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Influence of meaningful work and moral distress on work engagement in the medical workforce

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Mestrado em Gestão Aplicada

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Resumo

Introdução: O “Quadruple Aim” redefiniu a prestação de cuidados de saúde, alargando o foco tradicional — centrado nos resultados clínicos, na saúde populacional e na eficiência — para também integrar o bem-estar dos profissionais. Nos médicos, o *distress* moral (DM) contribui para o burnout e menor envolvimento, enquanto o trabalho com significado está associado a maior envolvimento. Contudo, as relações entre estas variáveis permanecem pouco estudadas.

Métodos: Estudo transversal com médicos portugueses (n = 68), utilizando o *Work and Meaning Inventory*, a *Measure of Moral Distress for Healthcare Professionals* e a *Utrecht Work Engagement Scale*. Foi realizada análise estatística descritiva e inferencial.

Resultados: A amostra foi maioritariamente feminina (60,3%), em meados da carreira, e no setor público (66,2%). Os participantes reportaram níveis elevados de trabalho com significado (M = 40,19; DP = 7,17), moderadamente elevados de envolvimento (M = 3,98; DP = 1,22) e baixos de DM (M = 133,37; DP = 78,68). O trabalho com significado correlacionou-se positivamente com envolvimento ($\rho = 0,48$; $p < 0,01$), mas não com DM. As médicas reportaram níveis significativamente mais elevados de DM do que os homens ($p = 0,018$). Não se verificaram diferenças significativas segundo estado civil, especialidade, contexto ou setor.

Conclusões: O trabalho com significado promove o envolvimento, enquanto o DM atua de forma independente. Em consonância com o “*Quadruple Aim”*, a promoção do bem-estar médico requer estratégias duais: reforçar o trabalho com significado (autonomia, relevância das tarefas, alinhamento de valores) e reduzir fatores sistémicos de DM (conflitos éticos, escassez de recursos).

Palavras-chave: Trabalho com significado, distress moral, envolvimento com trabalho, quadruple aim

Classificação JEL: I18, J28

Abstract

Introduction: The Quadruple Aim reframed healthcare improvement by extending beyond patient outcomes, population health, and cost efficiency to include the well-being of healthcare professionals. Among physicians, moral distress (MD) contributes to burnout and disengagement, whereas meaningful work—experienced as purposeful and socially valuable—is associated with greater engagement. However, the interplay between meaningful work, MD, and engagement remains insufficiently studied.

Methods: A cross-sectional survey of Portuguese physicians (n = 68) was conducted using the Work and Meaning Inventory, the Measure of Moral Distress for Healthcare Professionals, and the Utrecht Work Engagement Scale. Statistical analyses included descriptive and inferential.

Results: The sample was 60.3% female, mostly mid-career, and predominantly employed in the public sector (66.2%). Physicians reported high meaningful work (M = 40.19, SD = 7.17), moderately high engagement (M = 3.98, SD = 1.22), and relatively low MD (M = 133.37, SD = 78.68). Meaningful work correlated positively with engagement (ρ = .48, p < .01), but neither was significantly associated with MD. Female physicians reported significantly higher MD than males (p = .018). No significant differences emerged by marital status, specialty, practice context, or sector.

Conclusions: Findings suggest that meaningful work fosters engagement, whereas MD operates largely independently. In line with the Quadruple Aim, enhancing physician well-being requires dual strategies: fostering meaningful work through autonomy, task significance, and value alignment, while addressing systemic drivers of MD such as ethical conflict and resource constraints.

Keywords: Meaningful work, moral distress, work engagement, quadruple aim

JEL Classification: I18, J28

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Glossary

ACME: Average Causal Mediation Effect

ADE: Average Direct Effect

AI: Artificial Intelligence

EC: emergency care

HCPs: Healthcare Professionals

ICU: Intensive Care Unit

MCP-HCP: Meaning Centered Psychotherapy – Healthcare Professionals

MD: moral distress

MDCS: Moral Distress Consult Service

MDS-R: Moral Distress Scale –Revised

MMD-HP: Measure of Moral Distress – Healthcare Professionals

NHS: National Health System

OR: Operating Room

WAMI: Work and Meaning Inventory

UWES: Utrecht: Work Engagement Scale

1. Introduction

Since the introduction of the high-value care framework in healthcare through the Triple Aim (improving the patient experience of care, improving the health of populations, and reducing per capita cost of health care), by Berwick et al. (2008), and its evolution into the Quadruple Aim (which includes improving the work life of health care providers), by Sikka et al. (2015), there has been a notable shift in focus: from prioritizing productivity alone to also addressing workforce well-being. This shift has created a complex dilemma, as healthcare systems must now balance the pursuit of the Quadruple Aim with the imperative to sustain or enhance productivity (Arnetz et al., 2020). These competing demands contribute to increased workloads and heightened stress across clinical environments (Arnetz et al., 2020).

Clinical efficiency is achieved when resources are used appropriately to foster an environment that supports teamwork and skill development while mitigating stress. This balance enables the delivery of high-quality care and a positive patient experience (Arnetz et al., 2020).

The evolution of modern healthcare and society—marked by rising expectations and diminishing resources—continues to highlight the urgent need for innovative solutions that enhance care delivery, reduce provider stress, and improve the caregiving experience (Giannetta et al., 2020). Traditionally, interventions aimed at reducing poor well-being among healthcare professionals (HCPs) fall into two main categories: those targeting the healthcare system and those targeting the individual (Guille & Sen, 2024). However, before implementing such interventions, it is essential to examine the key factors that influence well-being among HCPs.

In the medical profession, burnout has become a central concept used to describe poor well-being (Guille & Sen, 2024). While it is essential to understand the causes and contributing factors of burnout, attention should also be directed toward more specific and nuanced constructs. One such construct is moral distress (MD), which has received increasing attention as a significant factor that can compromise the quality of patient care (Giannetta et al., 2020). MD is widely recognized as a key psychophysical condition that affects HCPs´ well-being, the sustainability of healthcare organizations, and the overall quality of care (Giannetta et al., 2020). MD occurs when HCPs feel they are unwillingly complicit in actions they perceive as morally wrong but lack the power or autonomy to act otherwise (Hamric & Epstein, 2017). The consequences of MD include burnout, increased turnover, reduced job satisfaction, lower quality of care, and diminished professional engagement (Olley, 2022). Work engagement is considered one of the most prominent indicators of positive mental health among HCPs (Iida et al., 2024). It is defined as a positive, fulfilling state of mind characterized by vigor (high energy and mental resilience), dedication (strong involvement and sense of significance), and

absorption (full concentration and immersion in one's work) (Schaufeli et al., 2002). Work engagement is closely linked to multiple outcomes, including MD, depression, anxiety, compassion fatigue, burnout, job satisfaction, and turnover intention (Clark et al., 2021; Iida et al., 2024; Mason et al., 2014; Schaufeli et al., 2002).

A key protective factor for physicians is the sense of calling, which is believed to be a significant intrinsic motivator linked to resilience (Serwint & Stewart, 2019). Calling can be defined as work that is personally meaningful, driven by a desire to contribute to the greater good, and experienced as a response to a summons from transcendent sources—such as religious or spiritual beliefs, respected authorities, or perceived societal needs (Steger, 2016). This concept is closely tied to meaningful work, which refers to the subjective experience that one's job or career is purposeful, aligns with one's broader sense of meaning in life, and contributes to a greater societal good (Steger, 2016). Meaningful work has been shown to positively correlate with a range of beneficial outcomes, including greater life satisfaction, a stronger sense of life meaning, lower levels of anxiety and depression, higher intrinsic motivation, increased job satisfaction, and reduced turnover intentions (Steger, 2016).

Given the limited research within the medical profession that explores the relationships between meaningful work, MD, and work engagement, the aim of this study is to examine how meaningful work and MD influence work engagement in medical workforce. Through this analysis, the goal is to characterize the current landscape, providing insights into the unique features of the medical workforce and paving the way for the development of protective work environments. A questionnaire was administered to a convenience sample of physicians working in Portugal, measuring three core variables: meaningful work (Work and Meaning Inventory [Steger et al., 2012]), MD (Measure of Moral Distress – Healthcare Professionals [Epstein at el., 2019]), and work engagement (Utrecht: Work Engagement Scale [Schaufeli et al., 2006]). Both descriptive and inferential statistical analyses were conducted.

This thesis is structured as follows: Chapter 1: a literature review about the main concepts and theories; Chapter 2: methods section, which includes hypothesis; Chapter 3: results section; Chapter 4: discussion of the main results; Chapter 5: conclusion, which includes limitations and implications for future research.

2. Literature Review

2.1. Meaningful work

The concept of meaningful work varies among authors; however, a common thread across definitions is that meaningful work involves the ability to identify a personally significant contribution, characterized by purpose and value (Steger, 2016). It reflects an opportunity to shift organizational priorities—from a sole focus on productivity to practices that emphasize the well-being of stakeholders, including employees, shareholders, and the broader community (Steger, 2016).

Meaningful work encompasses both the subjective interpretation of what work means to individuals (meaning) and the experience of work as inherently significant and positive (meaningfulness). It is grounded in a eudaimonic perspective—centered on growth, purpose, and self-realization—rather than a hedonic one that prioritizes immediate pleasure (Steger et al., 2012a).

It is important to distinguish between the concepts of meaning of work and meaningful work (Steger, 2016). Meaningful work refers to the subjective experience that one's job, work, or career is personally meaningful, aligns with one's broader sense of purpose, and contributes to the greater good (Steger, 2016). Research in this area focuses on the significance and value that individuals derive from their work. It explores aspects such as the centrality of work in a person's life, adherence to social norms of entitlement and obligation, the importance assigned to typical work outcomes, work-related goals, and the degree of identification with one's professional role (Steger, 2016). In contrast, meaning of work refers to the beliefs, values, and significance that individuals and groups attribute to work as a fundamental aspect of human activity (Steger, 2016). Research on this concept aims to understand the broader role of work in human life and society, and typically organizes contributing factors into four categories: i). Self-related variables (e.g., personal values, beliefs, and motivation); ii). Other-related variables (e.g., relationships with co-workers, leaders, communities, and families); iii). Work-context variables (e.g., job design, financial considerations, and cultural norms); and iv). Spiritual life variables (e.g., spirituality and the perception of work as a sacred calling) (Steger, 2016).

Theories of meaningful work can trace their roots back to Émile Durkheim's sociological analysis of suicide (1897), which identified unemployment as a contributing factor. Durkheim argued that the inability to contribute meaningfully to society can undermine individuals' sense of purpose, potentially leading to despair (Steger, 2016). Contemporary theories of meaningful work generally fall into two primary categories: those that focus on the meaning individuals ascribe to or derive from their work, and those that conceptualize work as a calling (Steger, 2016).

A key framework within the first category is the Job Characteristics Model (Hackman & Oldham, 1976), which systematically links specific job features to psychological states and work outcomes. According to the model, five core job dimensions—skill variety (the use of diverse skills and talents), task identity (completing a whole and identifiable piece of work), task significance (the job's impact on others), autonomy (freedom in decision-making), and feedback (clear information on performance)—influence three critical psychological states: experienced meaningfulness of the work, experienced responsibility for outcomes, and knowledge of the actual results of work activities. The three psychological states are central to the model. It postulates that individuals experience positive affect when they understand the outcomes of their actions (knowledge of results), feel responsible for these outcomes (experienced responsibility), and perceive their tasks as significant and worthwhile (experienced meaningfulness) (Hackman & Oldham, 1976). This positive affect motivates the individual to keep performing well, creating a cycle of positive work motivation driven by self-generated rewards. This cycle continues until one of the psychological states is absent or the individual no longer values the internal rewards from good performance (Hackman & Oldham, 1976). For this purpose, meaningfulness of the work is defined as the degree to which the individual experiences the job as one which is meaningful, valuable, and worthwhile (Hackman & Oldham, 1976). Three job characteristics determine the psychological meaningfulness of a job: skill variety, task identity, and task significance (Hackman & Oldham, 1976). When an individual understands that the results of his work may have a significant effect on the well-being of other people, the meaningfulness of that work usually is enhanced (Hackman & Oldham, 1976). Autonomy (defined as to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out), and feedback (defined as the degree to which carrying out the work activities required by the job results in the individual obtaining direct and clear information about the effectiveness of his or her performance), are also important resources, contributing to task performance, and some studies also strongly relate them to meaningfulness (Hackman & Oldham, 1976; Sonnentag, 2017).

One of the earliest comprehensive theoretical frameworks for meaningful work was proposed by Rosso et al. (2010). Their model identified four primary sources of life meaning—the self, others, the context, and spiritual life—along with key psychological mechanisms through which work becomes meaningful, including authenticity, self-efficacy, self-esteem, purpose, belongingness, transcendence, and cultural/interpersonal sensemaking. This framework emphasizes the reciprocal nature of meaningful work, highlighting how individuals not only derive meaning for themselves but also contribute meaningfully to their social and organizational environments (Rosso et al., 2010).

Based on the framework proposed by Rosso et al. (2010), Steger et al., (2012a) conceptualize meaningful work as comprising three core facets: i). Positive meaning – the subjective experience that one's work holds personal significance; ii). Meaning-making through work – the idea that work serves as a central source of life meaning and supports personal growth; iii). Greater good motivations – the desire to positively impact others, closely linked to the concept of calling (Steger et al., 2012a). In addition, Steger and colleagues emphasize the role of self-transcendence—the extent to which individuals move beyond self-interest to serve a higher purpose—as a key element in meaningful work. This conceptual model is often visually represented using concentric circles, illustrating varying degrees of transcendence, from foundational job characteristics to broader, purpose-driven motivations (Steger, 2016; see Figure 2.1.).

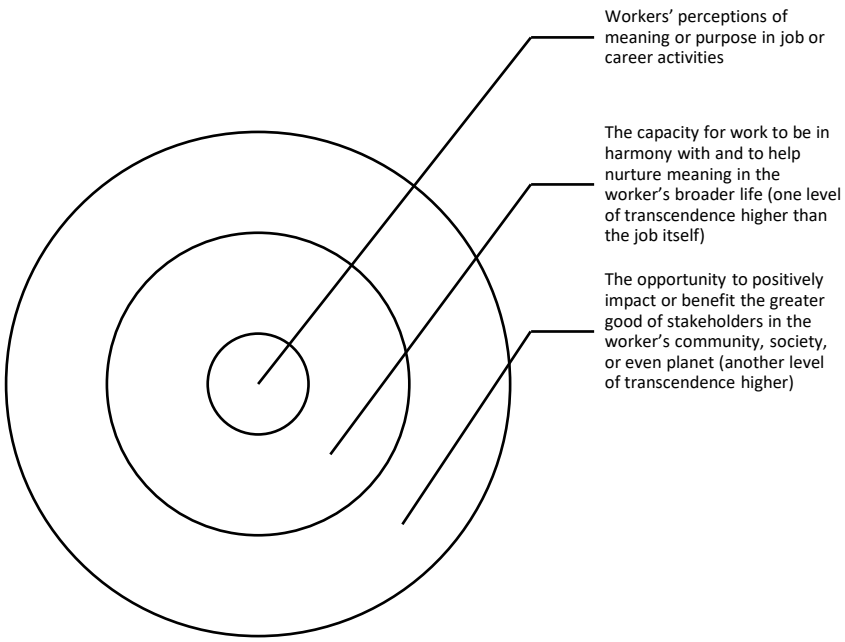


Figure 2.1. - The three-level model of meaningful work – each level represents a degree in transcendence from the worker´s job

Source: Stegel et al. (2016)

The most comprehensive mechanisms for fostering meaningful work—many of which originate from the Job Characteristics Model—can be categorized into seven key pathways: authenticity**,** self-efficacy**,** self-esteem**,** purpose**,** belongingness**,** transcendence**,** and cultural and interpersonal sensemaking (Rosso et al., 2010; Steger, 2016).

The concept of calling is closely linked to the literature on meaning in work. A calling can be defined as work that is personally meaningful, driven by a desire to serve a prosocial purpose, and experienced as a response to a summons from transcendent sources—such as religious beliefs, respected authorities, or perceived societal needs (Steger, 2016). This spiritual or transcendent dimension adds depth to the understanding of calling, positioning it

as a construct that falls under the broader umbrella of meaningful work (Steger, 2016; (Steger et al., 2012a).

Perceiving work as meaningful and purposeful is strongly associated with higher levels of well-being, a stronger sense of the centrality and importance of work in one's life, and greater job satisfaction (Steger et al., 2012a). Moreover, viewing one's work as meaningful and as serving a higher purpose is a defining feature of experiencing work as a calling. Individuals who perceive their work as a calling tend to report greater job satisfaction, increased trust in management, more effective team functioning, a higher willingness to invest discretionary and unpaid time in their work, and a deeper overall sense of meaning in life (Steger et al., 2012a). A sense of calling serves as a powerful intrinsic motivator and is commonly reported among physicians (Serwint & Stewart, 2019). In the medical profession, calling is associated with lower levels of burnout, greater meaning in life, higher career satisfaction, and stronger commitment to patient care—outcomes that contrast with those driven by extrinsic motivators such as income (Serwint & Stewart, 2019). However, there is growing concern that physicians may be losing this sense of calling due to increasing emphasis on technology, bureaucratic demands, and the commercialization of healthcare (Serwint & Stewart, 2019).

Meaningful work (and calling) positively correlates with a wide range of desirable well-being and work-related variables, as greater satisfaction with life, and more meaning in life, lower levels of anxiety and depression, higher value of the work itself, greater job satisfaction, work enjoyment, higher engagement and commitment, greater certainty and clarity about career choices, greater self-efficacy, and intrinsic motivation, less turnover intention, better co-workers relations, greater work unit cohesion, greater faith in management, and more frequent organizational citizenship behaviors (Steger, 2016).

Predictors of meaningful work can be grouped into three broad categories: individual-level factors, interpersonal factors, and workplace characteristics (Steger, 2016). Among these, individual-level predictors—such as personality traits and workplace-related variables like job satisfaction—are the most extensively studied (Steger, 2016). Longitudinal research has begun to explore the temporal relationships between meaningful work and related constructs. Some evidence suggests that early levels of certain variables can predict later experiences of meaningful work. For example, in medical students, early changes in meaning in life and vocational development were found to predict subsequent changes in the sense of calling. However, the reverse was not supported—early measures of meaningful work did not predict later changes in these variables (Steger, 2016). Character strengths, as intrinsic aspects of the self, are considered natural predictors of meaningful work. Individuals who actively apply their strengths in the workplace are more likely to perceive their work as meaningful (Steger, 2016). Despite growing recognition of the role of social context, relatively

little research has focused on interpersonal predictors of meaningful work (Steger, 2016). Existing evidence suggests that being a mentor and the behavior of leaders are associated with higher perceptions of meaningful work. However, the direction of causality in these relationships remains unclear. For instance, individuals who find their work meaningful may perceive their leaders more positively, or they may have access to more favorable relationships with leadership (Steger, 2016). Additionally, improvements in workplace conditions have been linked to increased job satisfaction and overall well-being, highlighting the importance of contextual factors in shaping meaningful work experiences (Steger, 2016).

Meaningful work is increasingly recognized as a critical factor for talent retention, organizational effectiveness, and employee well-being. There is also growing evidence that workers actively seek meaning in their work experiences (Steger, 2016). To organize the existing theoretical and empirical predictors of meaningful work, Steger (2016) proposed two complementary models: the SPIRE model, which focuses on personal-level predictors, and the CARMA model, which emphasizes leadership and organizational-level factors (see Figure 2.2.). These frameworks offer a comprehensive approach to understanding how meaningful work is shaped by both individual characteristics and contextual influences (Steger, 2016).

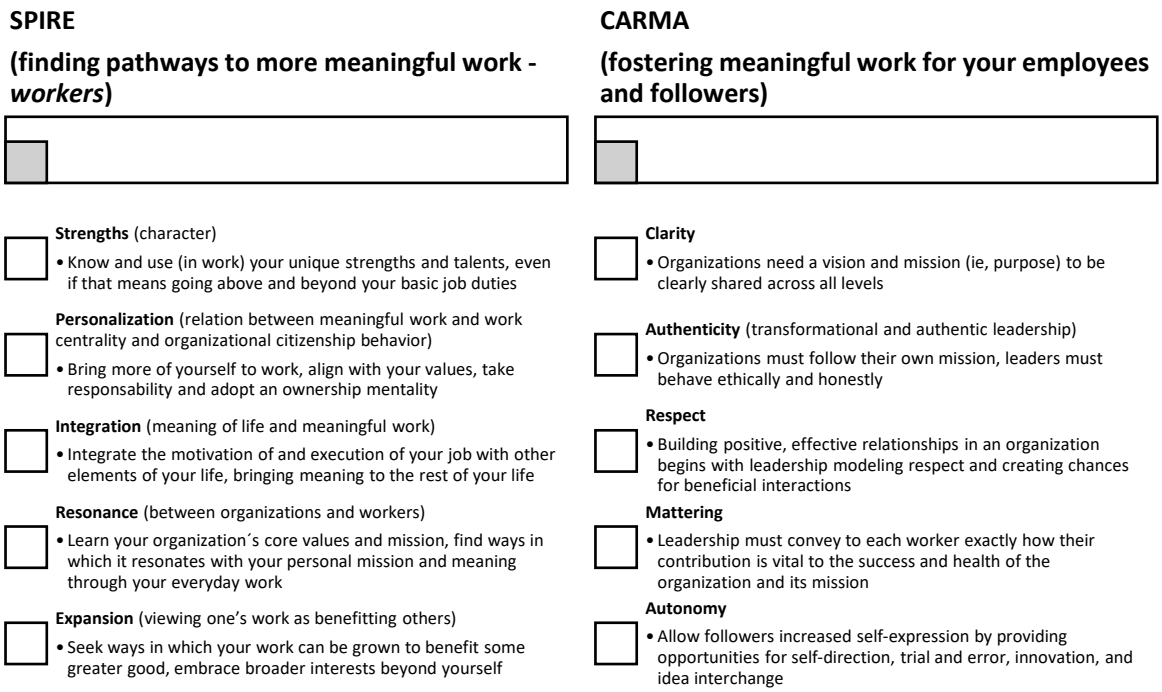


Figure 2.2. – Models (in mirror) of theoretical and empirical predictors of meaningful work (the SPIRE model presents the predictors of meaningful work that individual workers are likely to have the ability to influence; the CARMA model presents the predictors of meaningful work that can be distributed organization-wide to increase the likelihood that workers and followers experience work at the organization to be meaningful)

Source: Steger et al. (2016)

Steger et al., 2012a develop a instrument (Work and Meaning Inventory [WAMI]) to measure meaningful work, based on their theoretical framework of meaningful work.

2.2. Moral distress

Moral distress (MD) has received widespread attention as one of the core factors in reducing the quality of patient care. It is one of the most investigated psychological conditions that can improve the well-being of professionals and the sustainability of organizations (Giannetta et al., 2020).

MD occurs when HCPs believe they are involuntarily complicit in acting unethically by doing something they believe to be morally wrong, but have little power to change the situation, felling that their ability to protect and appropriately care for patients is compromised (Hamric & Epstein, 2017). Andrew Jameton first conceptualized MD in the 1980s and related it to the nursing profession (BMA, 2021). Jameton (1984) delineates three categories of psychophysical distress that nurses may encounter as a result of moral challenges in clinical practice: i). Moral uncertainty, when HCPs are in doubt about the morally right thing to do in a certain situation; ii). Moral dilemmas arise when two or more principles are in conflict in a certain situation, requiring opposite and incompatible courses of action; and iii). MD, that occurs when HCPs know the correct action but are hindered by institutional barriers. Wilkinson (1987) defines MD as the psychological and negative feeling state experienced when a person makes a moral decision but does not execute the moral behavior indicated by that decision. Hamric and Epstein (2017) identified the main triggers of MD at three levels: i). Patient-level factors, including the patient and/or family (e.g., family requires aggressive therapy); ii). Unit/team level (e.g., poor communication or inadequate collaboration); and iii). System-level causes (e.g., insufficient staffing, pressure from administrators to reduce costs) (Hamric & Epstein, 2017). The British Medical Association defines MD as psychological distress that occurs when professionals recognize the ethically correct action but are unable to perform it, or experience persistent discomfort from situations where institutionally mandated actions conflict with moral principles; also, MD can be caused not only by acting (or failure to act) but also by testimony of moral transgressions by others (BMA, 2021). This can result from a lack of power or agency or structural limitations (e.g., insufficient staff, resources, training, or time) (BMA, 2021). Shay (1990) introduced the term “moral injury”, referring to the army, but the concept is also being progressively applied to HCPs (BMA, 2021). Moral injury arises when sustained MD leads to functional deficit or psychological injury/trauma in the long term (BMA, 2021). Moral injury can lead to guilt and shame, mental health problems, and is related to compassion fatigue, depression, post-traumatic stress disorder, and suicide (BMA, 2021). While MD refers to a situational problem, which is easier to approach in investigation, moral

injury takes into account the individual experience of the problem (BMA, 2021). MD and moral injury are related to (but are distinct constructs) from burnout, which does not necessarily have a moral component (BMA, 2021).

Some authors suggest that MD primarily arises from role conflicts between leaders and followers, insufficient resources—such as time, staffing, and technology—and a lack of support from higher-level leadership (Wolf et al., 2016). However, especially among HCPs in the aftermath of the COVID-19 pandemic, a deeper crisis of meaning—both in work and in life more broadly—has been increasingly identified as a significant contributor to MD, psychological distress, and burnout (Rosa et al., 2024).

The British Medical Association Report about MD, only focused on physicians, found that MD and moral injury were new concepts for many doctors (43.8% and 48.4%, respectively) (BMA, 2021). Seventy-eight point four percent stated that MD has repercussions in their work experiences and that the COVID-19 pandemic increased the risk of MD (96.4%). The most prevalent cause of MD among physicians was insufficient staffing. As a result, most physicians planned to reduce their working hours in the upcoming year (BMA, 2021). One explanation for these results is the contribution of years of underfunding, increased bureaucracy, and reduced autonomy for physicians in the United Kingdom. However, these issues are not unique to this country; for instance, in the United States, evidence suggests a relationship between significant technological investment in healthcare and reduced autonomy for physicians and MD (BMA, 2021). There are specific causes of MD in the medical profession that vary but often remain consistent across countries: a lack of agency to make better decisions for patients, insufficient resources to provide standard medical care, evidence of inadequate care, medical practices that conflict with the accepted standards of practice and personal ethical standards, and complicity in delivering substandard care, as well as issues surrounding end-of-life decisions (BMA, 2021).

The British Medical Association made some recommendations concerning MD, divided into two categories: i). Structural solutions, which help mitigate the risk of MD, as adequate budget and resources, increased staff, physicians' empowerment, development of an open work culture, support for workers, and simplifying bureaucracy; and ii). Individual solutions, to help relieve MD effects, although strictly dependent on the work environment: talking about MD and moral injury, developing support networks, counseling, and developing a personal care plan (BMA, 2021).

MD has well-known consequences, such as burnout, moral detachment, turnover, and decreased work satisfaction (Giannetta et al., 2020; Hamric & Epstein, 2017; Olley, 2022). Turnover is linked to economic burden, namely the costs associated with hiring new physicians, including direct (e.g., recruitment) and indirect (e.g., loss productivity associated with turnover, and newer hirings) (Li et al., 2024). On the other hand, decreased work

satisfaction is linked to lower healthcare quality, as MD itself (Giannetta et al., 2020; Olley, 2022). MD and resilience are strong predictors of work engagement. However, the relation between resilience and MD is less clear, which can be explained by the theoretical conceptualization of terms – resilience and work engagement are relational concepts, and MD is less related to interpersonal relations and more to institutional and sociopolitical contexts (Clark et al., 2021a).

Burnout is a concept developed in 1970 by psychologists Freudenberger and Maslach. It quickly gained popularity as a term for describing the emotional or psychological experiences of individuals who faced stressors at the workplace (Guille & Sen, 2024; Olley, 2022). Malasch noted that individuals in helping professions often become exhausted over time, resulting in detachment and negative feelings toward those they strive to assist (Guille & Sen, 2024). During the last 15 years, burnout has gained space in the medical profession to describe poor well-being, which has consequences on health, individual, and career levels (Guille & Sen, 2024). Physicians encounter intractable barriers, including excessive workload, bureaucracy, and economic pressures, confronting themselves with high responsibility, diminished autonomy, and reduced decision-making authority (Guille & Sen, 2024; West, 2024). By the other hand, beyond direct clinical interventions, the act of responding to patients' needs contributes substantially to the sense of meaning in a physician's work. Meaning, value, and purpose are key contributors to physician well-being and are recognized as powerful antidotes to burnout (West, 2024).

The concept of MD is closely related to compassion fatigue, as both involve intense emotional strain resulting from an inability to act in accordance with one's ethical beliefs. Compassion fatigue comprises two main components: frustration stemming from the inability to act in line with personal values, and the fear of re-experiencing a traumatic event (Mason et al., 2014). In contrast, the positive counterpart to compassion fatigue is compassion satisfaction—the fulfillment healthcare professionals experience when they are able to support individuals through moments of crisis, finding meaning and enrichment in their caregiving roles (Mason et al., 2014).

Resilience is defined as the ability to develop a response to disturbing, morally complex, confusing, or distressing situations, restoring the individual to a stronger position (Rushton, 2018). Resilient practices enable HCPs to adapt to or recover from MD, while minimizing suffering and preserving personal and professional integrity. Such practices are associated with higher levels of work engagement and, in turn, contribute to improved patient care outcomes (Clark et al., 2021a).

2.2.1. Interventions to improve well-being

Recently, the COVID-19 pandemic has exacerbated occupational stressors. Although researchers and governmental and non-governmental organizations have provided guidelines and recommendations to strengthen health systems and promote sustainability—placing greater emphasis on workforce resilience—the funding of health systems and the implementation of measures to address HCPs' psychosocial needs remain limited (Rosa et al., 2024).

Interventions aimed at enhancing the well-being of physicians can be broadly categorized into two types: those that focus on the healthcare system and those that concentrate on the individual (Guille & Sen, 2024). Interventions targeting systems are more complex and resource-intensive. As a result, they have been implemented and assessed less frequently than those focused on individuals. The majority, particularly the most promising, target workload (e.g., electronic health record implementation) (Guille & Sen, 2024). Regarding individual-level interventions, several have been developed (e.g., mindfulness-based interventions, professional coaching, exercise, yoga, etc.). However, many studies evaluating these interventions had relatively small sample sizes, lacked active control groups, or did not include follow-ups beyond the intervention duration, all of which limited the conclusions that could be drawn from the data (Guille & Sen, 2024). Concerning the reduction of MD, few evidence-based strategies have been published. Although this, the literature has identified three strategic approaches to addressing MD: i). Direct, such as the Moral Distress Consult Service (MDCS); ii). Indirect, that focus on a different problem but may affect MD (e.g., educational program for neonatal intensive care nurses caring for end-of-life patients); and iii). General, that target aspects of health care that constitute institutional constraints that may give rise to MD (e.g., promoting physician-nurse relationships through interprofessional forums such as team meetings) (Hamric & Epstein, 2017). The MDCM is a structured program composed of team members who either have direct experience with MD or possess extensive clinical expertise, serving as facilitators within the team (Hamric & Epstein, 2017). The program aims to: (i) identify the ethical problem and determine the appropriate course of action based on professional standards; (ii) recognize barriers to implementing that action; and (iii) develop strategies to overcome those barriers and carry out the desired response. Participation in the program was associated with higher levels of staff empowerment and increased engagement (Hamric & Epstein, 2017).

Meaning Centered psychotherapy for HCPs (MCP-HCP) is a brief psychotherapeutic intervention, delivered in a group format, evidence-based, first developed for advanced cancer patients, that is promising to mitigate distress in HCPs (Rosa et al., 2024). MCP-HCP has the potential to offer tools to reconnect to meaning and purpose, protecting against grief and

burnout related to distress (Rosa et al., 2024). The preliminary results of MCP-HCP emphasize that burnout should maintain its focus on the genesis, that is, systemic and ambiental factors, to prevent feelings of guilt from those who benefit from MCP-HCP, maintain responsibility in the work environment, and facilitate recognition of work factors related to burnout (e.g., excessive workload, insufficient autonomy, work schedule inflexibility, and lack of leadership) (Rosa et al., 2024). Another important consideration is to recognize that the line that divides meaningful work and meaning of life is tenuous and influences each other, and many HCPs fit their profession into their personal values and identity (Rosa et al., 2024). In terms of outcomes, MCP-HCP showed benefits in burnout (89.7%), grief (87.2%), compassion fatigue (76.3%), and MD (79.5%). The main barriers identified for implementation were: time (33.6%), resources (23.3%), lack of support from managers (21.5%), and lack of interest (18%) (Rosa et al., 2024).

MD in HCPs is generally accessed according to Jameton's conceptualization of MD and utilize Corley's Moral Distress Scale – Revised (MDS-R) (Giannetta et al., 2020). However, the more recent Measure of Moral Distress for Healthcare Professionals (MMD-HP) is recommended as a replacement for the MDS-R (Epstein et al., 2019).

2.3. Work engagement

Work engagement is among the most well-known positive mental health indicators (Iida et al., 2024a). It can be defined as a positive state that indicates fulfillment through work characterized by vigor (high activation), dedication (high identification), and absorption. Vigor is defined by high levels of energy and mental resilience during work, a willingness to exert effort in one's tasks, and the persistence to overcome challenges even when faced with difficulties. Dedication is marked by a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption is defined by being fully focused and deeply engaged in one's work, where time seems to fly by and it becomes challenging to detach from the work (Schaufeli et al., 2002). Work engagement represents a more persistent and pervasive affective-cognitive state, rather than a temporary and specific one, and it is not directed at any particular object, event, individual, or behavior (Schaufeli et al., 2002). Work engagement reflects the work resources that are motivators; it is different from work satisfaction and organizational commitment, and it includes two sources: i). Work resources, as social support, feedback, autonomy, and a variety of opportunities; and ii). Development of workers' resources, as self-esteem and optimism (Mason et al., 2014; Schaufeli et al., 2002)

Work engagement is positively associated with compassion satisfaction, work satisfaction, patient safety, work effectiveness, perceived care quality, and organizational commitment, and it is negatively associated with turnover intention (Clark, Rees & Hardy,2021;

Iida et al., 2024a). It is also related to MD, burnout, compassion fatigue, depression, and anxiety (Iida et al., 2024a; Jung et al., 2023; Mason et al., 2014; Schaufeli et al., 2002). Maslach and Leiter (1997) consider that work engagement is characterized by energy, involvement, and efficacy, which are the direct opposites of the three burnout dimensions (exhaustion, depersonalization, and lack of professional efficacy) (Schaufeli et al., 2002). More recent studies tend to support the perspective that engagement and burnout are distinct constructs (Sonnentag, 2017).

According to the Job Demands-Resources model, every occupation has its specific risk stress factors, which can be classified into two general categories: job demands and job resources (Bakker & Demerouti, 2007). Job demands encompass the physical, psychological, social, or organizational aspects of a job that necessitate sustained physical and/or psychological effort or skills, thereby resulting in specific physiological and/or psychological costs (e.g., high work pressure, an unfavorable physical environment, and emotionally taxing interactions with clients) (Bakker & Demerouti, 2007). Job resources refer to the physical, psychological, social, or organizational aspects of a job that are either functional in achieving work goals, reduce job demands along with the associated physiological and psychological costs, or stimulate personal growth, learning, and development (Bakker & Demerouti, 2007). Job resources are an important predictor of work engagement, and they are classified into three levels: task-level, interpersonal-level, and organizational-level (Bakker & Demerouti, 2007). In nursing settings, interpersonal and organizational levels of job resources are more emphasized to improve work engagement (Iida et al., 2024). One way to enhance job resources is through job crafting, which is defined as the changes employees make to balance their job resources and job demands with their abilities and needs (Tims & Bakker, 2010). Recently, the concept of team-level job crafting, or “collaborative job crafting”, has been proposed to increase job resources (Iida et al., 2024). It happens at both the team level and the individual level, as workers in a workgroup usually encounter common events, participate in the same work processes, and interact with one another (Leana et al., 2009). While individual workers engage in job crafting to meet their personal needs, team job crafting is carried out by team members to accomplish shared goals or objectives. This approach is expected to enhance both interpersonal and organizational-level job resources (Iida et al., 2024).

Work engagement differs between persons, fluctuates daily, during the course of the day, and according to work tasks (Sonnentag, 2017a). Work engagement encompasses more than just a broad concept of one’s work; it arises during the actual process of working, particularly when tackling specific tasks. The specificity of this task in work engagement distinguishes work engagement from burnout, a chronic state, and particularly from exhaustion, which affects how a worker approaches their tasks (Sonnentag, 2017a). The

distinct tasks grouped together in a job can exhibit unique features and carry different psychological implications. In nursing staff, tasks closely tied to the nursing role (e.g., directly interacting with patients and their families) were more strongly associated with higher satisfaction and appraisal than tasks that were only indirectly related to the nursing role (e.g., administrative duties) (Sonnentag, 2017a).

Work engagement necessitates positive conditions in the work environment, including job resources and psychological safety, as well as supportive personal conditions such as personal resources (e.g., self-efficacy) and psychological availability (Sonnentag, 2017a). Of particular relevance for the task-specific aspects of engagement is meaningfulness, which can be defined as feeling worthwhile, useful, and valuable and to experience that one's investments into work are returned in terms of physical, cognitive, and emotional energy (Kahn, 1990). Task characteristics are closely related to meaningfulness, a significant predictor of work engagement, but not to psychological safety or availability when controlling for other predictors of work engagement, such as job-level resources and psychological availability. Resources, referred to a broad psychological concept encompassing a diverse of set of objects and conditions that help to achieve one's goals are particularly important for task-specific work engagement, are also important for work engagement. So, experiencing meaning and having resources available is crucial for being engaged when working on a task (Sonnentag, 2017a). The task-specific approach to work engagement offers a distinctive perspective on current recommendations for enhancing work engagement. Alongside suggestions for increasing general job-level resources and boosting personal resources, this new approach emphasizes task characteristics that can evoke work engagement, particularly in relation to job design. It will be crucial to incorporate at least some tasks that provide task identity, task significance, skill variety, autonomy, and feedback (Sonnentag, 2017a).

Nevertheless, studies conducted with physicians have shown that, despite the presence of burnout and occupational stressors associated with work engagement, overall engagement levels remain moderate to high (Gonçalves et al., 2023; Lourenção et al., 2022).

According to the three core dimensions of work engagement (vigor, dedication, and absorption), Schaufeli et al. (2006) developed the Utrecht Work Engagement Scale (UWES).

2.4. Influence of the workforce on efficiency and quality of healthcare

High turnover is a significant issue in the healthcare sector, where HCPs face heavier workloads, lower wages, and difficult working conditions. This high turnover can result in increased costs, management challenges, and lower morale (Huang et al., 2023). Turnover intention is defined as the probability that the organization's employees will leave voluntarily at some point in the near future (Takase, 2010). It is the most significant predictor of medical

staff's actual departure and may indicate organizational management issues, such as low work status, absenteeism, and poor performance (Huang et al., 2023).

Berwick et al. (2008) introduced a framework for delivering high-value care in the USA, known as the Triple Aim, which centers on three overarching goals: enhancing the individual experience of care, improving population health, and reducing per capita healthcare costs. The intention is that the Triple Aim, further expanded globally, will guide the redesign of healthcare systems and the shift towards population health, as health systems around the world face the challenge of improving population health while also lowering healthcare costs (Sikka et al., 2015). Achieving the Triple Aim successfully requires highly effective healthcare organizations, and the foundation of any effective healthcare system is an engaged and productive workforce. Therefore, Sikka et al. (2015) propose modifying the Triple Aim to recognize the significance of the workforce finding joy and meaning in their work, adding a fourth aim—enhancing the experience of providing care—and naming it the “Quadruple Aim” (Sikka et al., 2015). The Quadruple Aim was proposed as a framework to enhance healthcare system performance, reduce the high rates of burnout among HCPs, and address increasing healthcare costs (Arnetz et al., 2020).

The absence of meaning and joy experienced by a majority of the HCPs is in part due to the threats of psychological and physical harm that are common in the work environment, and much more frequent in healthcare than in other industries, with more lost days due to occupational illness and injury (Sikka et al., 2015). The psychological harm experienced by HCPs (e.g., bullying, intimidation, and lack of respect) is exacerbated by production pressures, poorly designed workflows, and the amount of non-value-added work, where complex, intimate caregiving relationships have been reduced to a series of demanding transactional tasks, with an emphasis on productivity and efficiency. These have led to a lack of teamwork, disrespect among colleagues, and a lack of workforce engagement. The leadership and governance of our healthcare systems now have significant economic and outcome motivations to concentrate on the Quadruple Aim, which can be assessed through metrics emphasizing workforce engagement and safety (Sikka et al., 2015).

Healthcare systems face two seemingly opposed challenges: striving to achieve the Quadruple Aim while increasing productivity (Arnetz et al., 2020). High demands for productivity, coupled with suboptimal Electronic Health Records, rising patient expectations, and a rapidly expanding alternative primary care sector (such as walk-in clinics, urgent care, and online services), create a stressful environment where team members must handle administrative tasks instead of focusing on patient care. These competing demands contribute to the burden faced by HCPs, including physicians, and lead to burnout, creating a cycle that complicates the delivery of high-quality care (Arnetz et al., 2020).

Optimal clinic efficiency is achieved by using resources to foster teamwork and skills development while preventing stress and burnout. Productivity focuses on outcomes and pressures providers, whereas efficiency involves process changes and organizational transformation. By prioritizing efficiency, personnel can meet performance measures and improve workplace well-being, utilizing their full training and education. (Arnetz et al., 2020).

Medical culture is founded on humanism, emphasizing excellence, high ethical and professional standards, contributing to something greater than oneself, and tirelessly serving others. However, physicians´ values can lead them to behaviors that foster burnout and poor well-being. With the additional responsibilities of improving the health of populations, enhancing the patient experience of care, and reducing the per capita cost of health care, as advocated by the Triple Aim, the increased bureaucracy lead physician to spend less time in direct contact with patients, causing disillusionment for both HCPs and patients (Serwint & Stewart, 2019a). Physicians often experience a sense of isolation in fighting the good fight alone, leading to a strategy of surviving instead of thriving. There is a growing recognition of the need for greater coordination, collaboration, and partnership between hospital administrators and physicians to restore a more humanistic approach to care. The introduction of the Quadruple Aim represents a significant paradigm shift, introducing a critical fourth component – the care of the patient requires care of the provider – which underscores the importance of transforming healthcare workplaces into environments that are not only effective but also healing for HCPs (Serwint & Stewart, 2019a).

3. Methods

3.1. Research objectives and research questions

This research begin with the following scientific question: "*what is the influence of the variables "meaningful work" and "MD" in "work engagement" in medical workforce*?".

According to this question, this research had the following goals:

- Primary: verify the influence of the variables meaningful work and MD in work engagement in physicians;
- Secondary;
    - To determine the levels of meaningful work in physicians;
    - To determine the prevalence of MD in physicians;
    - To determine the levels of work engagement in physicians;
    - To establish correlational associations between meaningful of work, MD and work engagement.

The comprehension of the relations between these three variables and their impact on physicians can offer useful insights to the establishment of recommendations and future interventions for this specific population, keeping in mind the quadruple aim: improve the experience of care.

The following hypothesis was formulated (see Figure 3.1.):

- H1: Physicians present high levels of meaningful work;
- H2: Physicians present high to moderate levels of MD;
- H3: Physicians present high to moderate levels of work engagement;
- H4: The variable meaningful of work is negatively associated with MD and positively associated with work engagement;
- H5: The variable MD is negatively associated with meaningful work and work engagement;
- H6: The variable MD is a predictor of meaningful work and work engagement.

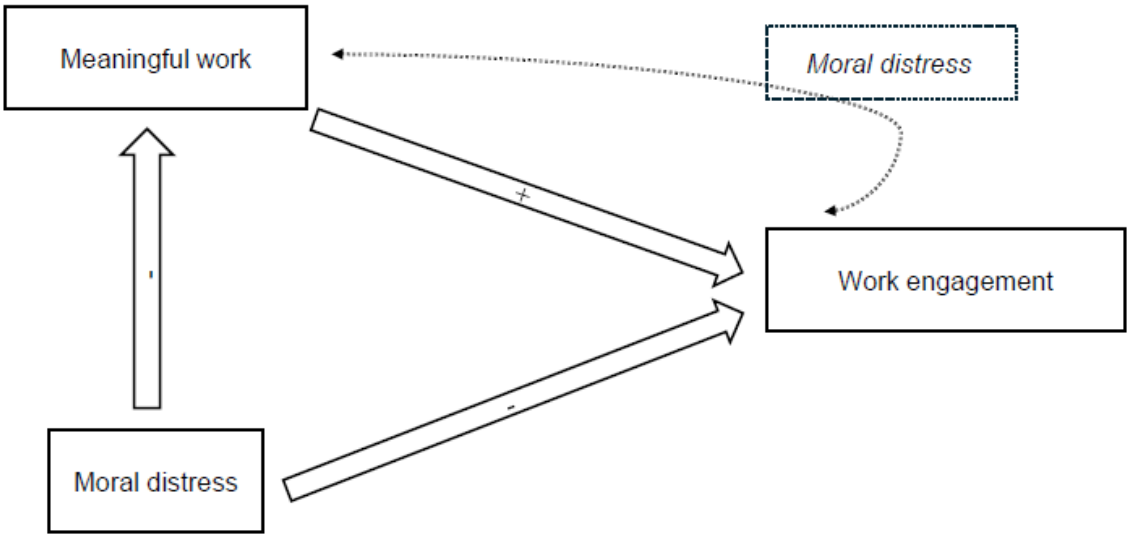


Figure 3.1. – Hypothesis: relation between the variables (meaningful work, moral distress, work engagement)

3.2. Sample

A convenience sample was used, with the sole inclusion criterion being a physician in Portugal. Data were collected through an online questionnaire administered via the Qualtrics® platform. The survey link was distributed by email, to work contacts from the main investigator, over a three-month period (December 2024 to February 2025), with one reminder each month. On average, completion of the questionnaire required approximately 12 minutes.

A total of 113 questionnaires were obtained, of which 68 were valid.

3.3. Ethical considerations

This study complied with the ethical principles of health research. All participants were informed about the objectives of the study, and their informed consent was guaranteed before submitting their responses. Participation was voluntary and did not imply any type of compensation or harm to the respondents. The data were collected and analyzed anonymously and confidentially, ensuring compliance with the General Data Protection Regulation of the European Union. Due to the non-interventional nature of the study, and the absence of sensitive or clinical data, submission to an Ethics Committee was not necessary.

3.4. Instruments

The questionnaire applied included a sociodemographic and work characteristics assessment (described in section 3.4.1.), and WAMI (section 3.4.2.; Appendix A), MMD-HP (section 3.4.3.; Appendix B), and UWES (section 3.4.4.; Appendix C) instruments.

All the instruments used were available for free for non-commercial use.

3.4.1. Sociodemographic and work characteristics questionnaire

A sociodemographic questionnaire was applied, including questions about work context (see Table 3.1.).

Items	Options
Years of practice	• < 10 years; • 11 – 20 years; • ≥ 20 years;
Context of practice	• EC; • Inpatient unit; • Outpatient unit; • ICU; • Primary care; • Public health; • Other*;
Field of specialization	• Surgery; • Internal medicine; • Oncology; • Other*;
Sector	• Public; • Private; • Social; • Other*;
*space to complete; EC: emergency care; ICU: Intensive Care Unit;	

Table 3.1. – Sociodemographic questionnaire: items about work

3.4.2. Work and Meaning Inventory (WAMI)

Steger et al., 2012a develop a instrument (WAMI) to measure meaningful work, based on their theoretical framework of meaningful work composed by three dimensions: positive meaning, meaning making, and greater good motivations. The first dimension, positive meaning, reflects

the degree to which people find their work to hold personal meaning, significance, or purpose. The second dimension, meaning making through work, reflects the fact that work is often a source of broader meaning in life for people, helping them to make sense of their life experience. The third dimension, greater goof motivations, reflects the degree to which people see that their effort at work makes a positive contribution and benefits others or society.

WAMI is composed of 10 items, and scored in a Likert scale (1: absolutely untrue to 5: absolutely true) (Table 3.2.). The original instrument presented a good internal consistency in the complete scale (α=0,93), and in its dimensions positive meaning (α=0,89), meaning making through work (α=0,82), and greater good motivations (α=0,83). The subscales of WAMI, especially positive meaning, have a significant and positive correlation with positive work variables (e.g., organizational citizenship, commitment, work satisfaction, and intrinsic motivation). All subscales of WAMI are negatively associated with undesirable work variables, as absenteeism, turnover intention, and extrinsic motivation and poor well-being (e.g., hostility and depression) (Steger et al., 2012a).

In terms of scoring, the subscale positive meaning is achieved by adding the ratings for items 1, 4, 5, and 8. The subscale meaning making through work is achieved by adding the ratings for items 2, 7, and 9. For the subscale greater good motivations, subtract the rating for item 3 from 6 (e.g., if a participant gave item 3 a rating of 2, then their converted rating would be 4 [6-2=4]), and add this number to the ratings for items 6 and 10. The positive meaning, meaning making through work, and greater good motivations scores can all be added together to get the test-taker's overall meaningful work score (Steger et al., 2012a). The meaningful work score reflects the depth to which people experience their work as meaningful, as something they are personally invested in, and which is a source of flourishing in their lives. Low scores on any of these scales reflect an absence of work meaning, and may be predictive of poor work engagement, low commitment to one's organization and intentions to leave, low motivation, a perceived lack of support and adequate guidance from leadership or management. People who score low on these scales are also more likely to be absent from work and experience both low levels of well-being and higher levels of psychological distress (Steger et al., 2012a).

Subscales	Items
Positive meaning	1. I have found a meaningful career. 4. I understand how my work contributes to my life's meaning. 5. I have a good sense of what makes my job meaningful. 8. I have discovered work that has a satisfying purpose.

Meaning making through work	2. I view my work as contributing to my personal growth. 7. My work helps me better understand myself. 9. My work helps me make sense of the world around me.
Greater good motivations	3. My work really makes no difference to the world. 6. I know my work makes a positive difference in the world. 10. The work I do serves a greater purpose.

Table 3.2. – Work and Meaning Inventory (WAMI): subscales and items

Leite (2019) translated and validated the WAMI scale for the Portuguese population, using a convenience sample with 101 participants, working in a hospital environment. Although the translated version presents a good internal consistency (α=0.92), it was not possible to confirm its validity and its sensitivity (Leite, 2019). Because of this, a new translation of the WAMI scale was done (Appendix A), using previous studies about the validation of the concept of meaning in the portuguese population (Da Ponte et al., 2021; Da Ponte, 2022).

3.4.3. Measure of Moral Distress – Healthcare Professionals (MMD-HP)

Most studies assessing MD among HCPs are grounded in Jameton's conceptualization of MD and utilize Corley's MDS-R (Giannetta et al., 2020). However, the more recent MMD-HP (a 27-item revised scale) is recommended as a replacement for the MDS-R. The MMD-HP is designed for use across various healthcare settings, including adult and pediatric critical care, acute care, and long-term acute care, and reflects the most current understanding of the causes of MD (Epstein et al., 2019; Dias et al., 2022).

Dias et al. (2022) translated and culturally adapted the MMD-HP questionnaire into European Portuguese to suit the context of the Portuguese healthcare system. Their study sample consisted of 939 medical students. The Portuguese version of the instrument included 27 potential distressing situations (see Appendix B), each rated on a 4-point Likert scale for both frequency (0 = never to 4 = very frequently) and intensity (0 = none to 4 = very). The adapted version demonstrated good internal consistency, with a Cronbach's α of 0.89, compared to 0.98 for the original instrument (Dias et al., 2022).

In terms of scoring, the participants rate frequency and intensity, according to a Likert scale, and the frequency score (f) is multiplied by the intensity score (i) to create a composite score ("fxi," range 0–16). These composite item scores are summed to create an overall MMD-HP score (range 0–432), with higher scores indicating higher levels of MD (Epstein et al., 2019).

3.4.4. Utrecht: Work Engagement Scale (UWES)

Work engagement is defined as a positive, fulfilling work-related state of mind that is characterized by vigor (high levels of energy and mental resilience while working), dedication (being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge), and absorption (being fully concentrated and happily engrossed in one's work). Accordingly, vigor and dedication are considered direct opposites of the core burnout dimensions of exhaustion and depersonalization, respectively (Schaufeli et al., 2006).

The UWES measures the three core dimensions of work engagement: vigor, dedication, and absorption (Schaufeli et al., 2006). The original version included 24 items, but following psychometric evaluation, 7 items were removed, resulting in a 17-item scale divided across the three dimensions. Confirmatory factor analyses have consistently supported the superiority of the three-factor structure over a one-factor model. However, some exploratory factor analyses have not confirmed a distinct three-factor structure, leading some researchers to rely on the total UWES score as an overall measure of work engagement. Besides this, given the high intercorrelations among the three dimensions, they are often treated as closely related constructs. To improve practicality and cross-cultural applicability, a shorter version of the UWES was developed, comprising 9 items aligned with the same three-factor model (see Table 3.3.), and validated across samples from 10 countries (Schaufeli et al., 2006).

Subscales	Items
Vigor	• At my work, I feel bursting with energy; • At my job, I feel strong and vigorous; • When I get up in the morning, I feel like going to work;
Dedication	• I am enthusiastic about my job; • My job inspires me; • I am proud of the work that I do;
Absorption	• I feel happy when I am working intensely; • I am immersed in my work; • I get carried away when I'm working;

Table 3.3. – Utrech Work Engagement Scale (UWES): subscales and items

In the short version of the UWES, the three-factor model demonstrated a slightly better fit to the data across samples from 10 countries compared to the one-factor model (Schaufeli et al., 2006). However, the subscales—vigor, dedication, and absorption—are highly interrelated, suggesting substantial overlap between the constructs. According to the authors, work engagement, as assessed by the UWES may be considered a one-dimensional as well

as a three-dimensional construct (Schaufeli & Bakker, 2004). The authors suggest that when one is interested in the concept of engagement as such, rather than in its constituting parts, the total score (of the shortened version) may be used (Schaufeli & Bakker, 2004).

The short version of the UWES, consisting of 9 items (Schaufeli, et al. 2006), was translated into Portuguese by Maria José Chambel. The scale is rated on a 7-point Likert scale ranging from 0 (never) to 6 (every day) (see Appendix C). The validation of the Portuguese version of the short UWES was conducted using a convenience sample of 150 workers. The scale demonstrated good internal consistency (α = 0.94) and, in contrast to the original three-factor model, revealed a unidimensional structure in this adaptation (Cunha e Silva, 2014).

The mean scale score of the three UWES subscales is computed by adding the scores on the particular scale and dividing the sum by the number of items of the subscale involved. A similar procedure if followed for the total score. Hence, the UWES, yields three subscale scores and/or a total score that range between 0 and 6 (Schaufeli & Bakker, 2004).

In the present work, UWES was considered as a unidimensional scale.

3.5. Statistical analysis

Descriptive and inferential statistical analyses were conducted using SPSS Statistics version 30.

The internal consistency of the WAMI and its subscales was assessed using Cronbach's α coefficients. This measure estimates the degree to which items on a scale are interrelated and thus measure a common underlying construct (Tavakol & Dennick, 2011). Cronbach's alpha values range from 0 to 1, with values above 0.70 typically considered acceptable, values above 0.80 considered good, and values above 0.90 indicating excellent internal consistency (Nunnally & Bernstein, 1994).

Descriptive statistics (means, standard deviations, minima, and maxima) were computed for all study variables, including the WAMI, MMD-HP, and the UWES.

To examine associations between key constructs, Spearman's rank-order correlations were calculated, as this non-parametric test is appropriate for ordinal or non-normally distributed data. Group differences across sociodemographic and work-related variables were analyzed using non-parametric tests: the Mann–Whitney U test for comparisons between two independent groups (e.g., sex, sector of practice) and the Kruskal–Wallis H test for comparisons among three or more groups (e.g., marital status, specialty, context of practice). These procedures were selected due to the modest sample size and the non-normal distribution of several variables.

Finally, simple linear regression analyses were planned to test whether MD (MMD-HP total) predicted meaningful work (WAMI total) and work engagement (UWES total). However, the goodness of fit of the models were not statistically significant.

4. Results

4.1. Sociodemographic and work variables

The majority of the sample consisted of physicians aged between 40 and 49 years (79.42%). Most participants were women (60.29%) and married (61.76%) (see Table 4.1.).

	n	%
age		
20-29	2	2.94
30-39	26	38.24
40-49	28	41.18
50-59	8	11.76
60-69	3	4.41
≥70	1	1.47
sex		
m	27	39.71
f	41	60.29
marital status		
single	17	25
married	42	61.76
divorced	9	13.24

Table 4.1. – Sociodemographic variables of the sample (*n*=68)

The majority of physicians had between 11 and 20 years of practice (55.88%). The most common specialties represented were family medicine (19.12%), internal medicine (17.65%), oncology (14.71%), and psychiatry (14.71%). Most participants worked across multiple clinical settings, including outpatient, inpatient, and emergency care (EC) (44.12%), followed by those working primarily in primary care (16.18%). Additionally, the majority were employed in the public healthcare sector (66.18%) (see Table 4.2.).

	n	%			*n*	%
years of practice				**context of practice**		
≤10	16	23.53		outpatient	8	11.76
11-20	38	55.88		outpatient + inpatient	3	4.41
>20	14	20.59		outpatient + inpatient + ER	30	44.12
speciality				outpatient + inpatient + ER + ICU	1	1.47
psychiatry	10	14.71		inpatient + ER + OR	1	1.47
oncology	10	14.71		outpatient + OR	1	1.47
cardiology	1	1.47		ER	1	1.47
nefrology	1	1.47		ICU	3	4.41
endocrinology	1	1.47		OR	1	1.47
radioncology	1	1.47		primary care	11	16.18
internal medicine	12	17.65		primary care + ER	2	2.94
intensive care	3	4.41		public health	5	7.35
anesthesiology	2	2.95		PC	1	1.47
surgery	7	10.29		**sector**		

family physician	13	19.12		private	6	8.82
public health	5	7.35		public	45	66.18
forensic medicine	1	1.47		public + private	16	23.53
general practice	1	1.47		private + social	1	1.47
ER: Emergency Care; ICU: Intensive Care Unit; OR: Operating Room; PC: Palliative Care;						

Table 4.2. – Work variables of the sample (*n*=68)

4.2. Work and Meaning Inventory scale reliability and correlation analysis

The internal consistency of the WAMI was assessed using Cronbach's alpha. The overall scale demonstrated excellent reliability (α = .94). The subscales also showed good to very good internal consistency: positive meaning (α = .81), meaning making (α = .82), and greater good motivations (α = .84) (see Appendix D, Table A).

4.3. Descriptive analysis

Descriptive analysis of the instruments indicated high mean scores for meaningful work (WAMI total: M = 40.19, SD = 7.17), as well as for its subscale of positive meaning (M = 16.47, SD = 2.90), meaning making (M = 11.40, SD = 2.87), and greater good motivations (M = 12.47, SD = 2.23), low mean scores of MD (MMD-HP-total: M = 133.37, SD = 78.68), and relatively high scores of engagement (UWES total: M = 3.98, SD = 1.22) (see Table 4.3.).

	WAMI - Positive meaning	WAMI - Meaning Making	WAMI - Greater good motivations	WAMI TOTAL	MMD-HP total	UWES total
mean	16.47	11.40	12.47	40.19	133.37	3.98
std	2.9	2.87	2.23	7.17	78.68	1.22
minimum	8	3	5	21	0	0.78
maximum	20	15	15	50	313	6

Table 4.3. - Descriptive analysis of the instruments

Across age groups, WAMI scores were relatively stable, with total scores ranging between 37 and 43. Physicians aged 50–59 reported the highest WAMI total (M = 43.12), while those aged 60–69 reported the lowest (M = 37.33) and also showed the lowest work engagement (M = 1.96). MD was particularly higher among the youngest physicians (20–29 years; M = 221.50) and those aged 60–69 (M = 161.00), though variability was high in both groups.

With regard to sex, female physicians reported slightly higher meaningful work (WAMI total M = 40.56 vs. 39.63) and work engagement (M = 4.14 vs. 3.74) compared to males, but also substantially higher MD (M = 150.46 vs. 107.41). By marital status, married physicians showed the highest work engagement (M = 4.16) and lower levels of MD (M = 127.69), while

single physicians reported lower work engagement (M = 3.65) and highest MD (M = 147.82). Divorced physicians, though a smaller group, presented the highest WAMI total (M = 41.89).

In terms of years of practice, physicians with ≤10 years reported the highest MD (M = 176.94) and comparatively lower work engagement (M = 3.73). Those with 11–20 years of practice reported the lowest MD (M = 109.58) and highest work engagement (M = 4.15), while physicians with >20 years had the highest WAMI total (M = 42.00) but elevated MD (M = 148.14).

Examining the most frequent specialties, psychiatry and internal medicine physicians reported the highest levels of meaningful work (WAMI total = 42.30 and 42.17, respectively), with work engagement scores above 4.0. Oncology physicians showed comparable WAMI totals (M = 40.00) but higher MD (M = 148.30). Family physicians reported the lowest WAMI (M = 38.38) and intermediate MD (M = 132.46).

For context of practice, those working in outpatient + inpatient + EC settings reported the highest WAMI total (M = 41.80) and higher MD (M = 154.36), while outpatient-only and primary care groups showed lower WAMI totals (M = 38.46 and 38.64, respectively) and lower MD (M = 125.92 and 128.09). Work engagement levels remained fairly consistent across contexts (≈4.0).

Finally, by sector of practice, physicians working in both public and private sectors reported slightly higher WAMI total (M = 40.44) and MD (M = 149.75), but lower work engagement (M = 3.60), compared to those working solely in the public sector (WAMI total: M = 39.76; MMD-HP: M = 133.11, UWES M = 3.97) (see Appendix D – Table B).

4.4. Correlation analysis

Correlation analysis (see Table 4.4.) revealed that the WAMI subscales were all strongly and positively intercorrelated: positive meaning with meaning making (r = .79, p < .01), positive meaning with greater good motivations (r = .63, p < .01), and meaning making with greater good motivations (r = .61, p < .01). Each subscale also showed very strong positive correlations with the WAMI total score (rs = .81–.91, p < .01).

Work engagement (UWES total) was significantly and positively correlated with all three WAMI subscales and the WAMI total score, with coefficients ranging from r = .32 to .53 (p < .01). In contrast, MD (MMD-HP) was not significantly associated with meaningful work (WAMI subscales or total) or with work engagement (r = –.12, n.s.).

Finally, age group and years of practice were not significantly related to meaningful work, MD, or work engagement.

	WAMI - PM	WAMI - MM	WAMI - GGM	WAMI TOTAL	MMD-HP total	UWES total	Age group	Years of practice
WAMI - PM	1.000	.788**	.634**	.905**	.142	.526**	.156	.014
WAMI - MM		1.000	.608**	.909**	.169	.387**	.144	.086
WAMI - GGM			1.000	.806**	.009	.319**	.092	.131
WAMI TOTAL				1.000	.111	.482**	.165	.106
MMD-HP					1.000	-.122	-.139	-.185
UWES						1.000	-.003	.097

Table 4.4. - Spearman Correlations (**Correlation is significant at the 0.01 level [2-tailed]; GGM: Greater Good Motivations; MM: Meaning Making; MMD-HP: Measure of Moral Distress – Healthcare Professionals; PM: Positive Meaning; UWES: Utrecht: Work Engagement Scale; WAMI: Work and Meaning Inventory)

4.5. Differences between groups

Mann–Whitney U tests were conducted to examine potential differences in terms of sex in meaningful work (WAMI), MD (MMD-HP), and work engagement (UWES) (see Table 4.5.). The results showed no statistically significant differences in sex in the WAMI subscales of positive meaning ($U = 457.50$, $Z = –1.22$, $p = .224$), meaning making ($U = 546.00$, $Z = –0.10$, $p = .924$), or greater good motivations ($U = 530.00$, $Z = –0.30$, $p = .765$), nor in the WAMI total score ($U = 522.50$, $Z = –0.39$, $p = .697$). Similarly, no significant difference was observed in work engagement (UWES) ($U = 452.50$, $Z = –1.27$, $p = .205$). In contrast, a statistically significant difference was found for MD (MMD-HP), with female physicians reporting higher levels of MD (mean rank = 39.12) compared to males (mean rank = 27.48; $U = 364.00$, $Z = –2.38$, $p = .018$).

Ranks

	Gender	N	Mean Rank	Sum of Ranks
WAMI – Positive meaning	Female	41	36.84	1510.50
	Male	27	30.94	835.50
	Total	68		
WAMI – Meaning Making	Female	41	34.68	1422.00
	Male	27	34.22	924.00
	Total	68		
WAMI – Greater good motivations	Female	41	33.93	1391.00
	Male	27	35.37	955.00
	Total	68		
WAMI TOTAL	Female	41	35.26	1445.50
	Male	27	33.35	900.50
	Total	68		
MMD-HP total	Female	41	39.12	1604.00
	Male	27	27.48	742.00
	Total	68		
UWES total	Female	41	36.96	1515.50
	Male	27	30.76	830.50
	Total	68		

Test Statistics[a]

	WAMI – Positive meaning	WAMI – Meaning Making	WAMI – Greater good motivations	WAMI TOTAL	MMD-HP total	UWES total
Mann-Whitney U	457.500	546.000	530.000	522.500	364.000	452.500
Wilcoxon W	835.500	924.000	1391.000	900.500	742.000	830.500
Z	-1.216	-.095	-.300	-.389	-2.375	-1.267
Asymp. Sig. (2-tailed)	.224	.924	.765	.697	.018	.205

a. Grouping Variable: Gender

Table 4.5. – Differences in terms of sex in meaningful work (WAMI), moral distress (MMD-HP), and work engagement (UWES) among physicians, presented as Mann–Whitney U test ranks (α = 0,05).

Kruskal–Wallis tests were conducted to examine potential differences in meaningful work (WAMI), MD (MMD-HP), and work engagement (UWES) across marital status groups (see Table 4.6.). The results showed no statistically significant differences in the WAMI subscales of positive meaning ($H(2) = 0.62$, $p = .734$), meaning making ($H(2) = 1.34$, $p = .512$), or greater good motivations ($H(2) = 2.10$, $p = .350$), nor in the WAMI total score ($H(2) = 1.61$, $p = .446$). Similarly, no significant differences were observed for MD (MMD-HP) ($H(2) = 0.96$, $p = .620$) or for work engagement (UWES) ($H(2) = 2.61$, $p = .272$). While mean rank comparisons suggested that divorced physicians tended to report higher levels of meaningful work, single physicians reported higher MD, and married physicians reported higher work engagement, these differences did not reach statistical significance.

Ranks

	marital status	N	Mean Rank
WAMI – Positive meaning	Single	17	32.44
	Married	42	34.42
	Divorced	9	38.78
	Total	68	
WAMI – Meaning Making	Single	17	29.97
	Married	42	35.56
	Divorced	9	38.11
	Total	68	
WAMI – Greater good motivations	Single	17	33.65
	Married	42	32.98
	Divorced	9	43.22
	Total	68	
WAMI TOTAL	Single	17	31.32
	Married	42	34.26
	Divorced	9	41.61
	Total	68	
MMD-HP total	Single	17	38.44
	Married	42	33.49
	Divorced	9	31.78
	Total	68	
UWES total	Single	17	28.15
	Married	42	37.27
	Divorced	9	33.56
	Total	68	

Test Statistics[a,b]

	WAMI – Positive meaning	WAMI – Meaning Making	WAMI – Greater good motivations	WAMI TOTAL	MMD-HP total	UWES total
Kruskal-Wallis H	.619	1.337	2.102	1.613	.956	2.607
df	2	2	2	2	2	2
Asymp. Sig.	.734	.512	.350	.446	.620	.272

a. Kruskal Wallis Test

b. Grouping Variable: marital status

Table 4.6. - Differences between marital status in meaningful work (WAMI), moral distress (MMD-HP), and work engagement (UWES) among physicians, presented as Kruskal–Wallis tests (α = 0,05).

Kruskal–Wallis tests were also conducted to examine differences between the most frequent medical specialties (family medicine, internal medicine, oncology and psychiatry) in meaningful work (WAMI), MD (MMD-HP), and work engagement (UWES) (see Table 4.7.). The results indicated no statistically significant differences in the WAMI subscales of positive meaning (H(3) = 2.14, p = .544), meaning making (H(3) = 2.61, p = .455), or greater good motivations (H(3) = 0.71, p = .872), nor in the WAMI total score (H(3) = 1.97, p = .578). Similarly, no significant differences were observed across specialties for MD (H(3) = 0.52, p = .916) or for work engagement (H(3) = 0.63, p = .891). Although descriptive statistics suggested

that psychiatrists and internal medicine physicians tended to report higher levels of meaningful work, oncologists reported slightly higher MD and work engagement, and family physicians tended to score lowest across several domains, these differences were not statistically significant.

Ranks

	speciality	N	Mean Rank
WAMI – Positive meaning	family physician	13	18.88
	internal medicine	12	25.00
	oncology	10	22.95
	psychiatry	10	26.00
	Total	45	
WAMI – Meaning Making	family physician	13	18.31
	internal medicine	12	23.92
	oncology	10	24.60
	psychiatry	10	26.40
	Total	45	
WAMI – Greater good motivations	family physician	13	22.65
	internal medicine	12	25.58
	oncology	10	21.90
	psychiatry	10	21.45
	Total	45	
WAMI TOTAL	family physician	13	18.77
	internal medicine	12	25.00
	oncology	10	23.85
	psychiatry	10	25.25
	Total	45	
MMD-HP total	family physician	13	21.73
	internal medicine	12	22.00
	oncology	10	25.30
	psychiatry	10	23.55
	Total	45	
UWES total	family physician	13	21.54
	internal medicine	12	23.17
	oncology	10	25.65
	psychiatry	10	22.05
	Total	45	

Test Statistics[a,b]

	WAMI – Positive meaning	WAMI – Meaning Making	WAMI – Greater good motivations	WAMI TOTAL	MMD-HP total	UWES total
Kruskal-Wallis H	2.139	2.612	.707	1.971	.515	.625
df	3	3	3	3	3	3
Asymp. Sig.	.544	.455	.872	.578	.916	.891

a. Kruskal Wallis Test

b. Grouping Variable: speciality

Table 4.7. - Differences between the most frequent specialties in meaningful work (WAMI), moral distress (MMD-HP), and work engagement (UWES) among physicians, presented as Kruskal–Wallis tests (α = 0,05).

Differences between the most frequent contexts of practice (outpatient; outpatient + inpatient + EC; primary care) in meaningful work (WAMI), MD (MMD-HP), and work engagement (UWES) (see Table 4.8.) were examined according to Kruskal–Wallis tests. The results showed no statistically significant differences in the WAMI subscales of positive meaning (H(2) = 0.64, p = .727), meaning making (H(2) = 1.60, p = .450), or greater good motivations (H(2) = 0.81, p = .668), nor in the WAMI total score (H(2) = 1.16, p = .560). Similarly, no significant differences were observed across practice contexts for MD (H(2) = 1.47, p = .479) or for work engagement (H(2) = 0.86, p = .649). Descriptive statistics suggested that physicians working in combined practice settings (outpatient + inpatient + EC) tended to report higher levels of meaningful work and MD, while those working in outpatient-only contexts reported higher work engagement. In contrast, physicians in primary care generally reported lower levels of meaningful work. However, these differences did not reach statistical significance.

Ranks

	context of practice	N	Mean Rank
WAMI – Positive meaning	outpatient	13	24.65
	outpatient + inpatient + ER	25	26.36
	primary care	11	22.32
	Total	49	
WAMI – Meaning Making	outpatient	13	23.04
	outpatient + inpatient + ER	25	27.46
	primary care	11	21.73
	Total	49	
WAMI – Greater good motivations	outpatient	13	22.00
	outpatient + inpatient + ER	25	26.06
	primary care	11	26.14
	Total	49	
WAMI TOTAL	outpatient	13	23.88
	outpatient + inpatient + ER	25	27.02
	primary care	11	21.73
	Total	49	
MMD–HP total	outpatient	13	22.23
	outpatient + inpatient + ER	25	27.42
	primary care	11	22.77
	Total	49	
UWES total	outpatient	13	27.81
	outpatient + inpatient + ER	25	23.32
	primary care	11	25.50
	Total	49	

Test Statistics[a,b]

	WAMI – Positive meaning	WAMI – Meaning Making	WAMI – Greater good motivations	WAMI TOTAL	MMD-HP total	UWES total
Kruskal-Wallis H	.637	1.599	.806	1.160	1.473	.864
df	2	2	2	2	2	2
Asymp. Sig.	.727	.450	.668	.560	.479	.649

a. Kruskal Wallis Test

b. Grouping Variable: context of practice

Table 4.8. - Differences between the most frequent contexts of practice in meaningful work (WAMI), moral distress (MMD-HP), and work engagement (UWES) among physicians, presented as Kruskal–Wallis tests (EC: emergency care; α = 0,05).

Mann–Whitney U tests were conducted to explore potential differences between the most frequent sectors of practice (public sector, and both public and private sectors) in meaningful work, MD, and work engagement (see Table 4.9.). No statistically significant differences were found in the WAMI subscales of positive meaning (U = 359.50, Z = –0.01, p = .993), meaning making (U = 303.00, Z = –0.94, p = .345), or greater good motivations (U = 359.50, Z = –0.01, p = .993), nor in the WAMI total score (U = 356.00, Z = –0.07, p = .948). Similarly, no significant sector differences were observed for MD (MMD-HP total) (U = 328.00, Z = –0.53, p = .600) or for work engagement (UWES total) (U = 306.00, Z = –0.89, p = .375). Although mean ranks suggested slightly higher WAMI-meaning making and MD among physicians working in both sectors, and slightly higher work engagement among those working exclusively in the public sector, these differences did not reach statistical significance.

Ranks

	Sector	N	Mean Rank	Sum of Ranks
WAMI – Positive meaning	Public	45	31.01	1395.50
	Public + Private	16	30.97	495.50
	Total	61		
WAMI – Meaning Making	Public	45	29.73	1338.00
	Public + Private	16	34.56	553.00
	Total	61		
WAMI – Greater good motivations	Public	45	31.01	1395.50
	Public + Private	16	30.97	495.50
	Total	61		
WAMI TOTAL	Public	45	30.91	1391.00
	Public + Private	16	31.25	500.00
	Total	61		
MMD-HP total	Public	45	30.29	1363.00
	Public + Private	16	33.00	528.00
	Total	61		
UWES total	Public	45	32.20	1449.00
	Public + Private	16	27.63	442.00
	Total	61		

Test Statistics[a]

	WAMI – Positive meaning	WAMI – Meaning Making	WAMI – Greater good motivations	WAMI TOTAL	MMD-HP total	UWES total
Mann-Whitney U	359.500	303.000	359.500	356.000	328.000	306.000
Wilcoxon W	495.500	1338.000	495.500	1391.000	1363.000	442.000
Z	-.008	-.944	-.008	-.066	-.525	-.887
Asymp. Sig. (2-tailed)	.993	.345	.993	.948	.600	.375

a. Grouping Variable: Sector

Table 4.9. - Differences between the most frequent sector of practice in meaningful work (WAMI), moral distress (MMD-HP), and work engagement (UWES) among physicians, presented as Mann–Whitney U test ranks (α = 0,05).

4.6. Regression analysis

Simple linear regression analyses were conducted to examine whether moral distress (MMD-HP) predicted meaningful work (WAMI total) and work engagement (UWES). However, the goodness of fit of the models were not statistically significant.

5. Discussion

5.1. Work and Meaning Inventory Scale reliability

The internal consistency of the WAMI in the present study was found to be excellent for the total scale (α = 0.94), indicating a high degree of coherence among items in measuring meaningful work. This finding is in line with results from Leite (2019), who reported α = 0.92 in his validation study of the Portuguese version of the WAMI in a hospital-based sample.

At the subscale level, the positive meaning subscale showed good internal consistency (α = 0.81), closely matching Leite's reported value of α = 0.89, supporting the robustness of this dimension in the portuguese context. The meaning making subscale demonstrated very good reliability (α = 0.82), aligning with the α = 0.82 reported by Leite, suggesting stable inter-item correlation across both samples. The greater good motivations subscale also demonstrated good internal consistency (α = 0.84), slightly higher than Leite's reported α = 0.83, reinforcing the reliability of this component in assessing altruism and societal contribution.

It is important to note that the challenge of conceptualizing constructs related to meaning has been well documented in previous studies, particularly with respect to cultural and professional influences (Da Ponte et al., 2021). In this case, and contrary to Leite (2019), the sample consisted exclusively of physicians, and slightly different results were expected due to factors associated with professional identity, which, however, did not occur.

Taken together, these results confirm that the WAMI demonstrates strong psychometric properties in this portuguese medical sample and reinforce its applicability for use in healthcare settings. The high internal consistency across the total scale and subscales is consistent with previous validation findings and supports the continued use of WAMI for assessing meaningful work in culturally adapted contexts.

5.2. Sociodemographic and work characteristics

Considering the total number of physicians registered with the Portuguese Medical Board (64 941), participation in this study was low (n = 68; 0.10%). This may be attributed to the use of a convenience sampling method. Nevertheless, it is worth noting that even studies with broader dissemination—such as one conducted by the Portuguese Medical Board itself—also reported low response rates (9.36%) (Da Ponte et al., 2025). Low participation in questionnaire-based studies is well-documented in the literature and remains a recognized challenge (Ottenstein & Werner, 2022).

Although there is a lack of studies on the sociodemographic characteristics of physicians in Portugal, the aging of the medical workforce is a well-known trend. The most recent report describes the situation within the National Health System (NHS), where

sociodemographic characteristics are influenced by residency training, which is predominantly carried out in the NHS (Ferreira et al., 2024). Our sample was composed mainly of early-career and younger physicians with 11-20 years of practice, which may be explained by the high proportion of physicians working in the NHS. This, in turn, is likely related to the main specialties represented in the sample—family medicine, internal medicine, and oncology—which are more commonly practiced within the public sector. Consistent with Da Ponte et al. (2025), only a minority of physicians in our sample worked in mixed settings, sectors, with a clear predominance of those working exclusively in the public sector (Da Ponte et al., 2025). The proportion of women in our sample aligns with the high rates of feminization among HCPs in Portugal (Ferreira et al., 2024). This trend—marked by the predominance of younger, early-career physicians and higher female participation—has also been observed in previous studies conducted in Portugal. It may reflect a broader shift in generational attitudes to engage in online survey-based research (Da Ponte et al., 2025). The most common practice setting reported—combining outpatient, inpatient, and EC—reflects the predominance of hospital-based specialties in our sample, as opposed to primary care.

The research hypotheses will be presented and discussed in the following sections.

5.3. Meaningful work

Physicians in our sample reported generally high levels of meaningful work, both on the total scale and across its subscales. Notably, the mean scores observed were considerably higher than the scale's normative mean. This imply that this sample of physicians experience their work as meaningful, namely, they have personal meaning, significance or purpose in their work (positive meaning), their work is a source of meaning in life (meaning making), and they see work as a positive contribution to others and society (greater good motivations) (Steger at el., 2012a). This can be explained in the lens of the Psychology of Working Theory, that posits that decent work fulfills core human needs, including survival, social connection, and self-determination, and that access to such work can contribute to a sense of purpose and fulfillment (Duffy et al., 2016). Within this framework, meaningful work is not merely an individual experience but is shaped by broader contextual and structural factors, such as job security, autonomy, and the opportunity to contribute to others. In the case of physicians, the intrinsic nature of medical practice—centered on care, healing, and service—often aligns with these components, facilitating high levels of perceived meaningfulness.

It´s interesting to notice that WAMI total and its subscales increased progressively in each decade, to decrease during the 60´s, and to increase again in 70´s or older to the previous levels. This is in accordance to previous studies that found that physicians in the middle career stage report the lowest satisfaction with their specialty choice and work–life balance, and the

highest rates of emotional exhaustion and burnout, compared to early- or late-career colleagues (Dyrbye et al., 2013). Although this, age group was not significantly related to the variable of meaningful work.

In accordance, group comparison for years of practice revealed that physicians with >20 years of experience highest scores of meaningful work, across WAMI dimensions. Although not statistically significative, meaning making and greater good motivation both increase with more years of experience, putting work as a source of meaning that appear to be more linked to meaning making, personally or socially. As Viktor Frankl (1946) proposed, work can be a creative source of meaning (Breitbart, 2017).

In this study, meaningful work didn´t differ according to sex differences of physicians. In the literature, the general relation established between sex and well-being is between lower professional fulfillment and higher levels of burnout to women, which can be due to work-life balance issues (Lyubarova et al., 2023; Guille & Sen, 2024).

In terms of marital status, all group report a relatively strong sense of meaningful work. Although not significant, single physicians report higher MD, which is in accordance with several studies that indicate that being married is associated with lower levels of burnout and better psychological well-being among physicians. Marriage can provide stability and social support, which may buffer against stress and enhance job meaningfulness (Chen et al., 2022; Dutta et al., 2024;American Medical Association, 2024).

In terms of specialties, a comparison of the most frequently represented fields revealed that psychiatry and internal medicine reported higher levels of meaningful work. The literature supports the link between psychiatry and meaningful work, but not between internal medicine and meaningful work, which is classically linked to poor well-being, as it´s related to intense work in the EC context (DeMello & Deshpande, 2011; Huber et al., 2020; American Medical Association, 2024). The relative consistency in meaning-making across specialties suggests that, regardless of the medical field, physicians may engage in similar internal processes to derive purpose and coherence from their professional roles. This aligns with Steger's proposition that the capacity to make meaning is not entirely determined by external job characteristics (e.g., specialty or setting), but also by individual psychological processes and motivations. Therefore, even in high-stress or system-constrained environments, physicians may maintain a strong sense of meaning through reflective practices, ethical alignment, or the perceived social impact of their work (Steger, 2012a; 2012).

The outpatient + inpatient + EC group reported slightly higher meaningful work compared to primary care. This can be explained as physicians working across multiple settings often encounter a greater diversity of clinical situations, from routine check-ups to acute and life-threatening cases. This variety can enhance the sense of impact and professional stimulation, both of which are known to contribute to perceived meaning in work

(Steger et al., 2012a). Also, in settings like the EC or inpatient care, physicians may see the direct and immediate results of their interventions—such as stabilizing a critical patient or discharging someone after recovery. This tangible feedback loop reinforces a sense of purpose and efficacy, enhancing meaningfulness (Ben-Itzhak t a., 2015; Dainty et al., 2017). Also, in hospital-based care, physicians often work within interdisciplinary teams under time-sensitive conditions. These dynamics promote a sense of shared mission, which is strongly associated with greater good motivations—a key component of meaningful work (Steger et al., 2012a).

Physicians working in the public + private sectors report slightly higher meaningful work than physicians that work only in public sector. This trend may be attributed to greater autonomy, flexibility, and professional control typically available in private practice sector. For example, Friedberg et al. (2013) found that physicians in physician-owned practices reported significantly higher job satisfaction due to greater control over clinical decision-making, workflow, and pace (Friedberg et al., 2013). Similarly, the American Medical Association has emphasized that restoring physician autonomy—such as control over scheduling, team composition, and patient load—is critical to improving well-being and reducing burnout (AMA, 2025a; AMA, 2025b). These findings align with Self-Determination Theory, which identifies autonomy as a core psychological need directly linked to work motivation and meaningfulness (AMA, 2025c). Moreover, comparative studies across health systems reinforce this pattern. In a European study, physicians working in the private sector reported higher job satisfaction and organizational commitment than their public-sector counterparts (Koumenta & Langbein, 2011). Similar results have been observed in non-European contexts; for instance, a study in Russia found that physicians in private clinics scored significantly higher on job satisfaction measures, particularly regarding working conditions, than those only in public healthcare institutions (Goncharov et al., 2017). Collectively, this evidence suggests that structural aspects of the work environment—such as ownership model and sector—may meaningfully influence how physicians perceive the purpose and value of their work.

The positive association between meaningful work and work engagement observed aligns with prior research emphasizing the motivational power of meaningful work. Individuals who perceive their work as meaningful tend to exhibit greater energy, dedication, and psychological presence in their roles (Bakker & Albrecht, 2018; Shuck et al., 2013). This relationship is consistent with the Job Demands–Resources model, which identifies meaningfulness as a key personal resource that fosters engagement, especially in demanding professions like medicine. The absence of significant association between meaningful work and MD, may suggest that meaningful work may enhance motivation and resilience, but it does not necessarily buffer against the moral tensions and ethical conflicts often inherent in clinical settings. These results are consistent with research showing that engagement and distress

may operate through distinct psychological pathways, with engagement linked to fulfillment and autonomy, and distress linked more closely to systemic constraints and ethical conflict (Epstein & Hamric, 2009). Our results support a growing body of evidence indicating that the experience of meaningful work may be more strongly shaped by task significance, autonomy, and value alignment than by demographic characteristics (Steger et al., 2012a; Duffy et al., 2016). This underscores the importance of fostering meaningful work environments across all physician groups, regardless of age or career stage.

In conclusion, these results support hypothesis 1 ("*Physicians present high levels of meaningful work*") and partially support hypothesis 4 ("*The variable meaningful work is **not** negatively associated with MD, **but it is** positively associated with work engagement").*

5.4. Moral distress

This study revealed relatively low overall levels of MD among physicians when compared to the normative mean of the MMD-HP scale (Dias et al., 2022). While this is encouraging, subgroup analyses uncovered important variations across demographic and professional variables, many of which are consistent with existing literature on MD in healthcare.

Notably, younger physicians (ages 20–29) reported the highest levels of MD, followed by those in the 60–69 age group, whereas mid-career physicians (ages 40–49) showed the lowest levels. This pattern is partially supported by prior research showing that early-career clinicians are particularly vulnerable to MD due to limited clinical autonomy, frequent exposure to ethically challenging situations without sufficient coping strategies, and greater role ambiguity (Epstein & Hamric, 2009; Tigard, 2018). Conversely, late-career physicians may experience MD due to accumulated moral residue, institutional fatigue, or witnessing systemic failures over time (Rushton, 2018). In line with this, MD was highest among physicians with ≤10 years of experience. Similar findings have been reported in nursing and medical populations, where less experienced professionals exhibit greater emotional and ethical vulnerability (Oh & Gastmans, 2015). Those in the 11–20-year range reported lower MD, which may reflect increased clinical confidence, ethical coping skills, and more stable professional identity developed through experience.

In terms of sex differences, women reported substantially higher MD than men, with statistical significance. This aligns with studies indicating that female HCPs often report greater emotional labor, empathetic engagement, and exposure to ethically distressing patient-care scenarios—especially in relational and caregiving specialties (Dzeng et al., 2016; Fourie, 2015). Structural inequalities, gendered expectations, and work-family strain may also exacerbate distress among women physicians (Frank et al., 2019).

Although single physicians reported the highest MD, this was not statistically significant. Some evidence suggests that marital status may offer protective psychosocial support against distress (AMA, 2024), but findings are inconsistent across samples and may depend more on relationship quality than status alone.

Specialty differences were also notable. Oncologists in this study showed some of the highest MD levels, consistent with previous literature identifying oncology as a specialty frequently exposed to end-of-life decisions, prognostic uncertainty, and emotionally intense patient relationships, all of which are key drivers of MD (Rodney et al., 2013; Epstein et al., 2019). In contrast, family medicine and internal medicine physicians reported moderate MD, which may reflect their focus on continuity of care, preventive health, and lower exposure to acute ethical dilemmas.

In terms of context of practice, physicians working in outpatient + inpatient + EC settings reported the highest MD, while those in primary care experienced lower levels. High MD in combined or acute settings may be attributed to increased workload, time pressures, and frequent ethically complex scenarios such as triage, resource scarcity, and aggressive interventions (Epstein & Hamric, 2009).

Finally, sector differences revealed that physicians working in combined settings (public + private sectors) reported slightly higher MD, comparing to those only in public (Dzeng & Curtis, 2018).

This study didn´t found association between meaningful work and MD, suggesting that higher perceptions of meaning in one's professional role do not necessarily protect against the experience of MD. This is consistent with theoretical models that distinguish between work motivation and moral suffering, where meaningfulness may foster engagement and purpose, but is insufficient to buffer against systemic or ethical conflicts in care delivery (Epstein & Hamric, 2009; Rushton, 2018). In fact, some authors argue that individuals who find their work deeply meaningful may experience greater moral sensitivity, thereby increasing their vulnerability to MD when they are unable to act in alignment with their values (Fourie, 2015; Tigard, 2018).

Although the negative correlation between MD and work engagement, this was not statistically significant. Earlier findings indicate that ethical stressors and unresolved moral conflict can contribute to emotional exhaustion, depersonalization, and disengagement from work (Dzeng et al., 2016; Dyrbye et al., 2017). This aligns with resilience-focused models, where engagement is seen as a protective psychological resource in ethically challenging environments (West et al., 2018). Sex was significantly correlated to MD, with female physicians reporting higher levels of MD. This finding is consistent with prior research showing that female HCPs often report greater emotional labor, ethical burden, and moral sensitivity, particularly in patient-centered and relational roles (Dzeng et al., 2016; Frank et al., 2019). In

contrast, age, years of practice, and meaningful work were not significantly associated to MD in this sample. While other studies have shown that experience and age can influence ethical coping capacity (Oh & Gastmans, 2015), the lack of association here may reflect a complex interaction of organizational culture, workload, and systemic constraints that affect physicians across demographic groups.

In conclusion, these results partially support hypothesis 2 ("*Physicians present **only** moderate levels of MD*"), and did not support hypothesis 5 ("*The variable MD is **not** negatively associated with meaningful work, or with work engagement*")

5.5. Work engagement

This study found that overall levels of work engagement among physicians were slightly higher than the normative mean of the UWES scale, indicating generally positive occupational well-being within the sample.

Engagement varied by demographic and professional characteristics. Physicians in the 40–49 and 30–39 age groups reported the highest engagement levels, while those in the 60–69 group showed the lowest. Similarly, physicians with 11–20 years of professional experience demonstrated the highest engagement, a pattern consistent with prior studies suggesting that mid-career physicians often experience peak alignment between skills, autonomy, and confidence, which supports sustained engagement (West et al., 2018). In contrast, late-career physicians may experience role fatigue, systemic disillusionment, or impending retirement transitions, which could reduce engagement (Shanafelt et al., 2015).

Although women and married physicians showed slightly higher engagement, these differences were not statistically significant, aligning with prior findings that sex and marital status may contribute modestly to work engagement, but are often outweighed by job design, autonomy, and value congruence (Bakker & Albrecht, 2018).

Specialty-specific comparisons revealed that the most frequent specialties are similarly engaged. These results may reflect the relational and cognitive complexity of these specialties, which tend to be associated with higher perceived task significance and professional identity—factors known to enhance engagement (Dik et al., 2009; Steger et al., 2012a).

In terms of practice context, primary care and physicians working only in outpatient clinic reported slightly higher engagement than those working across outpatient, inpatient, and emergency settings. This may be due to stronger continuity of care and long-term patient relationships, which contribute to professional meaning and motivation (Borgogni et al., 2010).

Sector differences were also evident - physicians working in combined models (public + private) were the most engaged, while those in the public sector reported the lowest engagement. This finding aligns with evidence suggesting that greater autonomy, flexibility,

and institutional support in combined settings, including private practice, are linked to higher engagement (Friedberg et al., 2013; AMA, 2025).

Correlation analyses further support theoretical expectations: there was a moderate positive correlation between meaningful work and work engagement, consistent with self-determination and job resources models, which posit that person–job alignment and purpose are key drivers of engagement (Bakker & Demerouti, 2007; Steger et al., 2012a). A weak negative correlation, but not significant, between MD and engagement was also observed, which may reflect that unresolved ethical tensions may slightly reduce occupational vitality.
Other variables, such as sex and years of practice, were not significantly correlated with engagement. These findings underscore the importance of promoting meaningful work environments and mitigating MD as potential strategies to support physician engagement and well-being.

In conclusion, this data partially supports hypothesis 3 ("*Physicians present **only** moderate levels of work engagement*").

5.6. Understanding medical workforce characteristics in the portuguese context

The findings of high levels of meaningful work among physicians in this sample can be interpreted through the Job Characteristics Model (Hackman & Oldham, 1976). The medical profession inherently demands a wide range of cognitive, emotional, and technical skills, contributing to job satisfaction and the perception of meaningful work (Hackman & Oldham, 1976; Steger et al., 2012). Moreover, medical work demonstrates high task identity, as physicians are often involved throughout the continuum of care, experiencing a sense of task completion (Rosso et al., 2010). The profession is also marked by task significance, given its direct impact on patients' lives and well-being, which is closely tied to purpose, calling, and moral responsibility—core sources of meaningful work (Steger, 2016; Serwint & Stewart, 2019). Physicians receive frequent and immediate feedback through patient outcomes and interpersonal interactions, allowing them to assess and refine their performance (Hackman & Oldham, 1976; Steger et al., 2012). However, autonomy—a critical component of job satisfaction—varies by work setting, which may explain why physicians in the public sector report lower meaningful work and engagement (Hackman & Oldham, 1976; Friedberg et al., 2013; AMA, 2025). In terms of Steger's theoretical model (2016), physicians often derive positive meaning from their work through deep moral and ethical alignment, a strong sense of identity with their professional role, and the opportunity to relieve suffering and foster healing (Steger, 2012; Steger et al., 2012). This also explains physicians´ vulnerability to MD. Meaning-making through work is particular important in medical profession, as physicians are exposure to profound life events and ethical dilemmas can shape identity and worldview

(Rosso et al., 2010; Steger, 2016). Greater good motivations in physicians can be explained by humanity, public health, and advocacy for systemic change, often rooted in spiritual or altruistic values (Steger, 2016; Serwint & Stewart, 2019). Also, greater good motivations can help explain why MD was not associated to meaningful work or engagement - while distress may be present in physicians, it does not override the motivational force of deeply held professional values.

Using Steger's predictors of meaningful work, the study's key findings—meaningful work is positively correlated to work engagement (but not to MD)—can be understood as the result of strong intrinsic motivation, a sense of calling, and a commitment to greater good motivations. These same qualities may enhance moral sensitivity, increasing vulnerability to MD when ethical ideals are constrained by systemic barriers (Epstein & Hamric, 2009; Fourie, 2015). At the same time, such value alignment and internal motivation may buffer physicians against disengagement and support sustained work engagement (Bakker & Albrecht, 2018). At the interpersonal level, meaningful patient relationships and team collaboration can reinforce the "greater good" and foster a sense of belonging and mutual respect (Rosso et al., 2010). When these dynamics are disrupted—through poor communication or ethical conflict—they may trigger MD (Tigard, 2018). Conversely, supportive teams and ethical leadership can mitigate distress and enhance engagement (Clark et al., 2021). Workplace factors also play a role. In line with the Job Characteristics Model and Steger's framework, features like task significance, and feedback enhance meaningful work. However, systemic constraints—such as bureaucracy and resource scarcity, that restricts autonomy —can undermine physicians' ethical agency and lead to MD (Bakker & Demerouti, 2007). Integrating Steger´s model (2016) into Hamric and Epstein (2017), the primary sources of MD among physicians arise at three levels (patient, unit, and system) – in the case of this sample, the moderate levels of MD can be due to the low intensity of stress in the three levels of MD sources. This may also help explain the discrepancy between the relatively moderate levels of MD observed in our sample and the high levels of burnout reported among portuguese physicians: nearly 80% of residents have been found to be at risk, with 24.7% severely affected by burnout (Bastos et al., 2025). In accordance, while MD can lead to burnout, the two are not identical. MD arises from ethical conflict, whereas burnout results from chronic stress and overload (Maslach & Jackson, 1981; Jameton, 1984; Hamric & Epstein, 2017; Guille & Sen, 2024) (see Table 5.1.).

Core Differences	Moral Distress	Burnout
Cause	Ethical conflict, moral constraint	Chronic stress, overwork
Emotional tone	Guilt, shame, moral frustration	Exhaustion, cynicism, inefficacy

Trigger	Inability to act ethically	Demands exceed personal capacity
Influence level	Institutional/systemic ethical limitations	Organizational culture and leadership
Duration /Impact	Acute or chronic; may lead to injury	Chronic and progressive if unaddressed

Table 5.1. – Differences between moral distress and burnout

In conclusion, Steger's framework helps explain why physicians maintain high meaningfulness in ethically difficult and resource-limited settings. Supporting their engagement while mitigating MD requires system-level changes—enhancing ethical alignment, restoring autonomy, and reinforcing team support—consistent with the Quadruple Aim to improve workforce well-being.

5.7. Limitations

Despite offering valuable insights, this study has several limitations that should be acknowledged. The use of a convenience sample and the small sample size (n = 68), representing only 0.10% of the physician population in Portugal, limit the generalizability of the findings (Ottenstein & Werner, 2022). The cross-sectional design precludes conclusions about causality or the directionality of relationships among variables. While associations between meaningful work and engagement were identified, this was not the case for MD, which constrained the conclusions and limited the ability to predict the dynamics between these constructs, leaving them unclear. The absence of longitudinal data further restricts the capacity to assess how meaningful work and MD evolve over time. In addition, the sample was heavily skewed toward physicians working in the public sector and within certain specialties (e.g., family medicine, internal medicine, oncology). The underrepresentation of other specialties, as well as physicians working exclusively in the private sector, limits the broader applicability of the results.

In conclusion, **hypothesis 6 –***"MD is a predictor of meaningful work and work engagement."* – **could not be tested**.

5.8. Implications for future research

To our knowledge, this was the first study that analyze the influence of meaningful work and MD in work engagement in portuguese physicians.

The findings carry several important implications for healthcare organizations, policymakers, and institutional leaders concerned with physician well-being – in light of the present results of this study – there can be implemented systemic and individual interventions. In system-level interventions, participation of physicians in policy and ethics-related decision-

making processes, can enhance autonomy and reinforce alignment between individual values and institutional goals (West, 2024). Also, the implementation of a ethics support infrastructure (similar to MDCS) can help to navigate ethically challenging cases (Hamric & Epstein, 2017). Individual level interventions aim to strengthen internal coping resources, maintain resilience, and deepen the connection to personal meaning in work. These are particularly appropriate for physicians who already experience high meaningfulness but are at risk of burnout from unresolved moral tension. For this, MCP-HP can be particularly helpful in physicians, particularly with heterogenous groups with physicians from different ages (Rosa et al., 2024).

A particular challenge in the future will be the increasing integration of artificial intelligence (AI) into healthcare delivery systems, that presents both significant opportunities and considerable challenges for physicians. While AI offers enhanced diagnostic accuracy, workflow efficiency, and data-driven decision-making, it also introduces ethical ambiguity, shifts in clinical roles, and potential threats to professional autonomy (Jotterand & Bosco, 2020; Morley et al., 2020). For physicians experiencing high levels of meaningful work, moderate MD, and moderate to high work engagement, these psychological and motivational resources can serve as protective and adaptive factors in navigating this complex technological transition. Also, institutions can support this adaptive potential by involving physicians in AI implementation decisions, offering training on ethical and clinical integration of AI tools, and maintaining meaningful, relational aspects of care in hybrid human-machine systems (Blease et al., 2019; Shaw et al., 2021).

Future studies should prioritize the inclusion of broader and more representative samples, encompassing a wider range of medical specialties, practice settings, and sectors (public, private, and mixed). This would support more robust and generalizable findings. Longitudinal research is also needed to examine how meaningful work, MD, and work engagement evolve over time, particularly in response to transitions in professional life, organizational changes, or healthcare policies. Incorporating qualitative methodologies could offer rich, contextual insights into how physicians construct meaningful work, navigate ethical dilemmas, and maintain engagement. Additionally, comparative research across different healthcare systems and cultural settings could illuminate how structural and sociocultural variables shape physicians' experiences of meaning, MD, and engagement. Finally, experimental or quasi-experimental designs are warranted to assess the effectiveness of both organizational and individual-level interventions aimed at fostering meaningful work, mitigating MD, and sustaining physician engagement over the long term.

6. Conclusions

This study explored the relationships between meaningful work, MD, and work engagement among portuguese physicians, offering novel insights into how these constructs interact in a healthcare context. Meaningful work was positively correlated to work engagement, reinforcing the role of personal purpose and social contribution in fostering occupational well-being. Contrary to the initial hypothesis, meaningful work was not negatively associated with MD, nor MD was negatively correlated to work engagement. Instead, the relation between MD and meaningful work, and work engagement appeared to function along distinct psychological pathways.

The findings reinforce the importance of addressing constructs independently. Enhancing meaningful work and minimizing MD are complementary strategies that can improve physician well-being, strengthen clinical performance, and support the goals of the Quadruple Aim—particularly the imperative to foster a thriving healthcare workforce.

Given the rising complexity, ethical demands, and resource constraints facing health systems, future research should investigate these dynamics longitudinally and with larger, more representative samples. Interventions that promote autonomy, ethical reflection, and task significance will be essential to sustaining a resilient, engaged, and purpose-driven medical workforce.

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Appendix

Appendix A – Work and Meaning Inventory (WAMI)

The Work and Meaning Inventory. Work can mean a lot of different things to different people. The following items ask about how you see the role of work in your own life. Please honestly indicate how true each statement is for you and your work.

Work and Meaning Inventory (Steger, 2011) O trabalho pode ter significado diferente para diferentes pessoas. As questões seguintes referem-se à forma como você vê o papel do trabalho na sua vida. Por favor, responda o quanto é verdadeira cada afirmação relativamente a si e ao seu trabalho	Absolutely Untrue	Mostly Untrue	Neither True nor Untrue	Mostly True	Absolutely True
1. I have found a meaningful career Eu encontrei uma carreira com significado	1	2	3	4	5
2. I view my work as contributing to my personal growth. O meu trabalho contribui para o meu crescimento pessoal.	1	2	3	4	5
3. My work really makes no difference to the world. O meu trabalho não faz diferença para o mundo	1	2	3	4	5
4. I understand how my work contributes to my life's meaning. Eu compreendo como o meu trabalho contribui para o significado da minha vida	1	2	3	4	5
5. I have a good sense of what makes my job meaningful. Eu tenho uma boa noção do que torna o meu trabalho significativo	1	2	3	4	5
6. I know my work makes a positive difference in the world. Eu sei que o meu trabalho contribui de uma forma positiva para o mundo	1	2	3	4	5
7. My work helps me better understand myself. O meu trabalho ajuda a compreender-me melhor	1	2	3	4	5
8. I have discovered work that has a satisfying purpose. Eu encontrei um trabalho que me satisfaz	1	2	3	4	5
9. My work helps me make sense of the world around me. O meu trabalho ajuda-me a entender o mundo que me rodeia	1	2	3	4	5
10. The work I do serves a greater purpose. O trabalho que faço serve um propósito maior	1	2	3	4	5

ALTERNATIVAS:
2. Eu vejo o meu trabalho como um contributo para o meu crescimento pessoal
3. O meu trabalho, na realidade, não faz diferença no mundo
5. Eu tenho uma boa noção daquilo que dá significado ao meu trabalho
6. Eu sei que o meu trabalho faz uma diferença positiva no mundo
8. Eu encontrei um trabalho com um propósito que me satisfaz
9. O meu trabalho ajuda-me a dar sentido ao mundo à minha volta

Absolutamente falso
Maioritariamente falso
Nem verdadeiro nem falso
Maioritariamente verdadeiro
Absolutamente verdadeiro

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Scoring instructions.

- Add the ratings for items 1, 4, 5, and 8 to get the "*Positive Meaning*" score. The *Positive Meaning* scale reflects the degree to which people find their work to hold personal meaning, significance, or purpose.

- Add the ratings for items 2, 7, and 9 to get the "*Meaning-Making through Work*" score. The *Meaning-Making through Work* score reflects the fact that work is often a source of broader meaning in life for people, helping them to make sense of their live experience.

- Subtract the rating for item 3 from 6 (e.g., if a client gave item 3 a rating of 2, then their converted rating would be 4 [6-2=4]); add this number to the ratings for items 6 and 10 to get the "*Greater Good Motivations*" score. The *Greater Good Motivations* score reflects the degree to which people see that their effort at work makes a positive contribution and benefits others or society.

- The *Positive Meaning*, *Meaning-Making through Work*, and *Greater Good Motivations* scores can all be added together to get the test-taker's overall **Meaningful Work** score. The **Meaningful Work** score reflects the depth to which people experience their work as meaningful, as something they are personally invested in, and which is a source of flourishing in their lives.

Low scores on any of these scales reflect an absence of work meaning, and may be predictive of poor work engagement, low commitment to one's organization and intentions to leave, low motivation, a perceived lack of support and adequate guidance from leadership or management. People who score low on these scales are also more likely to be absent from work and experience both low levels of well-being and higher levels of psychological distress.

For more information on the development of the WAMI, please consult:
Steger, M. F., Dik, B. J., Duffy, R. D. (in press). Measuring Meaningful Work: The Work and Meaning Inventory (WAMI). Journal of Career Assessment.

For a case vignette of how to use the WAMI with individual clients, please consult:
Steger, M. F., Dik, B. J., & Shim, Y. (in press). Assessing meaning and satisfaction at work. In S. J. Lopez (Ed.), The Oxford handbook of positive psychology assessment (2nd Ed.). Oxford, UK. Oxford University Press.

To contact the test developer, please contact *michael_f_steger@yahoo.com*.

Appendix B – Measure of Moral Distress – Healthcare Professionals (MMD-HP)

Medida do Sofrimento Moral – Profissionais de Saúde

O sofrimento moral acontece quando os profissionais não podem realizar o que acreditam ser ações eticamente apropriadas devido a constrangimentos ou barreiras. Este inquérito apresenta situações que acontecem na prática clínica. Se alguma vez experienciou estas situações, estas podem ou não ter sido moralmente difíceis. Por favor, indique com que frequência vivenciou a situação descrita em cada item e quantifique o quanto lhe provocou sofrimento moral. Se nunca vivenciou determinada situação, selecione "0" (nunca) para a **frequência**. Mesmo que não tenha vivenciado a situação, por favor, indique **quanto sofrimento moral** lhe poderia ter causado se ela tivesse ocorrido na sua prática.

Note que responderá a cada item, assinalando a sua resposta nas duas dimensões: Frequência e Nível de Sofrimento.

	Frequência					**Nível de Sofrimento**				
	Nunca				Muito frequentemente	Nenhum				Muito intenso
	0	1	2	3	4	0	1	2	3	4
1. Testemunhar profissionais de saúde a dar "falsas esperanças" a um doente ou família.										
2. Dar seguimento a um tratamento agressivo por insistência familiar, mesmo acreditando não ser no melhor interesse do doente.										
3. Sentir-se pressionado a pedir ou cumprir um pedido de exames e tratamentos que considera serem desnecessários ou inadequados.										
4. Estar impossibilitado de prestar os melhores cuidados possíveis devido a pressões da administração ou seguradoras para reduzir custos.										
5. Continuar a prestar um tratamento agressivo a uma pessoa que muito provavelmente morrerá, independentemente deste tratamento, quando ninguém toma a decisão de o suspender.										
6. Ser pressionado para não atuar quando verifico que um médico, enfermeiro ou outro membro da equipa cometeu um erro médico e não o reporta.										
7. Ser solicitado para cuidar de doentes não me sentindo qualificado para o fazer.										
8. Participar em cuidados que causam sofrimento desnecessário ou não aliviam adequadamente a dor ou outros sintomas.										
9. Observar os cuidados ao doente serem afetados devido à falta da sua continuidade.										

10. Cumprir com o pedido de um médico ou familiar para não discutir o prognóstico com o doente/família.										
11. Testemunhar a violação de um padrão de prática profissional ou de princípios éticos e não se sentir suficientemente apoiado para a denunciar.										
12. Participar em cuidados com os quais não concordo, mas ter de fazê-lo por medo de litígio.										
13. Ser-me exigido trabalhar com outros membros da equipa de saúde que não são tão competentes quanto os cuidados ao doente o exigem.										
14. Testemunhar prestação de cuidados ao doente com baixa qualidade devido a má comunicação na equipa.										
15. Sentir-se pressionado para ignorar situações nas quais não foi dada informação suficiente aos doentes de modo a garantir o consentimento informado.										
16. Ser solicitado a cuidar de mais doentes do que aqueles que me é possível cuidar em segurança.										
17. Vivenciar comprometimento dos cuidados ao doente devido a falta de recursos/equipamento/capacidade de camas.										
18. Vivenciar falta de ação ou apoio administrativo para um problema que compromete os cuidados ao doente.										
19. Sentir os cuidados ao doente comprometidos por excesso de burocracia.										
20. Temer represálias se falar com franqueza.										
21. Sentir insegurança/intimidação/bullying por parte dos meus próprios colegas.										
22. Ter de trabalhar com doentes/familiares abusivos que comprometem a qualidade dos cuidados.										
23. Sentir a obrigação de sobrevalorizar tarefas e medidas de produtividade ou qualidade em detrimento dos cuidados ao doente.										
24. Ter de cuidar de doentes que têm planos de tratamento ambíguos ou inconsistentes ou que não têm objetivos de cuidados definidos.										
25. Trabalhar em hierarquias de poder na minha equipa, unidade ou instituição que comprometem os cuidados ao doente.										
26. Integrar uma equipa que transmite mensagens inconsistentes ao doente/família.										
27. Trabalhar com membros da equipa que não tratam doentes vulneráveis ou estigmatizados com dignidade e respeito.										
Se houver outras situações nas quais tenha sentido sofrimento moral, por favor, escreva-as e avalie-as aqui:										

Appendix C – Utrech: Work Engagement Scale

Nesta secção encontram-se afirmações sobre sentimentos relacionados com a sua actividade profissional. Por favor leia cada frase atentamente e pense se alguma vez se sentiu dessa forma face ao seu trabalho. Se já teve esse sentimento, escreva o número (de 0 a 6) que melhor descreve **com que frequência se sente dessa forma.**

Nunca	Algumas vezes por ano	Uma vez ou menos por mês	Algumas vezes por mês	Uma vez por semana	Algumas vezes por semana	Todos os dias
1	2	3	4	5	6	7

1. No meu trabalho, sinto-me cheia (o) de energia	1	2	3	4	5	6	7
2. Estou entusiasmada (o) com o meu trabalho.	1	2	3	4	5	6	7
3. Estou contente quando estou a trabalhar intensamente.	1	2	3	4	5	6	7
4. No meu trabalho, sinto-me forte e com vigor.	1	2	3	4	5	6	7
5. O meu trabalho inspira-me.	1	2	3	4	5	6	7
6. Estou imerso no meu trabalho.	1	2	3	4	5	6	7
7.Quando acordo de manhã, sinto-me bem por ir trabalhar.	1	2	3	4	5	6	7
8.Tenho orgulho no trabalho que faço.	1	2	3	4	5	6	7
9. Esqueço-me "do resto" quando estou a trabalhar.	1	2	3	4	5	6	7

Appendix D – Statistical Analysis

Scale	Items	Cronbach's α
Positive Meaning (PM)	1, 2, 10	.81
Meaning-Making through Work (MM)	4, 5, 7, 9	.82
Greater Good Motivations (GGM)	3, 6, 8	.84
WAMI Total	1–10	.94

Table A – Cronbach's α values for Work and Meaning Inventory (WAMI) total and each subscale.

	WAMI PM_m	WAMI PM_st	WAMI MM_m	WAMI MM_st	WAMI GGM_m	WAMI GGM_st	WAMI TOTAL_m	WAMI TOTAL_st	MMD-HP_m	MMD-HP_st	UWES_m	UWES_st
age												
20-29	17.00	0.00	11.00	1.41	11.00	1.41	39.00	2.83	221.50	53.03	3.78	0.47
30-39	15.85	3.08	11.00	2.99	12.50	1.96	39.35	6.93	145.65	76.99	4.02	1.03
40-49	16.79	3.04	11.61	2.71	12.39	2.53	40.43	7.76	105.57	66.81	4.10	1.23
50-59	17.25	1.58	12.38	1.92	13.50	1.51	43.12	3.72	156.62	90.18	4.03	1.09
60-69	16.00	4.36	10.33	6.43	11.00	3.61	37.33	13.87	161.00	138.57	1.96	2.05
≥70	18.00	nan	12.00	nan	13.00	nan	43.00	nan	147.00	nan	5.56	nan
sex												
f	16.83	2.67	11.54	2.48	12.44	2.16	40.56	6.53	150.46	67.75	4.14	1.19
m	15.93	3.19	11.19	3.41	12.52	2.38	39.63	8.14	107.41	87.91	3.74	1.24
marital status												
divorced	17.0	3.12	11.56	3.88	13.33	2.24	41.89	8.92	132.56	78.58	3.75	1.88
married	16.55	2.65	11.6	2.63	12.38	2.02	40.29	6.52	127.69	78.05	4.16	1.11
single	16.0	3.45	10.82	2.94	12.24	2.7	39.06	7.96	147.82	83.16	3.65	1.02
years of practice												
11-20	16.37	3.23	11.16	2.72	12.24	2.26	39.5	7.54	109.58	69.59	4.15	1.14
>20	16.71	2.23	12.07	3.05	13.21	2.15	42.0	6.73	148.14	88.41	3.8	1.65
≤10	16.5	2.73	11.38	3.14	12.38	2.22	40.25	6.76	176.94	72.57	3.73	0.95
speciality												
family physician	15.69	3.2	10.92	2.56	12.54	1.9	38.38	7.53	132.46	62.72	4.0	1.02
internal medicine	17.33	2.35	12.08	1.93	12.75	2.3	42.17	5.11	133.08	83.1	4.1	1.4
oncology	16.0	4.19	12.0	3.02	12.0	3.06	40.0	9.66	148.3	52.75	4.23	1.42
psychiatry	17.5	2.07	12.5	1.96	12.3	2.31	42.3	5.81	146.6	92.51	4.07	0.74

context of practice												
outpatient	15.85	4.16	10.92	3.52	11.69	2.98	38.46	9.85	125.92	84.76	4.15	1.64
outpatient + inpatient + EC	17.12	1.90	12.08	2.06	12.60	2.25	41.80	5.11	154.36	80.38	3.99	1.10
primary care	15.82	3.46	11.00	2.79	12.73	2.00	38.64	8.23	128.09	54.94	4.20	0.97
sector of practice												
public	16.31	2.99	11.11	3.14	12.33	2.45	39.76	7.55	133.11	78.56	3.97	1.18
public + private	16.44	2.56	12.06	2.08	12.56	1.9	40.44	6.47	149.75	80.17	3.6	1.27

Table B – Means (and std) for meaningful work (WAMI total and its subscales [PM: positive meaning; MM: meaning making; GGM: greater good motivations]), moral distress (MMD-HP), and work engagement (UWES) according to sociodemographic and work variable