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THE ITALIAN VERSION OF THE HOSPITAL ETHICAL CLIMATE SURVEY: FIRST PSYCHOMETRIC EVALUATIONS IN A SAMPLE OF HEALTHCARE PROFESSIONALS EMPLOYED IN NEUROREHABILITATION MEDICINE AND PALLIATIVE CARE SPECIALTIES

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This study aims to assess, through psychometric evaluations, a preliminary Italian version of the Hospital Ethical Climate Survey (HECS), checking its factor structure through exploratory factor analysis (EFA) and confirming the resulting factor structure in a second sample using confirmatory factor analysis (CFA). This research included a total of 315 Italian healthcare professionals working in neurorehabilitation medicine and palliative care units from six hospitals. EFA revealed a two-factor structure, including *ethical vision of patient care* and *managerial support*. CFA on the second sample confirmed the factor structure extracted from EFA, displaying good internal consistencies. Correlations showed that both dimensions were positively associated with well-being and social support, while negatively related to burnout and moral distress, supporting construct validity. The Italian version of HECS represents a user-friendly instrument to evaluate the ethical climate perceptions of healthcare professionals who are increasingly at risk of facing ethical dilemmas due to the growing complexity of patient care.

Keywords: Italian validation; Hospital ethical climate; Rehabilitation medicine; Palliative care; Distress.

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In the field of psychology, the term “climate” was proposed for the first time by Lewin, Lippitt, and White (1939) to describe how people develop an overall meaning regarding their social settings that is mainly affected by the leadership style experienced inside it. The first studies on organizational climate came to light in the late 1960s (Schneider, & Barbera, 2014; Schneider, Ehrhart, & Macey, 2011). These first researches lacked both a clear definition of "organizational climate" and a conceptual agreement regarding proper instruments and procedures to directly assess this construct. Therefore, according to the general approach called "molar approach," the knowledge about climate as a general experience was inferred from the measurement of organizational facets and dimensions (e.g., job satisfaction, leadership) that were believed to be in relation to climate itself (Schneider & Barbera, 2014; Schneider et al., 2011). After that, to better tailor the research on climate, Schneider (1975) proposed to assess specific outcomes of interest, looking for a "climate of something," such as "climate for productivity" or "climate for turnover." In this way, each research may address a specific type of climate, with regards to the causes and consequences of a particular aspect of the construct. Apart from these specifications, the overall literature regarding organizational climate is focused on the shared meaning and perceptions that workers derive from procedures, policies, and practices that are endorsed and expected at their workplace (Schneider & Barbera, 2014). These employees' perceptions provide some sorts of guidelines to act in a successful way inside the organization. In other words, the organizational climate is to be intended as the "personality" of the organization (Olson, 1998). Since it determines the work and social environment in which people conduct their own activity, climate may enhance employees' motivation and satisfaction (Mathew & Selvi, 2007; Schneider & Barbera, 2014; Schneider et al., 2011) which, in turn, may positively affect workers' efficiency and performance (Berberoglu, 2018; Mathew & Selvi, 2007; Schneider & Barbera, 2014; Schneider et al., 2011).

THE ETHICAL CLIMATE

One of the most studied aspect of organizational climate is related to the moral and ethical dimension of this construct. The seminal researches conducted by Victor and Cullen (1987, 1988) paved the way, focusing on the workers' shared meaning and common perception of "what is correct behavior, and how ethical situations should be handled in an organization" (Victor & Cullen, 1988, p. 135). Thus, the ethical climate may be defined as workers' perceptions of ethics-related organizational practices, procedures, and policies that may have ethical content and moral consequences due to the potential influence on ethics-related attitudes and behaviors (Parboteeah, Martin, & Cullen, 2011; Treviño, 2008). In other words, the ethical climate refers to employees' perception of ethical standards and norms for the management of ethical decisions or behaviors. The quality of the ethical climate may change among various organizations and work units. According to literature, different kinds of national, organizational, and occupational cultures may be considered as antecedents of ethical climate (Parboteeah et al., 2011). Moreover, the leadership style may impact on subordinates' ethical climate perceptions, so that, an ethical leadership style may positively affect such perceptions, thanks to a virtuous cycle triggered by the good example provided by the leader's honest and trustworthy behavior (Demirtas & Akdogan, 2015). The importance of ethical climate is related to its effects on organizational outcomes. Indeed, ethical climate may positively influence job satisfaction (Elçi & Alpkan, 2009; Parboteeah et al., 2011), organizational commitment (Demirtas & Akdogan, 2015; Parboteeah et al., 2011), employees' job attitudes and behaviors (DeConinck, 2010) as well as positive extra-role behaviors (Leung 2008).

THE ETHICAL CLIMATE IN THE HEALTHCARE SYSTEM

The construct of ethical climate has been mainly investigated in healthcare settings due to the higher possibility of ethical and moral implications related to the provision of patient care. Nowadays, medical and technological advancements are giving rise to complex ethical issues among healthcare professionals; thereby, potentially affecting their well-being and, in turn, the quality of care provided (Bodenheimer & Sinsky, 2014; Harrison et al., 2017; Hynes, Maffoni, Argentero, Giorgi, & Giardini, 2019; Maffoni, Argentero, Giorgi, Hynes, & Giardini, 2019; Maffoni, Argentero, Giorgi, & Giardini, 2019; Maffoni, Argentero, Giorgi, & Giardini, 2020). Paying attention to healthcare professionals' well-being is now an ever-growing ethical imperative, as well as an urgent necessity (Harrison et al., 2017; Hynes et al., 2019). To this regard, the ethical climate is of paramount importance in healthcare systems because of its potential impact on personal and organizational outcomes. Indeed, according to a recent review, the ethical climate was positively associated with positive individual self-perceptions, such as professional competence and efficacy; individual skills, including abilities to manage disagreements and to cooperate with colleagues; positive job-related outcomes, such as job satisfaction and work engagement; healthcare professionals' well-being and their satisfaction with care provided (Koskenvuori, Numminen, & Suhonen, 2019). The ethical climate is also positively associated with the perception of social and organizational support (Abou Hashish, 2017; Koskenvuori et al., 2019; Silén, Kjellström, Christensson, Sidenvall, & Svantesson, 2012). In particular, the perception of positive climate is promoted by providing mutual support among intraorganizational members (e.g., supervisors, coworkers) and by sharing information with colleagues (Silén et al., 2012). Moreover, the ethical climate is negatively associated with moral distress (Dzeng, & Curtis 2018; Koskenvuori et al., 2019; Pauly, Varcoe, Storch, & Newton, 2009; Silén, Svantesson, Kjellström, Sidenvall, & Christensson, 2011; Whitehead, Herbertson, Hamric, Epstein, & Fisher, 2014), in particular it is described as a potential antecedent of moral distress and burnout (Dzeng & Curtis, 2018). For these reasons, it is important to provide instruments to examine the ethical climate inside healthcare organizations. Indeed, understanding ethical facets of the work climate allows to implement tailored and effective interventions to manage, change, and improve organizational practices and procedures on ethical aspects, positively influencing healthcare professionals' work experience and well-being (Olson, 1998; Pauly et al., 2009; Schwatka, Hecker, & Goldenhar, 2016).

To date, the ethical climate within healthcare settings has been mainly explored considering nurses' perspectives: nurses constitute the largest professional group in the health workforce of our countries (World Health Organization, 2018) and they are exposed to different kinds of ethical issues on a daily basis during their work activity (Ulrich et al., 2010). In the 1990s, Olson provided a definition of ethical climate from nurses' point of views (Olson, 1995, 1998), described as the result of institutional practices and policies regarding ethical content and decisions, such as the possibility to disagree with one another or to have a debate on ethical issues, as well as the opportunity to have access to information for making informed decisions (Olson, 1998). It may be assessed by asking the healthcare professionals to provide their perceptions regarding situations and facts characterized by ethical contents that may happen inside their institution. For instance, the management of ethical decisions or the possibility to engage in ethical reflections are a matter of interest (Olson, 1998; Redman, 2002). Starting from considering literature review and the experience in nursing practice and administration, Olson developed a 26-item instrument called Hospital Ethical Climate Survey (HECS) to assess nurses' perceptions of ethical climate through five subscales focusing on their relationships with peers, patients, managers, physicians, and within the hospital (Olson, 1998). This instrument, which has shown a good internal consistency and construct validity (e.g., Olson, 1998; Redman, 2002), has been translated into different languages, including Greek (Charalambous, Cloconi, Papastavrou, & Theodoula, 2018), Persian (Khalesi et al., 2014), Japanese (Hwang & Park, 2014), Dutch (Claeys et al., 2013), Turkish (Bahcecik & Oztürk, 2003), Swedish (Silén et al., 2011), and Finnish (Suhonen, Stolt, Katajisto, Charalambous, & Olson, 2015). The instrument maintained good psychometric properties across countries and numerous translations confirmed a five-factor structure like the original American version (Bahcecik & Oztürk, 2003; Charalambous et al., 2018; Claeys et al., 2013; Hwang & Park, 2014; Khalesi et al., 2014; Silén et al., 2011; Suhonen et al., 2015).

With the author's permission, also a shorter version has been developed with 14 items in the English language (Hamric, Borchers, & Epstein, 2012), translated and further modified in Swedish as well (Pergert, Bartholdson, Wenemark, Lützén, & af Sandeberg, 2018). The shorter version included the following five dimensions: 1) health-care personnel relationships with the hospital, the immediate manager, and the patients/parents; 2) relationships between professionals; 3) team interactions; 4) identifying and dealing with ethical issues; and 5) care as it should be provided (Hamric et al., 2012; Pergert et al., 2018). Furthermore, as HECS was originally designed for nurses, some studies utilized parallel versions which were constructed for specific professional groups (e.g., see Hamric et al., 2012; Pergert et al., 2018; Pergert, Bartholdson, & af Sandeberg, 2019 for physicians; see Whitehead et al., 2014 for physicians, therapists, dieticians, and social workers). For instance, using the shortened HECS modified version in a Swedish healthcare population, Pergert et al. (2019) found some differences in relation to certain items of the HECS between physicians and nurses. In particular, medical doctors reported significantly higher scores than nurses on items regarding relationships with team members and managers. In addition, males reported significantly greater scores on the item focusing on the physician's availability to ask for nurses' opinions than female, while females reported significantly higher scores than their male counterparts on the item referring to hospital guidelines. Conversely, other studies made minor revisions (e.g., different wording of scale items) to make HECS suitable for multiple professions (e.g., Bartholdson, Sandeberg, Lützén, Blomgren, & Pergert, 2016; de Boer, van Rosmalen, Bakker, & van Dijk, 2016; Silén, Haglund, Hansson, & Ramklint, 2015; Ulrich et al., 2007), as the content of the original items was considered to be potentially extendible to all healthcare professionals. For instance, Bartholdson et al. (2016) adapted the Swedish version of the shortened Hospital Ethical Climate Survey (HECS-S) to analyze the overall perception of the paediatric hospital ethical climate among healthcare professionals (i.e., physicians, nurses, and nurse-aides) caring for children with cancer, while Ulrich et al. (2007) administrated an adapted version of Olson's 26-item HECS (1998) to American nurses and social workers employed in intensive care units. Additionally, De Boer et al. (2016) translated the HECS into the Dutch language and slightly adapted it to the neonatal intensive care unit situation, administrating it to both nurses and physicians. The authors showed that the perceived ethical climate of the ward reduced the intensity of morally distressing situations in both professional groups (De Boer et al., 2016). Similarly, Silén and colleagues (2015) adapted the HECS by using a different wording for scale items to evaluate whether ethics rounds (i.e., an alternative to traditional ethics committee where healthcare professionals from different disciplines can reflect on ethically difficult facets of patient's cases) could improve the ethical climate perceived by healthcare professionals (i.e., nurses, therapists, physicians) working in psychiatric outpatient clinics.

The instrument has been adopted in many different settings, such as: paediatric cancer units (Bartholdson et al., 2016) and adult cancer care settings (Charalambous et al., 2018), older people care institutes (Suhonen et al., 2015), psychiatric units (Claeys et al., 2013; Lützen, Blom, Ewalds-Kvist, & Winch, 2010). Moreover, since previous investigations revealed differences in ethical climate perceptions across care settings (Bahcecik and Oztürk, 2003) and since healthcare may have diverse organizational features (e.g., number of patient beds per each nurse; Hwang & Park, 2014), the assessment of psychometric properties of HECS was encouraged across contexts and professional groups (Koskenvuori et al., 2019). Indeed, the strength of the HECS is both its well-established international adoption and its focus on specific factors influencing the ethical climate, considering the perspective of healthcare professionals across specific work settings.

Overall, previous investigations suggest that each professional group has its own identity and codes of ethics and meets patients in diverse circumstances (Jameton, 2013), so that perceptions of ethical climate may vary as a function of differences in professional roles, which involve specific tasks, differences in professional roles, and discretion in decision-making (e.g., Hamric & Blackhall, 2007; Pergert et al., 2019). On the other hand, several healthcare professionals from different disciplines are involved in daily patient care (Grönlund, Söderberg, Dahlqvist, Andersson, & Isaksson, 2019) and ethical climate is a form of organizational climate that embraces shared perceptions about what constitutes the correct behavior, which in turn affects ways ethical issues and decision-making are addressed (Martin & Cullen, 2006). More specifically, ethical climate is particularly important for healthcare professionals employed in specialties at high risk of moral distress. Among these, neurorehabilitation medicine and palliative care specialties represent explicative examples as healthcare providers working in these specialties are frequently confronted with numerous challenges, such as high demands related to the treatment of patients with complex care needs, the urgency of making decisions, the dehumanizing effect of technology, the elevated incidence of patient mortality, and the presence of organizational policies, priorities, pressures to reduce costs, as well as fear of litigation which conflict with care needs (Bakker, Le Blanc, & Schaufeli, 2005; Epp, 2012; Koerner, 2011; Meltzer & Huckabay, 2004). All these factors make employees in neurorehabilitation medicine and palliative care specialties at increased risk of developing moral distress and burnout symptoms, so that they are defined as one of the most "burned-out" healthcare professional groups (Rothenberger, 2017; Sliwa et al., 2019). Additionally, previous studies showed that unit climate was associated with numerous therapeutic outcomes, such as drop out-, release-, and re-admission rates (Moos, Shelton, & Petty, 1973), patient satisfaction (Bressington, Stewart, Beer, & MacInnes, 2011), motivation for treatment (van der Helm, Beunk, Stams, & van der Laan, 2014), and therapeutic alliance (Long et al., 2011). Therefore, it seems to be particularly important to create and maintain a good ethical climate not only for nurses, but also for the other healthcare providers employed in specialties at high risk of moral distress. To this end, it seems crucial to encourage healthcare professionals from different disciplines to reflect on ethically difficult facets and to promote multi-professional dialogue about care provided to improve ethical practices (Schmitz et al., 2018). To facilitate practitioners in the achievement of this, the Italian context needs an instrument suitable for different healthcare professionals working in units at high risk of moral distress.

AIMS AND HYPOTHESES

As far as we know, an Italian version of the HECS is still lacking. To fill this gap, the main purpose of the present research was to perform exploratory and confirmatory factor analyses to select the best items and test their factorial structure in order to provide a brief version of the HECS in the Italian language. In doing so, despite the existence of a shorter version (i.e., 14 items), we decided to explore the psychometric properties of the original version (i.e., 26 items) since it has been widely used in literature (Bahcecik & Oztürk, 2003; Bartholdson et al., 2016; Charalambous et al., 2018; Claeys et al., 2013; Hwang

& Park, 2014; Khalesi et al., 2014; Lützen et al., 2010; Silén et al., 2011; Suhonen et al., 2015;). Another goal of the current study was to examine the nomological validity of the questionnaire. Moreover, a further objective was to provide a psychometric evaluation of the HECS by testing its model of measurement not only with nurses, but also with other healthcare professionals employed in palliative care and neurorehabilitation medicine specialties. Despite some differences, both neurorehabilitation medicine and palliative care providers are at particular risk of moral distress and burnout as the care of a patient in life-threatening conditions may expose healthcare professionals to numerous ethical issues, influencing their perceptions of ethical work climate. Therefore, a further purpose of this study was to analyxe whether the factor structure of the HECS concept would be invariant across specialties (i.e., neurorehabilitation medicine vs. palliative care specialties).

We expected to find that the Italian version of the HECS would display a five-factor model of measurement, similar to the original structure proposed by Olson (1998). Moreover, we hypothesized that all dimensions of HECS would correlate positively with social support and well-being and that such dimensions would be negatively associated with moral distress and burnout. Moreover, we hypothesized that there might be differences in HECS perceptions between males and females and between healthcare providers employed in palliative care and those in neurorehabilitation medicine specialties, even if the factor structure of the HECS concept would be invariant across gender and specialties. Finally, we hypothesized that there might be differences in HECS perceptions between professionals having different professional roles.

Method

Participants and Procedure

Our research population consists of healthcare professionals from six hospitals in Northern and Central Italy. In each hospital, a coordinator and a researcher presented the research project to healthcare professionals during shift changes. After being reassured of the confidentiality and anonymity of their responses, participants provided their written informed consent and completed paper-pencil questionnaires. It took approximately 20 minutes to fill in the questionnaire. Participants did not receive any form of incentive. To further guarantee anonymity, participants were instructed to place the completed questionnaires in a cardboard box. These boxes were placed at the front of a common area in each hospital taking part in the research. This survey is part of a broader research project called WeDistress HELL (WEllness and DISTRESS in HEalthcare professionals dealing with end of Life and bioethicaL issues) which has been approved by the Ethical Committee of ICS Maugeri - Institute of Pavia (Protocol No. 2211CE, 19 June 2018). Moreover, the present study was conducted in agreement with the ethical norms laid down by the Italian National Psychological Association. In total 318 employees completed the survey. We excluded two participants since they did not complete at least 60% of the survey, which reduced the sample size from 318 to 316. Additionally, one case was deleted because it was identified to be a multivariate outlier (as described below), leaving a total sample of 315 respondents. The average percentage of missing values ranged from 0.6% (for well-being and support scales) to 1.6% (for burnout symptoms and moral distress scales). More specifically, it was 1% for HECS. We replaced each of the missing values with the mean of the observed values for that variable in order to keep our sample size up to the full sample size.

Most participants were female (67.0%), nurses (40.6%), who did shift work (64.7%), and had open-ended contracts (78.9%). Respondents were employed in neurorehabilitation medicine (70.5%) or palliative care (29.5%) specialties. Most participants were under 40 years old (46.0%), an overall job tenure above 16 years (43.5%), and a tenure in the current position above 10 years (44.7%). Participants were randomly divided into two groups to conduct exploratory factor analysis (EFA group, *n* = 158) and confirmatory factor analysis (CFA group, *n* = 157). Table 1 shows the characteristics of the two groups in terms of the HECS total mean, age, gender, occupational status, overall job tenure.

TABLE 1
Characteristics of the total participants and EFA and CFA groups

	All participants (n = 315)	EFA group (n = 158)	CFA group (n = 157)
	%	%	%
Gender			
Female	67.0	64.6	69.4
Specialty			
Neurorehabilitation medicine	70.5	68.4	72.6
Palliative care	29.5	31.6	27.4
Age			
< 40 years	46.0	44.9	47.1
41-50 years	32.3	31.4	33.1
> 51 years	21.7	23.7	19.7
Occupation			
Physician and psychologist	20.8	24.2	17.3
Nurse	40.6	40.8	40.3
Physiotherapist and other therapists	22.0	15.3	28.8
Social-health operator	16.6	19.7	13.5
Overall job tenure			
< 5 years	25.2	25.6	24.8
6-15 years	31.3	30.1	32.5
> 16 years	43.5	44.3	42.7
Job tenure in current position			
< 5 years	31.8	30.8	32.9
6-10 years	23.5	25.0	21.9
> 10 years	44.7	44.2	45.2
Shift work			
Yes	64.7	68.6	60.8
Contract			
Open-ended	78.9	74.8	83.0
Fixed term	14.5	17.9	11.1
Temporary	6.6	7.3	5.9
	M (*SD*)	*M* (*SD*)	*M* (*SD*)
Average HECs score	3.71(0.61)	3.76 (0.55)	3.70 (0.66)

Note. [a] Other therapists includes dieticians, speech therapists, and occupational therapists.

Measurements

The *Hospital Ethical Climate Survey* (HECS; Olson, 1998) is a 26-item self-administrated scale which was originally developed to evaluate hospital nurses' perceptions of the ethical climate within their workplace. This scale consisted of five subscales including: relationships with peers (four items, e.g., "My peers listen to my concerns about patient care"), patients (four items, e.g., "Patients know what to expect from their care"), managers (six items, e.g., "When I'm unable to decide what's right or wrong in a patient care situation, my manager helps me"), physicians (six items, e.g., "Physicians ask nurses for their opinions about treatment decisions"), and hospital (six items, e.g., "Hospital policies help me with difficult patient care issues/problems"). Responses are obtained on a 5-point Likert scale ranging from 1 (*almost never true*) to 5 (*almost always true*). The greater the HECS score, the more positive the ethical climate. The HECS has a good reliability as well as a good construct validity (Olson, 1998; Redman 2002).

Two subscales from *The Maugeri Stress Index–Reduced form* (Giorgi et al., 2011, 2014; Massidda et al., 2017) were used to evaluate well-being and social support perceptions. Participants were invited to report how frequently they tended to experience a condition of well-being, serenity, satisfaction for their work experience (seven items; e.g., "I have done things that interested me") and how often they perceived to receive adequate support from their colleagues or superiors (five items; e.g., "My superiors at work are willing to help me in difficult moments; I can count on the support of my colleagues at work when I need it."). All items were measured on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very much*), where greater scores indicate greater levels of well-being and social support. This instrument has been widely utilized by previous studies on Italian healthcare professionals and it has shown satisfactory psychometric properties (Massidda et al., 2017).

Maslach Burnout Inventory-General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996; Italian validation of Borgogni, Galati, Petitta, & Centro Formazione Schweitzer, 2005). This 16-item instrument includes the following three dimensions: emotional exhaustion, namely feelings of chronic fatigue and lack of emotional resources as a result of overtaxing work (five items; e.g., "I feel emotionally drained by my work"); cynicism, namely cynical attitudes and feelings toward the organization and service recipients (five items; e.g., "I have become less interested in my work since I started this job"); professional efficacy, namely personal accomplishment and perceptions of being able to perform effectively one's own job tasks (six items; e.g., "I feel I am making an effective contribution to this organization"). All items were scored on a 7-point Likert scale ranging from 0 (*never*) to 6 (*always*). A reversed score for professional efficacy subscale was obtained. Then, a total score was calculated by averaging all item scores, where greater scores indicate greater levels of burnout symptoms. This scale is particularly suitable to healthcare professionals and has shown a good internal consistency (Borgogni et al., 2005).

Moral Distress Scale-Revised (Hamric et al., 2012; Italian version of Lamiani, Setti, Barlascini, Vegni, & Argentero, 2017) was used to analyze moral distress, namely the painful and distressing experience resulting from the necessity to behave against own personal beliefs and values. This scale included four dimensions: futile care, which refers to all provided treatments and care that are perceived as inappropriate because of their harmfulness or uselessness (three items; e.g., "Initiate extensive life-saving actions when I think they only prolong death"); deceptive communication, that refers to unclear forms of communication, such as giving "false hopes" or not discussing a poor prognosis with a patient and/or a caregiver (three items; e.g., "Witness healthcare providers giving 'false hope' to the patient or family"); ethical misconduct, namely ethically questionable behaviors that may occur in everyday clinical practices (five items; e.g., "Take no action about an observed ethical issue because the involved staff member or someone in a position of authority requested that I do nothing"); poor teamwork, which regards situations where there is a lack of trust and cooperation among medical staff members (three items; e.g., "Watch patient care suffer because of a lack of provider continuity"). Each item was scored in terms of frequency (e.g., how frequently the situation was experienced) and intensity (e.g., to what extent the experienced situation was perceived as disturbing). All items were rated on a 5-point Likert scale ranging from 0 (*never*) to 4 (*very frequently*) and from 0 (*none*) to 4 (*great extent*) for the frequency and intensity scales, respectively. A score for each subscale was calculated. This subscale score is obtained by summing the frequency for intensity scores and dividing the total by the number of items. Such subscale score ranges from 0 to 16. However, to make this measure easily comparable with the other instruments, the scale of measurement was transformed by dividing by a constant in a scale ranging from 0 to 10, where higher scores indicate greater levels of moral distress dimensions. This scale has been widely used by previous studies on healthcare professionals working in intensive care units (Lamiani et al., 2017; Lamiani, Dordoni, & Argentero, 2018), showing a high degree of internal consistency (Lamiani et al., 2017).

Translation

Dr. Olson, the original designer of HECS, was contacted and permission was obtained to translate and culturally adapt HECS to develop an Italian version of this instrument. The translation of the HECS followed the standard guidelines for translating questionnaires (Sousa & Rojjanasrirat, 2011). One native Italian-speaking researcher translated the items. Then, to address inadequate expressions of the translation, the forward translation was reviewed by a bilingual (in English and Italian) expert panel which identified acceptable alternatives. All items were translated back to English by an independent translator who was not involved in the initial translation. Finally, a comparison of the back-translated version and of the original version of the scale was performed by both Italian- and English-speaking natives, and further amends were made. Although the original version included a specific wording which referred to "nurses" only, we decided to use the more general term "healthcare professionals" to extend the use of the questionnaire to all kinds of providers. This revised wording was approved by the author of the original scale, too.

Statistical Analyses

Preliminary analyses were conducted for the EFA and CFA groups following Tabachnick and Fidell' (2013) recommendations. We evaluated descriptive statistics of items (means, standard deviations, skewness, and kurtosis) to support the robustness of further analyses. Normality of the data was considered acceptable when skewness $<|3.0|$ and kurtosis $<|8.0|$ (Kline, 2011). Multivariate outliers were identified among the cases using $p < .001$ criterion for Mahalanobis distance. Before conducting EFA, we also verified the statistical assumptions (Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett test groups). All descriptive analyses were performed using IBM SPSS Statistics 23 (George & Mallery, 2016). Then, using Mplus 7 (Muthén & Muthén, 2012), a parallel analysis, which according to Henson and Roberts (2006) provides the most accurate approach as it avoids overextracting factors, was performed to determine the number of factors to retain from EFA. Then, we conducted several EFAs on the EFA group (n = 158) with a progressively lower number of items using the maximum likelihood (ML) extraction with Geomin rotation. Each EFA was followed by a Promax rotation. Eigenvalues, communalities, and factor loadings for each item, as well as item-total correlation coefficients, and item discrimination ability, were checked to delete the worst items. In line with the recommendations from Howard's review (2016) of EFA decisions, we repeated factor analysis until a factor structure was detected in which all items (a) loaded onto their primary factor above .40, (b) loaded onto alternative factors below .30, and (c) had a difference between their primary and alternative factor loadings of at least .20. For each EFA conducted in Mplus, we performed the corresponding principal component analysis in SPSS (George & Mallery, 2016) to check that the items retained were those with the highest explained variance for each factor. More generally, in the early stages and throughout the entire process, the factor patterns of different analyses were compared with each other on interpretability in the attempt to understand the data as well as possible also in the light of the context of the research. Additionally, we considered satisfactory a factor structure when an item-total correlation was higher than .30 and all items had a communality higher than .20 (Balboni, Perrucci, Cacciamani, & Zumbo, 2018; Fabrigar, Wegener, MacCallum, & Strahan, 1999; Tabachnick & Fidell, 2013;). Moreover, as a measure of reliability, McDonald's omega (McDonald, 1999) was computed for each factor and for the developed total scale (Dunn, Baguley, & Brunsden, 2014) using JASP (JASP Team, 2017). An examination of the scree plot of eigenvalues and total variance explained by retained factors was performed to confirm the total number of factors to retain using SPSS 23.

To check the percentage of variance explained by each factor and by the total scale, a confirmatory factor analysis (CFA) was performed on the CFA group (n = 157) to validate the factor structure of the dimensions emerged from the previous EFA analysis using Mplus 7 (Muthén & Muthén, 2012). Factors were taken as latent variables and their items as observed indicators. All latent constructs were allowed to covary. We utilized maximum likelihood (ML) estimation method for factor extraction. A nonsignificant chi-square is the prime indicator for evaluating model fit in structural equation modelling (SEM) analysis (Cheung & Rensvold, 2002). However, this index is affected by the sample size (Bollen, 1990). Therefore, in accordance with common suggestions in the field of CFA (Cheung & Rensvold, 2002; Hu & Bentler, 1999; McDonald & Ho, 2002), the model goodness of fit was tested considering the following indices: comparative fit index (CFI; Bentler, 1990; values above .90 are generally considered to be indicative of a good model fit), Tucker-Lewis index (TLI; Tucker & Lewis, 1973; values above .90 are generally considered to be indicative of a good model fit), root mean squared error of approximation (RMSEA; Steiger, 1990; values less than .08 and .05 suggest an adequate and good model fit), and standardized root mean square residual (SRMR; Jöreskog & Sörbom, 1993; values of .05 are taken as good fit, .05-.07 as moderate fit). Additionally, the goodness of the two-dimensional model was assessed by comparing it in terms of Bayesian information criterion (BIC) and Akaike information criterion (AIC) comparative indices with two competing models (i.e., the corresponding one-dimensional structure and the original five-factor structure). Lower values of AIC and BIC indicate a better fit and the model with the lowest AIC and BIC is the best fitting model. Additionally, Cronbach's alphas were computed. Internal reliability > .70 was considered acceptable (Cronbach & Meehl, 1955). Furthermore, to test measurement invariance across gender, four multigroup confirmatory factor analyses (MGCFA) were conducted using Mplus 7. Similarly, four MCCFA were performed to test measurement invariance across specialties. This study utilized ML estimation with robust standard error to ascertain statistical fit. To determine statistical differences between models, the χ^2 of the baseline model was subtracted from the χ^2 value of the nested comparison model, computing the Satorra-Bentler scaled χ^2 (Satorra & Bentler, 2010). Moreover, as χ^2 values are influenced by sample size, to evaluate the goodness of the nested models, the difference in CFIs (Bentler, 1990) between the freely estimated model and the constrained model was used. In fact, it is considered a robust statistic for testing the between-group invariance of CFA models, indicating invariance when this value is .01 or less

(Cheung & Rensvold, 2002). Furthermore, fit was examined using RMSEA and CFI indices. Moreover, to examine the nomological validity of the Italian version of the HECS, the correlations (Pearsons' *r*) between the two dimensions of the Italian version of HECS and other constructs that literature highlighted to be associated with HECS were analyzed in the total sample (N = 315). In particular, the other constructs considered in association with ethical climate were well-being, burnout, social support, and moral distress (Abou Hashish, 2017; Atabay, Çangarli, & Penbek, 2015; McAndrew, Schiffman, & Leske, 2019; Pauly et al., 2009). Moreover, independent sample *t*-test analyses were performed to detect differences in HECS subscale scores across gender and specialties, also considering Cohen's *d* values. Internal reliability, nomological validity, and *t*-test analyses were carried out using SPSS 23 (George & Mallery, 2016).

RESULTS

Exploratory Factor Analysis

Skewness and kurtosis indices showed a normal distribution of the items. An examination of the Mahalanobis distance scores indicated the presence of one multivariate outlier which was removed. Bartlett's test of sphericity was significant ($p < .001$) and the Kaiser-Meyer-Olkin measure was very satisfactory (.92), therefore making the factor analysis possible. A first EFA (n = 158) was run with the responses for all the HECS items. Then, to determine the number of factors to retain from EFA, a parallel analysis was performed using Mplus 7. We extracted the number of factors for which the real eigenvalue was higher than the parallel one (mean), namely two factors. Items 1, 2, 4, 6, 9, 10, 13, 16, 17, 18, and 23 were eliminated since they did not meet all the required criteria. This led to select, from the original set, 15 items having a factor loading higher than .40 on only one factor, a factor loading on the second factor lower than .30, and a difference between the primary and alternative factor loading(s) higher than .20 (Howard, 2016). Next, to detect a factor solution from the 15 items, a second EFA with an oblique Geomin rotation was carried out on these items. Using the same criteria described above, a two-factor solution followed by a Promax rotation was extracted and 15 items were selected. The indexes of the EFA for the two-factor solution met the criteria for a good fit (χ^2 = 135.66, df =76, p =.00; CFI = .95; TLI = .94; RMSEA = .07; SRMR = .04). To further support the two-factor solution, a principal component analysis was conducted using SPSS in conjunction with a scree plot of eigenvalues. An examination of the scree plot of eigenvalues and total variance explained by retained factors confirmed that the total number of factors to retain were two.

The first factor, labelled *ethical vision of patient care*, included nine items concerning a general attitude to carry on the job characterized by mutual respect, collaboration, and a sharing mission. The second factor, labelled *managerial support*, included six items regarding the perception of support that healthcare professionals receive from their managers in dealing with ethical issues. Therefore, the chosen solution resulted composed by 15 items (see Table 2): ethical vision of patient care (nine items; α = .87) and managerial support (six items; α = .95). The factor loading for the 15-item solution ranges between |.71| and |.96| for managerial support, and between |.49| and |.83| for ethical vision of patient care, proposing that all items were substantially contributing in respective factors (Hair, Hult, Ringle, & Sarstedt, 2016). The average interitem correlation was .80 and McDonald's omega of the 15 items was .98 (.97 for managerial support, and .98 for ethical vision of patient care), and the internal consistency of the total scale was .93. Furthermore, the item-total correlation was higher than .30 (i.e., .58) and all items had a communality higher than .20 (i.e., all items ranged from .28 to .86). The same structure was confirmed by conducting the same EFA analysis using SPSS 23. The factor solution absorbed 62.13% of the total variance (ethical vision of patient care explained 49.91% of the variance and managerial support explained 12.22%).

TABLE 2.
EFA (n = 158): Factor loadings and communalities of the selected 14 items of the HECS, explained variance and reliability of the factors, and interfactor correlations

Items	Factor		
	Ethical vision of patient care	Managerial support	h^2
3. Quando non sono in grado di decidere che cosa è giusto o sbagliato sulla cura di un paziente, il mio superiore mi aiuta [When I'm unable to decide what's right or wrong in a patient care situation, my manager helps me]	–.01	**.88**	.81
5. I professionisti sanitari si fidano gli uni degli altri [Nurses and physicians trust one another]	**.63**	.04	.48
7. Il mio superiore mi supporta nelle decisioni riguardanti la cura dei pazienti [My manager supports me in my decisions about patient care]	.00	**.92**	.85
8. I professionisti sanitari condividono chiaramente la mission dell'ospedaled [A clear sense of the hospital's mission is shared with nurses]	**.69**	.13	.66
11. Per risolvere i problemi legati alla cura dei pazienti i professionisti sanitari si basano su dati pertinenti [Nurses use the information necessary to solve a patient care issue/problem]	**.53**	.04	.44
12. Il mio superiore mi ascolta quando parlo di problemi legati alla cura dei pazienti [My manager listens to me talk about patient care issues/problems]	.03	**.90**	.86
14. Partecipo nelle decisioni di trattamento dei miei pazienti [I participate in treatment decisions for my patients]	**.49**	.03	.28
15. Il mio superiore è una persona di cui mi posso fidare [My manager is someone I can trust]	.10	**.81**	.81
19. Le volontà dei pazienti sono rispettate [Patients' wishes are respected]	**.55**	.01	.47
20. Quando i miei colleghi non sono in grado di decidere cosa è giusto o sbagliato in una particolare situazione di cura di un paziente, ho notato che il mio responsabile li aiuta [When my peers are unable to decide what's right or wrong in a patient care situation, I have observed that my manager helps them]	.17	**.72**	.76
21. Nella cura dei pazienti, ci si pone delle domande e si ricercano soluzioni creative [There is a sense of questioning, learning, and seeking creative responses to patient care problems]	**.53**	.10	.42
22. I professionisti sanitari si rispettano reciprocamente [Nurses and physicians respect each other]	**.84**	–.09	.72
24. Il mio capo è una persona che rispetto [My manager is someone I respect]	.12	**.69**	.68
25. Nel mio reparto posso svolgere il mio lavoro nel modo in cui penso debba essere fatto [I am able to practice nursing on my unit as I believe it should be practiced]	**.67**	–.04	.52
26. Nel mio ospedale, tutti i professionisti sanitari sono supportati e rispettati [Nurses are supported and respected in this hospital]	**.72**	–.04	.56
Explained variance (%)	49.91	12.22	
McDonald's omega	.97	.98	
Interfactor correlations			
1. Manager		.58	

Note. h^2 = item communality. Factor loadings > \|.40\| are in bold.

Confirmatory Factor Analysis

As preliminary analyses, no univariate outliers were identified. We normalized the HECS total score distribution (equal to the sum of the score of the 15 items selected utilizing the EFA) and checked for multivariate outliers. None was found. Multinormality of the data was considered acceptable.

The two-factor model selected in the EFA and tested on the CFA sample (n = 157) with ML method meet the criteria for a good fit (χ^2 = 138.97, df = 89; CFI = .94; TLI = .93; RMSEA = .06, 95% CI = [.04, .08], probability RMSEA ≤ .05 = .16; SRMR = .05; AIC = 5193.16; BIC = 5330.41; see Figure 1 and Table 3). Then, we estimated the goodness of fit of two alternative models obtained by collapsing the two factors into one (i.e., managerial-ethical vision of patient care) and by considering the original composition of factors (i.e., peers, patients, manager, hospital, physicians' subscales). The two-factor model showed better fit indices than all alternative nested models. Cronbach's alphas were .88 for the total scale. Moreover, the Cronbach's alpha coefficients were between .85 (CFA group) and .87 (EFA group) for ethical vision of patient care, whereas the internal consistency of managerial support subscale ranged between .87 (CFA group) and .95 (EFA group).

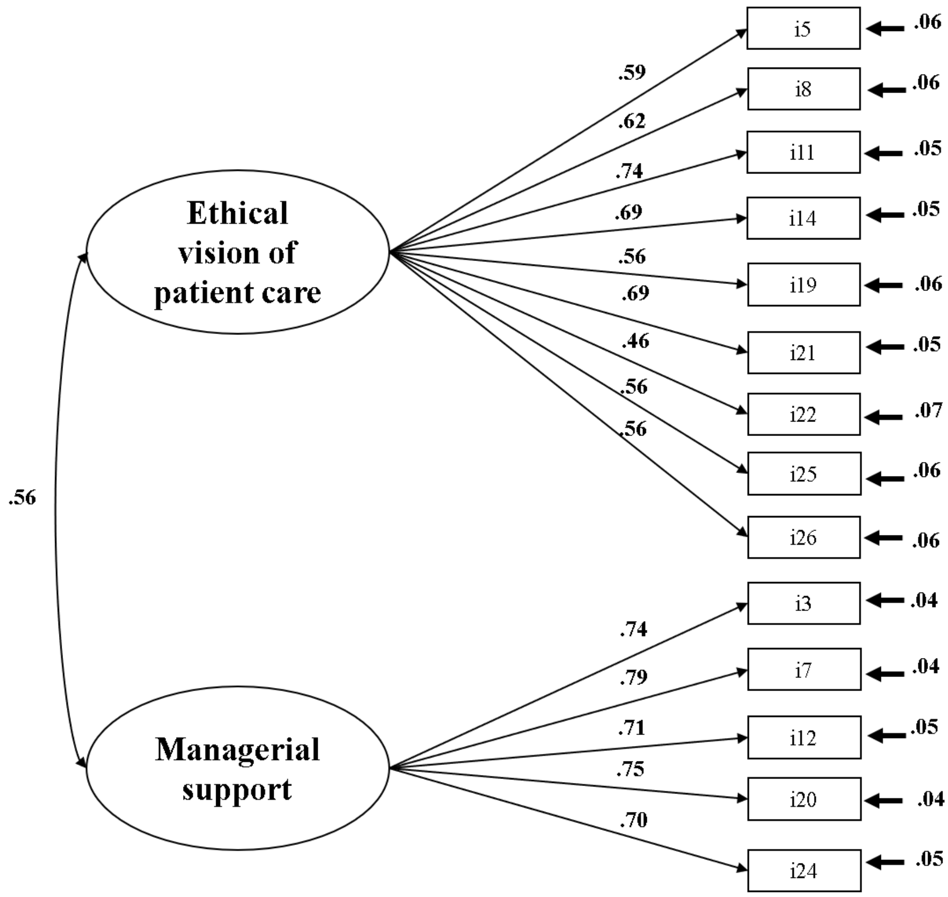

FIGURE 1
Completely standardized coefficients of the two-factor model of the Italian version of the HECS.
Note. p < .001 for all coefficients.

TABLE 3
Fit indices for structural models (n = 157)

Model	χ^2	df	CFI	TLI	RMSEA	RMSEA [90% CI]	SRMR	AIC	BIC
Two-factor	138.97	89	.94	.93	.06	[.04, .08]	.05	5193.16	5330.41
One-factor	311.78	90	.72	.67	.13	[.11, .15]	.10	5363.98	5498.24
Five-factor	562.44	289	.82	.80	.08	[.07, .09]	.07	9085.21	9347.77
Cut-off			> .90	> .90	< .08		< .08		

Note. χ^2= chi-square test of model fit; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean squared residual; AIC = Akaike information criterion; BIC = Bayesian information criterion.

Measurement Invariance Across Gender

First, two CFAs were performed for men (χ^2 = 121.74; CFI = .95; RMSEA = .06), and women (χ^2 = 169.54; CFI = .94; RMSEA = .06), separately. Next, we tested for measurement invariance across gender. To this end, four MGCFA were run. The first was the configural model, which evaluates whether the number of factors and pattern of indicator-factor loadings is equivalent across groups (Brown, 2006). Results for this CFA indicated an adequate model fit (see Table 4), suggesting that the two-factor ethical climate model and the factor pattern loadings were equivalent across gender. The second CFA evaluated the equality of factor loadings. This procedure "entails specification of equality constraints for all freely estimated factor loadings that are similarly specified in both baseline models" (Byrne, 2006, p. 238). To this end, factor loadings were constrained to be equal across the comparison groups. The difference in the χ^2 statistic for the configural and metric factorial invariance models was not statistically significant ($\Delta\chi^2$ = 5.08; Δdf = 13) and the difference in CFIs was below .01 (ΔCFI = .004). The statistically nonsignificant result indicates that the constraints tested were equivalent across gender. Then, the scalar invariance (or equivalence of item intercepts) was tested by constraining the item intercepts to be equivalent in the two groups, in addition to retaining the constraints applied in the metric invariance model. The difference in the χ^2 statistic for the metric factorial invariance and the scalar invariance models was not statistically significant ($\Delta\chi^2$ = 23.30; Δdf = 15) and the difference in CFIs was below .01 (ΔCFI = .004). The statistically nonsignificant result shows that "mean differences in the latent construct capture all mean differences in the shared variance of the items" (Putnick & Bornstein, 2016, p. 5). Therefore, since scalar invariance was supported, the residual variance (or equivalence of item residuals of metric and scalar invariant items) was tested by constraining the item residuals to be equivalent in the two groups, in addition to retaining the constraints applied in the scalar invariance model. The difference in the χ^2 statistic for the scalar invariance and the residual invariance models was not statistically significant ($\Delta\chi^2$ = 22.77; Δdf = 15) and the difference in CFIs was below .01 (ΔCFI = .004). This indicates that "the sum of specific variance (variance of the item that is not shared with the factor) and error variance (measurement error) is similar across groups" (Putnick & Bornstein, 2016, p. 6). Overall, these results indicated that the factor structure of the HECS concept was invariant across gender.

TABLE 4
MGCFA results for measurement invariance across gender

Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	CFI	RMSEA	RMSEA [90% CI]	ΔCFI
Model men	121.76	89	-	-	-	.953	.06	[.03, .09]	-
Model women	169.54	89	-	-	-	.936	.06	[.05, .08]	-
Configural invariance	292.06	178	-	-	-	.942	.06	[.05, .08]	-
Metric invariance	297.14	191	5.08	13	.83	.946	.06	[.05, .07]	.004
Scalar invariance	320.43	206	23.30	15	.08	.942	.06	[.05, .07]	.004
Residual invariance	343.20	221	22.77	15	.09	.938	.06	[.05, .08]	.004

Note. *df* = degree of freedom; $\Delta\chi^2$ = difference in chi-square between models; RMSEA= root mean square error of approximation; CI = confidence interval; CFI = comparative fit index; ΔCFI = difference in CFI between models.

Measurement Invariance Across Specialties

First, two CFAs were conducted for the neurorehabilitation medicine group (χ^2= 148.94; CFI = .96; RMSEA = .05), and the palliative care group (χ^2= 155.71; CFI = .93; RMSEA = .07), separately. Next, we tested for measurement invariance across specialties. To this end, four MGCFA were run. The configural model indicated an adequate model fit (see Table 5), suggesting that the two-factor ethical climate model and the factor pattern loadings were equivalent across specialties. The difference in the χ^2 statistic for the metric factorial invariance and the scalar invariance models was statistically significant ($\Delta\chi^2$ = 27.15; Δdf = 15). Then, since the full scalar invariance was rejected, partial scalar invariance could still be explored (Byrne, Shavelson, & Muthén, 1989; Millsap & Meredith, 2007), leaving at least two fixed factor loadings plus intercepts in one factor as the HECS construct was composed by two factors. To this end, the intercepts non-invariance was analyzed by relaxing constraints on the intercepts one by one based on modification indices (Byrne et al., 1989; Millsap & Meredith, 2007). One item intercept (Item 21) was relaxed to achieve partial scalar invariance. Indeed, the difference in the χ^2 statistic for the metric factorial invariance and the partial scalar invariance (where the intercept of Item 21 was freely estimated) models was not statistically significant ($\Delta\chi^2$ = 22.52; Δdf = 14), and the difference in CFIs was below .01 (ΔCFI = .004). Therefore, since partial scalar invariance was supported, the partial residual variance was tested by constraining all item residuals except for that of Item 21 to be equivalent in the two groups, in addition to retaining the constraints applied in the partial scalar invariance model. The difference in the χ^2 statistic for the partial scalar invariance and the partial residual invariance models was not statistically significant ($\Delta\chi^2$ = 13.30; Δdf = 14) and the difference in CFIs was below .01 (ΔCFI = .000). This means that a change in the latent variable produces the same effect on the score of the observed variables across specialties (except for Item 21) and that the differences in all item scores are uniquely attributable to the latent variable. Moreover, except for Item 21, it is possible to compare the observed scores at the scale means level (i.e., sums of the item scores) as well as their variances and covariances, making it reasonable to make comparisons among means at the latent level across specialties. Overall, since at least partial scalar invariance was reached, HECS scores were comparable across specialties (i.e., neurorehabilitation medicine and palliative care; Byrne et al., 1989; Milfont & Fischer, 2010; Sommovigo, Setti, O’Shea, & Argentero, 2018).

TABLE 5
MGCFA results for measurement invariance across specialties

Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	CFI	RMSEA	[90% CI] RMSEA	ΔCFI
Model neurorehab.	148.94	89	-	-	-	.959	.05	[.04, .07]	-
Model palliative care	155.71	89	-	-	-	.930	.07	[.05, .08]	-
Configural invariance	304.10	178	-	-	-	.934	.06	[.05, .08]	-
Metric invariance	313.46	191	9.36	13	.56	.936	.06	[.05, .08]	.002
Scalar invariance	340.62	206	27.15	15	.03	.930	.06	[.05, .08]	.006
Partial scalar invariance[a]	335.98	205	22.52	14	.07	.932	.06	[.05, .08]	.004
Partial residual invariance	349.28	219	13.30	14	.07	.932	.06	[.05, .07]	.000

Note. Model neurorehab. = model neurorehabilitation medicine; *df* = degree of freedom; $\Delta\chi^2$ = difference in chi-square between models; RMSEA = root mean square error of approximation; CI = confidence interval; CFI = comparative fit index; ΔCFI = difference in CFI between models.
[a]Freely estimated the intercept of Item 21.

Nomological Validity

Results of correlations between the two dimensions of the Italian version of the HECS, social support, well-being, burnout, and moral distress dimensions are shown in Table 6. Ethical vision of patient care was positively and significantly associated with perceptions of social support (r = .42, p < .01) and well-being (r = .23, p < .01), whereas this dimension was negatively related to burnout symptoms (r = –.16, p < .01), deceptive communication (r = –.19, p < .01), misconduct (r = –.19, p < .01), poor team work (r = –.36, p < .01), and futile care (r = –.09, p < .01), although this latter correlation was not significant. Similarly, managerial support dimension showed positive and significant associations with perceptions of social support (r = .54, p < .01) and well-being (r = .17, p < .01), while it was negatively and significantly related to burnout symptoms (r = –.15, p < .01), deceptive communication (r = –.15, p < .01), misconduct (r = –.17, p < .01), poor team work (r = –.24, p < .01), and futile care (r = –.03, p < .01), even though this latter correlation was not significant. Therefore, overall, the two factors showed a similar pattern of results, as expected.

Further analyses were conducted to detect whether there were differences across gender and specialties on the two dimensions of the HECS. No significant differences were found for gender (see Table 7). Conversely, there were significant differences in the scores of both dimensions for healthcare professionals employed in neurorehabilitation medicine specialty (M = 3.45, SD = 0.73; M = 3.66, SD = 0.57, for ethical vision of patient care and managerial support, respectively) and those who were working in palliative care specialty (M = 4.01, SD = 0.90; M = 4.25, SD = 0.72, for ethical vision of patient care and managerial support, respectively), so that the latter reported higher levels of both ethical vision of patient care and managerial support than the first (see Table 7). Then, to detect whether there were differences across professional roles on the two dimensions of the HECS, an analysis of variance (ANOVA) was conducted (see Table 8). Bonferroni post-hoc comparisons showed that physicians and psychologists (M = 3.72, SD = 0.66) perceived the ethical vision of patient care as significantly more positive than physiotherapists and other therapists (M = 3.37, SD = 0.65). Additionally, physicians and psychologists (M = 4.35, SD = 0.70) reported to receive more managerial support than physiotherapists and other therapists (M = 3.76, SD = 1.07). No other statistically significant differences were found among professional groups.

TABLE 6
Descriptive statistics and intercorrelations in total sample (N = 315)

	M	*SD*	Skewness	Kurtosis	1	2	3	4	5	6	7	8	9	10
1. Ethical vision of patient care	3.51	0.70	–.23	–.52	**.86**									
2. Managerial support	4.08	0.86	–1.13	.96	.54**	**.92**								
3. Social support	3.52	0.65	–.17	–.14	.42**	.54**	**.74**							
4. Well-being	3.37	0.66	–.11	–.35	.23**	.17**	.49**	**.80**						
5. Burnout	2.87	0.86	.89	1.61	–.16**	–.15**	–.15**	–.13*	**.85**					
6. Futile care	2.35	2.26	1.07	.48	–.09	–.03	–.04	–.03	.21**	**.76**				
7. Deceptive communication	1.73	1.73	1.28	1.52	–.19**	–.15**	–.12*	–.09	.09	.60**	**.55**			
8. Misconduct	1.24	1.34	1.35	1.68	–.19**	–.17**	–.17**	–.14*	.17**	.67**	.61**	**.63**		
9. Poor teamwork	2.78	2.48	.90	.21	–.36**	–.24**	–.22**	–.16**	.09	.45**	.64**	.57**	**.83**	
10. Gender	-	-	-	-	–.05	–.02	–.01	–.07	–.07	–.02	.10	.01	.14*	-
11. Specialty	-	-	-	-	.14*	.13*	.09	–.06	–.13*	–.17**	.37**	.11*	.16**	.04

Note. Boldfaced numbers on the diagonal represent Cronbach's alpha; *M* = means; *SD* = standard deviations. $^{*}p$ < .05. $^{**}p$ < .01.

TABLE 7
Mean, standard deviations, *t*-values of the dimension of HECs across gender and medical specialty

	Males (n = 103)		Females (n = 205)		*t*	*p*	95% CI		Cohen's *d*
	M	*SD*	*M*	*SD*			LL	UL	
Ethical vision of patient care	3.57	0.68	4.49	0.70	.97	.33	–.09	.24	.12
Managerial support	4.10	0.83	4.07	0.87	.35	.73	-.16	.23	.04
	Neurorehabilitation (n = 217)		Palliative care (n = 91)		*t*	*p*	95% CI		Cohen's *d*
	M	*SD*	*M*	*SD*			LL	UL	
Ethical vision of patient care	3.45	0.73	3.66	0.57	–2.37	.02	–.35	–.06	.31
Managerial support	4.01	0.90	4.25	0.72	–2.31	.01	–.44	–.07	.30

Note. CI = confidence interval; LL = lower limit; UL = upper limit.

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TABLE 8
ANOVA between groups for different kinds of professional groups regarding ethical vision of patient care and managerial support dimensions

Dimension	Occupational group	*M*	*SD*	*F*	95% CI	
					LL	UL
Ethical vision of patient care	Physicians	3.72	0.66	2.86*	3.55	3.88
	Nurses	3.50	0.70		3.38	3.62
	Therapists	3.37	0.65		3.21	3.53
	Social health workers	3.50	0.79		3.27	3.73
Managerial support	Physicians	4.35	0.70	5.53**	4.17	4.52
	Nurses	4.09	0.80		3.94	4.23
	Therapists	3.76	1.07		3.50	4.02
	Social health workers	4.13	0.72		3.92	4.33

Note. CI = confidence interval; LL = lower limit; UL = upper limit. $^{*}p < .05$; $^{**}p < .01$.

DISCUSSION

The purpose of this study was to assess, through psychometric evaluations, a preliminary version of the HECS (Olson, 1998) in the Italian language and to investigate its dimensionality in a sample of healthcare professionals employed in neurorehabilitation medicine and palliative care specialties. Based on the results from EFA, the scale was reduced from 26 to 15 items. The number of items constituting the Italian validation is in line with the English 14-item version of the instrument proposed by Hamric et al. (2012). Although previous versions in other languages maintained the five-factor structure like the original (Bahcecik, & Oztürk, 2003; Charalambous et al., 2018; Claeys et al., 2013; Hwang & Park, 2014; Khalesi et al., 2014; Silén et al., 2011; Suhonen et al., 2015), our findings revealed a different structure. Indeed, we found that a two-factor model provided the best fit for the data, indicating the presence of two independent dimensions labelled (1) ethical vision of patient care and (2) managerial support. The first dimension is a new factor that resulted from the aggregation of nine items which originally belonged to patients, physicians, and hospital subscales identified by Olson (1998). This factor underlines the presence — or the absence — of mutual respect and collaboration among colleagues, in addition to the sharing of a mission in terms of the provision of patient care which is given according to quality standards and in compliance with ethical values and practices. The second dimension, called managerial support, included six items regarding the relationships that healthcare professionals may have in their workplace with managers who may — or not — provide adequate support in dealing with ethical issues. It should be noted that this factor remained unchanged from that included in the original version. This is not surprising, considering that in the Persian version of HECS, the subscale manager scored the highest scores (Khalesi et al., 2014), indicating the relevance of this dimension. Furthermore, these results underline the pivotal role of hospital managers in maintaining a positive ethical climate. Additionally, a possible explanation for the different factor structure we found might be attributable to dissimilarities existing in the healthcare system between Italy and North America (Hennes, Kieselbach, Klädtke, Wirsching, & Zucchinali, 2015; Winter, 2016). On the one hand, despite the presence of different private hospitals, the Italian healthcare system is a public-based model in which health insurances are not a prerequisite to have access to care because healthcare represents an inalienable right that, as such, is guaranteed to each citizen. On the other hand, the American healthcare system is largely privatized, and healthcare expenses depend on citizens' private insurances. These differences may impact on both healthcare professionals' daily work practices and hospital policies, invalidating some items of the original subscales hospital and patient. Moreover, the original subscale peers — which was at the beginning developed to investigate relationships among nurse colleagues — was completely deleted probably because it was unsuitable to our sample since the questionnaire was administrated not only to nurses, but also to other healthcare providers (i.e., physicians, physiotherapists, social operators).

The correlation between the two dimensions resulted positive both in the exploratory and in the confirmatory factor analysis. Such positive correlation is in line with what expected based on the results from other validation studies (Khalesi et al.; 2014; Olson 1998; Suhonen et al., 2015). The correlations in the entire sample between the two dimensions of HECS and well-being, social support, burnout, and moral distress dimensions are in the hypothesized directions as a support to the concurrent validity. Both dimensions are positively correlated with well-being and social support, confirming the fact that a positive ethical climate is positively associated with well-being (Koskenvuori et al., 2019) and perceptions of social support (Abou Hashish, 2017; Koskenvuori et al., 2019; Silén et al., 2012). Additionally, both ethical vision of patients care, and managerial support are negatively associated with moral distress dimensions and burnout in accordance with findings from previous studies (Dzeng & Curtis 2018; Koskenvuori et al., 2019; Pauly et al., 2009; Silén et al., 2011). Overall, these results highlight the importance for healthcare professionals to perceive a good ethical climate to maintain their well-being and counterattack distress (Koskenvuori et al., 2019; Pauly et al., 2009; Schwatka et al., 2016). Moreover, the current research did not show any significant differences between women and men in the perception of HECS, differently from what predicted based on previous studies (Luthar DiBattista, & Gautschi, 1997; Pergert et al., 2019). A possible explanation might be related to our sample that was not well balanced with respect to gender. Conversely, significant differences in HECS scores were revealed for specialty, so that healthcare professionals employed in palliative care specialty reported higher levels of both ethical vision of patient care and managerial support than those working in neurorehabilitation medicine specialty. These results are in accordance with the study conducted in Turkey, showing differences across different care settings (Bahcecik & Oztürk, 2003). Additionally, our results indicated that physicians and psychologists reported higher levels of both ethical vision of patient care and managerial support than physiotherapists and other therapists, whereas no other statistically significant differences were detected among professional groups. These findings may partly be explained by the fact that physicians and psychologists have more decision-making authority than other healthcare professionals, so that they can more freely behave in line with their ethical values in the provision of care. Moreover, having more responsibilities, physicians have usually many procedures and occasions for discussing tough clinical cases (Pergert et al., 2019), therefore they may perceive to be more supported by the management in dealing with demanding ethical issues. In literature it has been argued that these discrepancies in the autonomy and responsibility linked to the various professional roles may explain why physicians reported a better perception of ethical climate than nurses (Bartholdson et al., 2016; Hamric & Blackhall, 2007; Pergert et al., 2018; Pergert et al., 2019) and other healthcare professionals, too (Whitehead et al., 2014). In the present study, this difference was statistically significant only between physicians and psychologists in respect to therapists.

Our analyses confirmed item adequacy and a good internal consistency of the subscales. Looking at the reliability of the two dimensions, they turned out to be satisfactory, in accordance with what previously found — e.g., α = .81 (Olson, 1998); α = .94 (Silén et al., 2011); α = .95 (Hwang & Park, 2014); α = .73 (Khalesi et al., 2014); α = .84 (Charalambous et al., 2018). The reliability for the total scale ranged between .88 (CFA group) and .93 (EFA group), similarly to the reliabilities found by previous investigations — e.g., α = .91 (Olson, 1998); α = .89 (Bahcecik & Oztürk, 2003); α = .92 (Silén et al., 2011); α = .95 (Hwang & Park, 2014); α = .94 (Khalesi et al., 2014); α = .90 (Suhonen et al., 2015).

Overall, our results revealed that the Italian version of HECS represents a user-friendly instrument to measure healthcare professionals' perceptions of ethical climate within their work setting.

Limitations and Future Perspectives for Research

The contributions of this study need to be interpreted in the light of its limitations. Although our sample was constituted by healthcare professionals from six hospitals, we did not collect information about participants' hospital location in order to further guarantee the anonymity and confidentiality of subjects' responses. This was aimed to diminish respondents' evaluation apprehension and social desirability concerns (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). As a result, data were analyzed in aggregated form and our results were based on a single sample which was split through a random sampling technique into two small subsamples (i.e., EFA group and CFA group). The total sample was mainly composed of female nurses. However, gender and professional status distribution in our sample is representative of these employee cohorts within the Italian healthcare context (World Health Organization, 2018). Therefore, future research should replicate the findings of this study using samples that are more balanced in terms of gender and professional roles. Moreover, even if we could demonstrate that the factor structure of the HECS concept was invariant across gender, the results supported full metric invariance, but only partial scalar invariance across specialties, given the existence of one noninvariant item intercept. This was from the ethical vision of patient care factor and referred to the questioning and looking for creative solutions to patient care problems, meaning that this affirmation had a different connotation for professionals working in medical rehabilitation in comparison with those working in palliative care. This difference might be explained by the different types of patients treated and specific clinical practices allowed in these two critical specialties. Said differently, professionals might interpret with different nuances the content of this item in accordance with the kind of needs and demands posed by the patients. Thus, questioning and looking for creative solutions may elicit different meanings in a palliative care professional adopting a more holistic approach when compared with a colleague who is mainly focused on rehabilitative outcomes. Future studies should investigate more in depth the connotations attributed to this item by professionals working in different critical specialties. Additionally, we could not test measurement invariance across different professional roles because of our relatively small sample size. Therefore, future studies using a larger population will make it possible to have enough participants to examine the invariance of the HECS factor structure for participants differing in professional roles. In doing so, also the stability of the model will be corroborated.

Additionally, standardization investigations could identify normative scores to cluster individual profiles. Furthermore, the self-report nature of our study and the cross-sectional design of our research raise issues of common method bias. Although common method bias is seldom severe enough to compromise the validity of the results (Spector, 2006), we followed Podsakoff and colleagues' (2003) recommendations regarding questionnaire design to decrease this bias. Future research should collect information from other sources (e.g., interviews with professionals) and adopt a longitudinal design to verify test-retest reliability of the Italian version of HECS.

A further limitation of this research was the lack of convergent and discriminant validity tests which is justifiable in the light of the absence of other Italian validated scales analyzing similar constructs and the avoidance of excessive survey length to prevent low response rates. Despite this limitation, nomological validity was confirmed by showing that the correlations of the measure with other relevant variables (i.e., well-being, social support, burnout, and moral distress dimensions) were in the hypothesized direction. Only the futile care dimension of moral distress did not reach statistical significance. Moreover, the reliability of the deceptive communication subscale was poor. As the moral distress scale was validated on a sample of healthcare professionals working in intensive care units (Lamiani et al., 2017), future investigations should further test the reliability of this scale by evaluating more deeply the content validity of its items within neurorehabilitation medicine and palliative care specialties.

Another possible limitation was that we decided to re-word HECS items by using the more general term “healthcare professionals” instead of administrating parallel versions to each of the specific professional groups. Therefore, this might not have activated one’s own professional group identity, making it more difficult for healthcare providers to think about peculiar professional group-relevant events. As a result, this might have hindered the appraisal of such events, limiting the emergence of specific differences among professional roles. Additionally, this might have limited the opportunity to investigate relationships among healthcare professionals with different professional roles, making the original subscale peers unsuitable to our multi-professional sample. However, this choice was made in accordance with previous studies which made similar minor revisions to make the original scale suitable for multiple professions (e.g., Bartholdson et al., 2016; de Boer et al., 2016; Silén et al., 2015; Ulrich et al., 2007), in addition to being approved by the author of the original scale. Furthermore, the use of a label which related to a more inclusive ingroup (i.e., the healthcare providers themselves) might have facilitated the emergence of common perceptions about hospital ethical climate among different professional groups. This is in line with the theoretical assumption that the ethical climate is a form of organizational climate that embraces shared perceptions about healthcare providers working within the same units. Additionally, from a practical point of view, this choice allows to provide practitioners with an instrument having a multi-professional applicability; thereby, facilitating the design of interventions addressed at professionals from different disciplines, whose involvement is crucial to cultivate a positive ethical climate.

A further limitation of this study was that we shortened the HECS without using an item response theory (IRT)-based methodology (i.e., a modern psychometric methodology which evaluates the relationships between a participant’s response on an item and its corresponding level of the latent variable; Edelen & Reeve, 2007). In addition to detecting the most informative items among an item set, IRT techniques enable to successfully shorten scales by selecting items that cover all levels of a latent concept, without compromising assessment precision and making the shortened versions easily compatible with the original questionnaires (e.g., Reise, 2009). Despite IRT advantages, our item selection was based on EFA indices rather than IRT because we were interested in the characteristics of the overall scale (i.e., IRT does not analyze a scale on the set of item level) and our relatively small sample size limited the possibility to reach sufficient accuracy of the estimates that may be obtained from the use of IRT. Future research efforts should strongly consider combining classical test theory (CTT) and IRT techniques to confirm on a larger population whether the best items with which to represent HECS were those that we selected.

Finally, the current validation of the HECS is restricted to neurorehabilitation medicine and palliative care specialties which are high-risk contexts for ethical dilemmas due to the complexity of patient care. Although these specialties share numerous relevant characteristics with other ones, future investigations should replicate these results in other specialties to confirm the generalizability of the Italian version of HECS.

Conclusion

Nowadays, the ethical climate plays a pivotal role for healthcare professionals' well-being due to the increasing ethical issues arising from the ever growing complexity of patient care. The results presented in this paper are promising. Indeed, the preliminary Italian version of the HECS provides — to the best of our knowledge — for the first time in this country the opportunity to utilize a valid and reliable scale to evaluate hospital medical professionals' perceptions of the ethical climate within their workplaces which can be used by both researchers and practitioners. This is crucial to formulate preventive measures and tailored interventions that help healthcare professionals deal with ethical dilemmas.

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