



The Association between Spirituality and Dental Pain Tolerance/Control among the Elderly in Sari, Iran

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ABSTRACT

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Dental disorders are often associated with pain and discomfort, particularly during the sensitive life stage of old age. This study aimed to evaluate the relationship between spiritual well-being and dental pain tolerance/control among elderly individuals attending the Tooba Dental Clinic in Sari, Iran, in 2023. A total of 240 elderly patients (aged ≥ 60 years) were selected through convenience sampling. Data collection involved a demographic questionnaire, a visual analog scale (VAS), and a standardized spiritual well-being questionnaire assessing religious and existential health. The findings indicated that the participants had a mean age of 65.87 ± 3.39 years, with mean scores for spiritual well-being and pain severity of 71.8 ± 3.12 and 5.27 ± 0.07 , respectively. An inverse correlation was identified between spiritual well-being and dental pain severity among the elderly ($P < 0.05$), which remained significant in multivariate regression analysis after adjusting for other factors. This suggests that spiritual well-being plays a role in reducing pain perception. In conclusion, the results highlight the importance of spiritual well-being as a factor in regulating pain perception, advocating for the integration of spirituality-based interventions with conventional dental treatments as a complementary approach to managing geriatric dental pain.

Keywords: Spirituality; Pain; Oral Health; Elderly

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Introduction

Aging is considered a sensitive stage of life accompanied by physiological alterations and increased risk of various diseases. Oral health holds special significance during this period because obstacles such as dental caries, periodontal diseases, and tooth loss can lead to oral infections, increased risk of malnutrition, reduced quality of life, and psychosocial problems [1]. Based on some studies, dental pain is among the most prevalent issues among the elderly, influencing the nutritional and psychological status of this age group significantly [2].

Pain, an unpleasant sensory and emotional experience associated with actual or potential tissue damage, can be classified into acute and chronic [3]. Acute pain manifests abruptly with a well-defined origin and shows rapid resolution following adequate clinical management. However, chronic pain persists beyond three months and often continues without a definitive reason [4].

Chronic pain is more prevalent among the elderly due to multiple physical and physiological challenges. Reduced body flexibility, joint disorders, systemic diseases, and oral problems can contribute to persistent pain [5]. The majority of elderly patients develop pain tolerance through frequent exposure and apply various coping strategies, including analgesic use, lifestyle modifications, pain acceptance, or psychological approaches such as cognitive coping and spirituality [6].

Multiple pain relief modalities exist, including pharmacological interventions, physiotherapy treatments, lifestyle changes, and psychological approaches. Spirituality and religious beliefs are among the most critical psychological strategies, attracting much attention in recent studies [7]. Spirituality can help modulate the pain perception by creating a sense of calm, reducing stress, and enhancing hopefulness, which is mediated through neurobiological systems such as the hypothalamic-pituitary-adrenal (HPA) axis and low levels of stress hormones such as cortisol [8].

Some studies have shown that spirituality and religious beliefs may correlate with enhanced social support, improved mental health, and better chronic pain coping abilities among the elderly [9]. Other studies have revealed that religious individuals may demonstrate more proactive self-care behaviors, including superior oral hygiene practices and greater adherence to frequent dental visits [10].

Several potential mechanisms may explain the role of spirituality in dental pain perception. For example,

religious beliefs can enhance pain tolerance, enabling individuals to manage dental pain without excessive analgesic use [11]. In addition, regular engagement in spiritual practices is often associated with lower stress levels, attenuating perceived pain severity [12]. However, scientific evidence directly linking spirituality to dental pain remains limited, warranting further examination.

Although many studies have been conducted on the spirituality-chronic pain association, the dental pain-spirituality correlation remains underexplored. Existing literature predominantly considers spirituality a factor influencing psychological health and quality of life, yet its effects on dental pain and relevant mechanisms remain poorly characterized [13].

This study seeks to investigate the association between spiritual well-being and pain with dental origin among the elderly attending the Tooba Dental Clinic in Sari in 2023, given the significance of geriatric oral health and the potential role of spirituality in reducing pain perception.

Materials and Methods

The study was conducted on 240 elderly patients (≥ 60 years) attending the Tooba Dental Clinic in Sari, Iran, from April to February 2023. The subjects were selected using the convenience sampling method.

The sample size was calculated using Cochran's formula for cross-sectional studies.

The inclusion criteria were being 60 years or older, having the capacity to complete questionnaires, communicating effectively, and having adequate cognitive status based on the Abbreviated Mental Test score ($AMT > 7$). Additionally, the exclusion criteria included incomplete questionnaire responses.

The demographic questionnaire contained items assessing various variables across demographic characteristics (gender, marital status, and income level), social determinants (economic and employment status, education, living conditions, and insurance coverage), and health status (disease type, medication use, tobacco/alcohol consumption, and physical activity). In addition, oral health-specific variables included dental visit pattern, oral hygiene practices, DMFT index (a composite oral health measure consisting of decayed (D), missing (M), and filled (F) teeth, along with total tooth count (T)), prosthetic use, edentulism duration, and masticatory dysfunction, with higher scores representing poorer oral health.

Pain severity was assessed using the visual analog scale (VAS), a standardized and widely used

instrument in Iran. Williamson and Hogarth confirmed this scale's appropriate validity and reliability, which can be effectively employed in therapeutic settings. The VAS contains a 10-cm ruler anchored by "no pain" on the far left and "unbearable pain" on the far right. The subjects mark a single point along this continuum, reflecting the severity of their pain during the previous 48 hours. The VAS categorizes the results as "no pain" (0-1), "mild pain" (2-3), "severe pain" (4-5), "highly severe pain" (6-7), "maximum pain" (8-9), and "unbearable pain" [10,1].

The study employed the standardized Spiritual Well-Being Questionnaire (SWBQ), comprising 20 items rated on a six-point Likert scale, with responses ranging from "strongly agree" to "strongly disagree". The questionnaire contained two subscales, religious (10-item) and existential well-being (10-item), each scoring 10-60 points. The odd- and even-numbered items exhibited religious and existential well-being, respectively. The sum of the subscales constituted the total score (20-120), categorized as low (20-40), moderate (41-99), and high (100-120) spiritual well-being [2]. The scale demonstrated appropriate validity and reliability for the Iranian population (Cronbach's $\alpha=0.92$) [3].

The data were analyzed using SPSS version 22 software. First, descriptive statistics were presented to address demographic characteristics. Then, the normality of quantitative variable distributions was studied using the Kolmogorov-Smirnov test, representing the non-normal distribution for the variables ($P<0.05$). In the next step, Spearman's correlation tests were applied to assess the association between independent and dependent variables. Finally, a significance level of $P<0.05$ was adopted for all statistical analyses.

Results

The present study evaluated the data on 240 elderly patients attending Tooba Dental Clinic. The mean age was 65.87 ± 3.39 years, with married individuals ($n=109$) comprising 45.4% of the subjects. The mean DMFT score among the patients was 15.2 ± 5.17 .

The mean pain severity among the subjects was 5.27 ± 0.07 . Only 20% of the patients reported no or mild pain, while the remaining described severe pain. The mean spiritual well-being score was 71.8 ± 3.12 , with religious and existential well-being subscale scores averaging 36.3 ± 4.16 and 35.6 ± 4.26 , respectively (Table 1-2). The association between the study variables and patients' pain severity was examined using Generalized Linear Models (GLMs). First, the model was fitted for each variable separately (Table 3). Then, the variables with p-values <0.2 in univariate analysis were included in the multivariate model to control for confounding effects (Table 4).

Table 1. Frequency distribution of demographic variables among the elderly patients

Variable	Category	(%) Count
Education	< high school	28.7 (69)
	High school	28.3% (68)
	University	42.9% (103)
Marital status	Single	29.6% (71)
	Married	45.4% (109)
	Divorced	10.8% (26)
	Widowed	14.2% (34)
Employment status	Self-employed	48.8% (117)
	Employee	17.9% (43)
	Homemaker	22.9% (55)
	Unemployed	10.4% (25)
Chronic illnesses	None	10.4% (25)
	Present	89.6% (215)
Tobacco use	No	63.3% (152)
	Yes	36.7% (88)
Living companions	Alone	14.6% (35)
	Spouse	14.6% (35)
	Spouse & children	35.8% (86)
	Children	6.7% (16)
Economic status	Other	12.1% (29)
	Poor	16.7% (40)
	Moderate	46.7% (112)
	Appropriate	36.7% (88)
Feeling of loneliness	No	55.4% (133)
	Yes	54.6 (107)
Self-reported satisfaction	No satisfaction	58.3% (140)
	Satisfied	41.7% (100)
Insurance	None	19.6% (47)
	Yes	80.4% (193)

Table 2. Frequency distribution of health-related variables among the elderly patients

Variable	Category	(%) Count
Self-assessed oral health	Appropriate	40.8% (98)
	Poor	22.9% (55)
	No opinion	36.3% (87)
Dental visit pattern	Never	36.3% (87)
	Once	35.0% (84)
	Multiple times	28.7% (69)
Gum health assessment	Healthy (no issues)	68.8% (165)
	Swelling	25.0% (60)
	Bleeding	6.3% (15)
Denture quality assessment	No dentures	27.5% (66)
	Poor	9.2% (22)
	Moderate	34.2% (82)
Daily toothbrushing frequency	Appropriate	29.2% (70)
	0 times	12.5% (30)
	1 time	29.2% (70)
	2 times	42.9% (103)
Medication administration route	≥ 3 times	15.4% (37)
	None	22.1% (53)
	Oral	28.7% (69)
	Injectable	27.5% (66)
Non-pharmacological pain relief	Topical	21.7% (52)
	None	91.7% (220)
	Narcotics	5.0% (12)
Pain severity	Herbal/ Analgesics	3.3% (8)
	No pain	4.6% (11)
	Mild pain	15.4% (37)
	Severe pain	37.1% (89)
	Highly severe pain	27.1% (65)
	Maximum pain	12.9% (31)
	Unbearable pain	2.97% (7)

Table 3. Univariate analysis of personal, social, and illness-related factors associated with pain severity among the elderly

Variable	Category/comparison	B (95% CI)	p-value
Education	Less than high school/University	-0.06 (0.08)	0.442
	High School/University	0.05 (0.08)	0.520
Marital status	Married/Single	0.09 (0.07)	0.231
	Divorced/Single	0.25 (0.11)	0.026
	Widowed/Single	0.15 (0.10)	0.137
Employment status	Self-employed/Unemployed	0.59 (0.10)	<0.001
	Employee/Unemployed	0.67 (0.11)	<0.001
	Homemaker/Unemployed	0.72 (0.11)	<0.001
Chronic illnesses	Present/Absent	0.02 (0.10)	0.817
Tobacco use	Yes/No	-0.09 (0.06)	0.152
Living companions	Spouse/Alone	0.12 (0.10)	0.211
	Spouse & children/Alone	0.03 (0.08)	0.707
	Children/Alone	0.31 (0.13)	0.018
	Other/Alone	0.16 (0.10)	0.125
Economic status	Poor/Appropriate	-0.49 (0.09)	<0.001
	Moderate/Appropriate	-0.02 (0.07)	0.782
Loneliness	Yes/No	0.13 (0.06)	0.036
Satisfaction	Yes/No	0.17 (0.06)	0.006
Age		-0.001 (0.009)	0.925
Insurance	Uninsured/Insured	0.28 (0.08)	<0.001
Dental visit pattern	Once/Never	0.20 (0.07)	0.005
	Multiple times/Never	0.20 (0.08)	0.010
Gum health assessment	Swelling/None	-0.14 (0.07)	0.050
	Bleeding/None	-0.24 (0.13)	0.059
Denture quality	Poor/No dentures	0.26 (0.12)	0.027
	Moderate/No dentures	0.24 (0.08)	0.002
	Appropriate/No dentures	0.14 (0.08)	0.097
Medication administration route	Oral/None	-0.14 (0.09)	0.114
	Injectable/None	-0.12 (0.09)	0.166
	Topical/None	-0.21 (0.09)	0.023
Non-pharmacological pain relief	Narcotics/None	0.25 (0.14)	0.076
	Herbal or analgesics/None	0.11 (0.17)	0.544
Pain severity	High	5.17 ± 0.09	0.45
	Moderate	5.32 ± 0.08	0.51
	Low	5.40 ± 0.12	0.39
Daily toothbrushing		-0.03 (0.02)	0.251
Dry mouth frequency		0.01 (0.01)	0.498
Spiritual well-being		-0.01 (0.01)	0.037
DMFT index		-0.014 (0.006)	0.037

Based on the final model, some variables significantly affected the pain severity after controlling for other factors, despite being insignificant in the univariate analysis. After controlling for other factors, a positive association was observed between spiritual well-being and pain severity. The association between pain severity and factors such as education level, employment, living companions, and marital and economic status was investigated using the Kruskal-Wallis test. No significant difference was reported in pain severity among the patients with different education levels. The pain severity was significantly higher among the divorced/widowed subjects and significantly lower among the unemployed individuals and those with poor economic status. This variable was significantly lower among the patients living alone versus higher pain among those cohabiting with children. The correlation between pain severity and chronic illness, tobacco use, satisfaction, and loneliness was studied utilizing the Mann-Whitney-Wilcoxon test. No significant difference was identified in pain severity among the patients with and without chronic illness. The pain severity was not significantly associated with tobacco use. This variable was

significantly lower among subjects without a sense of loneliness and significantly higher among the satisfied patients. The association between the pain severity and education level was addressed by applying the Mann-Whitney U test. Based on the results, the pain severity was significantly higher among the insured versus uninsured patients. The correlation between the pain severity and factors such as self-assessed oral health, dental visit pattern, gum health assessment, denture quality, daily toothbrushing frequency, medication administration route, and non-pharmacological pain relief was analyzed employing the Kruskal-Wallis test. The results revealed significantly higher pain severity among the patients with appropriate oral health, while those never visiting dentists reported reduced pain. Greater pain severity is correlated with gingival swelling/bleeding, while denture non-users experienced less pain. Infrequent toothbrushing demonstrated higher pain scores, while the medication administration route exhibited no association with pain severity. Patients using narcotics/herbal analgesics reported significantly lower pain (Table4).

Table 4. Multivariate analysis of personal, social, and illness-related factors associated with pain severity among the elderly

Variable	Category/Comparison	B (95% CI)	p-value
Marital status	Married/Single	0.26 (0.11)	0.013
	Divorced/Single	0.31 (0.11)	0.004
	Widowed/Single	0.08 (0.11)	0.472
Employment status	Self-employed/Unemployed	0.42 (0.14)	0.003
	Employee/Unemployed	0.41 (0.14)	0.004
	Homemaker/Unemployed	0.50 (0.14)	<0.001
Tobacco use	Yes/No	-0.01 (0.06)	0.820
Living companions	Spouse/Alone	0.16 (0.12)	0.181
	Spouse & children/Alone	0.04 (0.10)	0.693
	Children/Alone	0.39 (0.12)	0.001
	Other/Alone	0.32 (0.10)	0.001
Economic status	Poor/Appropriate	-0.37 (0.12)	0.002
	Moderate/Appropriate	-0.12 (0.07)	0.083
Loneliness	Yes/No	0.16 (0.06)	0.006
Satisfaction	Yes/No	0.11 (0.07)	0.107
Self-assessed oral health	Appropriate/No opinion	0.01 (0.07)	0.162
	Poor/No opinion	0.17 (0.09)	0.069
Dental visit pattern	Once/Never	0.15 (0.08)	0.049
	Multiple times/Never	0.07 (0.08)	0.414
Gum health assessment	Swelling/None	-0.21 (0.07)	0.002
	Bleeding/None	-0.03 (0.14)	0.812
Denture quality	Poor/No dentures	0.40 (0.12)	<0.001
	Moderate/No dentures	0.22 (0.08)	0.008
	Appropriate/No dentures	-0.01 (0.09)	0.909
Medication administration route	Oral/None	-0.07 (0.08)	0.387
	Injectable/None	0.07 (0.08)	0.364
	Topical/None	-0.18 (0.08)	0.035
Non-pharmacological pain relief	Narcotics/None	0.19 (0.12)	0.119
	Herbal or analgesics/None	0.03 (0.15)	0.841
Insurance	Uninsured/Insured	0.04 (0.09)	0.697
Spiritual well-being		0.02 (0.01)	0.022
DMFT index		0.01 (0.01)	0.316

Discussion

This study aimed to assess the association between spirituality and dental pain tolerance/control among the elderly patients attending Tooba Dental Clinic. Evaluating such association may contribute to developing non-pharmacological and complementary approaches for pain management, given the increased prevalence of oral health obstacles in this age group and the influence of psychological factors on pain perception.

The results indicated moderate mean pain severity levels among the population. Many subjects reported high pain severity, while only a small percentage experienced no or mild pain, which is in line with the results identifying dental pain as a prevalent health concern among the elderly [14, 15].

Some studies show that elderly patients tend to report lower pain severity compared to younger individuals [16, 17], probably due to age-related declines in nociceptive sensitivity. Other studies suggest that prolonged exposure to chronic pain may lead to habituation among the elderly, potentially resulting in underreporting of pain severity. Such discrepancies highlight that psychosocial factors influence the pain perception among the elderly and the actual pain severity [18, 19].

However, some studies reveal significant variability in spiritual well-being among elderly patients. Studies conducted on residents in nursing homes show that individuals lacking social support or religious engagement tend to report lower levels of spiritual well-being. Thus, spiritual well-being is influenced by various factors such as lifestyle, social support, and personal spiritual attitudes rather than representing a uniform variable across populations [20].

An inverse association was found between spiritual well-being and severity of dental pain. Accordingly, higher spiritual well-being levels are correlated with reduced pain perception. Such an association remained significant after controlling for other factors, confirming the significant impact of spiritual well-being on pain relief. This is consistent with the results reported regarding the role of spirituality in enhancing pain tolerance and reducing stress [21-23].

However, some researchers have reported contrasting results, arguing that the association between spiritual well-being and pain relief depends on the nature of beliefs and their application. For instance, some individuals utilize spirituality as an active coping mechanism, while others may adopt a passive acceptance approach, potentially exacerbating

pain perception. In addition, certain demographic groups demonstrate increased pain sensitivity while overemphasizing spirituality, especially those interpreting pain as divine testing, which may delay medical treatment. The aforementioned results represented that the spirituality-pain association is more complex than being regarded as a pain-relieving factor, with cultural, social, and personality variables serving as critical moderators [24, 25].

Based on the multivariate regression model, other factors influence pain severity and spiritual well-being. Elderly individuals reporting loneliness experienced higher pain severity, which is congruent with the results regarding the impact of social isolation on lowering the pain tolerance thresholds [26, 27]. However, lower economic status is associated with reduced pain severity, potentially due to differences in lifestyle, pain awareness levels, or healthcare access. Some studies link poverty to increased pain, while others suggest that individuals with higher socioeconomic status may perceive pain more severely due to greater health awareness, underscoring the role of socioeconomic factors in pain perception [28].

The present study revealed that spiritual well-being may be protective against dental pain severity among elderly patients. However, contradictory results indicate that such an association is moderated by multiple variables, including social support, coping styles, spiritual beliefs, and cultural differences. Due to its cross-sectional nature, no causal relationships between spiritual well-being and pain perception were reported in this study. In addition, some psychological variables, such as depression and anxiety, known as mediators of pain perception, were ignored here.

Future studies should focus on longitudinal designs to examine the causal relationship between spiritual well-being and dental pain. Investigating the psychosocial mechanisms underlying this relationship can provide deeper insight into the impact of spirituality on pain perception. Furthermore, implementing interventions enhancing spiritual well-being alongside medical treatments may serve as an effective complementary approach for managing dental pain among elderly patients.

Conclusion

The present study is one of the first investigations to simultaneously address spiritual well-being and dental pain severity among elderly patients. It provides a more comprehensive understanding of the factors influencing dental pain perception in this age group.

An inverse association was observed between spiritual well-being and dental pain severity, with elderly patients reporting higher spiritual well-being and experiencing lower pain levels. Therefore, spiritual well-being may represent a significant moderating factor in pain perception among elderly patients.

Authorship contribution statement

All authors have reviewed and approved the final version of the manuscript. MT, LJ, FN, AI, AF conceived and designed the study. PP conducted the study and collected the data; AF performed the data analysis and interpretation; and SH,P guided the study design.

Ethical Consideration

The written informed consent form was obtained from all of the subjects. This study was approved by the Ethics Committee of Mazandaran University of Medical Sciences with the ethical code of IR.MAZUMS.REC.1402.083.

Declaration of Competing Interest

The authors have no conflict of interests related to this article

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Data Availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Declaration of Generative AI

The authors declare that they have not used any type of generative artificial intelligence for the writing of this manuscript, nor for the creation of images, graphics, tables, or their corresponding captions.

References

1. Sung YT, Wu JS. The Visual Analogue Scale for Rating, Ranking and Paired-Comparison (VAS-RRP): A new technique for psychological measurement. *Behav Res Methods*. 2018 Aug;50(4):1694-1715. doi: <https://doi.org/10.3758/s13428-018-1041-8>

2. Ekhtiarzadeh M, Kamran A, Heydari ara M, Birjandi M, Heydari H. The Association Between Social Support and Spirituality with Death Anxiety among the Elderly in Khorramabad During COVID-19 Pandemic. *Interdisciplinary Journal of Acute Care*. 2024; 5(2): 80-89.

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3. Noghani F, Navab E, Mehran A, yaghobi L. The Effects of Group Reminiscence Therapy on Loneliness and Spiritual Well- being among Residents of Kahrizak Nursing Home. *Iranian Journal of Nursing Research*. 2018; 13 (1) :47-56

4. Shankland WE 2nd. Factors that affect pain behavior. *Cranio*. 2011 Apr;29(2):144-54. doi: <https://doi.org/10.1179/crn.2011.023>

5. Koyama T, McHaffie JG, Laurienti PJ, Coghill RC. The subjective experience of pain: where expectations become reality. *Proceedings of the National Academy of Sciences*. 2005 Sep 6;102(36):12950-5.

doi: <https://doi.org/10.1073/pnas.0408576102>

6. Bellville JW, Forrest WH Jr, Miller E, Brown BW Jr. Influence of age on pain relief from analgesics. A study of postoperative patients. *JAMA*. 1971 Sep 27;217(13):1835-41.

7. Martin AL, McGrath PA, Brown SC, Katz J. Children with chronic pain: impact of sex and age on long-term outcomes. *Pain*. 2007 Mar;128(1-2):13-9. doi: <https://doi.org/10.1016/j.pain.2006.08.027>

8. Khoshbakht Pishkhani M, Mohammadi Shahboulaghi F, Khankeh H, Dalvandi A. Spiritual health in iranian elderly: a concept analysis by walker and avant's approach. *Iranian Journal of Ageing*. 2019; 14(1):96-113.

9. Safa A, & Moradi T. Assessment the Status of Spiritual Health and Related Factors in Elderly Patients Admitted to Governmental Hospitals in Kashan in 2018. *Assessment*.2020; 5(2).

10. Etemadifar, S., & Rafiei, H. Religious attitudes and spiritual health among elderly inpatient adults in Shahrekord hospitals. *Jorjani Biomedicine Journal*, 2016; 4(1): 56-65.

11. Saydshohadai M, Heshmat Sh, Seidfatemani N, Haghani H, Mehrdad N. The Spiritual Health of Seniors Living in Sanitarium and Home Residents. *Iran Journal of Nursing*.2013; 26(81), 11-20

12. Aslani Y, Hosseini R, Alijanpour-Aghamaleki, M, Javanbakhtian-Ghahfarokhi, R, Borhaninejad V. Spiritual health and life satisfaction in older adults in Shahrekord hospitals, 2013. *Journal of Clinical Nursing and Midwifery*.2018; 6(4):1-10

13. Kavosian N, Hosseinzadeh, K, Jaliseh H. K, Karboro A. The relationship between spiritual health and loneliness among the elderly in Karaj-2016. *Journal of Research on Religion and Health*.2018; 4(2): 7-15.
14. Abbaszadeh E, Ganjalikhan Hakemi N, Rad M, Torabi M. Drug-Drug Interactions in Elderly Adults in Dentistry Care: a Cross-Sectional Study. *Journal of Dentistry (Shiraz)*. 2022 Dec;23(4):459-466. doi: <https://doi.org/10.30476/DENTJODS.2021.91067.1549>
15. Viveiros WL, Okuno MFP, Campanharo CRV, Lopes MCBT, Oliveira GN, Batista REA. Pain in emergency units: correlation with risk classification categories. *Revista Latino-Americana de Enfermagem*. 2018 Nov 14;26:e3070. doi: <https://doi.org/10.1590/1518-8345.2415.3070>
16. Manogharan S, Kongsted A, Ferreira ML, Hancock MJ. Do older adults with chronic low back pain differ from younger adults in regards to baseline characteristics and prognosis? *European Journal of Pain*. 2017 May;21(5):866-873. doi: <https://doi.org/10.1002/ejp.989>
17. Yang W, Yang X, Guo A, Li S, Li Z, Lin J, Ren Y, Yang J, Wu J, Zhang Z. Audiovisual integration of the dynamic hand-held tool at different stimulus intensities in aging. *Frontiers in Human Neuroscience*. 2022 Dec 14;16:968987. doi: <https://doi.org/10.3389/fnhum.2022.968987>
18. Rodríguez I, Abarca E, Herskovic V, Campos M. Living with Chronic Pain: A Qualitative Study of the Daily Life of Older People with Chronic Pain in Chile. *Pain Research and Management*. 2019 Apr 1;2019:8148652. doi: <https://doi.org/10.1155/2019/8148652>
19. Wideman TH, Boom A, Dell'Elce J, Bergeron K, Fugère J, Lu X, Bostick G, Lambert HC. Change Narratives That Elude Quantification: A Mixed-Methods Analysis of How People with Chronic Pain Perceive Pain Rehabilitation. *Pain Research and Management*. 2016;2016:9570581. doi: <https://doi.org/10.1155/2016/9570581>
20. Timmins F, McCausland D, Brennan D, Sheerin F, Luus R, McCallion P, McCarron M. A national cohort study of spiritual and religious practices of older people with intellectual disability. *Journal of Intellectual Disabilities*. 2024 Jun;28(2):533-548. doi: <https://doi.org/10.1177/17446295231163977>
21. Ferreira-Valente A, Jarego M, Queiroz-Garcia I, Pimenta F, Costa RM, Day MA, Pais-Ribeiro J, Jensen MP. Prayer as a pain intervention: protocol of a systematic review of randomised controlled trials. *BMJ Open*. 2021 Jul 5;11(7):e047580. doi: <https://doi.org/10.1136/bmjopen-2020-047580>
22. García-Vázquez FI, Durón-Ramos MF, Pérez-Rios R, Pérez-Ibarra RE. Relationships between Spirituality, Happiness, and Prosocial Bystander Behavior in Bullying-The Mediating Role of Altruism. *European Journal of Investigation in Health, Psychology and Education*. 2022 Dec 6;12(12):1833-1841. doi: <https://doi.org/10.3390/ejihpe12120128>
23. Mohammed WA, Pappous A, Sharma D. Effect of Mindfulness Based Stress Reduction (MBSR) in Increasing Pain Tolerance and Improving the Mental Health of Injured Athletes. *Front Psychology*. 2018 May 15;9:722. doi: <https://doi.org/10.3389/fpsyg.2018.00722>
24. Grossoehme DH, Cole AG, Lewis K, Stamper SM, Teeters A, Joseph PM. Adults with cystic fibrosis: spiritual coping with lifelong disease. *Journal of Health Care Chaplaincy*. 2020 Apr-Jun;26(2):45-57. doi:<https://doi.org/10.1080/08854726.2020.1713647>
25. Rambod M, Sharif F, Molazem Z, Khair K. Spirituality Experiences in Hemophilia Patients: A Phenomenological Study. *Journal of Religion and Health*. 2019 Jun;58(3):992-1002. doi: <https://doi.org/10.1007/s10943-018-0621-3>
26. Zhang C, Zhou X, Zhou X. Effect of Acute Brief Social Isolation on Visceral Pain. *Journal of Pain Research*. 2022 Nov 9;15:3547-3553. doi: <https://doi.org/10.2147/JPR.S378244>
27. Zhou X, Zhou X, Zhang C. Long-term social isolation increases visceral pain in rats. *Heliyon*. 2022 Nov 18;8(11):e11663. doi: <https://doi.org/10.1016/j.heliyon.2022.e11663>
28. Alcañiz-Colomer J, Moya M, Valor-Segura I. Not all poor are equal: the perpetuation of poverty through blaming those who have been poor all their lives. *Current Psychology*. 2022 Oct 5:1-17. doi: <https://doi.org/10.1007/s12144-022-03804-6>