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Nurses' engagement levels in an Italian public healthcare trust: findings from a cross-sectional study

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ABSTRACT. Introduction. ***Assessing nursing engagement and designing strategies to improve engagement according to the specific needs of the staff have been considered essential to avoid losing nurses, mitigate future shortages and improve patients' outcomes.***
Objectives. ***To explore engagement levels of staff nurses working in an Italian public health-care trust comprising a general hospital, a rehabilitation hospital, district centers and mental health services, and their association with demographic and professional variables.***
Methods. ***The Health Care Advisory Board's Nurse Engagement Survey (NES) was used to measure 547 nurses' engagement levels.***
Results. ***Out of 499 nurses, 8% were engaged, 40% were content, 39% were ambivalent and 13% were disengaged. According to the multiple linear regression analysis which has showed R 27.3% (R^2 7.5%) of the variance in the total score of NES, being older than 45 years was associated with an increased likelihood of being work-engaged (β 0.121, [Confidence of Interval] CI 95% 0.066 to 0.457); differently, having the intention to leave the unit in the next three months (β -0.168, CI 95% -0.552 to -0.179), and working at the hospital levels as compared to other settings (e.g., Mental Health Service, β -0.150, CI 95% -0.140 to -0.038) were negatively associated with the WE.***
Conclusions. ***Nursing leaders should prioritize strategies to increase Registered Nurses' engagement. Specific initiatives devoted to younger nurses and to those intending to leave the unit, as well as to those working at the hospital level, are needed given these groups have a higher likelihood to be not or poorly engaged.***

Key words: *work engagement, clinical nurses, public health-care trust, Italy.*

RIASSUNTO. ***ENGAGEMENT*** **DEGLI INFERMIERI IN UN'AZIENDA SANITARIA PUBBLICA ITALIANA: RISULTATI DI UNO STUDIO DESCRITTIVO.** ***Introduzione.*** **La valutazione dell'*engagement* degli infermieri e la progettazione di strategie per migliorarlo in base al fabbisogno specifico del personale, sono considerati elementi essenziali per trattenere gli infermieri nella pratica clinica, mitigare la carenza infermieristica e migliorare i risultati raggiunti dai pazienti.**
Obiettivi. La finalità dello studio era valutare il livello di *engagement* degli infermieri che lavorano in una azienda sanitaria pubblica italiana articolata in: ospedale generale, ospedale riabilitativo, centri distrettuali e servizi di salute mentale. La finalità secondaria era valutare l'associazione dell'*engagement* con variabili demografiche e professionali.
Metodi. **È stata utilizzata la scala Nurse Engagement Survey (NES) comunemente utilizzata nel contesto statunitense;**

Introduction

Modern days service organizations require employees who are psychologically connected to or engaged in their work (1). Schaufeli et al. (2) have defined work engagement (WE) as a positive, fulfilling work-related state of mind characterized by strength, dedication and absorption; the WE has been also considered the positive opposite of burnout, and it is characterized by energy, involvement and professional efficacy (3).

Antecedents of WE have been placed at two main levels: a) at the institutional – where structural empowerment, the value of consistency between the management and employees, the quality of technological resources and the organizational support offered, have been documented as influencing it; and b) at the unit level: in which the nursing practice environment, the reward systems, the unit environment, the social context, workloads, and the perception of control over the practice, have all been documented as predictors (4, 5, 6). Moreover, at the unit level, the chief nurses' leadership has been documented as an engagement mediator (6).

As a consequence, the WE has been documented as affecting health-care performance, the quality of care delivered, as well as some professional and personal outcomes (5), increasing the intention to leave and turn-over ratios; therefore, WE may influence costs and health-care workers' commitment and flexibility towards the working environment challenges (7, 8). Moreover, when nurses are work-engaged, higher levels of personal initiative, job satisfaction and commitment, and lower burnout rates have been documented (6, 9, 10).

Nurses' (RNs) engagement has become crucial in recent years (6): RNs have been documented as having low levels of WE, scoring lower than other hospital health-care professionals, including licensed practical nurses and physicians (10, 11). Therefore, measuring the WE and defining strategies to improve its levels have been recognized as a priority among nurse leaders (5, 12).

Several studies have been conducted to date with the intent of measuring the WE among RNs (5) and, to the best of our knowledge, that performed by The Advisory Board's Nursing Executive Center (12) in the US is recognized as the largest, including more than 343,000 employees working in 575 health-care organizations. Among

sono stati coinvolti tutti gli infermieri (=547) che lavoravano nell'azienda sanitaria pubblica nel periodo di indagine.
Risultati. **Hanno partecipato 499 infermieri; l'8% aveva elevati livelli di *engagement*, il 40% era contento, il 39% ambivalente e il 13% aveva bassi livelli di *engagement*.**
In accordo ai risultati della regressione lineare multipla che ha spiegato il 27.3% (R^2 7.5%) della varianza totale nello score NES, gli infermieri con più di 45 anni, hanno riportato un engagement lavorativo significativamente superiore (0.121, IC95% 0.066 to 0.457); diversamente, gli infermieri che hanno intenzione di lasciare il reparto nei uccessivi tre mesi (-0.168, IC 95% -0.552 to -0.179), e coloro che lavorano in ospedale rispetto a coloro che lavoravano in altri setting (ad esempio nella Salute Mentale, - 0.150, IC95% -0.140 to -0.038) hanno riportato livelli di *engagement* significativamente inferiori.
Conclusioni. **I leader infermieri dovrebbero dare priorità alle strategie capaci di aumentare l'*engagement* degli infermieri: Specifiche iniziative orientate ai giovani infermieri, verso coloro che hanno intenzione di lasciare l'unità operativa, o che lavorano in ospedale sono incoraggiate considerato che si tratta di gruppi a maggior rischio di scarso o per nulla *engagement*.**

Parole chiave: aziende sanitarie pubbliche, coinvolgimento, infermieri clinici, Italia, studio descrittivo.

these, 87,355 RN answers across 18 different types of unit were included (13). Specifically, the Advisory Board has developed the Nurse Engagement Survey (NES) based upon the following definition of WE: 'an engaged nurse should be ideally suited in meeting future challenges, inspired by his/her organization, willing to invest discretionary efforts, and plan to remain within the organization for the foreseeable future' (14). According to the findings of the above-mentioned survey, one-third of nurses (32.6%) was documented as engaged while 7.4% were disengaged at the moment of the survey (14).

Building a fully engaged nursing workforce requires awareness and monitoring of RNs' levels of WE: data collection and analysis has been recognized as crucial in designing strategies and programmes capable of engaging and retaining RNs (14). However, no studies to date have reported WE data collected through the NES tool (14) regarding Health Care Institutions (HCIs) outside of the US, where different health-care systems' features may affect the degree of engagement among RNs. Furthermore, the data available has emerged from surveys mainly involving RNs working at hospital level or belonging to specific associations, e.g. the Registered Nurses of Ontario (5). Therefore, no data in terms of complex public health-care organizations providing care at both hospital and community level, aimed at discovering differences, if any, in the RNs' WE across different settings, has been published to date. As a conseguence, the main intent of this research was to fill this gap in the current literature regarding the RNs WE in the Italian context.

Methods

Research question and study aims

The research questions were: a) What is the level of WE among Italian clinical nurses, and what are the drivers and the shortfalls of their engagement? b) Which variables at the individual and professional levels are associated with WE? Therefore, the aims of the study were to explore the WE level among Italian clinical nurses working in a health-care trust and WE associated factors. According to the explorative nature of the study, any hypothesis was established *a priori*.

Study design

A cross-sectional study design was performed in 2014 and reported here according to the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) guidelines cross-sectional studies (15).

Setting and sampling

The study was performed in the north-east of Italy by involving a public health-care trust offering health promotion, diagnostic, clinical, nursing care and rehabilitative services for 347,000 citizens. All units (n=42) located in: a) two hospitals (a general hospital and a rehabilitation hospital); b) five health-care districts providing home and community care; and c) six Mental Health Services, were approached by contacting the Medical Directors and the Nurse Managers (NMs).

The target population was composed by all RNs of the abovementioned units (n=605). Specifically, RNs (a) working at the time of the survey in the settings, (b) by attending the scheduled shifts, (c) and willing to participate (n=587) were eligible. RNs who (a) were not working due to different reasons (e.g., maternity leave, health issues) during the period of the survey (one month), and (b) were working as NM and Nurse Directors thus not involved in direct nursing care, were all excluded.

A total of 547 RNs was eligible for the study.

End point, explanatory variables and Survey instrument

The principal end point was the nurses' WE as measured by the Nurse Engagement Survey (NES) (12). The NES was available to the health-care trust as a member of the Nursing Executive Centre (NEC), a specialty membership of the Healthcare Advisory Board. The Advisory Board Company is a global research, technology and consulting firm, with over 4,500 health-care and higher-education organizations partnerships (12).

The NES tool consists of 48 items, categorized in nine subscales: personal engagement level (four items); autonomy and input (seven items); nurse staff teamwork (six items); non-nurse teamwork (three items); professional growth (six items); nurse manager activities (four items); recognition (four items); work environment (nine items); and passion for nursing (five items). Therefore, higher mean scores indicate higher WE level. Each item is based upon a 6-point Likert scale, namely: 'strongly disagree' (1); 'disagree' (2); 'tend to disagree' (3); 'tend to agree' (4); 'agree' (5); 'strongly agree' (6). Respondents were asked to rate the degree to which 48 nursing-specific drivers, divided into nine subscales, were present in their unit at the time of the survey according to previous studies (12).

For the specific intent of this survey, the Italian version of the NES was forward- and back- translated according to

the guidelines provided by Sousa and Rojjanasrirat (16) and the advice of the Advisory Board Company's analysts. Cronbach's alpha coefficient expressing the internal consistency of the Italian version of NES was 0.96 (other data regarding the instrument, its validation process and findings, are available from the authors).

Demographic and professional explanatory variables were considered. Specifically, with the authorization of the Advisory Board Company, demographic and professional questions were changed to fit the specific research aims and the health-care trust setting. Thus, there were 15 questions aimed at collecting demographic and professional data, as following: age; gender; experience in the nursing discipline and in the unit (in years); nursing qualification (Bachelor or Diploma in nursing); employment contract (temporary or permanent); employment status (full-time or part-time); work shift (daily shift, 12 hours shift or 24 hours shift); and extra clinical activities appointed (e.g., university teacher, clinical tutor). In addition, retirement over the next three years (yes, no, or uncertain); intention to leave over the next three years (yes, no); limitations to performing the clinical activities due to health issues (e.g. latex allergies); and the setting (general hospital, rehabilitation hospital, health-care districts, or mental health services) where RNs were working at the time of the study, were also collected.

Data sources and procedure

Each participant was invited to participate via an e-mail provided by the health-care institution, linked to the questionnaire. Each questionnaire was accompanied by a brief presentation of its aims and instruction for its filling-in. The response via SurveyMonkey was anonymous and participation was on a voluntary basis: the questionnaire answer was considered as a consent to participate in the study. Confidentiality and adherence to ethical principles were ensured throughout the entire study process.

In order to increase participation in the survey different strategies were used: the study design was presented to all NMs (n=42) in each unit involved; meetings and poster presentations reporting the aims of the survey were also offered at the unit levels: moreover, the study protocol was published in an electronic format and on paper, and included in the healthcare trust monthly newsletter.

Ethical considerations

The study protocol was approved by the health-care trust internal headquarters board.

Statistical analysis

In accordance with the Advisory Board Company (12), RNs were categorized into disengaged, ambivalent, content and engaged based upon item averages of their responses to the following questions: 'This organization inspires me to perform at my best'; 'I am willing to put in a great deal of effort to help this organization succeed'; 'I would recommend this organization to my friends as a great place to work'; 'I am likely to be working for this organization 3 years from now'. Participants who answered 'strongly agree' in at least two items and no less than 'agree' to any statement in accordance to the Advisory Board Company guidelines (12), were considered engaged. Moreover, in order to identify strengths, those NES items achieving more than 70% to the answer 'tend to agree' were identified; similarly, in order to identify shortfalls on which to focus when aiming to increase RNs' levels of engagement, NES items reporting more than 70% (12) to the following answers: 'tend to disagree', 'disagree' or 'strongly disagree', were also identified.

The work settings were categorized as follows: Mental Health Services, Health Districts, General Hospital and Rehabilitation Hospital. Senior nurses were also identified by adopting the classification of Balducci and Fraccaroli (17) and Guardini et al. (18) who documented seniorship among nurses at an age >45.

Data collected were de-identified and the database was populated; statistical analyses were performed using the SPSS 24.0 (SPSS Inc., Chicago, IL, USA) statistical software package. For the first research question, aimed at exploring the degree of WE among RNs, data have been analyzed by using descriptive statistics (frequencies, percentages, means and standard deviations (SD)); for the second research question aimed at discovering, if any, demographic and professional variables were significantly associated with the total score of WE, a bivariate was performed by using chi-square test, T-test and non-parametric test according to the nature of the variables under study and their normal (or not) distribution. Those variables significantly associated (p-value = < 0.05) with the total score NES, were then entered in a multiple linear regression model aimed at discovering, if any, predictors (Beta, CI [Confidence of Interval] 95%) of nurses' engagement by calculating the Beta coefficient (Confidence Interval CI 95%).

Results

Out of 547 administered questionnaires, 499 were returned, completed and valid for statistical analysis, giving a response rate of 93.1%. The sample consisted of a majority of females (n=431, 86.4%); 54.5% (n=272) of respondents were between 31 and 45 years old, and 40.1% (n=200) were senior nurses (>45 years). Around 73% (n=364) of RNs had a Diploma in Nursing and the large majority (n=372, 74.5%) were working as a nurse for >15 years.

The large majority (n=482; 96.6%) was working in the health-care trust with a permanent contract; moreover, 77.8% (n=388) was working as a full-time RN and 38.9% (n=194) on 24-hour shifts. A total of 244 RNs (48.9%) was also involved in extra clinical activities, such as quality improvement projects and clinical teaching to nursing students; moreover, around a quarter of RNs (n=134; 26.9%) was limited in some nursing tasks due to health issues.

At the time of the survey, 31.5% (n=157) had been working in the unit between 7 and 15 years. Specifically, a) 40.6% (222 RNs) were working in the general hospital; b) 28.7% (157 RNs) in health-care districts; c) 17.6% (96 RNs) in Mental Health Services; and d) 13.1% (72 RNs) in the rehabilitation hospital.

Only a limited number of participants were preparing to retire in the next three years (n=28; 5.6%) while 11.2% (n=56) reported the intention to leave the health-care trust in the next three years. In Table I, demographic and professional characteristics of the RNs involved are reported.

Research question 1: What is the level of engagement among RNs and what are the drivers and the shortfalls of their engagement?

Out of the 499 participant nurses, 8% (n=39) were engaged, 40% (n=201) were content, 39% (n=195) were ambivalent and 13% (n=64) were disengaged. As displayed in Table II, the drivers of engagement that reported the highest mean scores were in the 'Nurse staff teamwork' (4.45, SD 0.78) and 'Passion for nursing' subscales (4.45, SD 0.76) followed by 'Personal engagement level' (4.30, SD 0.84), 'Nurse manager activities' (4.28, SD 1.16), 'Work environment' (4.19, SD 0.71), 'Non-nurse teamwork' (3.95, SD 0.92), 'Professional growth' (3.94, SD 0.88), 'Autonomy and input' (3.83, SD 0.89) and 'Recognition' subscales (3.75, SD 1.07).

The two areas reporting the highest agreement (as a proportion of respondents that 'agree' or 'strongly agree') were: 'I am proud to be a nurse' (n=415, 83.2%) and 'I have good personal relationships with nurses on my unit' (n=363, 72.7%). Meanwhile, the two areas reporting the lowest agreement were 'My hospital helps nurses deal with stress and burnout' (n=420, 84.2%) and 'Hospital administration follows through on nurse suggestions for improving performance' (n=413, 82.8%), as reported in Table III.

Research question 2: Which individual and professional variables are associated with WE?

As reported in Table IV, older RNs reported higher NES scores (mean 4.45, SD 0.63) as compared to those between 20 and 30 years (mean 4.29, SD 0.59), between 31 and 45 years (mean 4.12, SD 0.68), and between 46 and 55 years (mean 4.06, SD 0.72, p=0.022). Moreover, RNs who were working with a temporary contract reported lower NES scores (mean 4.45, SD 0.71) compared to those with a permanent contract (mean 4.11, SD 0.69, p=0.054). Furthermore, RNs working 24/24 hours, thus attending morning, afternoon and night shifts, reported significantly higher WE (mean 6.22, SD 0.65) as compared to those working only 12 hours, thus on morning and afternoons (mean 3.99, SD 0.64, p=0.007).

RNs close to retirement reported higher NES scores (mean 4.37, SD 0.59) compared to nurses who were not planning to retire (mean 4.11, SD 0.92) and who were uncertain about retiring over the following three years (mean 4.06, SD 0.68, p=0.051). On the other hand, RNs who intended to leave the unit reported lower NES scores (mean 3.81, SD 0.70) compared to those willing to remain in the unit for the next three years (mean 4.17, SD 0.68, p=0.001).

RNs who were working at the Mental Health Services levels, reported higher NES scores (mean 4.28, SD 0.65) compared, in order, to those who were working at the rehabilitation hospital (mean 4.20, SD 0.67), at health care

Table I. ***Demographic and professional characteristics***

	Frequency (n)	%
Gender		
Female	431	86.4
Male	68	13.6
Age in years		
20–30	27	5.4
31–45	272	54.5
46–55	170	34.1
>55	30	6
Senior nurses		
≤45	299	59.9
>45	200	40.1
Nursing education		
Nursing Diploma	369	74
Bachelor in Nursing Science	130	26
Nursing experience, in years		
<1	3	0.6
1–3	19	3.8
4–6	24	4.8
7–15	81	16.3
>15	372	74.5
Experience in the current unit, in years		
<1	35	7
1–3	90	18
4–6	98	19.6
7–15	157	31.5
>15	119	23.9
Employment work contract		
Permanent	482	96.6
Temporary	17	3.4
Employment status		
Full-time	388	77.8
Part-time	111	22.2
Work shift		
24-hour shift	194	38.9
12-hour shift	160	32.1
Daily shift	145	29.0
Participation in extra clinical activities		
None	255	51.1
Quality improvement projects	94	18.9
Clinical tutor	70	14
Continuing educational courses teacher	59	11.8
Nurses' aid courses teacher	18	3.6
University teacher	3	0.6
Retirement over the next three years		
No	445	89.2
Yes	28	5.6
Uncertain	26	5.2
Intention to leave the unit within next three years		
No	443	88.8
Yes	56	11.2
Professional limitations due to health issues		
No	365	73.1
Yes	134	26.9
Nature of health limitations		
None	356	71.3
Manual handling of loads	85	17.1
Allergies	24	4.8
Other	22	4.4
Night shifts not allowed	12	2.4
Work setting		
General hospital	204	40.9
Health-care districts	146	29.3
Mental health services	87	17.4
Rehabilitation hospital	62	12.4

districts (mean 4.17, SD 0.76) and at general hospital levels (mean 4.01, SD 0.65, p=0.010).

According to the multiple linear regression analysis which has showed R 27.3% (R^2 7.5%) of the variance in the total score of NES, being older than 45 years has increased the likelihood of being work-engaged (β 0.121, CI 95% 0.066 to 0.457); differently, the intention to leave the unit in the next tree months (β -0.168, CI 95% -0.552 to -0.179), and working at the hospital levels as compared to other settings (e.g., Mental Health Service, β -0.150, CI 95% -0.140 to -0.038) were negatively associated with WE.

Discussion

To the best of our knowledge, this is the first study involving a public health trust offering care at different levels (from acute to home care and/or mental health care) involving all nurses and using the NES tool (12). Previous studies in the field have been developed in the Italian context (e.g., 19) by using different tools and exploring different research questions thus limiting the comparison of the findings. 499 RNs were included with a response rate of 93.1%, higher than other studies in the field (e.g., 3, 5, 6, 20, 21) which reported response rates from 14% to 87.7% (6).

At the international level, the main characteristics of the participants were similar to those reported in the US by Rivera et al. (20) with respect to age, gender, level of education, employment status and experience in nursing. In contrast, other authors (21) involved RNs aged 45 years or older with at least 10 years of nursing experience, thus limiting comparisons with regards to the findings. Furthermore, at the Italian level, participants' demographic and professional characteristics were in line with those documented (22), also in other studies in the field (e.g. 3, 19, 23) thus suggesting that findings may be generalized to similar health-care trusts.

This study identified a lower percentage (8%) of engaged RNs compared to other studies using the NES tool (12, 20, 21) specifically, 32.6% engaged RNs were reported in The National Prescription for Nurse Engagement study [24] including 87.355 RNs; 31% engaged nurses were documented by Rivera et al. (20) including 510 RN US nurses, and 37% by Kuykendall et al. (21) including 142 US nurses. Moreover, in our study 40% (n=201) of RNs were content and the total of engaged and content RNs was 48% (n=240) compared to the 77% reported by Rivera et al. (20) and 84% in Kuykendall et al. (21) study, which only included senior nurses.

Different reasons may explain the limited proportion of nurses engaged and content that emerged from our study; in accordance also with the items identified as shortfalls, where limited recognition, autonomy and professional growth were the most critical WE dimension ranked by our participants, the great impact of economic cost-containment measures implemented in the NHIs in recent years may have played a role. Specifically, those largely implemented have been the stop in hiring; the development projects suspended or slowed to focus on streamlining; the logistics-focused redesign of departments to use resources more efficiently; the increased standardisation of care processes to contain nursing care-

Table II. ***Nurse Engagement Survey subscales (n=499)***

NES Subscales	Mean	SD
Personal engagement level	4.30	0.84
Autonomy and input	3.83	0.89
Nurse staff teamwork	4.45	0.78
Non-nurse teamwork	3.95	0.92
Professional growth	3.94	0.88
Nurse manager activities	4.28	1.16
Recognition	3.75	1.07
Work environment	4.19	0.71
Passion for nursing	4.45	0.76

Legend. SD, Standard Deviation, NES Nurse Engagement Survey

Table III. ***Shortfalls in nurses' engagement: responses to NES drivers greater than 70%***

	Frequency n=499	Percentage %[a]
My hospital helps nurses deal with stress and burnout	420	84.2
Hospital administration follows through on nurse suggestions for improving performance	413	82.8
Hospital administration respects the contributions of nursing	372	74.5
I have helpful discussions about my career path	363	72.7
My hospital provides career advancement opportunities within the role of a bedside practitioner	361	72.3
My hospital effectively selects and implements new technologies to support nursing	361	72.3
I receive regular feedback on my performance	359	71.9
I receive positive recognition for providing excellent care	356	71.3
I feel comfortable raising concerns with physicians when I see something that may negatively affect patient care	352	70.5
I collaborate with physicians in clinical decision-making	350	70.1

[a] Percentage of nurses reporting the highest agreement, as a proportion of respondents that 'agree' or 'strongly agree' > 70%
Legend. NES Nurse Engagement Survey

Table IV. ***Bivariate analysis: demographic and professional variables and WE as measured with the NES (n=499)***

	NES Mean	SD	p-value
Gender			
Female	4.11	0.69	0.165
Male	4.23	0.70	
Age in years			
20–30	4.29	0.59	0.022
31–45	4.12	0.68	
46–55	4.06	0.72	
>55	4.45	0.63	
Senior nurses			
≤45	4.10	0.69	0.004
>45	4.37	0.60	
Nursing education			
Diploma in nursing	4.12	0.69	0.700
Bachelor in nursing science	4.12	0.69	
Nursing experience, in years			
<1	4.08	0.55	0.517
1–3	4.36	0.64	
4–6	4.26	0.72	
7–15	4.13	0.66	
>15	4.11	0.70	
Experience in the current unit, in years			
<1	4.28	0.63	0.511
1–3	4.15	0.68	
4–6	4.17	0.78	
7–15	4.11	0.69	
>15	4.06	0.63	
Employment work contract			
Permanent	4.11	0.69	0.054
Temporary	4.45	0.71	
Employment status			
Full-time	4.11	0.71	0.348
Part-time	4.18	0.60	
Work shift			
24-hour shift	4.22	0.65	0.007
12-hour shift	3.99	0.64	
Daily shift	4.16	0.77	
Participation in extra clinical activities			
None	4.10	0.71	0.235
Quality improvement projects	4.08	0.75	
Clinical tutor	4.06	0.70	
Continuing educational courses teacher	4.20	0.88	
Nurses' aid courses teacher	4.01	0.77	
University teacher	4.13	0.67	
Retirement over the next three years			
No	4.11	0.92	0.051
Yes	4.37	0.59	
Uncertain	4.06	0.68	
Intention to leave the unit within next three years			
No	4.17	0.68	0.001
Yes	3.81	0.70	
Limitation to the tasks due to health issues			
No	4.12	0.67	0.792
Yes	4.14	0.75	
Nature of health limitations			
None	4.12	0.66	0.123
Manual handling of loads	4.09	0.78	
Allergies	4.21	0.65	
Others	4.13	0.66	
Night shift not allowed	4.38	0.88	
Work setting			
General hospital	4.01	0.65	0.010
Health-care district	4.17	0.76	
Mental health service	4.28	0.65	
Rehabilitation hospital	4.20	0.67	

Legend. NES Nurse Engagement Survey; SD, Standard Deviation

time needed; and the forced staff reallocation (for short periods, e.g. one shift) to compensate for a lack of nurses in other units (25).

Austerity measures may also have threatened nurses' WE by reducing trust in their nursing leaders who have implemented these strategies, which are decided mainly at the top-level without involving clinical nurses (26). In contrast, factors driving engagement were mainly at individual and staff level, indicating that participant nurses felt a passion for nursing care; they were engaged in nursing teamwork and also personally. Nurse leaders should consider these findings and redesign their approach by increasing access to desirable professional development and promotion opportunities; by reporting and sharing organizational strategies to front-line nurses and also by measuring the actual implications of their decisions (27, 28). Previous Italian studies have highlighted the role of organisational and personal factors as significantly associated with work engagement (e.g., 3).

Furthermore, in accordance with the findings, some strategies should be designed and implemented at the nurse leader, the hospital – nurse executive – and extra-professional levels, with physicians. For instance, participant nurses reported lower agreement with regard to the following drivers: 'I receive regular feedback on my performance', 'I receive positive recognition for providing excellent care'; and 'I have helpful discussions about my career path': nurse leaders should be prepared and competent in providing feedback and recognition to clinical nurses. In addition, hospital administrations should also be supported in recognizing the value of nursing care: by manifesting respect to the nursing care and profession; by considering nurses' suggestions; by supporting nurses to deal with stress and burnout; by implementing new technologies to support nursing care at the bedside and also by offering career advancement opportunities to the bedside practitioners. Furthermore, there is also a need to improve multidisciplinary teamwork, helping clinical nurses to increase their confidence in raising concerns with physicians when something may negatively affect patient care; on their part, physicians should also be supported in recognizing the value of nursing care and nurses, aimed at increasing both RN engagement and safe patient care.

Senior nurses (>45 years) with the intention to retire demonstrated a slightly higher engagement compared to younger colleagues, in agreement with the study of Rivera et al. (20); moreover, no statistically significant difference in WE across different degrees of experience in the nursing field have emerged, in contrast with the findings of Rivera et al. (20) where RNs who were working in nursing for >15 years were highly engaged.

Nurse leaders should increase efforts in designing and implementing strategies to engage young RNs and capable of addressing age diversity: the greater engagement among older nurses and detachment among young nurses may also express generation peculiarities and differences (29), which should be addressed in light of the fact that younger RNs are tomorrow's workforce. On the other hand, nurses who were intending to leave the unit were less engaged: the intention to leave may express a consequence of lower engagement levels, as well as an antecedent, as already documented in the literature (e.g., 11, 19).

Temporary nurses were also demonstrated to be more engaged, possibly because they were willing to be hired as permanent nurses; as a consequence of the economic crisis, finding a permanent job as a nurse in the NHS has increased in competitiveness (30). Finally, in order, nurses working in the mental health services, in the rehabilitation hospital, in the districts and lastly in the general hospital were more engaged. No comparison is possible given that previous studies (5, 6, 20, 21) were performed at hospital level. Outside of the Italian hospitals, nurses may have an increased chance of expressing themselves and be recognized in the full scope of nursing practice (31); of continuously improving their competences; of working independently and in strict connection with patients and their carers, thus fully embodying the nursing care values; they may also have the opportunity to perceive themselves as having a positive, fulfilling work-related state of mind, dedicated and absorbed. Working at the hospital level, with tremendous pressure, higher nurse-to-patient ratio, several cost containment measures and the perception of not being important compared to other health-care professionals, may have decreased engagement (25).

However, according to the multiple linear regression analysis, only three of the abovementioned factors have emerged as positively (being a senior RN) and negatively predictors (having the intention to leave and working at the Hospital levels as compared to other settings outside of the Hospital), thus respectively reducing and increasing

Table V. ***Work engagement as measured with the NES total score and predictors at the individual and professional level: findings multiple linear regression analysis***

	Beta	t	p-value	CI 95%	
Constant		24.705	0.000	4.164	4.883
Senior (≥ 45 year) vs no	0.121	2.630	0.009	0.066	0.457
Employment work contract temporary vs permanent	-0.073	-1.656	0.098	-0.609	0.052
Work shift 24/24 vs no	0.040	0.895	0.371	-0.040	0.106
Intention to leave within three months yes vs. no	-0.168	-3.856	0.000	-0.552	-0.179
Retirement in the next three months yeas vs no/ uncertain	0.041	0.904	0.366	-0.067	0.180
Working in Hospital vs Mental Health Service vs	-0.150	-3.424	0.001	-0.140	-0.038

Legend. CI, Confidence of Interval; NES Nurse Engagement Survey

the WE. The capacity of the model to explain WE was very limited, by accounting around the 7.5% of the total variance, suggesting therefore the need to further explore the phenomena by collecting data at the individual and organizational levels (3) aiming at understanding the factors involved in the WE and at identifying those unmodifiable (e.g. being a senior) and those modifiable (e.g. improving the work environment climate, the nurse recognition).

Study limitations and recommendations for future research

The results of this study should be considered in light of its limitations. Firstly, according to its explorative nature, no hypothesis or sample size *a priori* were established. Secondly, in the attempt of involving all RNs working in the approached health care trust, in different settings, three emails were sent: therefore, RNs may have perceived pressure from the headquarters of the health care trust in answering even if the participation was left on a voluntary basis. Thirdly, we have used the NES tool which has been validated for hospital settings (12); several items included in the questionnaire initiated with the statement 'My hospital administration', thus not reflecting the structure of the Italian health care trust. Fourth, we have measured the WE as well as the explanatory variables at the same time, thus their role as predictors should be considered with caution. Future studies in settings composed by different services than hospitals, should consider to face and content validate the tool aiming at continuing to cumulate evidence on instrument validity and on nurse WE across setting and countries; in addition, exploring the leadership profile of NMs as well as the profile of the RNs (e.g. followers' active engagement and followers' independent critical thinking, 23), as well as the characteristics of the work environment, may also further contribute to understand factors implicated in RN engagement in different settings and health care systems.

Conclusions

This is the first study to our best knowledge performed in Italy by using the NES tool; moreover, this is the first study involving different clinical settings of a public health-care trust, thus also informing with regards to the degree of engagement outside of the hospital, which has been the traditional context in which WE measure have been collected to date.

Italian nurses reported low levels of engagement compared to available studies. Nurses were proud to be nurses and to be part of the profession; they also reported having good personal relationships with colleagues at the unit level, experiencing significant contact with patients and their families and enjoying adequate levels of independence during their care activities. However, some areas requiring effort by nurse leaders to enhance front-line engagement have emerged as following: a) nurse recognition, by improving the recognition of the contribution that RNs make to their workplace; b) autonomy and input, by increasing nurses' understanding of the organization's goals and directions, and how their contribution impacts patient care; c) professional growth, by increasing nurses' feelings about the opportunities for career growth and development; and d) work environment, by improving nurses' feelings that healthy working conditions are provided, in particular aiming at helping RNs to deal with stress and burnout. Specific initiatives devoted to younger nurses and to those intending to leave the unit, as well as to those working at the hospital level, are needed given these groups have a higher likelihood to be not or poorly engaged.

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Author's contribution statement

Petean Marco: conception and design of the study, data collection and analysis, drafting the manuscript. Picogna Michele: conception and design of the study. Palese Alvisa: drafting the manuscript and revising the manuscript.

Conflict of interest statement

The authors declare no conflicts of interest or any financial or personal relationship with other people or organizations that could inappropriately bias conduct and findings of this study.

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