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SMiLE to Life: Meaning in life in healthcare professionals working in palliative care and rehabilitation medicine

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Key words: Meaning in life; healthcare professionals; wellbeing; palliative care; rehabilitation

Abstract

Background: *In the healthcare landscape, various protective factors are identified, such as meaning in life (MiL), namely what gives sense to life events. However, little is known about this construct in the healthcare population.* **Objectives:** *To describe MiL among healthcare professionals employed in palliative care and neuro-rehabilitation medicine, unveiling possible differences related to medical specialty and socio-demographic characteristics.* **Methods:** *In this cross-sectional and multicentre study, palliative care and neuro-rehabilitation professionals were recruited. MiL was evaluated with the Schedule for Meaning in Life Evaluation (SMiLE), which provides a list of meaningful areas, as well as related overall indexes of satisfaction (IoS), weighting (IoW), weighted satisfaction (IoWS). Descriptive statistics, t-test, chi-square, linear and binary logistic regressions were performed.* **Results:** *Overall, 297 healthcare professionals (palliative care=89, neuro-rehabilitation medicine=208, 47% of participants ≤ 40 years old) completed the evaluation. The sample was intra- and inter-groups heterogeneous, in particular concerning age and professional role. Conversely, no significant group differences emerged in MiL indexes comparisons, nor in the number of MiL listed areas. As for MiL areas, the category "family" increased the IoWS index, while terms related to "finances" contributed to decrease it. Comparing specialties, palliative care professionals were more likely to report areas like "partnership", "social commitment", and "satisfaction". Nurses (n=116), nurse aides (n=47), and therapists (n=67) were more likely to mention health-related terms (e.g. health, physical wellbeing) than physicians and psychologists (n=65).* **Conclusion:** *This study highlighted MiL areas among professionals employed in palliative care and neuro-rehabilitation specialties, providing informative suggestions for tailored health prevention programs which should pay particular attention to social and family relationships, socio-economic status, and health.*

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Introduction

Over the past three decades, palliative care and rehabilitation professionals had to face an increasing number of demanding challenges in their daily clinical practice [1]. They both have a specific and critical role in the sanitary context. On the one hand, palliative care professionals are constantly asked to alleviate the sufferance of patients in life-threatening conditions; in this role, they are exposed to potential moral and existential dilemmas [2, 3]. These professionals strive to improve the quality of life of patients and their families addressing the difficulties intrinsic to life-threatening conditions, through the prevention and relief of suffering [4]. On the other hand, working in rehabilitation medicine exposes to deal with patients suffering from chronic illnesses or incidents of varying complexity, still having life chances even if with possible disabilities of different severity degrees. Thus, the first ones take care of patients on the verge of death intending to provide relief from suffering, and the last ones provide care to critical patients with the aim of healing them. Despite this different healthcare framework, these professionals are exposed to challenging clinical situations, emotional burden, as well as to legal and bioethical issues [5-7]. This represents for this professional category a fertile ground for burnout, moral distress, and impoverishment of quality of life [3, 5, 6, 8].

Aiming at pre-empting the psychological effects of such demanding features of daily clinical practice, research on this population has been increasingly focusing on those factors that may play a protective role. Of these, Meaning-in-life (MiL) has gained attention. According to Reker [9], MiL refers to the cognitive (i.e., making sense of one's experiences in life), motivational (i.e., pursuit and attainment of worthwhile goals), and emotional (i.e., feelings of satisfaction, fulfillment, and happiness accompanying goal attainment) components sustaining individuals to give sense to their own life. Despite the growing interest, literature has however evidenced a need for more robust conceptualization to overcome the definitional ambiguity and the simplified approaches that ignore the complexity of this construct. Following this line, researchers have adopted a three-dimensional model of meaning so far, distinguishing three different facets, namely coherence (i.e., sense of comprehensibility and one's life making sense), purpose (i.e., sense of core aims and direction in life), and significance (i.e., sense of life's value and of having a life worth living) [10]. The adoption of a shared and integrated framework represents an essential condition for current research on this topic, which so far has shown methodological limitations related to the absence of a clear consensus and to the fact that MiL strongly depends on individuals' characteristics and circumstances, especially in the face of stressful events [11]. Generally, the evaluation of MiL has been conducted extensively and among different populations and contexts so far [12]. In particular, when aiming to explore the relationship of this construct with health-related outcomes, the majority of the studies has considered MiL as an indicator of psychological well-being and quality of life (QoL) among individuals facing different advanced diseases and palliative care [13, 14] Specifically, according to World Health Organisation, positive QoL is rooted in significant areas which provide people with awareness of their position in their culture and values system, predisposing them to achieve their goals and address their needs [15, 16].

Among healthcare professionals, MiL plays a crucial role as working in the aforementioned settings may activate a process of "meaning-making" concerning life and work issues, leading to maintain a work-life balance [7, 17] and broader well-being [18]. Prior studies on healthcare professionals suggested the positive influence of MiL on both health and professional outcomes [19-23]. For instance, a positive association was found with optimism and professional self-esteem among physicians and nurses providing intensive care [19]. Another study reported evidence of MiL as a moderator and mediator in the relationship between stress and trauma [24]. Furthermore, more recently, the meaning-making process has been positively associated with the cognitive and affective dimensions of well-being among healthcare professionals at risk of contracting COVID-19 [25]. Nevertheless, despite its relevance, research on the specific relationship between subjective characteristics and MiL in this working

population is scant. To the best of our knowledge, only one study indicated that higher MiL is associated with older age among nurses, and with greater exposure to death during the previous six months among physicians [19]. Purposely, the present study aims to shed light on the associations between sociodemographic features and MiL in healthcare professionals.

As MiL refers to subjective experiences and perspectives, measurements basing on standardized models and preselected domains may not adequately explain the complexity of this construct [26, 27]. Considering this, The Schedule for Meaning in Life Evaluation (SMiLE) may be a promising instrument [27], since it provides an individualized assessment of MiL, focusing not only on personal meaning areas, but also on their perceived intensity and weight. These characteristics led to choose this instrument to carry on the present study. Concerning its implementation, SMiLE was adopted in a representative sample of Germans, French, and Italians [28, 29], in different clinical populations [27, 30-36], and with bereaved informal caregivers [37]. Only one study implemented the SMiLE among palliative healthcare professionals, providing results from a comparison with professionals working in maternity wards [38]. Further studies are needed to investigate MiL among medical disciplines deeply. Indeed, it is noteworthy to underline that, despite some possible similarities, each medical discipline addresses different medical needs.

Thus, the first aim of the current study is to investigate MiL areas in healthcare professionals working in palliative care and neuro-rehabilitation settings, exploring differences related to two medical specialties acting in two very critical settings, one for comfortable leading to death and the other one for fostering the best possible patients' recovery. Moreover, a second aim is to detect possible differences in MiL areas linked to the professional role, age, and gender, considered as essential socio-demographic and job features characterising professionals.

Methods

this study is part of the research project called WeDistress HELL (WELLness and DISTRESS in Health care professionals dealing with End-of-Life and bioethicaL issues) which has been approved by the Ethical Committee of Istituti Clinici Scientifici Maugeri IRCCS (Protocol N. 2211CE, 19 June 2018). Moreover, written informed consent was provided by all participants.

Study design, sample and procedures

The current research had a cross-sectional, observational, and multicentre study design. Health care professionals (physicians, psychologists, nurses, physiotherapists, dieticians, speech therapists, occupational therapists, and nurse aides) working in a palliative care or in neuro-rehabilitation medicine were recruited on a voluntary basis in three Italian hospitals (six different Institutes). Between July 2018 and March 2019, the participants were asked to complete a paper-pencil questionnaire and place it in a cardboard box located in a common hall of the hospital where they were employed. To guarantee anonymity and maintain a sound statistical power, few socio-demographic data were collected (gender, age group, and professional role). Moreover, these features have been considered basic characteristics, allowing to highlight possible differences and easily generalize data to other similar contexts to the reader.

Written informed consent was provided from all participants before joining the study and no payment for their contribution was supplied.

Measure

Participants were invited to fill out the Schedule for Meaning in Life Evaluation (SMiLE) [27]. This schedule is a validated respondent-generated instrument aiming to assess MiL. Specifically, respondents are asked to list three to seven relevant areas providing meaning to their lives in their current situation (e.g., *Please nominate 3 to 7 areas that give meaning to your life, regardless of how satisfied or unsatisfied you are with these areas at the moment. The order of your answers is not important*). Through a bottom-up approach, Fegg and colleagues unveiled 15 categories which summarize the meaningful areas reported by the individual [39] Next, rates on the satisfaction

level (-3: *very unsatisfied*, +3: *very satisfied*) and on importance of each listed area (0: *not important*, 7: *extremely important*) are requested.

Three overall scores are obtained:

Index of Satisfaction (IoS): indicating the mean satisfaction or dissatisfaction with the individual areas, in which the higher the score the higher the satisfaction level (IoS range: 0-100);

Index of Weighting (IoW): indicating the mean weighting of the MiL, where higher scores indicate higher levels of importance (IoW range: 0-100);

Index of Weighted Satisfaction (IoWS): resulting from the combination of satisfaction and importance ratings (IoWS range: 0-100). Higher scores reflect higher MiL.

Levels of satisfaction and importance in each area are independent from each other and may change independently: an individual may be satisfied in a particular area assigning no importance to it, whereas in another area levels may be higher both in satisfaction and in importance. The IoWS, as a comprehensive index, takes in consideration both satisfaction and importance ratings expressed in each MiL area [27].

The validation of the instrument provided good psychometric properties, including test-retest reliability, convergent and discriminant validity [27]. The Italian version of the SMiLE was administered in this study following the manual prescriptions [39].

Statistical analysis

Chi-squared test was used to observe potential differences within the levels of the socio-demographic variables (i.e., gender, age group, and occupation).

Frequencies of the emerged categories - both for the total sample and for the two subsamples - were reported. In addition, Chi-squared tests were run to detect possible differences in frequency of categories mentioned by palliative care as compared to neuro-rehabilitation professionals.

Student's *t*-test was used to both identify differences of SMiLE total indexes within the two subsamples and to compare the number of MiL areas listed.

Binary logistic regression analyses were conducted to identify differences in the likelihood of listing each MiL area (dependent variable), assuming all sociodemographic variables (i.e., gender, age group, specialty, and professional role) as independent variables. For all MiL categories, the odds ratio *Exp*(B) along with its p-value of each socio-demographic variable were reported.

Moreover, linear model regression analyses were performed to analyze which MiL areas (independent variables) may contribute to IoWS (dependent variable). Socio-demographic variables (i.e., gender, age group, and professional role) were considered control variables. The total explained variance (R^2) and the unstandardized regression coefficient (*B*) for each independent variable with its respective P-value were reported.

For undergoing linear and binary logistic regression analysis, dummy variables were created for categorical non-binary variables. Statistical significance was set at $p < 0.05$. Due to the exploratory character of the results, no p-value adjustment was performed.

Results

Socio-demographic characteristics

Overall, 317 questionnaires were collected (response rate: overall = 57.2%; neuro-rehabilitation institutes = 51.0%, 76.8%, 58.7%, 67.8; palliative care institutes = 40.4%, 52.6%). However, 20 of them were excluded as returned not completed for at least the sixty percent. Thus, 297 healthcare professionals participated in this study.

The socio-demographic characteristics are presented in Table 1. The sample was intra- and inter-groups heterogeneous, particularly concerning age and professional role. No group differences were found for gender, while significant differences between the two subsamples emerged for age (χ^2=14.7, p=0.001). Specifically, more palliative care professionals were younger than 40 years old (61,8% vs 40,6%, respectively) and fewer of them were older than 51 years old (9 % vs 25,6, respectively). As attended, differences were found also for occupation with more nurses (50% vs 34,8%), physician and

Table 1. Socio-demographic characteristics of the study sample

Characteristics	Total (%) n = 297	PC n = 89 (30%)	NR n = 208 (70%)	χ^2	*p–value*
Gender				0.51	0.474
Male	99(33.3)	27(30.3)	72(34.6)		
Female	198(66.7)	62(69.7)	136(65.4)		
Age				14.71	0.001
≤ 40 years old	139(47.0)	55(61.8)*	84(40.6)*		
41-50 years old	96(32.4)	26(29.2)	70(33.8)		
≥ 51 years old	61(20.6)	8(9.0)^	53(25.6)^		
Missing	1(0.3)				
Occupation				50.93	0.0001
Physician and Psychologist [a]	65(22.0)	35(39.8)*	30(14.5)*		
Nurse	116(39.3)	44(50.0)^	72(34.8)^		
Physiotherapist and *others* [b]	67(22.7)	1(1.1)°	66(31.9)°		
Nurse aides	47(15.9)	8(9.1)§	39(18.8)§		
Missing	2(0.7)				

PC – Palliative care; NR – Neuro-Rehabilitation medicine

[a] Psychologists were merged with physicians due to small sample size (7 psychologists in neuro-rehabilitation medicine and 1 in palliative care). In the Italian healthcare system, both physicians and psychologists have more decisional autonomy than nurses, therapists or other healthcare professionals.

[b] Dieticians, speech therapists and occupational therapists

For each level of the variable, the values that do differ significantly from each other share the same subscript symbol (based on adjust p- value, Bonferroni method, p ≤ .05).

psychologists (39.8% vs 14.5%) involved in palliative care and more nurse aides (18.8% vs 9.1%) and therapists (31.9% vs 1.1%) involved in neuro-rehabilitation medicine (χ^2=50.9, p=0.0001).

MiL areas and overall indexes

The MiL areas were subsumed under 15 categories reported in the manual and in previous literature within European countries, including Italy [28, 39], and a new category labelled "societal values" was proposed for the first time. This is in line with the authors' suggestion to intend categories as a tool for better representing the respondents' answers, consequently they can be slightly refined according to the specific sample considered [39]. This new category encompasses culture-fair terms linked to community rights and values (e.g. respect, trust, honesty, peace, dignity).

In Table 2, means and standard deviations of satisfaction (S) and weight (W) for both subsamples are displayed. The percentages of professionals mentioning each category are reported in Table 3. Specifically, the categories "partnership", "satisfaction", "social commitment" and "societal values" are significantly more mentioned by palliative care professionals, while "family" were significantly more reported by neuro-rehabilitation medicine professionals.

Furthermore, the two groups of healthcare professionals did not differ in terms of the numerosity of MiL areas listed, IoW, IoS, and IoWS (Table 4).

Likelihood in listing MiL areas

Binary logistic regressions revealed differences in the likelihood that healthcare professionals would report a certain category (Table 5). Healthcare professionals working in palliative care were more likely to report areas falling within the categories "partnership", "satisfaction" and "social commitment" in respect to colleagues employed in neuro-rehabilitation medicine. Female participants were over five times more likely to mention terms linked to the

Table 2. Means and standard deviations of satisfaction and weight

	PC (n = 89)		NR (n = 208)	
SMiLE areas	**S**	**W**	**S**	**W**
	Mean(SD)	**Mean(SD)**	**Mean(SD)**	**Mean(SD)**
1. Family	2.1 (1.3)	6.7 (0.7)	2.2 (1.2)	6.7 (0.7)
2. Partnership	1.6 (1.8)	6.1 (1.2)	1.8 (1.8)	6.1 (1.2)
3. Social relations	1.6 (1.5)	5.6 (1.2)	2.0 (1.2)	5.7 (1.2)
4. Occupation/work	1.3 (1.3)	5.5 (1.2)	1.2 (1.5)	5.6 (1.3)
5. Leisure time/relaxation	0.7 (1.9)	4.4 (1.2)	1.3 (1.4)	4.7 (1.4)
6. Home/garden	2.8(0.5)	5.8 (1.3)	1.8 (1.2)	5.7 (1.5)
7. Finances	- 0.1(0.8)	6.0 (1.4)	- 0.5 (1.9)	5.1 (1.4)
8. Spirituality/religion	2.0 (1.4)	6.6 (0.8)	2.4 (0.9)	6.0 (1.1)
9. Health	1.7 (1.1)	6.4 (1.1)	1.8 (1.4)	6.6 (0.9)
10. Satisfaction	1.1 (1.5)	5.8 (1.3)	0.8 (1.9)	6.3 (1.2)
11. Nature/Animals	0.5 (2.2)	5.0 (1.3)	2.2 (0.8)	5.3 (0.8)
12. Social commitment	2.0 (1.2)	5.7 (1.0)	1.4 (1.5)	4.7 (1.6)
13. Hedonism	0.4 (1.8)	5.4 (1.3)	1.5 (1.6)	5.4 (1.5)
14. Art/culture	2.0 (1.4)	5.4 (1.0)	2.0 (1.1)	5.0 (1.3)
15. Growth	1.2 (1.1)	5.7 (1.4)	1.5 (1.1)	5.2 (1.6)
16. Universal values	1.9 (0.9)	6.0 (1.0)	1.3 (1.7)	6.5 (0.9)

PC – Palliative care; NR – Neuro-Rehabilitation medicine; S – satisfaction; W – weight

Table 3. Percentage of respondents listing each MiL area

SMiLE areas	Total (n = 297)	PC (n = 89)	NR (n = 208)	χ^2	p-value
	%	%	%		
1. Family	91.6	**86.5***	**93.8***	**4.230**	**0.039**
2. Partnership	28.3	**44.9***	**21.2***	**17.392**	**0.0001**
3. Social relations	58.9	59.6	58.7	0.021	0.886
4. Occupation/work	82.2	83.1	81.7	0.085	0.770
5. Leisure time/relaxation	34.0	25.8	37.5	3.774	0.052
6. Home/garden	3.7	5.6	2.9	1.306	0.253
7. Finances	7.4	9.0	6.7	0.463	0.496
8. Spirituality/religion	5.7	9.0	4.3	2.510	0.113
9. Health	27.9	21.3	30.8	2.747	0.097
10. Satisfaction	9.4	**14.6***	**7.2***	**3.992**	**0.046**
11. Nature/Animals	4.4	6.7	3.4	1.698	0.193
12. Social commitment	5.1	**9.0***	**3.4***	**4.110**	**0.043**
13. Hedonism	17.8	19.1	17.3	0.136	0.712
14. Art/culture	12.1	14.6	11.1	0.737	0.391
15. Growth	11.8	14.6	10.6	0.974	.324
16. Universal values	7.1	**12.4***	**4.8***	**5.410**	**0.020**

PC – Palliative care; NR – Neuro-Rehabilitation medicine; $p<0.05$

categories "family" and "social relations" than male professionals. Moreover, 41-50 years old professionals and professionals over 51 years old reported less likely the category "partnership" in respect to under 41 years old colleagues. Also, the healthcare professionals older than 51 years were less likely to

Table 4. Mean scores of SMiLE indices and comparisons between the two subsamples

	Total (n = 297)	**PC (n=89)**	**NR (n = 208)**			
	Mean (SD)	Mean (SD)	Mean (SD)	t	df	p-value
n. of MiL areas listed	4.4 (1.5)	4.7 (1.6)	4.3 (1.5)	-1.78	295	0.08
IoW	83.7 (12.0)	83.2 (10.7)	83.9 (12.6)	.046	288	0.65
IoS	77.0 (17.7)	74.1 (18.1)	78.3 (17.5)	1.85	289	0.06
IoWS	77.5 (18.0)	75.1 (18.1)	78.6 (17.9)	1.53	287	0.13

PC – Palliative care; NR – Neuro-Rehabilitation medicine; IoW – Index of Weighting; IoS – Index f Satisfaction; IoWS – Index of Weighted Satisfaction; t – t Student's value; df – degree of freedom

report terms related to "leisure time and relaxation". Considering the professional role, nurses were more likely to report areas linked to "finances" and "health" than physicians and psychologists. Similarly, physiotherapists and other therapists were more likely to mention terms related to the category "health" than physicians and psychologists, too. Finally, nurse aides were less likely to report the category "social relationship" and more likely to indicate the category "health" in respect to physicians and psychologists.

Linear model regression analyses

After controlling for gender, age group, and professional role, the category "family" contributed to increase IoWS index (p=0.013). Conversely, the category "finances" tended to reduce this index (p=0.0001) (Table 6).

Discussion

the chance to face adverse conditions such as burnout, moral distress, and impoverishment of quality of life is widely recognized in healthcare professionals dealing with challenging clinical situations [3, 5, 6, 8]. In this vein, the investigation of possible protective factors is pivotal and necessary. Thus, considering the crucial and understudied role that MIL may have to foster healthcare professionals' wellbeing, the current research attempted to identify, through an idiographic approach, what may promote MiL among workers involved in palliative care and neuro-rehabilitation professionals. Possible group differences were also investigated to provide suggestions for future studies.

The two subsamples were heterogeneous regarding socio-demographic characteristics. The difference in occupation was expected, considering the intrinsically wider variety of professionals working in palliative care and neuro-rehabilitation medicine. Similar to a previous study [38], significant group differences were found for age too. These differences may probably be ascribable to the fact that palliative care units are more recent in Italy in respect to neuro-rehabilitation units, leading therefore to observing younger healthcare professionals in the former [40]. However, these possible explanations need to be verified with further studies posing attention to demographic differences between the health workforce [41] and possible effects of age impact on healthcare professionals' experiences and meaning construction [42]. Furthermore, it would be interesting to deepen the investigations of possible psychological characteristics that may influence the choice of working in specific healthcare settings along the life span. The present findings are not however sufficient to draw robust conclusions on this topic and, thus, our data exclusively allow to pave the way to broader reflections and to future studies able to address the interplay between age and profession. Conversely, no between-groups differences emerged in the number of MiL areas listed and the SMiLE indexes. It is possible that dealing with critical care patients and tasks may activate a similar process of meaning definition. Additionally, the nature of the profession characterized by providing care may prevail whatever the specific specialty. This hypothesis is supported by the study comparing palliative care providers with professionals working in the maternity unit, where no differences in the MIL indexes were unveiled [38].

As for categories mentioned, palliative care professionals listed significantly more terms related to "partnership", "satisfaction", "social commitment"

Table 5. Results from binary logistic regressions

MiL areas	Specialty (Palliative care)		Gender (female)		Age				Professional role					
					41-50 years		> 51 years		Nurses		Physiotherapists other therapists		Nurse aides	
	ExpB	*p*	ExpB	*P*	ExpB	*p*	ExpB	*p*	ExpB	*p*	ExpB	*p*	ExpB	*p*
1. Family	0.40	0.095	**5.60**	**0.0001**	0.72	0.533	1.02	0.980	2.27	0.144	1.53	0.545	2.71	0.182
2. Partnership	**2.14**	**0.019**	1.08	0.801	**0.37**	**0.002**	**0.24**	**0.001**	0.72	0.358	0.60	0.272	0.54	0.216
3. Social relations	0.86	0.620	**1.71**	**0.043**	1.04	0.882	0.89	0.734	0.70	0.289	0.70	0.391	**0.30**	**0.004**
4. Occupation/work	0.72	0.396	1.32	0.402	0.84	0.638	0.47	0.067	0.44	0.088	0.35	0.060	0.36	0.066
5. Leisure/relaxation	0.53	0.053	0.72	0.239	0.94	0.823	**0.39**	**0.013**	0.69	0.280	1.17	0.698	0.44	0.074
6. Home/garden	2.33	0.277	0.70	0.584	0.53	0.452	1.23	0.797	0.33	0.217	0.76	0.791	1.40	0.693
7. Finances	1.93	0.222	1.32	0.614	1.87	0.239	2.31	0.194	**10.69**	**0.026**	8.33	0.068	3.61	0.309
8.Spirituality/religion	2.17	0.178	3.32	0.124	1.63	0.412	1.83	0.403	1.42	0.586	0.81	0.822	0.98	0.984
9. Health	0.77	0.448	0.67	0.179	1.38	0.320	1.70	0.170	**7.73**	**0.0001**	**3.28**	**0.041**	**7.82**	**0.0001**
10. Satisfaction	**3.78**	**0.011**	0.44	0.056	0.93	0.892	1.56	0.431	1.30	0.644	3.02	0.112	1.37	0.664
11. Nature/Animals	2.64	0.156	1.43	0.607	1.64	0.458	1.95	0.403	1.37	0.673	1.87	0.514	0.65	0.724
12. Social commitm	**6.39**	**0.012**	2.40	0.207	1.26	0.721	1.73	0.457	0.26	0.126	2.79	0.261	2.59	0.231
13. Hedonism	1.17	0.679	0.71	0.292	1.08	0.843	1.97	0.098	1.18	0.695	1.00	0.992	0.91	0.860
14. Art/culture	1.92	0.153	1.05	0.899	1.45	0.389	1.82	0.225	0.68	0.434	1.49	0.483	0.64	0.490
15. Growth	1.46	0.410	0.67	0.288	0.52	0.164	0.85	0.746	0.70	0.449	1.11	0.854	.412	0.217
16. Universal values	2.01	0.189	0.58	0.268	0.35	0.115	1.03	0.970	1.86	0.285	0.52	0.481	0.32	0.315

Table 6. Linear Regression Model Predicting IoWS

MiL areas	Total R^2	*B*	p-value
1. Family	**0.08**	**9.57**	**0.013**
2. Partnership	0.06	-1.09	0.652
3. Social relations	0.06	0.99	0.650
4. Occupation/work	0.06	0.29	0.918
5. Leisure time/relaxation	0.07	-2.92	0.199
6. Home/garden	0.06	4.90	0.375
7. Finances	**0.11**	**-15.59**	**0.0001**
8. Spirituality/religion	0.07	5.94	0.200
9. Health	0.06	1.71	0.488
10. Satisfaction	0.06	-2.52	0.492
11. Nature/Animals	0.06	-4.10	0.437
12. Social commitment	0.06	1.84	0.711
13. Hedonism	0.07	-4.30	0.114
14. Art/culture	0.07	5.15	0.108
15. Growth	0.06	-4.04	0.219
16. Universal values	0.06	0.26	0.950

Linear regression model predicting IoWS considering categories as independent variables and controlled for sociodemographic variables (age, gender, occupation). Boldfaced numbers underline significant p-value < .05

and "societal values", while neuro-rehabilitation medicine professionals reported significantly more the category "family". Regarding this, although previous literature showed that job satisfaction and relational aspects are protective factors for the well-being of professionals employed in palliative care specialty [7], it has to be kept in mind that this data can be reasonably explained also by the younger age of palliative care professionals. However, further studies are needed on this topic.

Furthermore, the binary logistic regressions revealed the likelihood that healthcare professionals would report a certain MiL category considering gender, age, and professional role.

Regarding gender, female participants were more likely to mention "family" and "social relations" than male participants. This result should be read in the vein of further sociological and cultural investigations across countries and contexts. Moreover, it should be informative to collect data on family characteristics in order to interpret the value of the category "family" on the lights of the most recent literature on work and private life balance in healthcare sectors [43, 44]. However, more generally, family relationships were evidenced as the primary source of life meaning among adult participants from Western countries, contributing to their general sense of meaning [45, 46]. According to Schnell's perspective, the family can be considered a source of meaning as it is a stable element in life that provide direction, security and comfort thanks to a context of relational sharing and mutual support [47].

Furthermore, binary logistic regressions suggested that the healthcare professionals aged under 41 were more likely to report the category "partnership" and "leisure time and relaxation" in respect to their older colleagues. Although further studies are necessary, this data could be supported by Erik Erikson's theory of psychosocial development [48] explaining that people generally pass through a series of stages centered on social and emotional development. Specifically, in line with the current findings, during the young adulthood stage (i.e., between 19 and 40) individuals generally tend to search for partnership and to develop intimate relationships, while with increasing age the focus is on leaving a contribution to society, such as a meaningful work [48]. This is also supported by prior research [49] showing that younger adults focused more on optimizing their

future through interpersonal relations, whereas older adults' concerns were mainly with enhancing the meaning related to current activities and achievements. In a broader sense, this aspect could be supported by what emerged from another study [18] on meaning in life across the life span, which evidenced that those at earlier life stages reported higher levels of searching for meaning.

Concerning the professional role, nurses were more likely to mention terms linked to "finances" and "health" than physicians and psychologists. Regarding this, previous literature reported that nurses are not satisfied with their salary [50] and they are among the healthcare workforce more at risk of developing psychological malaise [51]. Thus, they may pay more attention to financial and health-related issues than other healthcare professionals. In addition, physiotherapists and other therapists were more likely to report terms related to "health" area than physicians and psychologists, too. Finally, nurse aides were less likely to list "social relationship" and more likely to indicate "health" as meaningful areas in respect to physicians and psychologists. It is possible that they were more likely to mention the "health" category as these professionals, and in particular nurses, are usually the closest to patients [52]. However, these findings regarding the professional role need further investigation. To the best of our knowledge, there are only a few studies regarding the role of socio-demographic variables on MiL, with no one referring to possible differences among the professional roles [18, 53, 54]. Therefore, this research is the first attempt to unveil differences concerning socio-demographic characteristics on MiL, as well as the first study investigating this construct within professionals employed in palliative and neuro-rehabilitation medicine.

The linear regressions unveiled that the category "family" contributed to increasing the overall index of IoWS. This category, which is also the most frequently reported by all participants, is therefore confirmed to be one of the most relevant areas concerning MiL [27, 31, 32, 34, 35, 37]. It is already reported that family support contributes to better health and increased professional outcomes [55]. In addition, the category "finances" significantly reduced the overall index of IoWS. To better explain this data, it is noteworthy to underline that, when asked to attribute a subjective score of satisfaction and importance on the finance area, professionals reported lower mean scores on satisfaction than in levels of weight. Since these two indexes contribute to the overall index, IoWS may be low because the "finances" area is considered important but not adequately satisfied. Regarding this, previous studies suggested that individuals considered their annual income and household economic wellbeing to be of the utmost importance for them, and the financial aspect was described to be positively associated with job satisfaction [56] and, in turn, with satisfaction in life [57]. Previous literature has also unveiled that Italian healthcare professionals complained their low and frozen salary [58]. It has to be considered that the present investigation has been conducted after the 2008 global financial crisis: the European healthcare sector has been subject to tough austerity measures comprising salary cuts, downsizing and freezing [58, 59]. However, these data have been collected more than ten years after this crisis, so other variables possibly linked to culture and personal understanding of rewards and recognition systems may play a relevant role. Thus, further sociological investigations are suggested to interpret better these data with the lens of the actual socio-political and economic scenario.

This study presented some limits which deserve to be kept in mind when reading the data. Firstly, detailed sociodemographic data are missing for anonymity purposes, and the sample was heterogeneous within and across sites, specifically concerning age and professional role. These characteristics prevented further analyses, but they aim to provide tips for further studies on healthcare professionals' MiL. For instance, it would be interesting to better investigate the relations between age and profession focusing on health workforce demography [41], or relations between age discrimination, MiL, and wellbeing [41, 42]. It is also recommended to investigate psychological characteristics which may support the choice of different healthcare settings. This analysis can be particularly interesting in the modern time as COVID-19 pandemic has been disruptive for healthcare professionals [60], such that it is possible to speculate a relevant impact on

psychological dimensions and MiL too. Secondly, response rates were not homogeneous among the institutes involved in this research. Notably, the discrepancy between the two samples size and divergencies in response rate must be noted and, thus, all the results that emerged should be interpreted cautiously and intended as suggestions to propose novel studies. Data generalization in the general healthcare population is therefore difficult. Thirdly, since MiL strictly refers to individuals' experiences, the presented data could be considered contextually biased and, therefore, intercultural studies are needed to corroborate them. Fourthly, this study has a cross-sectional design focusing on a single construct. Thus, the investigation of causal relationships is not possible at this stage.

Meanwhile, there are some strength points too. Above all, this study implemented a specific idiographic instrument for MiL area, enabling to detect areas that are important for an individual but where satisfaction lacks as well [34]. Thus, this schedule may be more able to capture the professionals' perspective than other instruments. Despite heterogeneity inter- and intra- groups, another added value of this research is comparing palliative care providers with neuro-rehabilitation professionals for the first time. Further research is welcomed for strengthening this data in more homogeneous and wider samples.

Conclusion

This study shed light on MiL areas among professionals employed in palliative care and neuro-rehabilitation specialties. The emerged results, which deserve further investigation, may provide suggestions for health prevention programs that consider MiL as a relevant protective factor to be fostered. For instance, interventions trainings to consciously perceive the significance of what healthcare professionals are doing or experiencing are pivotal for the empowerment and the restoration of resources threatened by the constant exposure to death and sufferance. An interesting example of effective intervention is provided by Fillion and colleagues [61], who adapted for nurses a meaning-centered group intervention (MCI) grounded in Viktor Frankl's logotherapy approach [62]. Moreover, giving space for periodical confrontation meetings on MiL among healthcare professionals may enhance well-being, by providing the roots for a supportive and resilient environment allowing the sharing of personal concerns and emotions with colleagues and superiors [63-66]. Since these findings described social relationships, socio-economic status, and health as relevant meaningful areas in healthcare professionals' life, healthcare services and policymakers should pay particular attention to these aspects and understand which position they have in the individual's value systems to better address subjective needs and self-actualization.

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References

1. James SL, Abate D, Abate KH, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet. 2018;392(10159):1789-1858. doi: 10.1016/S0140-6736(18)32279-7
2. Sanso N, Galiana A, Amparo O, et al. Palliative care professionals' inner life: exploring the relationships among awareness, self-care, and compassion satisfaction and fatigue, burnout, and coping with death. J Pain Symptom Manage. 2015;50(2):200-207. doi: 10.1016/j.jpainsymman.2015.02.013
3. Maffoni M, Argentero P, Giorgi I, Giardini A. Healthcare professionals' perceptions about the Italian law on advance directives. Nurs Ethics. 2019;27(3):796-808. doi: 10.1177/0969733019878831

4. World Health Organization. (2011). WHO definition of palliative care. Available online at: https://www.who.int/cancer/palliative/definition/en/ (last accessed 29-06-2021).
5. Maffoni M, Argentero P, Giorgi I, Hynes J, Giardini A. Healthcare professionals' moral distress in adult palliative care: a systematic review. BMJ Support Palliat Care. 2019;9(3):1–10. doi: 10.1136/bmjspcare-2018-001674
6. Sliwa JA, Clark GS, Chiodo A, et al. Burnout in Diplomates of the American Board of Physical Medicine and Rehabilitation—Prevalence and Potential Drivers: A Prospective Cross-Sectional Survey. PM R. 2019;11(1):83-89. doi: 10.1016/j.pmrj.2018.07.013
7. Maffoni M, Argentero P, Giorgi I, Giardini A. Underneath the White Coat: Risk and Protective Factors for Palliative Care Providers in Their Daily Work. J Hosp Palliat Nurs. 2020;22(2):108-114. doi: 10.1097/NJH.0000000000000623
8. Hynes J, Maffoni M, Argentero P, Giorgi I, Giardini A. Palliative medicine physicians: doomed to burn? BMJ Support Palliat Care. 2019;9(1):45-46. doi: 10.1136/bmjspcare-2018-001731
9. Reker GT. Theoretical perspective dimensions, and measurement of existential meaning. In: Reker GT, Chamberlain K, eds. Exploring existential meaning: optimizing human development across the life span. Thousand Oaks, CA: Sage; 2000.39-55.
10. Martela, F, Steger MF. The meaning of meaning in life: Coherence, purpose and significance as the three facets of meaning. J Posit Psychol. 2016;11(5):1-15. doi: 10.1080/17439760.2015.1137623
11. Park CL. Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. Psychol Bull. 2010;136(2):257-301. doi: 10.1037/a0018301
12. King LA, Hicks JA. The Science of Meaning in Life. Annu Rev Psychol. 2021;72:561–584. doi: 10.1146/annurev-psych-072420-122921
13. Guerrero-Torrelles M, Monforte-Royo C, Rodríguez-Prat A, Porta-Sales J, Balaguer A. Understanding meaning in life interventions in patients with advanced disease: A systematic review and realist synthesis. Palliat Med. 2017;31(9):798–813. doi: 10.1177/0269216316685235
14. Czekierda K, Banik A, Park CL, Luszczynska A. Meaning in life and physical health: systematic review and meta-analysis. Health Psychol Rev. 2017;11(4):387–418. doi: 10.1080/17437199.2017.1327325
15. Saxena S, Orley J. Quality of life assessment: The World Health Organization perspective. Eur Psychiat. 1997;12(Suppl 3):263s–66s. doi: 10.1016/S0924-9338(97)89095-5.
16. Bernard M, Braunschweig G, Fegg MJ, Borasio GD. Meaning in life and perceived quality of life in Switzerland: results of a representative survey in the German, French and Italian regions. Health Qual Life Outcomes. 2015;13:160. doi: 10.1186/s12955-015-0353-y
17. Allan BA, Duffy RD, Douglass R. Meaning in life and work: A developmental perspective. J Posit Psychol. 2015;10(4):323-331. doi: 10.1080/17439760.2014.950180
18. Steger MF, Oishi S, Kashdan TB. Meaning in life across the life span: Levels and correlates of meaning in life from emerging adulthood to older adulthood. J Posit Psychol. 2009;4(1):43-52. doi: 10.1080/17439760802303127
19. Taubman-Ben-Ari O, Weintroub A. Meaning in life and personal growth among pediatric physicians and nurses. Death Stud. 2008;32(7):621-645. doi: 10.1080/07481180802215627
20. Loffler S, Knappe R, Joraschkt P, Pohlmann K. Meaning in life and mental health: personal meaning systems of psychotherapists and psychotherapy patients. Z Psychosom Med Psychother. 2010;56(4):358-372. doi: 10.13109/zptm.2010.56.4.358
21. Hill CE, Kanazawa Y, Knox S, et al. Meaning in life in psychotherapy: the perspective of experiences psychotherapists. Psychother Res. 2017;27(4):381-396. doi: 10.1080/10503307.2015.1110636
22. Tsai FJ, Chen CY, Yeh GL, et al. Nursing students' relationships among meaning in life, well-being, and positive beliefs: a cross-sectional survey study. Medicine (Baltimore). 2018;97(42):e12914. doi: 10.1097/MD.0000000000012914
23. Barnett MD, Moore JM, Garza CJ. Meaning in life and self-esteem help hospice nurses withstand prolonged exposure to death. J Nurs Manag. 2019;27(4):775-780. doi: 10.1111/jonm.12737
24. Güngör A, Uçman AG. Depression and hopelessness in Turkish healthcare workers: The moderating and mediating roles of meaning in life. Glob Public Health. 2020;15(2):236–246. doi: 10.1080/17441692.2019.1656273
25. Krok D, Zarzycka B, Telka E. Risk of Contracting COVID-19, Personal Resources and Subjective Well-Being among Healthcare Workers: The Mediating Role of Stress and Meaning-Making. J Clin Med. 2021;10(1):132. doi: 10.3390/jcm10010132
26. Carr A, Higginson I. Are quality of life measures patient-centred? In: Carr A, Higginson I, Robinson P, eds. Quality of life. London, England: BMJ Books, 2003:19-30.
27. Fegg M, Kramer M, L'hoste S, Borasio GD. The schedule for Meaning Meaning in life evaluation (SMiLE): validation of a new instrument for meaning-in-life research. J Pain Symptom Manage. 2008;35(4):356-364. doi: 10.1016/j.jpainsymman.2007.05.007
28. Fegg M, Kramer M, Bausewein C, Borasio GD. Meaning in life in the Federal Republic of Germany: results of a representative survey with the Schedule for Meaning in Life Evaluation (SMiLE). Health Qual Life Outcomes. 2007;5: 59. doi: 10.1186/1477-7525-5-59

29. Bernard M, Braunschweig G, Fegg M. Borasio G. Meaning in life and perceived quality of life in Switzerland: results of a representative survey in the German, French and Italian regions. Health Qual Life Outcomes. 2015;13:160. doi: 10.1186/s12955-015-0353-y
30. Volkert J, Härter M, Dehoust MC, et al. The role of meaning in life in community-dwelling older adults with depression and relationship to other risk factors. Aging Ment Health. 2019;23(1):100-106. doi: 10.1080/13607863.2017.1396576
31. Fegg M, Kögler M, Brandstätter M, et al. Meaning in life in patients with amyotrophic lateral sclerosis. Amyotroph Lateral Scler. 2010;11(5):469-474. doi: 10.3109/17482961003692604
32. Fegg M, Kögler M, Abright C, Hensler M, Lorenzl S. Meaning in life in patients with progressive supranuclear palsy. Am J Hosp Palliat Care. 2013;31(5):543-547. doi: 10.1177/1049909113492411
33. Mello I, Ashcraft A. The meaning in life for patients recently hospitalized with congestive heart failure. J am Assoc Nurse Pract. 2014;26(2):70-76. doi: 10.1002/2327-6924.12047
34. Fegg M, Brändstatter M, Kramer M, et al. Meaning in life in Palliative Care Patients. J Pain Symptom Manage. 2010;40(4):502-509. doi: 10.1016/j.jpainsymman.2010.02.010
35. Stiefel F, Krenz S, Zdrojewski, et al. Meaning in life of cancer patients assessed with the "Schedule for Meaning in Life Evaluation" (SMiLE). Support Care Cancer. 2008;16(10):1151-1155. doi: 10.1007/s00520-007-0394-9
36. Bernard M, Strasser M, Gamondi C, et al. Relationship between spirituality, meaning in life, psychological distress, wish for hastened death, and their influence on quality of life in palliative care patients. J Pain Symptom Manage. 2017;54(4):514-522. doi: 10.1016/j.jpainsymman.2017.07.019
37. Brandstätter M, Kögler M, Baumann U, et al. Experience of meaning in life in bereaved informal caregiver of palliative care patients. Support Care Cancer. 2014;22(5):1391-1399. doi: 10.1007/s00520-013-2099-6
38. Fegg M, L'hoste S, Brandstätter M, Borasio GD. Does the working environment influence health care professionals' values, meaning in life and religiousness? Palliative care units compared with maternity wards. J Pain Syptom Manage. 2014;48(5):915-923. doi: 10.1016/j.jpainsymman.2014.01.009
39. Fegg M. The Schedule for Meaning in Life Evaluation (SMiLE) Manual. http://www.psychotherapie-muenchen.de/downloads/SMiLE_Manual.pdf Accessed December 1, 2019.
40. Casale G, Calvieri A. Le cure palliative in Italia: inquadramento storico. Medic. 2014;22(1):21-26.
41. Szabo S, Nove A, Matthews Z, et al. Health workforce demography: a framework to improve understanding of the health workforce and support achievement of the Sustainable Development Goals. Hum Resour Health. 2020;18(1):1-10.
42. Kagan SH, Melendez-Torres GJ. Ageism in nursing. J Nurs Manage. 2015;23(5), 644-650.
43. Schluter PJ, Turner C, Huntington AD, Bain CJ, McClure RJ. Work/life balance and health: the Nurses and Midwives e-cohort study. Int Nurs Rev. 2011;58(1):28-36. doi: 10.1111/j.1466-7657.2010.00849.x
44. Dousin O, Collins N, Kler BK. The experience of work-life balance for women doctors and nurses in Malaysia. Asia Pac J Hum Resour. 2021. doi: 10.1111/1744-7941.12282
45. Delle Fave A, Brdar I, Wissing M, Vella-Brodrick D. Sources and motives for personal meaning in adulthood. J Posit Psychol. 2013;6(8):517-529. doi: 10.1080/17439760.2013.830761
46. Lambert NM, Stillman TF, Baumeister RF, et al. Family as a salient source of meaning in young adulthood. J Posit Psychol. 2010;5(5):367-376. doi: 10.1080/17439760.2010.516616
47. Schnell T. Existential indifference: Another quality of meaning in life. J Human Psychol. 2910;50:351–373.
48. Erikson EH. The life cycle completed. Extended version with new chapters on the ninth stage by Joan M. Erikson. New York: Norton, 1998.
49. Hicks JA, Trent J, Davis WE, King LA. Positive affect, meaning in life, and future time perspective: An application of socioemotional selectivity theory. Psychol Aging. 2012;27(1):181–189. doi: 10.1037/a0023965
50. Bressi C, Manenti S, Porcellana M, et al. Haemato-oncology and burnout: an Italian survey. Br J Cancer. 2008;98(6):1046-1052. doi: 10.1038/sj.bjc.6604270
51. Bridgeman PJ, Bridgeman MB, Barone J. Burnout syndrome among healthcare professionals. Am J Health Syst Pharm. 2018;75(3):147-152. doi: 10.2146/ajhp170460
52. Dinç L, Gastmans C. Trust in nurse–patient relationships: A literature review. Nurs ethics. 2013;20(5):501-516. doi: 10.1177/0969733012468463
53. Grouden ME, Jose PE. How do sources of meaning in life vary according to demographic factors? New Zeal J Psychol. 2014;43(3):29-38.
54. Schnell T. The Sources of Meaning and Meaning in Life Questionnaire (SoMe): Relations to demographics and well-being. J Posit Psychol. 2009;4(6):483–499. doi: 10.1080/17439760903271074
55. Ma H, Qiao H, Qu H, et al. Role stress, social support and occupational burnout among physicians in China: a path analysis approach. Int Health. 2020;12(3):157-163. doi: 10.1093/inthealth/ihz054
56. Sansoni J, De Caro W, Marucci AR, et al. Nurses' Job satisfaction: an Italian study. Ann Ig. 2016;28(1):58-69. doi: 10.7416/ai.2016.2085
57. Gallagher M, Muldoon OT, Pettigrew J. An integrative review of social and occupational factors influencing

health and wellbeing. Front Psychol. 2015; 6:1281. doi: 10.3389/fpsyg.2015.01281
58. Petmesidou M, Pavolini E, Guillén AM. South European healthcare systems under harsh austerity: a progress–regression mix? S Eur Soc Polit. 2014;19(3):331-352. doi: 10.1080/13608746.2014.949994
59. Correia T, Dussault G, Pontes C. The impact of the financial crisis on human resources for health policies in three southern-Europe countries. Health Policy. 2015;119(12):1600-1605. Doi: 10.1016/j.healthpol.2015.08.009
60. Maffoni M, Torlaschi V, Pierobon A. It's all a matter of time. Ann Ig. 2020;32(6):689-690. doi: 10.7416/ai.2020.2389.
61. Fillion L, Duval S, Dumont S, et al. Impact of a meaning-centered intervention on job satisfaction and on quality of life among palliative care nurses. Psychooncology. 2009;18(12):1300–1310. doi: 10.1002/pon.1513
62. Frankl VE. Man's search for meaning: An introduction to logotherapy. Am J Orthopsychiat. 1963;33(2):390-390.
63. Maffoni M, Sommovigo V, Giardini A, Paolucci S, Setti I. Dealing with ethical issues in rehabilitation medicine: The relationship between managerial support and emotional exhaustion is mediated by moral distress and enhanced by positive affectivity and resilience. J Nurs Manag. 2020; 28(5): 1114–1125. doi:10.1111/jonm.13059.
64. Maffoni M, Sommovigo V, Giardini A, Velutti L, Setti I. Well-Being and Professional Efficacy Among Health Care Professionals: The Role of Resilience Through the Mediation of Ethical Vision of Patient Care and the Moderation of Managerial Support. Eval Health Prof. in press.
65. Bernuzzi C, Setti I, Maffoni M, Sommovigo V. From moral distress to burnout through work-family conflict: the protective role of resilience and positive refocusing. Ethics & Behavior. 2021; 1-23. doi: 10.1080/10508422.2021.1955682.
66. Zanatta F, Maffoni M, Giardini A. Resilience in palliative healthcare professionals: a systematic review. Support Care Cancer. 2020; 28: 971–978. doi:10.1007/s00520-019-05194-1.