



RECOGNISING INVISIBLE SPIRITUAL SUFFERING IN TECHNOLOGY-ENHANCED PALLIATIVE CARE: *A Relational-Neuroethical Narrative Review*

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1. INTRODUCTION

- Spiritual distress is a core dimension of total suffering in palliative care.
- Technology captures behavioural, physiological and relational indicators that may reflect multidimensional vulnerability.
- These indicators may support earlier recognition of unmet spiritual needs.



2. OBJECTIVE

To explore whether behavioural, physiological and relational patterns observable through technology-enhanced palliative care systems may support earlier recognition of unmet spiritual support needs.



3. METHODOLOGY

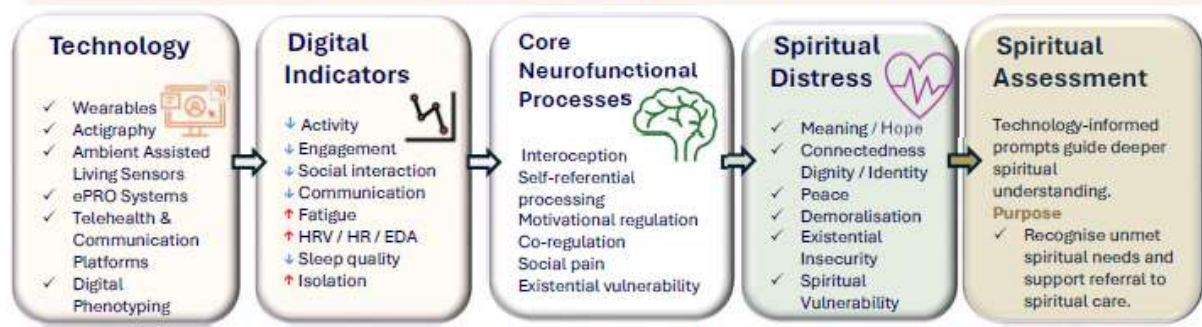
Critical interdisciplinary narrative review

Domain	Sources
Palliative Care	4
Spiritual Distress & Existential Suffering	15
Nursing Ethics	4
Neuroscience & Psychophysiology	13
Neuroethics	4
Digital Health	8
TOTAL	48

Key Frameworks Used

- Spiritual Distress • SDAT • NANDA-I Spiritual Distress
- Spiritual Wellbeing • FACIT-Sp • EORTC QLQ-SWB32
- Existential Distress & Dignity • Demoralisation Scale
- Dignity Therapy Framework • Patient Dignity Inventory

4. RELATIONAL-NEUROETHICAL INTERPRETATION FRAMEWORK



FROM DIGITAL INDICATORS TO SPIRITUAL ASSESSMENT: EXAMPLES

Spiritual Distress Domains	Potential Technology Indicators	Purpose of Monitoring	Spiritual Assessment Prompts
Meaning / Hope	↓ Activity, ↓ Engagement, ↑ Fatigue, ↑ Sleep quality disturbance, ↑ Isolation	Monitor functioning, engagement and need for support	"What gives meaning to your days?"
Peace / Existential Security	↑ HRV, ↑ HR, ↑ EDA, Sleep fragmentation, Restlessness	Detect stress, distress and need for comfort and reassurance	"Do you feel afraid or worried about something?"
Connectedness	↓ Social interaction, ↓ Communication, ↑ Isolation	Identify isolation, relational needs and spiritual support	"Do you feel connected to those who matter to you?"
Dignity / Identity	↓ Activity, ↑ Dependence, ↓ Participation in valued roles	Inform care planning, restore dignity and sense of self	"What is most important to you right now?"
Demoralisation	↓ Engagement, ↓ Activity, Fatigue, Withdrawal	Screen hopelessness, demoralisation and need for meaning support	"Do you ever feel that nothing matters?"
Existential Insecurity	↑ HRV, ↑ HR, ↑ EDA, Agitation, ↑ Sleep disruption	Detect fear, uncertainty and need for meaning and reassurance	"Do you feel afraid of what lies ahead?"
Multidimensional Spiritual Vulnerability	Persistent clusters: ↑ HRV + sleep disruption + ↓ activity + ↓ communication + isolation	Guide comprehensive spiritual assessment and care planning	"Can you share what is most meaningful, most difficult, or most needed right now?" (Reconnection, legacy, reconciliation, hope)



5. DISCUSSION

- Technology does not detect spirituality.
- Digital indicators may reveal vulnerability patterns.
- Interpretation must remain relational and ethically grounded.



6. IMPLICATIONS FOR PRACTICE

- Use technology as an early-warning system.
- Integrate digital indicators with spiritual assessment.
- Support timely referral to spiritual care professionals.



7. ETHICAL IMPERATIVE

The goal is not to detect spirituality.
The goal is to prevent existential invisibility.

- Human presence remains central.

