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## Abstracts

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**Metacognitive training for older adults with depressive symptoms in Portugal: A pilot study**

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**Keywords:** Depression; Metacognitive Training; Older Adults; Pilot Study; Portugal.

**Objective:** We carried out a pilot study of Metacognitive training for older adults (MCT-Silver) in the Portuguese population, assessing the effectiveness of MCT-Silver and its effects on depressive symptoms, metacognitive beliefs, perceived quality of life, ruminative responses, self-esteem and dysfunctional attitudes, as well as the acceptability and satisfaction of the participants with the intervention by filling in a questionnaire.

**Methods:** Eight 60-minute group sessions were held. Twenty-nine participants were divided into three groups. The sessions addressed biases, cognitive distortions, behaviors, and metacognitive beliefs common in information processing in older adults with depressive symptoms. All content is supported by studies linking these processes to depressive symptoms and depression. Blind evaluations were carried out at baseline (moment 0) and after the intervention (moment 1). The inclusion criteria were age 60 or over, no cognitive impairment and a Beck Depression Inventory (BDI-II) score of 14 or over, which indicates mild depression. The instruments used were the BDI-II to assess depressive symptoms, the PHQ-9 to assess the severity of depressive symptoms, the MCQ-30 to assess metacognitive beliefs, the WHOQOL-Bref item 1 to assess global perception of quality of life, the ERR-10 to assess ruminative responses, the Rosenberg self-esteem scale to assess self-esteem, and the DAS-18B to assess dysfunctional attitudes.

**Results:** After the intervention, the participants experienced significant improvements in depressive symptomatology. A statistically significant reduction in metacognitive beliefs was found both in the total mean score of the MCQ-30 and in the score of the three subscales assessed. Participants' overall perception of quality of life increased significantly. There was an average decrease in ruminative responses and an average decrease in ERR-10 scores, both in the overall score and in the factors assessed. There was a tendency for participants' self-esteem to improve after the intervention. In dysfunctional attitudes, there was a significant decrease in the total score of the DAS-18B as well as in the subscales evaluated. The intervention was evaluated very positively by the participants through a questionnaire assessing acceptability and satisfaction.

**Conclusions:** Our results were encouraging and suggest that MCT-Silver is effective in older people with depressive symptoms. However, more detailed studies are needed to confirm the effectiveness of this intervention, namely RCTs.

**Depressive symptoms, suicidal ideation and positive ideation: The mediation effect of unbearable psychache**

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**Keywords:** Depressive Symptoms; Suicidal Ideation; Positive Ideation; Unbearable Psychache.

**Objective:** The aim of the present study is to test the relationship between depressive symptoms and high levels of suicidal ideation, as well as low levels of positive ideation (protective ideation against more severe suicidal behaviors). Additionally, the study aims to test the mediating effect of psychache and unbearable psychache.

**Methods:** A sample of 334 young adults, university students from the University of Évora, mostly female (79.6%), aged between 18 and 25 years ( $M = 20.25$ ;  $SD = 1.99$ ), mostly undergraduate students ( $N = 247$ ; 74%), and non-working students ( $N = 285$ ; 85.3%), participated in the. Participants responded to an online research protocol via the LimeSurvey platform at the end of 2022. Several measures were used: the Depression Anxiety Stress Scales, Psychache Scale and Positive and Negative suicide Ideation Inventory. A mediation model was tested by path analysis using Structural Equation Modeling (SEM), introducing depressive symptoms as an exogenous independent variable, along with demographic variables that correlated with suicidal ideation or positive ideation as exogenous covariates. The variables psychache and unbearable psychache were included as mediating variables, and suicidal ideation and positive ideation as endogenous dependent variables.

**Results:** The results show a partial mediating effect of the variable unbearable psychache in the relationship between depressive symptoms and both positive ideation and suicidal ideation. The model explains 62% of the variance in positive ideation and 51% of the variance in suicidal ideation.

**Conclusions:** The variable unbearable psychache may help explaining why the presence of depressive symptoms contributes to higher levels of suicidal ideation and, at the same time, lower levels of positive ideation. According to the results, the presence of depressive symptoms increases the experience of unbearable psychache, which in turn leads to higher levels of suicidal ideation and lower levels of protective ideation against more severe suicidal behaviors.

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## Beyond Care: Family Health Nursing as a Promoter of Family Resilience and Coping; a Systematic Literature Review

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**Keywords:** Caregivers; Coping; Elderly; Family; Family Nursing Centered Care; Resilience.

**Objective:** This review aimed to map the scientific literature on family-centered nursing interventions and their association with promoting resilience and coping in informal caregivers and families, highlighting their critical role in addressing the increasing burden on caregivers within the global aging population, enhancing the quality of life for dependent elderly individuals, caregivers, and the entire family unit.

**Methods:** Following PRISMA 2020 guidelines, this systematic literature review included studies published between March 2015 and March 2025, in English, Portuguese, French, and German. Databases consulted were CINAHL, MEDLINE, Scopus, Web of Science, and Psychology and Behavioral Sciences Collection. Methodological quality was assessed using Joanna Briggs Institute (JBI) tools, and data synthesis employed a metanarrative approach to integrate diverse epistemological and methodological perspectives.

**Results:** Seven studies were included: one systematic review, two scoping reviews, two qualitative studies, one quantitative study, and one opinion article. Interventions like psychoeducation, mindfulness, and cognitive-behavioral therapy (CBT) promoted emotional regulation, reduced caregiver burden, and strengthened relational resilience, positively impacting the care recipient's quality of life. The metanarrative identified four themes: (1) Meaning-making through adversity: Benefit Finding and Posttraumatic Growth (PTG); (2) Relational and contextual mediation of resilience: Family dynamics and interactions with health professionals; (3) Transformative potential of psychosocial nursing interventions: From technical to relational practice; and (4) The relationship between informal caregiver resilience and the care recipient's quality of life, mediated by coping and psychosocial interventions.

**Conclusions:** Family-centered nursing interventions significantly enhance the psychosocial well-being and adaptive capacities of caregivers and families. These findings underscore their importance for health system sustainability and improved quality of life in long-term care settings. Future longitudinal, methodologically robust, and culturally sensitive studies are needed to generalize these findings.

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## Empowering Citizens to Spontaneous Report of Suspected Adverse Drug Reactions - Interventions and Impact – a Systematic Literature Review

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**Keywords:** Effective; Pharmacovigilance; Population; Strategy; Underreporting.

**Objective:** To carry out a systematic literature review to identify, describe and characterize the existing interventions implemented to empower citizens to spontaneously report adverse drug reactions (ADR), and to select the most effective at international level.

**Methods:** The construction of the structured research question followed a methodological approach, according to the acronym PICO. The search expression was applied in PubMed, Web of Science and Scopus databases. This protocol follows the PRISMA guidelines and has been registered in the PROSPERO database (2025CRD42025645431).

**Results:** Of the 3843 studies obtained from the three databases after removing duplicates, 15 studies were included that described and evaluated interventions designed to empower citizens to spontaneously report ADR. Most of the interventions were aimed at the public (n = 7), including patients, parents of children, teachers and citizens in general; users supported by pharmacists (n = 5) and by doctors (n = 3). About 73% (n = 11) of the included studies showed an increase in the number of ADR notifications after the intervention, while four showed a positive impact on the knowledge, attitude and perception of participants. Interventions using digital technologies and pharmacist-led interventions that provide practical education to citizens have proven particularly effective, reinforcing the central role of education in improving pharmacovigilance. However, the methods and metrics used to assess effectiveness were highly heterogeneous, which limited direct comparisons.

**Conclusions:** Most of the interventions analyzed were effective in empowering citizens to spontaneously report ADR. These findings highlight the importance of investing in structured educational approaches to foster a culture of active pharmacovigilance among the general population. To the best of current knowledge, this is the first systematic review focused exclusively on empowering the public, rather than healthcare professionals. The results are expected to have significant implications for clinical practice and to contribute to more up-to-date recommendations for addressing underreporting of ADRs by the public.

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## Benefits of Physical Activity in Menopause: Scoping Review

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**Keywords:** Menopause; Physical Activity; Woman; Women's Health.

**Objective:** To map and synthesize the existing evidence on the benefits of physical activity during menopause, highlighting the main authors and studies in the area.

**Methods:** A scoping review was conducted using the CINAHL, MEDLINE and Cochrane databases of the EBSCO host platform. Full-text articles with available references published in the last two years in Portuguese, English and Spanish were included. The PRISMA guidelines were followed in the process of serializing the studies.

**Results:** A sample of 14 studies showed that physical activity is effective in improving body composition and reducing vasomotor symptoms, bringing benefits to the mental health of women in menopause. Aerobic and resistance exercise programs contribute to bone and cardiovascular health, in addition to reducing the risk of depression. The practice of yoga and breathing exercises has shown proven benefits in reducing anxiety, insomnia and mood swings during menopause. In addition, regular physical activity helps maintain body weight, improves bone density and promotes a greater sense of well-being. Combined aerobic, resistance and stretching exercise programs demonstrate improvements in quality of life in women at this stage.

**Conclusions:** The literature consistently demonstrates that physical activity is an effective strategy for promoting physical and mental health during menopause. There is robust evidence that this practice contributes to maintaining bone density, improving cardiovascular profile, reducing vasomotor symptoms, anxiety, depression, and, in general, improving quality of life.

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## Midwives/Nurse Midwives' autonomy experience in care for labouring women in health facilities – preliminary results of a Systematic Review with Meta-Synthesis

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**Keywords:** Life Change Events; Midwifery; Obstetric Nurse; Professional Autonomy; Qualitative Research.

**Objective:** To gather scientific evidence regarding the lived experience of midwives/nurse midwives in the autonomous care of women in labour in healthcare facilities.

**Methods:** Systematic review with meta-synthesis, according to the Joanna Briggs Institute methodology, conducted by meta-aggregation. Scientific evidence was analysed in primary studies published between 2016/2024 in English, French, Spanish and Portuguese. The search strategy followed the PICo acronym, with the question "What are the experiences and perceptions of midwives/nurse midwives regarding autonomy in the care of women in labour in health units? The search was conducted in the EBSCOhost (CINAHL Ultimate, MEDLINE Ultimate, Academic select references. The study selection process was based on the PRISMA-P flowchart. The Search Complete), LILACS, PubMed, Wiley, Scopus and Web of Science databases. We used the Boolean search strategy (((((nurse midwi\*) OR nurse-midwi\*) OR midwi\*) OR obstetric nurs\*)) AND (((((life change event\*) OR (life experience)) OR (experience)) OR (perception)) OR (autonomy)) OR (professional autonomy)) OR (professionalism)) OR (professional self regulation))) AND (((((parturition) OR intrapartum care) OR childbirth) OR obstetric delivery) OR obstetric labor) OR labour)). Rayyan software was used to collect, organise and studies were evaluated for their rigour using critical appraisal instruments from the Joanna Briggs Institute (QARI and ConQual). A total of 2929 articles were found. After removing duplicates, 1701 remained for reading the title and abstract, of which 31 were eligible for full-text reading. Registration in PROSPERO CRD42024572542.

**Results:** Final sample of 16 articles for analysis, meeting the eligibility and methodological quality criteria. After data synthesis, the results were presented in a table and grouped according to the Joanna Briggs Institute's meta-aggregative approach. Three thematic axes emerged from the findings: 1) Safe and confident context, 2) Being and feeling a midwife, 3) Knowing by doing. The themes generated the meta-theme: Midwifery care: a safe field of childbirth.

**Conclusions:** Towards the end of the study, everything supports the idea that midwives/nurse midwives, by 'being and doing' expression of their autonomy, promote safe and confident care for women in labour, advocate the philosophy of physiological birth with scientific knowledge, competence and responsibility, transforming childbirth into a field of unique care and protection.

### High-Intensity Interval Training in High School Physical Education to Promote Adolescent Fitness: A Randomized Controlled Trial

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**Keywords:** Health; Cardiorespiratory Fitness; Muscular Fitness; Body Composition.

**Objective:** This study aims to investigate whether 16 weeks of High-Intensity Interval Training (HIIT) implemented on Physical Education classes (PEC), can improve physical fitness in high-school adolescents, with a specific focus on gender differences.

**Methods:** This study was a two-arm randomized controlled trial design with adolescents (15-17 years). Twelve classes were randomized to either a 16 weeks of HIIT (HIIT-G, n = 106 students) implemented on PEC warm-up or a control group (CG, n = 123 students) of usual PEC warm-up. The HIIT sessions ranged from 14 to 20 all-out bouts intervals, adopting a 2:1 work-to-rest ratio.

**Results:** Post-intervention measures revealed a significant difference between groups in CRF and girls from HIIT-G increased their cardiorespiratory fitness (CRF) with significant difference between female groups and a medium to large effect size.

**Conclusions:** The main findings from this study indicate that brief whole-body HIIT of an extremely low volume, over 16 weeks, can improve CRF in adolescent girls.

### Tributyltin at Nanomolar Levels Impairs Antioxidant Capacity and Alters the Expression of Sirtuins 1, 3 and PGC1-alpha in ex vivo cultured rat Sertoli Cells

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**Keywords:** Male Fertility; Mitochondrial Function; Obesogens; Sertoli Cells; Tributyltin.

**Objective:** Obesogens are environmental pollutants promoting weight gain and metabolic disturbances. Among them, tributyltin (TBT) is a prototypical obesogen with well-documented detrimental effects on male reproductive health. Within the testes, Sertoli cells (SCs) are essential in supporting spermatogenesis and are considered sensitive targets of reproductive toxicity. This study aimed to evaluate whether TBT induces oxidative stress in rat SCs by disrupting the regulatory pathway involving sirtuin 1 (SIRT1), sirtuin 3 (SIRT3), and peroxisome proliferator-activated receptor gamma coactivator 1-alpha (PGC1- $\alpha$ ), potentially leading to mitochondrial dysfunction.

**Methods:** SCs were cultured during 24 hours in three groups: two in the presence of TBT, at concentrations of 0.1 nM and 10 nM, and one in the absence of TBT (control). Protein levels of SIRT1, SIRT3, and PGC1- $\alpha$  were assessed using Slot-Blot analysis. Antioxidant capacity was evaluated through the ferric reducing antioxidant power assay and enzymatic activities of glutathione peroxidase (GPx) and glutathione reductase (GR). Statistical significance was evaluated by one-way ANOVA, followed by Tukey post-test using GraphPad Prism 10.

**Results:** SIRT3 expression was reduced by 19% and 24% in Sertoli cells (SCs) following exposure to 10 nM and 0.1 nM tributyltin (TBT), respectively, whereas the levels of SIRT1 and PGC1- $\alpha$  remained unaltered. Antioxidant capacity in SCs exposed to 10 nM TBT decreased by 45% compared to the control group. Similarly, SCs treated with 0.1 nM TBT exhibited a 47% reduction in antioxidant capacity relative to controls. Glutathione reductase (GR) activity increased significantly in SCs, with a 135% elevation observed at 0.1 nM TBT and a 278% increase at 10 nM TBT when compared to control. In contrast, glutathione peroxidase (GPx) activity exhibited a non-significant upward trend.

**Conclusions:** These findings suggest that even nanomolar concentrations of TBT can disrupt redox homeostasis and sirtuin-mediated regulation in SCs, potentially contributing to oxidative stress and impaired male fertility.

## Tributyltin-Induced Disruption of Acetylation-Related Proteins and Epigenetic Regulation in Sertoli Cells

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**Keywords:** Acetylation; Epigenetic; Obesogens; PGC-1 $\alpha$ ; Tributyltin.

**Objective:** Acetylation-related proteins like CREB-binding protein (CBP), general control non-depressible 5 (GCN5), and P300/CBP-associated factor (PCAF) are critical for chromatin remodeling and transcriptional regulation, particularly affecting the expression of peroxisome proliferator-activated receptor gamma coactivator 1-alpha (PGC-1 $\alpha$ ). This study examines how exposure to the environmental obesogen tributyltin (TBT) affects the expression of these key proteins in rat Sertoli cells (SCs), providing insight into potential epigenetic disruptions. TBT is a persistent organotin compound used in antifouling paints, plastics, wood preservatives, and agriculture. Human exposure occurs mainly through contaminated seafood, water, and dust.

**Methods:** SCs were exposed for 24 hours to TBT at concentrations of 0.1 nM (sub-toxic), 10 nM, or vehicle control. We assessed protein levels of CBP, GCN5 and PCAF using Slot-Blot analysis.

**Results:** Following exposure to 10 nM TBT, SCs exhibited an 8% increase in acetylated CBP (A-CBP) expression and a significant 50% reduction in total CBP levels, suggesting a disruption in the equilibrium of chromatin-modifying functions. In contrast, 0.1 nM TBT led to a modest 5% reduction in A-CBP and a 39% decrease in CBP expression, with both changes trending toward significance. GCN5 expression, a major histone acetyltransferase involved in gene activation, was markedly elevated (75%) at 10 nM TBT exposure, indicating a compensatory or stress-induced regulatory mechanism. Conversely, 0.1 nM TBT resulted in a slight, non-significant downregulation (10%) of GCN5. PCAF expression, another critical acetyltransferase and transcriptional coactivator, was reduced by 16% at 10 nM TBT and increased by 26% at 0.1 nM, with both changes showing near-significant trends.

**Conclusions:** TBT alters the expression of acetylation-regulating proteins in a dose-dependent manner, potentially disturbing the epigenetic regulation of genes like PGC-1 $\alpha$ . These findings suggest that environmental toxicants such as TBT may impair Sertoli cell function and male reproductive health by modulating the epigenetic landscape.

## Hospital admissions of children under 5 years old in Portugal (june 2010 – july 2021)

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**Keywords:** Children; Cohort Studies; Pediatric Hospitalizations.

**Objective:** Pediatric hospitalizations are an indicator of child morbidity. In 2020, a 29% decrease was recorded among children under 5 in public hospitals, yet long-term trends in Portugal remain underreported. This study explores pediatric admissions between July 1, 2010, and June 30, 2021, examining their frequency, duration, main causes, and distribution by sex, age, and region.

**Methods:** A historical cohort study including all children born in Portugal during the study period with hospitalizations in public hospitals. Children were followed until age 5 or the end of the study. Demographic and clinical data were analyzed. Time at risk was calculated based on days of life until hospitalization, end of follow-up, or both. Statistical analysis included descriptive measures and inferential tests.

**Results:** Between July 2010 and June 2021, 543,154 hospitalizations were recorded among 395,873 children under 5 in Portugal, averaging 1.4 hospitalizations per child. Admissions increased over time, especially in winter. Most occurred in the perinatal period (85%) and among infants under 1 year (1.4 per child). Boys accounted for 53% of cases and had slightly higher rates than girls (1.4 vs. 1.3;  $p < 0.01$ ). Lisbon (25.2%) and Porto (13.8%) recorded the highest numbers of hospitalizations, while Vila Real (1.58) and Évora (1.51) had the highest averages per child. The leading causes were perinatal conditions (56%), external causes (18.8%), congenital anomalies (6.9%), and respiratory diseases (4.9%), the latter more common in boys (5.1%) and in children under one (36.7%). The average hospital stay was 4.8 days, longer in neonates (7.5 days) and for eye diseases (26.7 days). Each child was at risk for an average of 2.19 days (SD = 1.05). The overall incidence rate was 0.62 hospitalizations per 1,000 days of life, or 0.23 per child-year.

**Conclusions:** Analyzing pediatric hospitalizations helps identify morbidity patterns and guides prevention strategies and pediatric healthcare planning.

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## The Progressive Power Program (PPP) for Weight Management Health: Study Protocol for a Controlled Trial in adults living with overweight and obesity

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**Keywords:** Obesity; Exercise Therapy; High-Intensity Interval Training; Clinical Protocols; Behavioural Intervention.

**Objective:** This study aimed to evaluate the efficacy of a 12-week Progressive Power Program (PPP), which combined High-Intensity Interval Training (HIIT), High-Intensity Functional Training (HIFT), and Moderate-Intensity Continuous Training (MICT) on anthropometric, and behavioral outcomes in adults living with overweight and obesity. The study also examined the feasibility of implementing the program in both face-to-face and online formats.

**Methods:** This randomised controlled study was conducted in Évora, Portugal, and included 36 adults living with overweight and obesity (mean age:  $41.7 \pm 9.7$  years; mean weight:  $90.11 \pm 13.05$  kg for males and  $82.00 \pm 11.68$  kg for females). Participants were randomly allocated to three groups: face-to-face (n = 12), online (n = 12), and control (n = 12). These 36 individuals were selected from a larger sample of 180 adults (72 males and 108 females). The intervention consisted of three 50min sessions per week over 12 weeks. Training intensity was monitored via heart rate using Polar M430 devices. Assessments included body composition, visceral fat index, blood pressure, handgrip strength, phase angle (via bio-impedance), heart rate variability (HRV), dietary intake, and body image perception. Repeated measures ANOVA and mixed-model ANOVA were used for statistical analysis. This study was registered in the ISRCTN database <https://doi.org/10.1186/ISRCTN15820243>

**Results:** The face-to-face group showed greater reductions in body weight ( $-7.63 \pm 2.23$  kg) compared to the online group ( $-5.40 \pm 0.17$  kg;  $p < 0.001$ ). Phase angle improved similarly in both groups ( $+0.18 \pm 0.40$  vs.  $+0.16 \pm 0.27$ ), as did visceral fat index ( $-1.67 \pm 3.20$  vs.  $-1.17 \pm 0.72$ ). HRV total power increased in the online group ( $+419 \pm 1125$  ms<sup>2</sup>) but decreased in the face-to-face group ( $-1877 \pm 12326$  ms<sup>2</sup>). Women showed slightly greater improvements in phase angle and visceral fat than men. Both intervention formats were feasible, with high adherence and no adverse events.

**Conclusions:** The PPP is an effective and scalable intervention that improves physiological and behavioral outcomes in overweight and obese adults. Its implementation in both face-to-face and online formats supports its applicability in diverse public health contexts.

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## Development, Validation, and Reliability of RSEFisio: A Methodological Study

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**Keywords:** Electronic Health Records; Validity and Reliability Instrument; Physiotherapy.

**Objective:** The continuous evaluation and improvement of electronic health records (EHRs) are essential, given their critical role as data sources for artificial intelligence (AI) applications. Concerns about the implementation and quality of data produced by EHRs have been increasing. Instruments capable of assessing and monitoring EHRs are therefore necessary. This study aims to develop and test the validity and reliability of the RSEFisio instrument in the context of physiotherapy practice.

**Methods:** This methodological study was conducted in three phases. The first phase involved developing the questionnaire through a comprehensive literature review and expert validation. The second phase included a pilot test which was used to preliminarily evaluate the questionnaire. The final phase assessed the instrument's validity and reliability. The sample included 122 physical therapists.

**Results:** Regarding the conceptualization of the instrument, five relevant dimensions were identified: (1) experience with EHRs, (2) digital literacy of the physiotherapists, (3) information contained in EHRs, (4) relevance of EHRs, and (5) intention to use EHRs. Internal consistency, measured by Cronbach's alpha, ranged from 0.614 to 0.917, confirming the instrument's reliability. Reproducibility of the items demonstrated fair to excellent agreement, the reproducibility of the dimensions was confirmed with intraclass correlation coefficient values ranging from 0.737 to 0.878. Regarding convergent validity, the first hypothesis was not supported ( $\rho = 0.150$ ), but the subsequent three hypotheses were confirmed ( $\rho = 0.521, 0.374$ , and  $0.361$ ;  $p < 0.01$ ).

**Conclusions:** This study addresses a significant gap in the literature by developing and validating the RSEFisio instrument, designed to evaluate physiotherapists' use of EHRs, their relevance, and intention to adopt the EHR technology. Notwithstanding the heterogeneity among RSE systems, this instrument provides a reference framework to facilitate the integration of EHRs and enhance their utility for advanced clinical practices and AI-supported digital tools in physiotherapy.

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## Incremental Impact of Depressive Symptoms on Quality-of-Life Domains in Portuguese Long-Term Care

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**Keywords:** Functional Profile; Multimorbidity; Older Adults; Long-Term Care; Depressive Symptoms.

**Objective:** To identify sociodemographic and clinical predictors of quality of life (QoL) and to quantify the incremental contribution of depressive symptoms beyond functional status and covariates in older adults in long-term care (LTC).

**Methods:** Cross-sectional study of 233 older adults in LTC in Portugal (mean age  $85.3 \pm 6.0$  years; 66.5% women). QoL was measured with the WHOQOL-Bref; functional status with the Elderly Nursing Core Set; depressive symptoms with the PHQ-9; cognition with the MMSE. Hierarchical multiple linear regression was run for each QoL domain (Block 1: functional status, age, sex, education, marital status, MMSE, cardiometabolic multimorbidity; Block 2: PHQ-9) using HC3 robust errors ( $\alpha = 0.05$ ).

**Results:** Adding PHQ-9 markedly improved model fit ( $\Delta\text{Adj-R}^2 = +0.170$  Physical;  $+0.281$  Psychological). Final models explained 33% (Physical), 34% (Psychological), 7% (Social) and 19% (Environmental) of variance. Each one-point increase in PHQ-9 reduced Physical QoL by 1.7 points and Psychological QoL by 2.1 points, remaining the strongest negative predictor; it also affected Environmental QoL ( $-0.4$  points). Functional impairment independently predicted poorer Physical ( $\beta = -0.27$ ), Social ( $\beta = -0.22$ ) and Environmental QoL ( $\beta = -0.34$ ). Higher formal education predicted better QoL across domains ( $\beta = 0.16\text{--}0.25$ ), while female sex predicted worse Physical ( $\beta = -0.19$ ) and Psychological QoL ( $\beta = -0.16$ ). Age was positively associated only with Environmental QoL ( $\beta = 0.17$ ). No interaction terms were significant.

**Conclusions:** Depressive symptoms account for a substantial share of QoL variance and eclipse the direct effect of functional status on psychological well-being in older adults in LTC. Routine screening and treatment of depression, alongside interventions that preserve functioning and promote educational engagement, could meaningfully improve QoL in this population.

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## Childhood Tuberculosis Surveillance in Mozambique: District Performance and Case Notification Challenges (2023–2024)

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**Keywords:** Childhood Tuberculosis; Health System Performance; Mozambique.

**Objective:** Childhood tuberculosis (TB), affecting children up to 14 years of age, remains a significant challenge in low-income, high-burden settings. Early diagnosis and integrated health services are essential for effective control. In Gaza Province, Mozambique, disparities in case notification among districts may reflect inequalities in access to care, diagnostic capacity, and programmatic management of the disease. This study aims to compare childhood TB cases notified across the province's districts between 2023 and 2024.

**Methods:** A descriptive cross-sectional observational study based on secondary data extracted from the Health Information System for Monitoring and Evaluation (SISMA). The analysis included expected notification cases, and the percentage of target achievement for each of the 14 districts in Gaza Province, as well as the provincial total. The percentage variation between the two years was also calculated to identify trends and potential disparities among districts.

**Results:** In 2024, 982 childhood TB cases were notified in Gaza Province, representing a slight decrease compared to 993 cases in 2023. The target achievement rate was 80% in 2024 and 81% in 2023. The districts of Chigubo (+69%), Mapai (+52%), Massingir (+57%), and Limpopo (+32%) showed significant improvements in coverage between the two years reached the notification target above 100%. In contrast, Xai-Xai (-26%), Bilene (-19%), and Chókwè (-17%) recorded declines in performance. Despite this drop, Chókwè reached 100% of the childhood TB notification target set for 2024.

**Conclusions:** The analysis reveals significant disparities between districts, highlighting areas that require priority intervention. The findings underscore the need for targeted strategies, emphasizing strengthened active surveillance, expanded diagnostic capacity, and enhanced local management of the childhood TB program. The dissemination of best practices among districts and addressing contextual factors that limit performance are essential strategies for achieving national targets.

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## Functional Profile, Quality of Life, Depression, and Loneliness Among Older Adults in Portuguese Long-Term Care

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**Keywords:** Long-Term Care; Person-Centered Care; Aged; Functional Status; Depression.

**Objective:** To assess changes over time in functional status, quality of life (QoL), depressive symptoms, and feelings of loneliness among individuals aged 65 or older living in long-term care in Baixo Alentejo.

**Methods:** This longitudinal study involved 482 participants aged  $\geq 65$  years from 11 long-term care facilities for older adults. Data was collected at two points, eight months apart, using validated instruments. Functional status with the Elderly Nursing Core Set (ENCS); QoL was measured with the WHOQOL-Bref; cognition with the Mini-Mental State Examination (MMSE), depressive symptoms with the PHQ-9, and feelings of loneliness with the UCLA Loneliness Scale. Professionals (e.g., nurses, psychologists) trained in standardized procedures conducted structured interviews. Statistical analysis included descriptive and inferential statistics, using t-tests and multivariate techniques via SPSS v28.

**Results:** A significant decline in global functionality was observed (mean ENCS score increased from  $2.9 \pm 1.0$  to  $3.1 \pm 0.9$ ;  $p < 0.001$ ), particularly in "Learning and Mental Functions" and "Relationships" domains. Autonomy in self-care remained stable ( $p = 0.387$ ). Among the 121 participants without cognitive impairment, no significant changes in QoL were found, but depressive symptoms (PHQ-9:  $13.4 \pm 6.0$  to  $15.1 \pm 5.6$ ;  $p < 0.001$ ) and loneliness (UCLA:  $31.9 \pm 10.0$  to  $35.7 \pm 11.4$ ;  $p < 0.001$ ) increased significantly.

**Conclusions:** Older adults in long term care present high levels of multimorbidity, cognitive impairment, and functional decline, which are strongly associated with depressive symptoms and loneliness. Despite the stability in QoL scores, the persistent low baseline values suggest chronic vulnerability. These findings reinforce the need for urgent reforms in care models, advocating for personalized, person-centered care strategies that promote autonomy, social interaction, and emotional well-being.

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## Barriers to cervical cancer screening among hard-to-reach women in Portugal: a qualitative study

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**Keywords:** Early Detection of Cancer; Healthcare Disparities; Qualitative Research; Uterine Cervical Neoplasms; Vulnerable Populations.

**Objective:** To explore barriers to cervical cancer screening, focusing on individual and structural factors as perceived by hard-to-reach women in Portugal, to inform tailored interventions that improve screening uptake and reduce inequalities.

**Methods:** We conducted a qualitative study using focus group discussions (FGDs) with hard-to-reach women in community settings in Lisbon. Participants were sexually active women, aged 30–65, fluent in English or Portuguese, and either migrants or from low socioeconomic backgrounds, recruited through community-based organizations. Exclusion criteria included pregnancy, a history of cervical cancer, or total hysterectomy. Data collection ceased due to logistical constraints before full saturation was reached. Discussions followed a semi-structured guide informed by the Integrated Model of Health Literacy. Recordings were transcribed verbatim and thematically analyzed. Triangulation was used to enhance the credibility and depth of the analysis.

**Results:** Four FGDs were conducted with 14 participants. Structural barriers to screening included difficulties navigating health services, frequent changes in healthcare providers, staff shortages, long waiting times, and administrative burdens such as challenges booking appointments. At the individual level, participants reported that limited awareness about cervical cancer and its prevention can hinder screening uptake. Many women expressed a low perceived risk of developing cervical cancer and a general sense of indifference toward screening, which reduced motivation to attend. Sociocultural norms, including cancer stigma, fear of the procedure or results, and embarrassment, especially with male providers, also contributed to screening hesitancy or avoidance.

**Conclusion:** Cervical cancer screening uptake among hard-to-reach women in Portugal is not solely determined by individual choices but is heavily influenced by structural constraints and sociocultural dynamics. While context-specific and not widely generalizable, these findings offer valuable insights into the lived experiences of underserved populations. This study highlights the importance of awareness campaigns, culturally tailored interventions and systemic reforms aimed at improving screening accessibility and inclusiveness.

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## Outcomes and benefits of implementation an inclusive and dynamic intervention on prevention of pressure ulcers in long term care units in Portugal

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**Keywords:** Complex Intervention; Knowledge Translation; Nursing; Quality of Care; Work Environment.

**Objective:** Pressure ulcers (PU) are prevalent and costly in long-term care, negatively impacting patient quality of life. Implementing interventions for PU prevention and management in these settings is complex. This study explored implementation strategies to promote knowledge translation, capacity building, and evidence-based practice for PU prevention in long-term care units, using the Medical Research Council framework to develop and test complex interventions.

**Methods:** A pilot study compared outcomes in units with and without intervention. Data on practices and outcomes (nutrition, hydration, positioning, pain, healing) were collected from a sub-sample of 58 patients with 67 pressure ulcers in the intervention units, drawing comparisons from data across all units where 1145 wounds were observed in 447 patients.

**Results:** Units with the intervention showed significantly improved adherence to practices like adequate nutrition (96.2% vs 76.1%,  $p = 0.001$ ), hydration (100% vs 84.0%,  $p = 0.002$ ), and patient-based positioning (98.2% vs 88.9%,  $p = 0.044$ ). The healing rate was significantly higher in intervention units (33.3%) compared to units without intervention (18.7%,  $p = 0.012$ ). Pain management showed no significant difference.

**Conclusions:** This nurse-led intervention demonstrates potential to enhance PU prevention and management practices and improve healing rates in long-term care, highlighting the importance of contextual adaptation and team engagement. This complex intervention demonstrated to be adjusted to achieving health gains and improving the quality of care. Future larger randomized controlled trials are needed.

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## Towards a Serum-Free 3D Human liver Model to Recapitulate MASLD Pathogenesis

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**Keywords:** 3D Human Liver Models; Biomarkers; HepaRG Cells; Inflammation; Liver Model.

**Objective:** Metabolic dysfunction-associated steatotic liver disease (MASLD) affects over 30% of adults. It ranges from simple steatosis (MASL) to steatohepatitis (MASH), which can progress to cirrhosis and hepatocellular carcinoma. MASLD pathogenesis involves complex genetic, metabolic, dietary, and inflammatory factors and remains poorly understood. Current preclinical models often fail to replicate human disease features. Our lab previously developed 3D hepatic spheroids using HepaRG cells alone or with primary non-parenchymal cells. MASH-like conditions were induced using energy substrates, resulting in lipid accumulation, oxidative and mitochondrial stress, inflammation, and hepatic dysfunction. However, control spheroids in fetal bovine serum (FBS)-containing medium also showed lipid accumulation, compromising model sensitivity. Thus, we aimed to optimize the HepaRG-based spheroid model to minimize baseline steatosis while maintaining cellular viability and hepatic functionality.

**Methods:** HepaRG-based spheroids were cultured in serum-free medium to minimize baseline lipid accumulation in FBS-containing media. Spheroids were exposed to control (serum-free or FBS), MASLD-like (oleic acid), and MASH-like (LPON: lactate, pyruvate, octanoate, ammonia) conditions, both with and without FBS. Spheroid morphology, viability, and function were assessed. Lipid accumulation was evaluated through staining and imaging. The model's responsiveness to MASLD-inducing conditions was validated by characterizing metabolic, inflammatory, and stress-related markers. Assays were performed in triplicate.

**Results:** Comparative analysis revealed a significant reduction (approximately 20%,  $p \leq 0.001$ ) in spontaneous lipid accumulation under serum-free conditions. Morphological evaluation demonstrated a more consistent spheroid compactness and diameter when compared to the usage of FBS. Key hepatic functions, such as albumin, cholesterol, bilirubin production, ROS generation, and cytokine expression, were preserved. The model responded to MASLD-inducing stimuli, showing MASL and MASH features.

**Conclusions:** These results confirm the functional integrity and improved reliability of the serum-free HepaRG spheroid model. The serum-free approach is being applied to multicellular liver spheroids to pursue enhanced physiological relevance and disease specificity of hepatic *in vitro* models.

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## Matter project: A system-wide initiative for early identification and intervention in perinatal mental health

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**Keywords:** Care Pathways; Digital Innovation; Early Screening; Integrated Care; Perinatal Mental Health.

**Objective:** Perinatal mental health disorders affect up to 30% of women and are a significant public health challenge with long-term implications for mothers, infants, and communities. In Portugal, despite increased awareness, routine screening and coordinated referral systems remain limited. The Ma(t)ter project aimed to implement and evaluate a region-wide program in Central Alentejo to strengthen early identification and care coordination through systematic screening, cross-sector training, and digital innovation.

**Methods:** The intervention included four components: implementation of automated screening at four perinatal timepoints (first and second trimesters, early and late postpartum), integrated into the national primary care software (SClinico); cross-sector training of health and social professionals, including a university-certified microcredential; monthly multidisciplinary case review meetings; and development of an online platform to support clinical decision-making and interprofessional communication. Implementation outcomes were evaluated using mixed methods, including quantitative indicators (screening rates, referral patterns, professional engagement) and qualitative interviews based on the Consolidated Framework for Implementation Research (CFIR).

**Results:** By the time of submission, 819 automated screening invitations had been sent, with a 20% response rate. Although below optimal, this rate aligns with initial projections for unsolicited digital health interventions. Strategies to improve uptake include proactive engagement by primary care professionals and public awareness materials. Among respondents, 25.4% reported a history of mental illness, and 18% screened as intermediate or high risk. Dozens of professionals had been trained, and structured referral pathways had been established. Preliminary findings suggest improved capacity for early identification and collaboration across services. However, limitations include potential response bias, lack of a comparison group, and early-stage implementation.

**Conclusions:** The Ma(t)ter project provides a promising, though preliminary, model for improving perinatal mental health care through integrated systems and digital tools. Further evaluation is ongoing to assess long-term impact and scalability.

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## Nursing Interventions in Self-Care and Quality of Life of Older Adults: Systematic Review with Meta-Analysis

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**Keywords:** Aged; Chronic Disease; Community; Domicile; Patient Care Planning.

**Objective:** To assess the effectiveness of nursing-led self-care interventions on self-care behaviors and quality of life among older adults with chronic conditions.

**Methods:** We conducted a systematic review and meta-analysis following PRISMA 2020 guidelines. Primary studies with experimental or quasi-experimental designs published between January 2013 and June 2024 were included. We searched MEDLINE, CINAHL, Scopus, and SciELO for relevant studies. Eligible studies focused on community-dwelling adults aged  $\geq 65$  years with at least one chronic condition who received nursing-led interventions aimed at enhancing self-care and/or quality of life, compared to standard care or no intervention. Two independent reviewers screened studies, extracted data, and assessed risk of bias using appropriate tools (RoB2 for randomized trials and ROBINS-I for non-randomized studies). Outcomes of interest were improvements in self-care behaviors and in health-related quality of life. Meta-analysis was performed using RevMan software with a random-effects model to calculate pooled effect sizes with 95% confidence intervals.

**Results:** The analysis of  $n = 28$  studies demonstrated that nursing-led self-care interventions resulted in statistically significant improvements in both self-care behaviors and quality-of-life scores among aged individuals with chronic disease compared to control groups. Although included varied in intervention modalities and outcome measures, the overall effect consistently favored the intervention group, indicating a clear benefit for this population.

**Conclusions:** Nurse-led self-care interventions effectively improve self-care capacity and health-related quality of life in community-dwelling older adults with chronic conditions. These findings underscore the importance of integrating self-care promotion strategies into community and primary care nursing practice and inform evidence-based guidelines to enhance healthy aging.