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Risks of Ecosystems' Degradation: Portuguese Healthcare Professionals' Mental Health, Hope and Resilient Coping

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Abstract: Healthcare professionals constantly face situations that reflect ecosystems' degradation. These can negatively affect their mental health. Research suggests that hope and resilience can play an important role in this scenario, since they are related to/predict mental health in highly heterogeneous samples (considering geography, age, profession, health, etc.). In this context, the aims of the present study are the following: to characterize and explore the relationship between hope, resilient coping and mental health in Portuguese healthcare professionals. Using Google Forms, 276 healthcare professionals answered the GHQ-28, the (adult) Trait Hope Scale, and the Brief Resilient Coping Scale (retrospective, analytical observational, cross-sectional, descriptive and correlational research design). The minimum and maximum possible scores were reached, with the exception of the maximum score of GHQ-28-Total. Regarding Hope, 19.6% scored below the midpoint (M = 43.46, SD = 11.97); 29.3% revealed low resilience (M = 14.93, SD = 4.05); and the average of four of the five Mental Health scores (exception: Severe depression) indicates the probability of a psychiatric case. Hope correlated with Social dysfunction and GHQ-28-Total; resilient coping proved to be a (weak) predictor of four of the five GHQ-28 indicators (exception: Severe depression). The results support the need to promote the sample's mental health, hope and resilient coping. They also suggest that stimulating resilient coping may contribute to improving healthcare professionals' mental health. Prior research (e.g., on therapies to enhance hope, resilience and, thus, mental health), to which the current study contributes, supports optimism towards the necessary internal sustainability transition.

Keywords: health personnel; mental health; hope; resilience; psychological; sustainability factors related to health; ecosystems' degradation risks

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1. Introduction

Healthcare professionals constantly face situations that reflect ecosystems' degradation. These can negatively affect their mental health. "Crises and emergencies at the local and national levels challenge the mental health and psychological resilience of individuals, and health care workers are no exception" (Akinnusotu et al., 2023, p. S100) [1]. The COVID-19 pandemic is a recent example.

There is evidence of the effect of human over-exploitation of natural resources/ecosystem degradation regarding the distribution of COVID-19 infections during the first pandemic wave. The pandemic (lockdowns) brought some ecological benefits, but also new challenges, along with signs that human activity levels prior to lockdown might be permanently reduced (Castelli et al., 2023; Guo and Lee, 2022; Srivastava et al., 2021) [2–4].

The COVID-19-related research provided additional evidence on human–environment relationships. While COVID-19 lockdowns were associated with a decrease in mental health and well-being, exposure to nature was linked to (mental) health, with differences between countries (Labib et al., 2022; Ribeiro et al., 2021) [5,6].

While a healthy ecosystem furnishes numerous products and (provisioning, regulating, supporting and cultural) services that benefit humans in terms of social and economic value, and are vital for well-being, health and survival, the vast effect of human activity in the increasingly demanding economic world spill over to many environmental issues (Aronson et al., 2016; Lu et al., 2015; United Nations Environment Programme, 2000) [7–9].

There is significant evidence that environmental degradation can have acute and chronic implications on human health and well-being, with data showing an urgent need for multiple actions to avert severe and persistent declines in human health and well-being caused by environmental degradation (Armenteras et al., 2021; Aronson et al., 2016; Dhiman, 2022; Leal Filho et al., 2021; Müller et al., 2023; Mumtaz et al., 2022; Pappaioanou and Kane, 2023; World Health Organization, 2005) [7,10–16].

Knowing and improving the health and well-being of professionals working in healthcare institutions is certainly an important aspect of (at least) 3 of the 17 Sustainable Development Goals, central to the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015 (United Nations, n.d.) [17]: 3, 8, and 16.

Even though there have been numerous studies on the health and well-being of a great number of populations, including healthcare professionals, they tend not to consider it in relation to the risks of ecosystem degradation. The present study not only does that but also explores variables that may have an important role in mitigating the mental health risk of ecosystem degradation. Consequently, it is more than a needs assessment: it tries to be a foundation for future actions.

In this context, a narrative literature review on healthcare professionals' mental health, and its relationships with hope and resilience is presented as the conceptual basis of the present study.

The study aims are the following: to characterize and explore the relationship between hope, resilient coping and mental health in Portuguese healthcare professionals.

Furthermore, the present study is based on the following research questions:

- To what extent is hope related to mental health?
- To what extent is resilient coping related to mental health?

2. Literature Review

2.1. Healthcare Professionals' Mental Health

Exposure to psychosocial risk factors not only impacts health and well-being, but is also associated with healthcare workers' physical, vicarious and psychological violence, which is frequently experienced (Barros et al., 2022) [18].

Due to its likelihood and range of consequences, healthcare professionals' mental health has been considered a significant area of health concern, before, during and after the COVID-19 pandemic. Consequently, it has been a popular research subject in different scientific areas. So much so that systematic reviews are currently necessary.

Hill et al. (2022) [19], for instance, in their systematic review and meta-analysis, revealed that there was no incidence study in the 43 eligible studies, reported in 45 papers. Based on prevalence estimates, post-traumatic stress disorder (PTSD) was the most prevalent mental health problem, followed by anxiety, major depression, and acute stress disorder. The prevalence of psychological distress (using the GHQ-28—General Health Questionnaire-28) was estimated at 25.5%.

Although researchers and clinicians have a wide variety of techniques to assess adults' mental health, the GHQ-28 is frequently used worldwide. In fact, in recent years, before and during the COVID-19 pandemic, it was administered to several samples of health professionals around the globe (when available, mean and standard deviation values of these samples are presented in the Section 4) (Almeida et al., 2022; Babicki et al., 2021;

Díaz-Ramiro et al., 2020; Hyseni et al., 2023; Kolivand et al., 2023; Kooteh et al., 2023; Kowalczuk et al., 2023; Maciaszek et al., 2020; Magaña Salazar et al., 2023; Salehi et al., 2023; Seabra et al., 2021; Zonp et al., 2022) [20–31].

Research has shown there is a multitude of factors that may influence healthcare professionals' mental health. Consequently, the study undertaken by Hill et al. (2022) [19] also focused on the factors that influence the incidence and prevalence rates of mental health disorders among medical personnel both during and following pandemic epidemics. The characteristics that might affect prevalence rates, identified from prior systematic reviews, were the following: pandemic period (pre-and post-); age; nation income; therapeutic setting for major depressive disorder, anxiety disorders and PTSD, i.e., no modifiable/psychological factor was considered.

Even though identifying the sociodemographic, clinical and professional profile associated with poor mental health is relevant (e.g., Babicki et al., 2021; Díaz-Ramiro et al., 2020; Hill et al., 2022; Hyseni et al., 2023; Kolivand, et al., 2023; Kowalczuk et al., 2023; Maciaszek et al., 2020; Salehi et al., 2023; Zonp et al., 2022) [19,21–24,26,27,29,31], identifying modifiable variables that are associated with/predict healthcare professionals' mental health (e.g., physical activity levels—Almeida et al., 2022 [20]; sleep habits—Díaz-Ramiro, et al., 2020 [22]; perceived social support—Kooteh et al., 2023 [25]; (subjective) occupational stress—Kowalczuk et al., 2023; Magaña et al., 2023 [26,28]; well-being—Zonp, Aktas and Adıgüzel, 2022 [31]; burnout and coping skills—Hyseni et al., 2023 [23]) seems more promising in terms of intervention on/prevention of poor mental health.

In their quasi-experimental study, lasting seven months, Oliveira et al. (2021) [32] had 53 Portuguese Red Cross ambulance personnel participating in a peer support providers group. After the Peer Support Programme, the group of peer support givers had superior outcomes in terms of overall health and psychological well-being, anxiety/insomnia and somatic symptoms (GHQ-28).

Among a long list of modifiable variables, positive psychological qualities, such as hope and resilience (protective factors), may be particularly worth considering. In fact, research suggests that hope and resilience can play an important role in healthcare professionals' mental health since they are related to/predict mental health in highly heterogeneous samples (considering geography, age, profession, health, etc.).

2.2. Hope and Mental Health

It has been proposed that hope "reflects individuals' perceptions of their capacities to: (1) clearly conceptualize goals; (2) develop the specific strategies to reach those goals (pathways thinking); and (3) initiate and sustain the motivation for using those strategies (agency thinking)", with hope theory giving the same importance to all these aspects (Lopez et al., 2004, p. 388) [33] that reciprocally influence each other (Cheavens et al., 2006; Snyder, 2002) [34,35].

On the other hand, research has shown that even though hope can be defined/conceptualized and, consequently, measured in different ways, it effectively buffers against psychopathology/negative (mental health) outcomes, has a key role in recovery from mental illness and is a robust correlate/predictor of several positive outcomes across various populations, cultures and countries, making it a protective resilience factor (e.g., Acharya and Agius, 2017; Ahmadi and Ramazani, 2020; Antunes et al., 2023; Ding et al., 2021; Feldman et al., 2023; Hayes et al., 2017; Laranjeira and Querido, 2022; Olsman, 2020; Park and Chen, 2016; Rustøen, 2021; Senger, 2023; Sarker et al., 2022; Snyder, 2002; Su et al., 2023; Tee et al., 2022) [35–49].

In Wuhan, China, hope was significantly and negatively related with depression among front-line medical doctors and nurses who had been on the frontline of treating COVID-19 (Feng and Yin, 2021) [50]. Gratitude had a direct and negative effect on depression; it was a negative predictor of depression via the mediation variables hope and social support as well as through an indirect pathway from hope to social support.

Among Japanese medical professionals, loneliness, hope and self-compassion were all very significant predictors of mental health issues (Kotera et al., 2021) [51]. Among medical professionals, loneliness was the best indicator of mental health issues; however, among the general public, hope was the most reliable.

In this context, based on theoretical and empirical data, several authors have focused on the enhancement of hope (e.g., Cheavens et al., 2006; Feldman and Dreher, 2012; Honey et al., 2023; Lopez et al., 2004; Pouyanfard et al., 2020; Safaralizadeh et al., 2022) [33,34,52–55].

Still, more data are necessary on the hope of healthcare professionals (e.g., Feldman et al., 2023) [40] and "future (synthesis) studies should examine the hope that is held by health care providers because their hope affects their care provision" (Olsman, 2020, p. 204) [43].

In fact, among the gaps in the evidence currently available on hope's effects on resilience and mental health during the pandemic listed by Senger (2023) [47], there is a limited number of studies on healthcare professionals.

2.3. Resilience and Mental Health

Simply put, "resilience is the ability to persist in the face of challenges and to bounce back from adversity" (Reivich et al., 2011, p. 25) [56].

As with hope, a considerable volume of research, from different countries, focusing on varied populations, using diverse assessment techniques, has evidenced an association between (diversely operationalized) resilience and mental health (e.g., Afek et al., 2021; Al Omari et al., 2023; Hildebrand et al., 2019; Konaszewski et al., 2021; Rudwan and Alhashimia, 2018; Wu et al., 2020) [57–62].

Recently, a scoping review by Sheikhrabori et al. (2022) [63] showed the following: (1) the main aspects of healthcare providers' resilience were personal resilience (sub-sub-categories: personality and self-care), resilience in the emergency department (sub-sub-categories: organizational support; geographical capacity and suitable healthcare infrastructure) and resilience in healthcare providers (sub-sub-categories: escalation exercises, medical professionals' resilience, nurses' resilience and psychologists' resilience); (2) the primary method of becoming resilient is handling adversity and hardship. The authors concluded that it is necessary to consider distinctive strategies to increase the resilience of different healthcare providers.

Using the Resilience Scale for Adults, Almeida et al. (2023) [64] reported that the resilience level of healthcare professionals in Portugal was moderate. In-depth interviews revealed four major themes on organizational factors that enhance individual resilience: "Professional's Training", "Support and Wellbeing Measures", "Reorganization of Services" and "Professional Acknowledgment".

In healthcare workers from public health centers in Iran, COVID-19 anxiety and resilience were shown to be significantly inversely correlated: the higher the resilience, the lower the total anxiety score (Rayani et al., 2022) [65].

In nurses in Spain, all risk and protective psychological factors showed significant variations between the first and second COVID-19 pandemic waves, with the exception of anxiety, which remained constant at all assessments (Mendoza Bernal et al., 2023) [66]. All protective variables decreased, and risk variables rose in the second wave. Additionally, there were notable negative associations with anxiety and depression and substantial positive connections with resilience and all protective factors, namely emotional intelligence, self-efficacy and optimism, during both waves.

During the height of the COVID-19 outbreak in Serbia, resilience of healthcare professionals was negatively correlated with stress, anxiety and depression—the three components of mental health status (Safiye et al., 2023) [67]. Resilience and hypermentalizing were significant negative predictors of depression, anxiety and stress.

Studying anxiety and depression symptoms among people from 11 nations during the COVID-19 lockout, Ding et al. (2021) [39] assessed resilient coping with the four-item Brief

Resilient Coping Scale. There were considerable variations regarding resilient coping, with an overall mean score of 15.1 (*SD* = 3.1). Reduced anxiety was linked to higher levels of resilient coping but not depression.

Congruently, in the healthcare professionals studied by Hyseni et al. (2023) [23], lower levels of coping skills were associated with higher levels of mental health problems.

The recognized relevance of studying health workers' mental health and its relationship with variables like resilience lead to a research topic—the resilience of mental health professionals following the COVID-19 pandemic—aiming to explore the long-term consequences of the pandemic on mental health professionals (van den Broek et al. 2023) [68]. This is particularly important since "mental health needs of health workers have traditionally been neglected, . . . and there is a need to integrate interventions to address increased mental distress and enhance resilience in medical work settings for those providing care" (Akinnusotu et al., 2023, p. S100) [1].

Nevertheless, for quite some time now, several solid steps have been taken in the right direction (e.g., American Psychological Association, 2020; DeTore et al., 2022; Freitas et al., 2023; Johnson et al., 2015; Nila et al., 2016; Reivich et al., 2011; Sood et al., 2014; Sylvia et al., 2021) [56,69–75]. These and other studies prove that resilience can be enhanced in children and adults even with brief group interventions. Being so, if "a resilience framework recognizes that all communities, families, and individuals are composed of multiple assets, risks, protective factors, and vulnerabilities that interact and transact to shape the course of development" (Yates and Masten, 2004, p. 534) [76], low risk groups should also be offered resilience promotion programs.

In 2004, Sinclair and Wallston [77] defended that "after decades of correlational research dedicated to identifying individual and environmental protective factors promoting resilient behavior, the current research focus has shifted to the protective process of resilient coping" (p. 94). Emphasizing that much less was known about the resilient coping process when compared to resilience, they clarified that "the distinguishing feature of resilient coping is its ability to promote positive adaptation despite high stress" (p. 95).

Moreover, research, encompassing different groups, has concentrated on hope and resilience and its association with mental health.

2.4. Hope, Resilience and Mental Health

The relationship between hope and resilience beyond mental health and between the three variables has also been explored (e.g., Laranjeira et al., 2020; Sińska et al., 2021; Sun et al., 2023) [78–80].

Based on a sample of healthcare professionals working at a state hospital in Turkey, Yıldırım and Güler's (2021) [81] findings suggested that resilience acted as a mediating factor in the association between COVID-19 fear and coronavirus anxiety. The mediating channel from coronavirus fear to resilience was modulated by hope. In contrast to a low-hope condition, COVID-19 anxiety exerted a more significant influence on resilience among individuals in the moderate- and high-hope conditions.

More recently, in the late stage of COVID-19 pandemic emergency, Torales et al. (2023) [82] studied adults from the general population of Paraguay. Participants with flourishing mental health showed higher hope, resilience and subjective happiness. Inversely, participants with languishing mental health showed lower hope, resilience and subjective happiness.

Olsman (2020) [43], aiming to describe hope in health care, reviewed 73 review studies and identified three conceptualizations of hope: as an expectation, resilience ("meant that hope was the strength or a (coping) strategy to endure adversity"; p. 200) and desire. Olsman stated that even though "the effects of hope bore a relationship to hope as resilience", "the effects of hope cannot be reduced to hope as resilience" (p. 201).

The relationship between resilience/hope and (mental) health should not be considered in only one direction after all. In reality, "the way we view our health and health-related challenges are assumed to impact on hope" (Rustøen, 2021, p. 61) [45], with loss of health (among others) having a negative impact on hope (Olsman, 2020) [43].

3. Materials and Methods

3.1. Research Design

Considering its aims, the present study used a retrospective, analytical observational, cross-sectional, descriptive and correlational research design.

3.2. Participants

The criteria for participation in this study were: being a healthcare professional from Portugal, informed consent, voluntary participation and confidentiality.

Exclusion criteria were the following: at the time of participation, not working as a healthcare professional, not working in Portugal, being a minor and not giving informed consent to participate.

The sampling was non-probabilistic using the snowball technique with healthcare professionals from Portugal.

The sample is thus composed of 276 healthcare workers.

3.3. Measures

3.3.1. Demographics

Participants' demographic data, collected with closed questions, included information about age, sex, professional class and activity and years of experience.

3.3.2. General Health Questionnaire-28 (GHQ-28)

The GHQ is usually administered to assess mental health or psychological well-being. The GHQ-28 was developed by Goldberg and Hillier (1979) [83] and in the present study the Portuguese version used was developed by Pais Ribeiro et al. (2015) [84]. According to the GHQ-28 manual, it is used to detect the existence of probable psychiatric disorder in the general population; it assesses the current state of the individual and identifies if that state differs from its normal state, making it sensible to recent (vs stable, prolonged) psychiatric disorders (Pais Ribeiro et al., 2015) [84].

The answer to each of the 28 items is provided using a 4-point Likert scale (0–3). The items are equally distributed across 4 symptomatology dimensions/sub-scales (7 each): Somatic symptoms; Anxiety and insomnia; Social dysfunction and Severe depression (Goldberg and Hillier, 1979) [83]. By summing specific GHQ-28 items it is possible to obtain a score for each of its dimensions and also a total score (the sum of the dimensions' scores). Consequently, the sub-scale scores vary between 0 and 21 and the total score varies between 0 and 84, with higher scores representing worse mental health. The original authors defend that a score above the 4/5 cut-off indicates the probability of a psychiatric case, with the literature suggesting a total score of 23/24 as the indicator of a case to be studied (Pais Ribeiro et al., 2015) [84].

There are several validation studies of the GHQ in European Portuguese (cf. Pais Ribeiro et al., 2015) [84]. Pais Ribeiro et al. (2015) [84] studied 384 adults (65.8% females; age: $M = 46.33$, $SD = 15.65$, 18–85 years) without mental disease frequenting health units and reported good psychometric properties. Table 1 presents Cronbach's alpha values from the Portuguese validation and the present study.

In both cases, the alpha values are high, indicating items' homogeneity in each dimension and in accordance with the previous (inter)national literature (Pais Ribeiro et al., 2015) [84].

Table 1. GHQ-28 internal consistency (Cronbach's alpha).

GHQ-28 Score/Study	Present Study (N = 276)	Pais Ribeiro et al. (2015) [84]
Total	0.95	0.94
Somatic symptoms	0.89	0.85
Anxiety and insomnia	0.93	0.89
Social dysfunction	0.89	0.86
Severe depression	0.93	0.89

3.3.3. Trait Hope Scale

The Trait Hope Scale was developed by Snyder et al. (1991) [85] and in the present study the Portuguese version used was developed by Pais Ribeiro, Pedro and Marques, 2006) [86]. The (adult) Trait Hope Scale comprises an 8-point Likert scale (1–8) and 12 items: 4 are distractors and 8 assess hope—4 assess "agency" (past, present and future) and the other 4 assess "pathways". Three scores can be derived from the scale: the total Hope Scale score (computed by the sum of the 8 items) and a score for each hope dimension/subscale (the sum of the respective 4 items).

The study by Pais Ribeiro et al. (2006) [86], with 184 individuals (age: M = 39.90, SD = 9.52, 16–70 years; 83.5% females; 108 with multiple sclerosis and 76 without disease), revealed acceptable metric and structural properties if only one factor is considered. The internal consistency, according to Cronbach's alpha, was 0.86 for the scale (0.76 for the agency subscale and 0.79 for the pathways subscale—Pais Ribeiro et al., 2006) [86]. In the present study α = 0.92 (overall scale), higher than reported in the literature (Snyder et al., 1991) [85].

Consequently, the hope score can vary between 8 and 64, with a higher score indicating higher hope (36 is the midpoint). Snyder (2002) [35] indicated that a typical mean score is 49 (SD = 7).

3.3.4. Brief Resilient Coping Scale (BRCS)

Since they knew of no scale to assess resilient coping in adults, Sinclair and Wallston (2004) [77] developed the Brief Resilient Coping Scale, to assess the ability to adaptively deal with stress, using two samples of individuals with rheumatoid arthritis (90 women enrolled in a cognitive behavioral intervention program—age: M = 46 years, SD = 11.8—plus 140 men and women (73% women) participating in a study of adaptation to this disease—age: M = 57.8 years, SD = 13.35). The BRCS, which is unidimensional, is composed of 4 items and a 5-point Likert scale, with a range from 4 to 20, and, according to its creators, those who endorse these four characteristics should have clear goals, have confidence in their ability to handle challenging situations and should typically succeed in the difficulties they are given, since they describe an effective and active problem-solving coping pattern. Low-resilience copers score 13 or less, and high-resilience copers score 17 or more (Sinclair and Wallston, 2004) [77].

Cronbach's alpha reliability for the combined (pooled) original sample was 0.69 (0.64–0.76); test–retest reliability (5- to 6-week interval and 3-month interval) was adequate for a research instrument and, in both samples, a consistent pattern of theoretically predictable correlations between BRCS scores and measures of personal coping resources, pain coping behaviors and psychological well-being was found (Sinclair and Wallston, 2004) [77]. Regarding predictive validity, averaged pre-intervention BRCS scores were a significant predictor of post-intervention outcomes; sensitivity to change was revealed.

As regards the Portuguese version, Pais Ribeiro and Morais (2010) [87] analyzed the properties of the BRCS using a sample of 501 high-school students (15–25 years, M = 17.90) from the center of Portugal. For all the psychometric parameters considered, the Portuguese values were considerably lower than those of the original study (e.g., α = 0.53) and generally

below what would be traditionally adequate. Principal components analysis revealed one component for the Portuguese version (α = 0.89).

3.4. Procedure

Data were collected online, by sharing a questionnaire through Google Forms between March and April of 2022. Before accessing the 4 assessment instruments, (potential) participants saw a cover page with a brief, but complete, explanation about the study. Informed consent was obtained from all participants previous to answering the survey. The estimated time to complete the questionnaire was around 10 min. Participants did not receive any compensation for completing the survey.

3.5. Ethical Aspects

This study was approved by the Ethics Committee of the Fernando Pessoa University (Porto, Portugal, Ref. FCHS/PI-219/21-2) and complies with the Declaration of Helsinki, the general data protection regulation and the Code of Ethics of the Order of Portuguese Psychologists.

3.6. Data Analysis

For every variable evaluated, a descriptive statistical analysis was carried out. Analyses of frequency and percentage were conducted on the participant's demographic data. Afterward, a bivariate analysis was performed using Pearson correlation to identify the association between mental health, hope and resilient coping indicators. Since all of the variables in the Kolmogorov–Smirnov and Shapiro–Wilk normality tests had *p*-values less than 0.001, parametric testing was employed. Then, a multiple linear regression (stepwise method regarding the predictors of GHQ-28-Total and Social dysfunction) was applied to the cases where the two psychological variables had significant correlations in order to identify which models best described the relationship between mental health and the independent variables. In the remaining situations, when just one of the variables had significant correlations, simple linear regression was used. The regression models satisfied all assumptions (errors were normally distributed with zero mean and homoscedasticity), and the results of the regression analyses were considered reliable. Data were analyzed with the support of the IBM SPSS statistical program for Windows version 29 (SPSS Inc.: Chicago, IL, USA). All analyses were computed with 95% confidence intervals and $p \leq 0.05$.

4. Results

4.1. Sociodemographic Characteristics of the Sample

The 276 study participants are healthcare workers who, at the time, worked in Portuguese hospitals and basic healthcare facilities: nurses (59.1%), doctors (16.3%), healthcare assistants (14.0%) and administrative assistants (11.6%).

The majority of the participants are female (83.3% vs. 16.7% male), with ages ranging from 18 to 71 (M = 38.17; SD = 10.51). The majority of participants had been working for less than 16 years (64.9%) and worked under permanent contract (80.1%).

4.2. Health Professionals' Mental Health, Hope and Resilient Coping

The sample can be considered heterogeneous regarding the psychological constructs assessed: the minimum and maximum possible scores were reached, with the exception of the maximum score for GHQ-28-Total.

In terms of mental health, Table 2 presents the GHQ-28 mean, standard deviation, minimum and maximum scores obtained in the present sample, along with the mental health characterization of other samples reported in the literature, according to the same instrument.

Table 2. Mental health of the present and previous samples.

GHQ-28 Score	Present Study	Pais Ribeiro et al. (2015) [84]—Validation	Seabra et al. (2021) [30]	Díaz-Ramiro et al. (2020) [22]	Kooteh et al. (2023) [25] *	Maciaszek et al. (2020) [27]	Babicki et al. (2021) [21]	Kolivand et al. (2023) [24]	Almeida et al. (2022) [20]	Kowalczuk et al. (2023) [26] *
	M (*SD*); min-max (*N* = 276)	*M* (*SD*); min-max	*M* (*SD*)	*M* (*SD*); % high score	*M* (*SD*); min-max	*M* (*SD*) (medical professionals)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*); min-max
Total	30.01 (15.42) 0–79	22.43 (12.42); 0–66; 27.3% with scores higher than 23	30.09 (13.86)	19.15 (10.33); 26.40%	53.16 (12.31); 28.00–93.00	29.7 (14.9)	30.35 (14.53); 64.27% scored at least 24 points)	21.1 (14.2)	21.7 (9.1)	5.42 (6.21); 0–28
Somatic symptoms	8.87 (4.56) 0–21	5.90 (3.90); 0–21	8.35 (0.30)	5.47 (3.77)	13.27 (3.97); 7.00–28.00	7.7 (4.6)	7.83 (4.40)	6.2 (3.62)	4.87 (3.3)	2.05 (2.20); 0–7
Anxiety and insomnia	9.05 (5.42) 0–21	6.37 (4.39); 0–21	9.13 (4.83)	5.50 (4.31)	13.51 (4.94); 7.00–43.00	10.0 (5.4)	9.85 (5.26)	6.08 (4.9)	6.53 (4.8)	1.87 (2.23); 0–7
Social dysfunction	7.49 (4.33) 0–21	7.59 (3.00); 0–21	9.23 (3.13)	7.07 (2.27)	14.24 (3.06); 7.00–25.00	8.5 (3.5)	8.86 (3.40)	3.72 (3.7)	8.64 (3.2)	1.12 (1.83); 0–7
Severe depression	4.60 (4.40) 0–21	2.52 (3.70); 0–21	3.38 (4.34)	1.11 (2.50)	10.13 (3.56); 7.00–25.00	3.5 (3.9)	3.82 (4.36)	5.02 (3.67)	1.62 (3.0)	0.38 (1.13); 0–7

Note: * The values suggest traditional scoring was not followed in these studies.

The average of four of the five Mental Health scores (exception: Severe depression) indicates the probability of a psychiatric case. The percentage of the sample with a total score below 25 was 30.8%. Since a total score of 23/24 is an indicator of a case to be studied (Pais Ribeiro et al., 2015) [84], the sample's mean score also reveals low mental health.

Regarding hope, 19.6% of the sample scored below the (36) midpoint (M = 43.46, SD = 11.97; 8–64).

In terms of resilient coping, 29.3% of the participants revealed low resilience, i.e., a score below 13, while 32.2% showed strong resilience, i.e., a score above 17 (M = 14.93, SD = 4.05; 4–20).

4.3. Relationship between Mental Health, Hope and Resilient Coping

Hope correlated with Social dysfunction ($r(276) = -0.127$, $p = 0.035$) and GHQ-28-Total ($r(276) = -0.127$, $p = 0.036$).

Resilient coping correlated with Somatic symptoms ($r(276) = -0.177$, $p = 0.003$), Anxiety and insomnia ($r(276) = -0.186$, $p = 0.002$), Social dysfunction ($r(276) = -0.163$, $p = 0.007$) and GHQ-28-Total ($r(276) = -0.184$, $p = 0.002$).

Resilient coping proved to be a (weak) predictor of four of the five GHQ-28 indicators, with the exception of Severe depression, with the following models (R_a^2 is the adjusted R^2):

- GHQ-28-Total $R_a^2 = 0.030$, $F(1, 274) = 9.558$ and $p = 0.002$;
- Social dysfunction $R_a^2 = 0.023$, $F(1, 274) = 7.521$ and $p = 0.007$;
- Somatic symptoms $R_a^2 = 0.028$, $F(1, 274) = 8.835$ and $p = 0.003$;
- Anxiety and insomnia $R_a^2 = 0.031$, $F(1, 274) = 9.821$ and $p = 0.002$.

5. Discussion

It is important to stress that all the indicators used in the present study revealed high alpha values/internal consistency, which supports the validity of the results.

Even though the results are from a convenience sample, it proved to be heterogeneous in terms of mental health, hope and resilient coping (cf. minimum and maximum scores), suggesting there was no response tendency nor social desirability responses.

5.1. Health Professionals' Mental Health, Hope and Resilient Coping

Similar to what was identified by Pais Ribeiro et al. (2015) [84], low means and high standard deviations were found, revealing a considerable dispersion of results.

Mean GHQ-28 total score was, nevertheless, higher than the one reported by Zonp et al. (2022) [31], Salehi et al. (2023) [29], Pais Ribeiro et al. (2015) [84], Díaz-Ramiro et al. (2020) [22], Maciaszek et al. (2020) [27], Kolivand et al. (2023) [24], and Almeida et al. (2022) [20], but slightly lower than the one found by Seabra et al. (2021) [30] and Babicki et al. (2021) [21]; the standard deviation was higher than the ones presented in Table 2.

Regarding Somatic symptoms, the mean score of the present sample was the highest among the studies summarized in Table 2. Inversely, the Anxiety and insomnia mean score was lower than the ones reported by Seabra et al. (2021) [30], Maciaszek et al. (2020) [27], and Babicki et al. (2021) [21], with the samples studied by Díaz-Ramiro et al. (2020) [22] and Kolivand et al. (2023) [24] having a lower Social dysfunction mean score. Finally, only the sample assessed by Kolivand et al. (2023) [24] had a mean Severe depression score higher than the present sample.

Although different publications use slightly different cut-offs for the GHQ-28 total score (23 vs. 24), the divergence between samples cannot be explained solely by this. In the present study, 69.2% of the health professionals had a worrying total score, (much) higher than the samples analyzed by Pais Ribeiro et al. (2015) [84], Díaz-Ramiro et al. (2020) [22], Hill et al. (2022) [19], Maciaszek et al. (2020) [27], Kolivand et al. (2023) [24], Hyseni et al. (2023) [23], and Babicki et al. (2021) [21].

Even though only a small percentage scored below the midpoint in the hope scale, considering Snyder's (2002) [35] indication of a typical mean score (M = 49, SD = 7), the present sample's hope was not exactly typical, unlike the group of healthcare workers

assessed by Yıldırım and Güler (2021) [81], whose mean score was 48.83 (*SD* = 10.40), indicating higher hope.

This study's participants revealed a mean score of resilient coping very similar to the sample used in the development of the BRCS (adults with rheumatoid arthritis—Sinclair and Wallston, 2004) [77], with not very different percentages of low- and high-resilience copers (somewhat more positive and diverse). The mean score was also similar (scarcely more positive and more heterogeneous) to the one reported by Sińska et al. (2021) [79] regarding Polish inhabitants during the COVID-19 pandemic, the one found by Pais Ribeiro and Morais (2010) [87] with high-school students and the one presented by Ding et al. (2021) [39].

Moreover, the results are in line with those reported by Almeida et al. (2023) [64], using the Resilience Scale for Adults, since they identified a moderate resilience level in the healthcare professionals studied.

In sum, the present results are globally consistent with previous research, even with quite different samples.

5.2. Relationship between Mental Health, Hope and Resilient Coping

5.2.1. Mental Health and Hope

The results of the present study are in line with those reported by Hayes et al. (2017) [41], Ahmadi and Ramazani (2020) [37], Sarker et al. (2022) [46] and Tee et al. (2022) [49] since, though weak, a statistically significant linear correlation was found between hope and mental health.

They are, nonetheless, inconsistent with the results obtained by Ding et al. (2021) [39], Kotera et al. (2021) [51], Feng and Yin (2021) [50] and Su et al. (2023) [48]. During the COVID-19 lockdown, in adults from 11 countries (Portugal not included), Ding et al. (2021) [39] found that higher hope was associated with reduced anxiety and depression. In Kotera et al.'s (2021) [51] study, hope was a significant predictor of mental health problems in medical workers and the general population. Among the front-line medical doctors and nurses studied by Feng and Yin (2021) [50] hope was significantly and negatively associated with depression. Similarly, in students from two elementary schools in China, hope and depressive symptoms were significantly correlated with each other (Su et al., 2023) [48].

In the literature reviewed there was no mention of a relationship between hope and social dysfunction. It would be interesting to explore further this result. Considering the content of the subscale items, and the fact that data were collected in the context of a broader project on violence against health professionals, it is possible that the answers were affected by some degree of negative working experiences.

5.2.2. Mental Health and Resilient Coping

The results are in accordance with the results from Hildebrand et al. (2019) [59], whose participants with low resilience had a higher probability of mental health problems, an association not apparent for all the indicators considered. They are also in accordance with those from Rudwan and Alhashimia (2018) [61], who reported a positive and statistically significant correlation between resilience and mental health, with resilience predicting mental health. Moreover, they are consistent with Al Omari et al.'s (2023) [58] results—resilience was significantly associated with regular sleep and perceived stress (vs. anxiety and insomnia)—and Rayani et al. (2022) [65]—the greater the resilience of healthcare workers, the lower their overall COVID-19 anxiety score.

The results are partially in line with the results from Wu et al. (2020) [62], Mendoza Bernal et al. (2023) [66] and Safiye et al. (2023) [67]. Wu et al. (2020) [62] found negative and significant correlations between depression, anxiety, stress and resilience. Mendoza Bernal et al. (2023) [66] found a significant inverse relationship between resilience and anxiety and depression in nurses, while Safiye et al. (2023) [67] found negative correlations between resilience and depression, anxiety, and stress, with resilience being a significant negative predictor of depression, anxiety and stress among healthcare workers.

However, the results diverge from those presented by Konaszewski et al. (2021) [60], in which resilience was negatively and moderately related to depression risk assessment and was the only significant predictor of depression, and Afek et al. (2021) [57], in which there were no significant correlations between resilience and any of the mental health scales used (psychological distress and anxiety).

Considering another conceptually similar construct, the results are aligned with those from Hyseni et al. (2023) [23] with healthcare professionals' lower levels of coping skills being associated with higher levels of mental health problems.

More specifically, Ding et al. (2021) [39], using the same instrument, found that higher levels of resilient coping were associated with reduced anxiety, but not depression, supporting the present findings.

5.3. Limitations and Future Research

First, this is a cross-sectional study, rendering it impossible to determine causal relationships between the variables. Consequently, future research should not only contribute to the body of moderation/mediation studies (e.g., Sun et al., 2023; Yıldırım and Güler, 2021) [80,81] but also to longitudinal studies or cross-lagged research methods use to explore the causal relationships among the three variables evaluated (e.g., Su et al., 2023; Wu et al., 2020) [48,62].

Second, this study used online, brief, self-reported questionnaires, which have known limitations. Therefore, future research would benefit from combining qualitative and experimental methods to gain more depth and confirmation using external assessments, without using protocols whose extension can stimulate unwelcomed biases.

Third, the sampling method and the heterogeneity of the sample makes it impossible to generalize the results. Nevertheless, the inclusion of healthcare professionals with different specialties, from primary and specialized care, enabled a more thorough image of the dynamics in place. Over-representation of certain sub-groups may have influenced the results, but eliminating participants was not an option for ethical reasons.

Fourth, the studied variables are expected to reflect complex constructs influenced by several factors not considered in the study, since brevity was an important principle during the study design, considering the typical workload of healthcare professionals.

Notwithstanding, this study made a contribution to an area in need of more research (e.g., Feldman et al., 2023; Olsman, 2020; Senger, 2023) [40,43,47] and may be relevant for planning brief and effective interventions, preferably offered to the healthcare teams at their institutions, in order to enhance health professionals' mental health, hope and resilience/resilient coping.

6. Conclusions

A considerable proportion of the sample studied obtained scores indicative of poor mental health, low hope and low resilience. The correlations and regression analysis revealed that hope and resilient coping had statistically significant, even though weak, relationships with the sample's mental health.

Consequently, the results support the need to promote the sample's mental health, hope and resilient coping. They also suggest that stimulating resilient coping may contribute to improving healthcare professionals' mental health.

Bearing in mind what was previously said regarding the interventions to enhance hope and resilience (hopefully also leading to better mental health), the importance of support, and what was defended by Müller et al. (2023) [13], one can be optimistic towards the necessary internal sustainability transformation. No doubt there is a long way ahead, but there is a clear path already crossed by many. The rest have only to keep walking vigorously on the right path.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in this study.

Data Availability Statement: The data presented in this article are not readily available since they were not approved to be shared outside of the research team. Requests to access the datasets should be directed to rmeneses@ufp.edu.pt.

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