is the commonly accepted definition of being old in most core nations (2,3). In the coming years, the number of people ≥65 in the world will double (1,4). One consequence of people's longevity is an increasing incidence of functional and chronic diseases (5), causing a large proportion of older people in need of homecare or to stay in a care facility such as a nursing home (NH). Globally, all countries now face major

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challenges to ensure that their health and social systems are ready to make the most of this demographic shift (1).

Research indicates that as individuals mature in old age, they continue to grow, both emotionally, mentally and with regard to skills (6–10). Over the past few years, an increasing interest in the importance of spirituality for the wellbeing of those ≥65, and especially for those 80 and older, has occurred. The concept of spirituality is enduringly debated (11); however, most conceptualisations include elements of meaning, purpose and connectedness, for example (12):

Research has shown that among religious/spiritual as well as non-religions/non-spiritual individuals, 'being able to talk about what was on my mind' was deemed most important. Being listened to, having one's faith/beliefs valued and being understood are all important aspects of health-promoting nurse–patient interaction (13–15). Nevertheless, being able to talk about what was on one's mind has been reported the most important aspects of spiritual care (16).

Furthermore, studies have shown the importance of spiritual wellbeing for physical and mental health outcomes in the lives of many older people (17–19), in care facilities (20–22) and at the end of life (23–25). As a general human dimension of personal maturity, self-transcendence (ST) includes spiritual and non-spiritual aspects (26). In the context of difficult health-related experiences, a central focus of nursing is to understand and facilitate humans' capacity for wellbeing. Thus, the nursing theory of ST was created from a developmental perspective of human–environment processes of health, originating from an interest in understanding how people transcend adversity and the relationship among psychosocial development, mental health and wellbeing (26). ST is a human capacity for wellbeing by expanding one's personal boundaries in many ways, for example intra-personally, inter-personally and transpersonally to connect within self, with others and nature and with purposes or dimensions regarded as larger than or beyond the self (26,27). ST includes inter-personal, intra-personal, transpersonal and temporality dimensions (26,28).

Studies link ST to wellbeing in various populations (29–33) of both healthy (34–36) and unhealthy (medical conditions and chronical illness) (37–41) individuals. Expressions of ST are positively related to mental/emotional wellbeing, health and functioning in adults confronting personal mortality because of advanced age and/or enduring illness (30,35,42–45). ST is considered a significant contributor to successful ageing (46) and could offer a positive approach among older individuals (46,47), in care facilities (48,49) and at the end of life (31,35,50–52).

As an essential aspect of spirituality, the experience of meaning-in-life is commonly addressed in the nursing literature (22). Finding meaning-in-life involves understanding the nature of one's life, and to feel that life is significant, important, worthwhile or purposeful (53–57). Meaning-in-life is seen to be of particular importance to wellbeing and quality of life (QoL) among older people (17,18,58) in care facilities (21,22,59–61) and at the end of life (22–25,62). Recent research implies that meaning, similar to ST, is important for maintaining not only mental/emotional wellbeing, but also physical and functional wellbeing (63,64).

Moreover, in Antonovsky's salutogenic health theory (65,66), the concept of sense of coherence (SOC) is central (67). SOC includes the experience of comprehensibility, manageability and meaningfulness, and has shown to correlate positively with resilience, coping and mental health (44,68–70). Resilience in older individuals is a multidimensional, contextual and ongoing process (71), involving the ability to incorporate both vulnerabilities and strengths across a range of areas and timeframes (72,73). One could be physically 'frail' yet resilient; responsible for 'counting your blessings' and having the 'right' attitude, yet also aware that 'luck' and external environmental factors have a significant impact. Indeed, even those living with significant illness or hardship can be understood to be resilient (73). Accordingly, we expected both meaning-in-life, SOC, resilience, mental and physical health to correlate positively with ST, while we projected depression to be negatively related to ST.

To sum up, this review of the literature shows that ST is vital to emotional and mental wellbeing among older people. Finding new and alternative approaches to increase health and wellbeing among older people is greatly needed. Accordingly, an increased ST is highly warranted. However, evidence on ST shows a great variation presenting mean scores ranging between 23.580 (74) and 53.070 (46). Some studies examined ST mean score related with gender (44,75–77), staying in a care facility(75,78) or at home (29,44,74,76,79–81). Furthermore, ST has shown significant correlations with depression (82,83), meaning-in-life (44,76,79,82), resilience (44,76,79) and SOC (44,76,79); these studies reported quite different correlation coefficients, though (44,76,79,82). Therefore, to explain the variation in ST means and correlation coefficients, we conducted the present meta-analysis study. With the aim of providing a deeper insight into how to promote ST (and thereby health and wellbeing) in this population, the present study evaluates the pooled mean score of ST and its correlations with meaning-in-life, SOC, resilience and depression by means of a meta-analysis approach.

Objectives

The aim of the present study was twofold: (1) to determine the mean score of ST and (2) to evaluate the correlations between ST and the variables meaning-in-life, SOC, resilience and depression. Based in evidence and theory, these variables were expected to relate with ST in people ≥65. Focusing on adults ≥65, the research questions were as follows:

- What is the pooled mean score of ST?
- Does ST vary among home-dwelling older individuals and those living in care facilities?
- Does ST vary among gender?
- Does ST relate with depression, SOC, resilience and meaning-in-life?

METHOD

Design

The present study applied the meta-analytic procedure performed by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (84) and the Cochrane Collaboration (85). Meta-analysis refers to methods focusing on contrasting and combining results from different studies, in the hope of identifying patterns among study results, sources of disagreement among those results or other interesting relationships that may come to light in the context of multiple studies. Hence, meta-analysis provides an alternative to narrative literature reviews by statistically combining, logically organising and conceptually integrating the results of existing studies. The general aim of a meta-analysis is to more powerfully estimate the true effect size as opposed to a less precise effect size derived in a single study under a given single set of assumptions and conditions (86).

Search strategy and study selection

A comprehensive sample of studies investigating ST among individuals ≥65 was identified by searching electronic data bases (PubMed, Medline, EBSCO Host, CINAHL Complete, Cochrane and Science Direct databases), published from the earliest record to June 2018. The terms used were 'self-transcendence', 'old', 'elderly', 'older adult', 'senior citizens', 'old age', 'advanced age' and cross-referencing. In accordance with WHO (3), 'old age' was defined as ≥65. The inclusion criteria were as follows: (1) individuals aged ≥65, (2) no serious illness with high mortality (HIV/AIDS, OPDS, cancer, heart insufficiency, etc.), (3) any type of original article, (4), measured variables by the Self-Transcendence Scale (STS), Geriatric Depression Scale (GDS), Purpose in Life Test (PIL), The Resilience Scale (RS), Sense of Coherence Scale, (5) descriptive or inferential statistics utilisable for meta-analysis, (6) specified outcomes (ST, depression, meaning-in-life, resilience and SOC) and 7) full-length articles in English.

To achieve homogenous data, Page et al (87) recommend that the included effect estimates should be based on predefined clinical or methodological rationale, that is, for example selecting the scale with the best measurement properties. Therefore, widely used and validated measurements were selected for the present meta-analysis.

Data abstraction

By means of a coding protocol including the first author's surname, year of publication, country, design, sample size, gender and study parameters, three researchers (AD, KK and GH) abstracted and coded the data independently. If inconsistency among the researchers occurred during the coding, the researchers discussed and agreed upon the decision.

Quality appraisal

Based on study design, Joanna Brings Institute checklists (88) including inclusion criteria, description of setting and subjects, validity and reliability of the outcome measures, controlling for confounding variables, using appropriate statistical analysis, extra randomisation and the blinding process were used to examine the quality of the included studies.

Most of the studies clearly defined their inclusion criteria and their subjects and settings, except Reed (29). All studies used valid and reliable tools to measure outcomes, some studies dealt with confounding factors (46,51,76,77,79,80) such as age, gender, and number of disease, drugs used, living alone as well as place of residence, independency, religiosity, education level and race. The information of randomisation and the blinding process of the experimental study (83) was unclear.

Statistical analysis

The data were analysed using the Comprehensive Meta-Analysis Software (Version 3). Orwin's Fail-Safe N test and Egger's test of intercept assessed publication bias. Orwin's Fail-Safe N test estimates the number of unpublished studies in the given area (89). This concerns the possibility that non-significant studies may be missing from our analysis and that these studies, if included, would reduce the effect to a level not significantly different from zero, that is to nullify the observed effect. Orwin's Fail-Safe N test calculates the number of additional studies, with the mean null result necessary to reduce the combined significance. The Egger test quantifies and identifies asymmetry of the funnel graph (90). The pooled mean score of ST (with 95% Confidence Interval, CI) was calculated based on the mean score of ST reported in the included studies. The correlation coefficients (with 95% CI) were interpreted in accordance with Cohen's (91) classification:<0.10 = small, ≥0.30 = medium and ≥0.50 = large effect size. Subgroup and moderator analyses examined a

possible effect of residence place and gender on the mean of ST.

We expected that the between-study variance might be high; thus, the random effect model was selected. Between-study heterogeneity was indexed by Q statistics and the I^2 value. Heterogeneity was assessed by the I^2 value, which we interpreted in accordance with the Cochrane Handbook (85) as follows: 25%=low, 50%=moderate and 75%=high heterogeneity.

RESULTS

Characteristics of the included studies

Thirteen studies met the inclusion criteria (Figure 1), out of which 12 were used to estimate the mean of ST. To calculate the correlation effect size between ST and meaning-in-life, a thirteenth study (92) was added. Eight of the included studies were published during 2012 or later, mostly in Scandinavia and the United States. Frequently, participants' mean age was ≥80 years (29,44,76–79,82,83). Some studies provided data for ST based on gender (44,76,78), whereas some (77,83) assessed ST in women and men separately. Moreover, some participants had chronic illness (80), some stayed in a NH (78) and some had symptoms of depression (51,82) (Table 1).

The mean score of ST

Figure 2 shows the mean of ST based in 12 studies (n = 1634), among individuals ≥65 years the mean of ST was 43.588 ± 2.460 (95% CI 38.766-48.410). The forest graph showed that the mean of ST ranged between 23.580 and 53.070 (Figure 2). Orwin's Fail-Safe N indicated an N = 8628 to complete this meta-analysis. The probability of finding 8628 studies on this subject is rather low, indicating no evidence for a publication bias. Further, Egger's test (p = 0.841) indicated no bias in the selection of the studies. Effect sizes across studies were considerably heterogeneous (Q = 3262.78, I^2 = 99.663%).

The mean score of ST by place of residence

To examine the possible influence of place of residence on ST in this population, a moderator analysis was conducted. Individuals staying in care facilities exposed an ST mean of 42.811 (2 studies, n = 358), whereas home-dwelling older people reported a mean of 43.902 (7 studies, n = 857). These results showed highly heterogeneous Q-values for home-dwelling older individuals (Q = 1133.21, I^2 = 99.47%) and highly homogenous Q-values (Q = 0.48, I^2 = 0.00%) for people staying in care facilities.

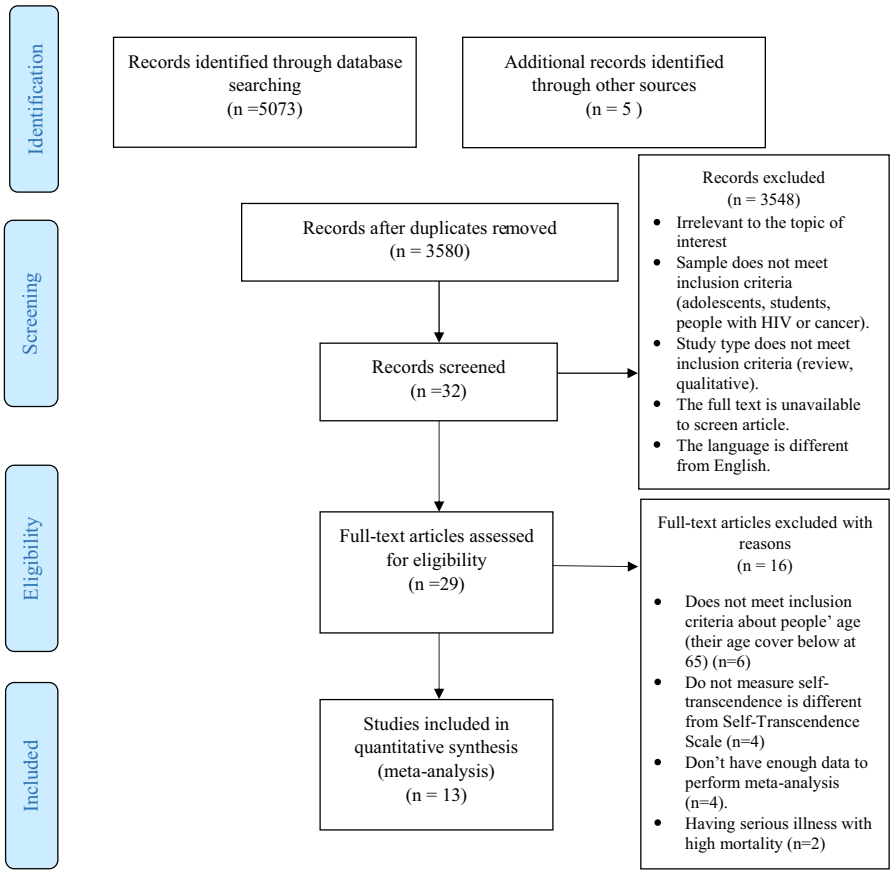


FIGURE 1 Study flow diagram of literature selection. Source: Moher et al (2009 (84)

TABLE 1 Characteristics of the included studies

Research ID	Region	Study type	Sample	Setting	Baseline Mean Age	Gender	Outcome
Reed, 1991 (29)	Not stated	Mixed method	*N* = 55	Local community social services programme	88 ± 11.33	36 women 19 men	ST mean score
Klaas et al,1998 (82)	United States	Cohort	*N* = 77 Depressed and Non-Depressed	Retirement communities	……..	……..	ST mean score, Correlations of ST with Geriatric Depression Scale, purpose in life and education
Upchurch et al,1999 (81)	United States	Not stated	*N* = 88	Senior citizen and community centre organisations	65-75 years = >44	Mostly women	ST mean score
Nygren et al, 2005 (44)	Sweden	Not stated	*N* = 125	Ninety-three (75%) participants were living in ordinary housing	95 years or older = 62, 90 years: 46 85 years: 53	86 women 39 men	ST mean score, ST mean based on gender. Correlations of ST with resilience, sense of coherence, purpose in life, mental health and psychical health,
Stinson et al, 2006 (83)	United States	An experimental comparison of two groups	*N* = 24	Residing in an assisted living facility	82.17 ± 6.78	24 women	ST mean score, correlation between ST and the Geriatric Depression Scale.
Lundman et al, 2012 (79)	Sweden	Cohort	*N* = 185	Living in own house or apartment	88.7 ± 4.1	118 women 57 men	ST mean score, correlations of ST with sense of coherence, purpose in life and resilience
Haugan et al, 2012 (75,78)	Norway	Cross-sectional	*N* = 202	Nursing Homes	86 ± 7.65	146 women 56 men	ST mean score, ST mean score based on gender
McCarthy et al, 2013 (46)	United States	Cross-sectional	*N* = 152 Without dementia	Senior citizen centres, retirement community	79.58	120 women 32 men	ST mean score
Hsu et al, 2013 (51)	Taiwan	Cross-sectional	*N* = 156 With Depressive Symptoms	Long-term care community	79.80 ± 7.14	88 men 68 women	ST mean score
Thomas et al, 2014 (80)	United States	Descriptive, correlational research design	*N* = 46 With Hypertension	Independent living facility	70 ± 4.19	27 women 18 men	ST mean score, correlation of ST with education
Norberg et al, 2015 (77)	Sweden	Correlational, prospective, and longitudinal	N = 190	Residential care facilities and living in own house or apartment	88.8 ± 4.1	121 women 69 men	Women's ST mean score
Lundman et al, 2015 (76)	Sweden	Longitudinal	*N* = 194	Living in own house or apartment	88.9 ± 4.1	126 women 68 men	ST mean score, ST mean score based on gender, Correlations of ST with resilience, purpose in life and sense of coherence
Kim et al, 2015 (74)	Korea	Descriptive	N = 164	Living in own house or apartment	65 ~ 74 66 (40.2) 75 or older 98 (59.8)	132 women 32 men	ST mean score

Study name	Subgroup within study	Statistics for each study						
		Mean	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Upchurch, 1999	mix	52,000	0,544	0,296	50,934	53,066	95,648	0,000
Haugan et al., 2012	Combined	42,689	0,370	0,137	41,963	43,414	115,336	0,000
Nygren et al., 2005	Combined	47,000	0,459	0,211	46,101	47,899	102,434	0,000
Lundman et al., 2015	Combined	47,364	0,393	0,155	46,593	48,135	120,401	0,000
Reed, 1991	mix	49,500	0,971	0,943	47,597	51,403	50,986	0,000
Thomas et al., 2014	mix	39,780	1,582	2,503	36,679	42,881	25,145	0,000
Norberg et al., 2015	Combined	31,363	0,326	0,106	30,725	32,001	96,337	0,000
Lundman et al., 2012	mix	47,900	0,404	0,164	47,107	48,693	118,456	0,000
Hsu, et al., 2013	mix	43,190	0,629	0,396	41,957	44,423	68,631	0,000
Klaas et al., 1998	mix	45,500	0,764	0,583	44,003	46,997	59,591	0,000
McCarthy et al., 2018	mix	53,070	0,406	0,165	52,273	53,867	130,563	0,000
Kim et al., 2015	mix	23,580	0,729	0,532	22,151	25,009	32,331	0,000
		43,588	2,460	6,053	38,766	48,410	17,716	0,000

FIGURE 2 Forrest plot of overall effect sizes of ST level

Group by Subgroup within study	Study name	Subgroup within study	Statistics for each study					
			Mean	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
men	Haugan et al., 2012	men	42,867	0,083	0,007	42,705	43,029	519,073	0,000
men	Nygren et al., 2005	men	47,000	0,769	0,591	45,494	48,506	61,149	0,000
men	Lundman et al., 2015	men	48,000	0,636	0,405	46,753	49,247	75,425	0,000
men	Norberg et al., 2015	men	32,000	0,554	0,307	30,915	33,085	57,785	0,000
men			42,454	2,888	8,341	36,794	48,115	14,700	0,000
women	Haugan et al., 2012	women	42,620	0,038	0,001	42,546	42,694	1131,823	0,000
women	Nygren et al., 2005	women	47,000	0,572	0,327	45,880	48,120	82,238	0,000
women	Lundman et al., 2015	women	47,000	0,499	0,249	46,022	47,978	94,210	0,000
women	Norberg et al., 2015	women	31,000	0,400	0,160	30,216	31,784	77,500	0,000
women			41,897	3,050	9,300	35,920	47,874	13,739	0,000
Overall			42,191	2,097	4,397	38,081	46,301	20,120	0,000

Group by Resident place	Study name	Subgroup within study	Statistics for each study						
			Mean	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
care facilities	Haugan et al., 2012	mix	42,680	0,370	0,137	41,955	43,405	115,354	0,000
care facilities	Hsu, et al., 2013	mix	43,190	0,629	0,396	41,957	44,423	68,631	0,000
care facilities			42,811	0,319	0,102	42,186	43,436	134,225	0,000
home-dwelling	Kim et al., 2015	mix	23,580	0,729	0,532	22,151	25,009	32,331	0,000
home-dwelling	Lundman et al., 2012	mix	47,900	0,404	0,164	47,107	48,693	118,456	0,000
home-dwelling	Lundman et al., 2015	Combined	47,364	0,393	0,155	46,593	48,135	120,401	0,000
home-dwelling	Nygren et al., 2005	Combined	47,000	0,459	0,211	46,101	47,899	102,434	0,000
home-dwelling	Reed, 1991	mix	49,500	0,971	0,943	47,597	51,403	50,986	0,000
home-dwelling	Thomas et al., 2014	mix	39,780	1,582	2,503	36,679	42,881	25,145	0,000
home-dwelling	Upchurch, 1999	mix	52,000	0,544	0,296	50,934	53,066	95,648	0,000
home-dwelling			43,902	2,917	8,507	38,185	49,619	15,052	0,000
Overall			42,824	0,317	0,101	42,202	43,445	135,065	0,000

FIGURE 3 Analysis of overall effect size of ST level based on gender and residence place

The mean score of ST by gender

Figure 3 shows the results from the subgroup analysis for women and men at baseline, showing that the mean of ST was 41.897 for the women (95% CI 35.920-47.874) (4 studies, $n = 481$) and 42.454 for the men (95% CI 36.794-48.115) (4 studies, $n = 233$). The present results indicated highly heterogeneous Q-values for both sub-groups: the women (Q = 977.37, $I^2 = 99.69\%$) and the men (Q = 477.43, $I^2 = 99.37\%$). Between-study variance was non-significant for gender (Qb =0.01, $p = 0.89$).

Self transcendence correlations with depression, meaning, resilience and sense of coherence

Figure 4 shows the correlation coefficients between ST and depression, meaning-in-life, resilience,\ and SOC.

A significant negative correlation (−0.404; 95% CI −0.557-−0.223) was estimated between depression and ST ($k = 2$, $n = 101$). According to Cohen's classification, ST was highly associated with low depression. The heterogeneity test displayed homogeneity for this association ($I^2 = 0.00\%$, Q = 8.693).

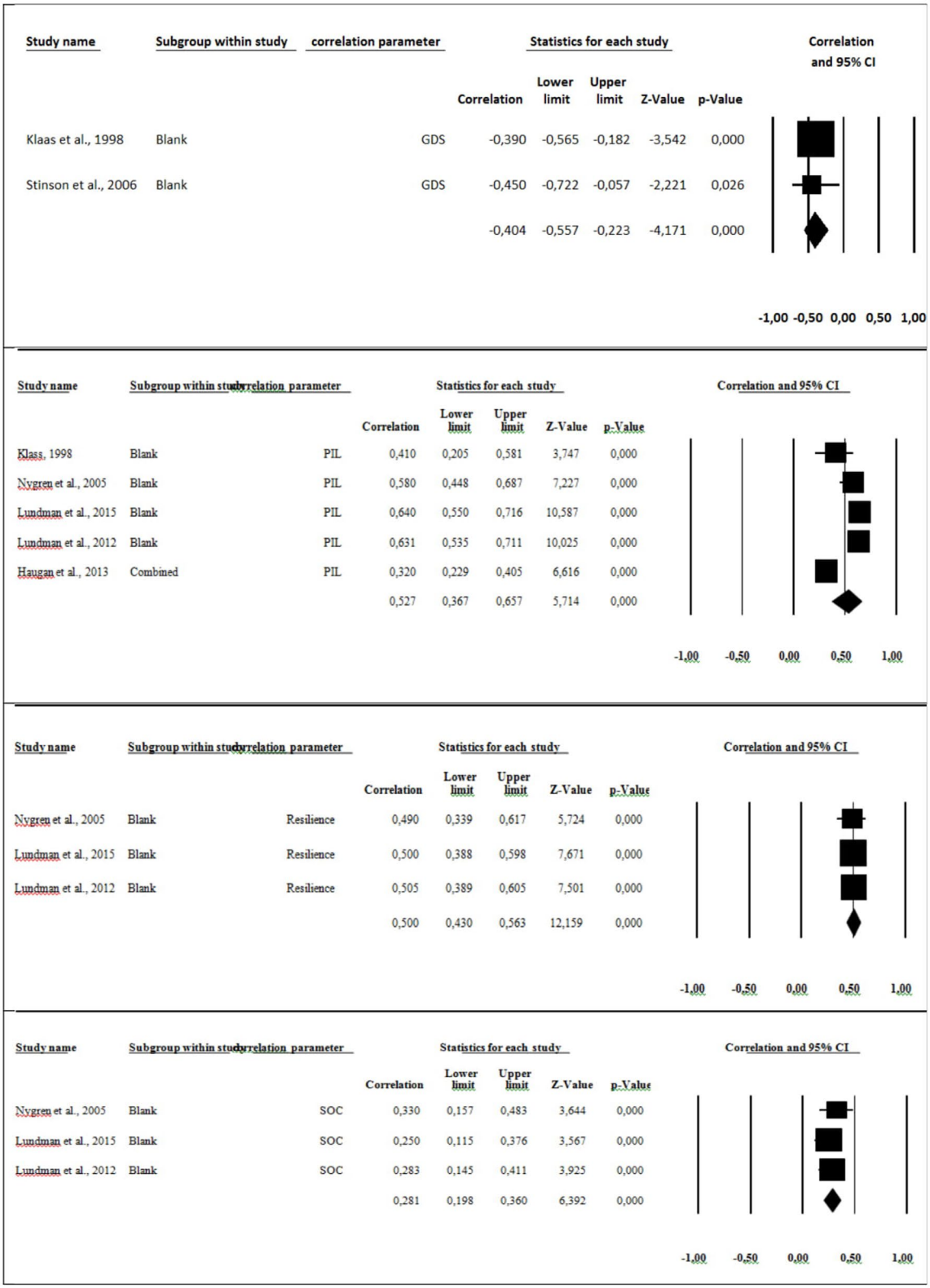


FIGURE 4 Forrest plot of overall effect sizes of variables at baseline of correlation coefficients

The relationship between meaning-in-life and ST revealed a strong correlation: 0.527 (95% CI 0.367-0.657) ($k = 5$, $n = 784$). However, this association displayed a considerably high heterogeneity (Q = 36.64, $I^2 = 89.08\%$), indicating insecurity.

The correlation between resilience and ST presented homogeneity (Q = 0.02, $I^2 = 0.00\%$) and a strong correlation (k = 3, $n = 500$) of 0.500 (95% CI 0.430–0.563) in individuals ≥65.

The correlation between SOC and ST ($k = 3$, $n = 499$) showed a medium strong correlation coefficient (0.281; 95% CI 0.198-0.360) and homogeneity (Q = 0.54, $I^2 = 0.00\%$).

DISCUSSION

By means of a meta-analysis approach, this study assessed possible correlations of depression, SOC, resilience, meaning-in-life with ST and the mean score of ST among individuals 65 years or older, related to place of residence and gender. The present meta-analysis focusing individuals ≥65, exposed an ST mean score of 43.54 ± 2.30 (95% 39.01–48.06) (Figure 2). According to previous studies among adults ≥65 showing means of 46–50, this mean (43.54) is rather low. However, this finding exposed a high heterogeneity, indicating considerable variation of ST mean score in the included studies; this might be due to significant differences in the samples used in these studies. A Norwegian study among NH residents (92) found an 'age effect' on ST indicating that the higher age the less ST; ST mean was 45 for ages 65–75, 42.9 for ages 76–90 and 41.25 for ages 91–104. However, previous research on samples of the same age have presented higher means of ST: 46 (82), 47 (93), 48 (81), 49 (29) and 50 (94). This indicates that it is not age, but conditions following age that explain the variation of ST, multi-morbidity (95), polypharmacy (96), loss of functions and senses (vision and hearing), fatigue, frailty and depression (97) increase in age. Hence, variables such as health status, loss of functions, dependency of care and an institutionalised daily life may explain the lower ST capacity, and not age per se. The mean age of the participants in the included studies was ≥80 years. Thus, possibly the heterogeneity connected to the mean of ST in the present meta-analysis was caused by high age followed by more illness, loss of functions, frailty, etc. Besides, the lowest mean of ST was reported among individuals with lower income and a low education level (74). Interestingly, the highest ST mean score appeared among people with higher education (46). However, conclusions should be drawn with caution; analysis of possible confounding factors effecting ST might explain the results. Therefore, the present meta-analysis implies that further studies are needed to clarify which factors contribute to ST.

The present meta-analysis disclosed a higher ST mean score among home-dwelling older individuals than among those staying in care facilities. Due to the low number of studies, this finding could not be tested statistically. The included studies, except two (44,77), specified the participants' place of residence but did not examine possible effect of residence on ST. Nevertheless, staying in care facilities represents fewer opportunities to make personal decisions or exercise control over one's life, for example often NH residents experience limited opportunities for social connection despite proximity to peers (98), which has implications for mental health and QoL (99). Idleness and time spent in passive activities, such as doing nothing, sleeping and waiting, are commonplace among NH residents, which leads to feelings of boredom, loneliness and indignity (100–103). Residents have used terms like trapped, stuck, confined, isolated and discouraged to describe how they feel about the institutional life (104). Furthermore, compared to home-dwelling older people, NH residents report more depression symptoms (63,105,106); the prevalence rates of depression are found three to four times higher for NH residents compared to independently living elderly people, with 46% of NH residents experiencing depressive feelings (107,108). Consequently, older adults in care facilities might be at a higher risk of declined ST, wellbeing and QoL (109–111). Finding approaches to increase wellbeing among older people in care facilities is highly warranted.

Moreover, this study revealed a higher ST among men compared to women, though not significant. This finding was also highly heterogeneous, indicating insecurity and a need to examine possible moderators. However, due to a limited amount of studies, the present meta-analysis could not include moderator analysis. Moe and colleagues (112) showed that 'inner strength' defined as connectedness, firmness, flexibility and creativity were equally distributed among chronically ill men and women 80–101 years old. The included studies examined effect of gender on ST among participants ≥80 years; in one study the female participants (M = 87.3) were older than the males (M = 82) (78). These older individuals were staying in a NH, whereas the participants in two other studies were home-dwelling (44,76). Possibly, variables such as health status, illness, functionality, losses and place of residence might act as confounders, explaining the disclosed gender as well as the age difference. Hence, a possible hypothesis might be that gender or age per se do not affect ST but frailty, infirmities and/or place of residence. However, this remains to be tested. Therefore, the present meta-analysis recommends assessing possible effects on ST by confounding variables. Such knowledge is valuable for nursing practice in order to promote ST and thereby wellbeing.

In accordance with previous studies, this meta-analysis showed that ST significantly correlates with depression, meaning-in-life, resilience and SOC among adults 65 years and older. The ST theory (28) claims that the higher the ST, the more the wellbeing. Depression is negatively associated

with wellbeing (97). Hence, it is rational that depression shows a highly significant negative association with ST. Hsu and colleagues (51) found that a low ST was the strongest predictor (among the included variables in their study) of depressive symptoms. In addition, meaning-in-life along with resilience and SOC represent vital aspects of mental health.

This study revealed a strong correlation between meaning-in-life and ST. Meaningfulness is a vital dimension involved in the SOC concept (66) and is highly positively correlated with resilience (44,73); the latter has been found to predict depressive symptoms among older individuals (113) as well as among adolescents (114). Accordingly, the highly significant positive relations among these concepts found in the present meta-analysis are reasonable. Lundman and colleagues (79) suggested that ST, meaning-in-life, SOC and resilience share variance explaining a common dimension which they framed 'inner strength'. Older people with high scores on these assessment scales had better mental and physical health and more social contact compared to those with low scores. Nevertheless, the high heterogeneity related to this finding indicates uncertainty; hence, this association needs further evaluation by considering confounding variables, which may influence on ST. The present study generates new research questions for further research, for example among adults 65 years or more does ST associate with age, gender, place of residence, health status, loss of functions, connectedness with family and/or friends as well as the Divine?

STRENGTHS AND LIMITATIONS

Some limitations should be noted; a meta-analysis depends on the studies included. This study included publications only written in English. Hence, studies in other languages are missing, representing a limitation. Due to few existing studies, moderator analysis examining the effect of age and place of residence could not be utilised. Moreover, mostly the included studies applied a cross-sectional design. Therefore, evaluation of potential differences based in age, gender and life circumstances associated with getting older could not be accomplished. Finally, the high homogeneity related to the correlations between ST and depression, SOC and resilience represents a strength of this meta-analysis.

IMPLICATIONS FOR NURSING PRACTICE

To enhance wellbeing among individuals in care facilities as well as home-dwellings in need of care, health professionals should emphasise core aspects of spirituality such as perceived meaning-in-life, intra- and inter-personal ST, connectedness and SOC (11,12). This implies to facilitate meaningful activities, meaningful dialogues and relationships in NHs and other care facilities. The experience of meaningfulness is a personal perception; hence, such facilitation requires that the health professionals relate in meaningful dialogues with the patients to figure out what gives meaning to them as well as how they understand their current reality. Moreover, enhancing older individuals' intra- and inter-personal ST involves boosting a sense of acceptance of oneself, one's life situation and how one's life turned out, that is, looking at one's entire life, identifying the good and the bad, once achievements and the things one let go (14,26,28). Such acceptance derives from meaningful dialogues about one's daily experiences as well as the experiences throughout one's life journey, namely opportunities to talk about 'what is on one's mind', which is termed the core of spiritual care (16). Therefore, nurse–patient interaction performs as a health-promoting asset in NHs (13–15), supporting both ST, meaning-in-life and wellbeing in this specific context. Consequently, health professionals need knowledge about meaning-in-life, ST and nurse–patient interaction, and guidance in how to facilitate wellbeing by means of these approaches.

CONCLUSION

This study revealed a low ST among adults 65 years and older. However, this finding was uncertain because of the high heterogeneity. Due to limited studies available, this meta-analysis could not examine variables, which possibly caused the heterogeneity. Thus, more studies are needed.

Furthermore, highly significant associations between ST and meaning-in-life, resilience, SOC and depression were disclosed. This indicates that ST is vital for mental health and wellbeing in elderly individuals. Consequently, in a health-promoting perspective of ageing the concept of ST can help to better understand wellbeing among old people and provide guidance for health professionals in facilitating wellbeing and health. The concept and theory of ST can inspire health professionals in realising new health-promoting approaches to support old people in maintaining health, wellbeing and independency.

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CONFLICT OF INTERESTS

No conflict of interest has been declared by the authors.

AUTHOR CONTRIBUTIONS

G. Haugan designed the study, conducted literature search and assisted with writing the article. A. DeliktasDemirci

conducted the statistical design of the study, search for databases and carried out the statistical analysis for meta-analysis. K. Kabukcuoglu designed study and conducted literature search. I.Aune designed study, conducted literature search and assisted with writing the article.

ORCID

Gørill Haugan https://orcid.org/0000-0003-0090-6462
Ayşe Deliktaş Demirci https://orcid.org/0000-0003-0872-2043
Kamile Kabukcuoglu https://orcid.org/0000-0002-7479-833X
Ingvild Aune https://orcid.org/0000-0002-0951-3043

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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