

EVALUATION OF SOFT SKILLS AMONG NURSES IN A MOROCCAN PROVINCIAL HOSPITAL: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Soft skills underpin safe, patient-centered nursing care, yet empirical evidence describing these competencies in Moroccan provincial hospitals remains limited.

Objective: To assess soft skills levels among nurses, midwives, and health technicians at Hassan I Provincial Hospital (Tiznit, Morocco) and examine associations with sociodemographic and professional characteristics.

Results: In a census-based cross-sectional survey (15 May–3 June 2023), 77 of 113 eligible staff participated (response rate: 68.1%). Soft skills were measured using an adapted 25-item Soft Skills Questionnaire (5-point Likert scale; overall Cronbach's $\alpha = 0.90$) covering communication, emotional intelligence, management, and confidentiality. The mean overall soft skills score was 79.05 (SD = 8.69) on a 25–125 scale (scale midpoint: 75; observed range: 58–102). Communication was the strongest domain (mean = 48.52/60), whereas emotional intelligence was the lowest (mean = 8.48/15). Confidentiality showed notable gaps (mean = 16.83/30), with 31.2% reporting occasional unsafe handling of patient files. Bivariate analyses comparing low/medium/high soft skills categories did not show statistically significant differences across participant characteristics (all $p > 0.05$), although descriptive patterns were observed. In multivariable linear regression (outcome: overall soft skills score), higher scores were independently associated with prior soft skills training ($B = 4.80$; $p = 0.001$), greater professional experience ($B = 0.45$; $p = 0.048$), and working in departments other than the medical unit ($B = 3.25$; $p = 0.021$), while night work was associated with lower scores ($B = -2.10$; $p = 0.034$) (adjusted $R^2 = 0.42$; model $p < 0.001$).

Conclusion: Overall soft skills scores were slightly above the scale midpoint, with strengths in communication but weaknesses in emotional intelligence and confidentiality practices. Structured continuing professional development—especially targeted soft skills training—along with supportive organizational measures may strengthen non-technical competencies and improve quality of care in Moroccan provincial hospitals.

Keywords: soft skills; non-technical skills; nurses; communication; emotional intelligence; confidentiality; management; Morocco.

INTRODUCTION

Nursing professionals are indispensable pillars of healthcare delivery systems worldwide. Beyond their essential technical and clinical expertise, nurses require a robust set of interpersonal and cognitive competencies, collectively termed soft skills, to deliver holistic, patient-centered care [1,2]. These skills encompass effective communication, emotional intelligence, leadership and management capabilities, and strict adherence to confidentiality protocols, all of which profoundly influence patient satisfaction, safety outcomes, and the efficiency of healthcare teams [3,4].

Effective communication is fundamental to nursing practice. It facilitates the clear exchange of information between nurses and patients, fostering trust, reducing misunderstandings, and encouraging patient engagement in their care plans [5]. Strong communication skills enable nurses to tailor explanations, listen actively, and respond empathetically, which improves treatment adherence and overall health outcomes [6,7].

Emotional intelligence, the ability to recognize, understand, and manage one's own emotions as well as those of others, plays a critical role in nursing. Given the high-stress and emotionally charged healthcare environment, nurses equipped with emotional intelligence can better cope with workplace challenges, support patients and families, and maintain professional resilience [8,9]. Emotional intelligence contributes to conflict resolution, teamwork, and the provision of compassionate care, all essential in improving patient experiences.

Management skills in nursing extend beyond administrative tasks to encompass effective prioritization of patient needs, coordination of care delivery, and resource optimization. These competencies are essential for maintaining workflow efficiency, particularly in resource-limited settings where nurses often juggle multiple responsibilities [9,10]. Good management ensures

continuity of care, reduces errors, and enhances interdisciplinary collaboration.

Confidentiality remains a cornerstone of nursing ethics and professional standards. Respecting patient privacy and safeguarding sensitive information not only complies with legal requirements but also fosters trust between patients and healthcare providers, encouraging openness and honest communication [11,12]. Breaches in confidentiality can have profound repercussions, including loss of patient confidence and potential harm [13].

Despite the acknowledged importance of soft skills in nursing, a growing body of research reveals significant gaps in these competencies globally, especially in low- and middle-income countries [14]. Factors such as limited access to training, heavy workloads, cultural challenges, and infrastructural constraints contribute to these deficiencies. Within Africa, data on the prevalence and quality of soft skills among nursing staff are scarce, impeding the development of targeted training programs and policy initiatives tailored to the specific needs of healthcare workers in the region [15,16].

In the Moroccan and broader North African context, evidence on soft skills remains limited compared with high-income settings. Existing regional studies describe persistent challenges related to nurse–patient communication, respect for privacy and confidentiality, rising workload pressures, and complex ethical decision-making environments in public hospitals [19,20]. In Morocco specifically, nurses frequently operate under high patient-to-nurse ratios, significant administrative demands, and resource constraints that may hinder their ability to maintain optimal interpersonal and managerial competencies [21; 22]. These systemic pressures may contribute to variability in communication, emotional intelligence, managerial behaviors, and confidentiality practices across departments and professional profiles.

Recent reforms in the Moroccan health system—including the expansion of universal health coverage, the modernization of provincial hospital governance, and ongoing human-resources restructuring—have further increased expectations placed on nurses in terms of adaptability,

teamwork, and communication competencies [23; 24]. Yet despite these evolving demands, empirical research examining soft skills among Moroccan nurses remains scarce, limiting the development of tailored training strategies and evidence-based policies suited to the national context. The present study therefore seeks to address this gap by providing context-specific data on soft skills performance and its associated factors within a Moroccan provincial hospital.

Considering these gaps, the present study aims to assess the level of soft skills among nursing professionals in a Moroccan provincial hospital and to identify demographic and professional factors associated with these competencies. By providing context-specific evidence, this study contributes to strengthening nursing education, informing health policy, and improving patient-centered care within the Moroccan healthcare system.

METHODS

Study Design and Setting

We conducted a cross-sectional, descriptive quantitative study at Hassan I Provincial Hospital in Tiznit, Morocco, from 15 May to 3 June 2023. This second-level referral hospital, operational since 1981, covers a total surface area of 28,852 m² and serves both urban and rural populations. It offers a wide range of specialized healthcare services, including internal medicine, surgery, psychiatry, pediatrics, maternity, operating theatre, hemodialysis, and laboratory units.

The hospital was purposefully selected due to: a) the researchers' prior clinical training at the facility, b) the diversity of its patient population, representing various socio-economic and cultural backgrounds, and c) the breadth of specialized services, providing opportunities to assess soft skills application across multiple care contexts.

Study Population and Sampling

The target population comprised all state-registered nurses, midwives, and health technicians (as

defined by Moroccan Law 43-13) employed in the aforementioned units during the study period.

Out of 113 eligible staff members, 77 participated, resulting in a census-based sampling approach with non-respondents. The remaining 36 were unavailable due to workload constraints, absence during data collection, or time limitations (Figure 1).

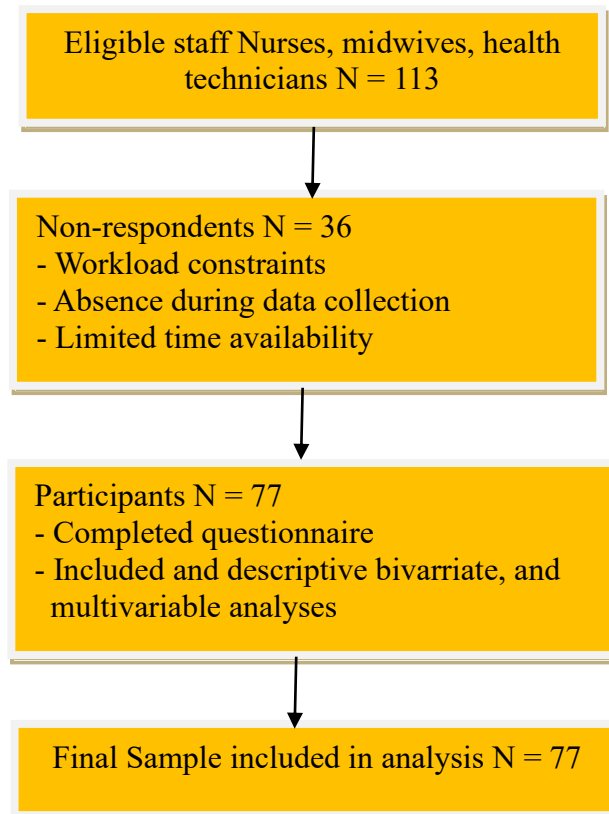


Figure 1. Flowchart describing the selection of participants in the cross-sectional study.

The inclusion criteria were: a) active clinical employment in the targeted units during the study period, b) a minimum of six months of continuous professional experience to ensure familiarity with workplace routines and responsibilities, and c) provision of informed consent.

Although the participation rate was relatively high (68.1%), the presence of non-respondents introduces the possibility of non-response bias, particularly if individuals with heavier workloads or limited availability systematically differ in soft skills levels from those who participated. This

limitation is addressed in the Discussion section.

The exclusion criteria were a) Staff on extended leave (medical, maternity, or administrative) during data collection, b) individuals in exclusively administrative positions without direct patient care responsibilities, c) inability to complete the questionnaire due to workload, language barriers, or cognitive impairments, and d) declining to participate.

Data Collection Instrument

Data were collected using a self-administered, structured questionnaire. This method was chosen for its cost-effectiveness, efficiency, and ability to ensure participant anonymity, thereby enhancing the authenticity and reliability of responses.

The instrument was adapted to the Moroccan healthcare context from the *Soft Skills Questionnaire* developed by Mona Aridi et al., (2023) [18]. Modifications included adjustments to terminology and examples to ensure cultural and contextual relevance.

The questionnaire consisted of two main sections:

1. Sociodemographic and professional characteristics: age, sex, marital status, professional profile, years of experience, department, job position, work schedule, languages spoken, academic qualifications, and prior training in soft skills.
2. The soft skills assessment was organized into four domains: a) communication (12 items), b) emotional intelligence (3 items), c) confidentiality (6 items), and d) management (4 items).

Responses were rated on a 5-point Likert scale ranging from *Strongly disagree* (1) to *Strongly agree* (5). Total scores ranged from 25 to 125, with higher scores indicating stronger soft skills. Domain-specific scores were categorized as low, medium, or high based on predetermined cut-off points.

Instrument Validation and Reliability

Before data collection, several steps were undertaken to ensure the validity and reliability of the adapted questionnaire. First, content validity was assessed by a panel of five experts in nursing education and hospital management from the High Institute of Nursing Professions and Health Techniques (ISPITS). Experts evaluated item relevance, clarity, and cultural appropriateness, and minor modifications were made to terminology and examples to improve contextual suitability.

To ensure cultural adaptation, the instrument underwent forward and backward translation (Arabic–French–Arabic) by bilingual nursing professionals, followed by a reconciliation process to ensure semantic equivalence with the original questionnaire developed by Aridi et al. (2023). Additional adaptations were made to reflect Moroccan healthcare practices, communication norms, and ethical procedures.

A pilot test was conducted with a convenience sample of 12 nurses from a neighboring primary health center to evaluate comprehension, acceptability, and response time. Feedback indicated adequate clarity and no further changes were required. Data from the pilot test were not included in the final analysis.

The internal consistency of the instrument was assessed using Cronbach's alpha on the study sample (N = 77). Reliability coefficients were acceptable to high across domains:

- Communication (12 items): $\alpha = 0.86$
- Emotional intelligence (3 items): $\alpha = 0.74$
- Management (4 items): $\alpha = 0.79$
- Confidentiality (6 items): $\alpha = 0.82$
- Overall scale (25 items): $\alpha = 0.90$

These values indicate that the adapted instrument demonstrates good reliability and is appropriate for assessing soft skills in the Moroccan nursing context.

Scoring and Categorization of Soft Skills levels

For each of the four domains, item scores were summed to generate domain-specific totals. Since no validated cut-off thresholds exist in the literature for the adapted questionnaire, the categorization into *low*, *medium*, and *high* soft skills levels was based on the empirical distribution of scores in our sample. Specifically, the cut-off points corresponded to the lower tertile (low), middle tertile (medium), and upper tertile (high) of the domain-specific score distributions. This method is widely used in cross-sectional psychometric studies when normative data or validated thresholds are unavailable and allows for a meaningful differentiation of skill levels within the study population.

Data Collection Procedure

Authorization for data collection was obtained from the Provincial Health Delegation of Tiznit and the heads of the relevant hospital departments. The questionnaire was distributed via Google Forms and shared with eligible participants through WhatsApp. Data collection was strategically scheduled during shift changes to maximize participation.

Before completing the questionnaire, participants received a brief explanation of the study objectives, were assured of confidentiality, and provided informed consent.

Data Analysis

Data were coded and analyzed using IBM SPSS Statistics version 25. Univariate analyses were conducted to summarize variable distributions using frequencies, percentages, means, and standard deviations. Bivariate associations between soft skills levels and categorical independent variables

were assessed using the Chi-square test, with statistical significance set at $p < 0.05$. Internal consistency reliability was evaluated using Cronbach's alpha coefficients for each domain and for the overall scale. Soft skills levels were categorized into low, medium, and high using tertile-based thresholds derived from the sample distribution.

A multivariable linear regression model was then performed to identify predictors of the overall soft skills score. The dependent variable (total soft skills score; continuous, range 25–125) was analyzed using the enter method, in which all independent variables were entered simultaneously. Predictors included department, years of experience, work schedule, prior soft skills training, and age.

Before conducting the regression, model assumptions were evaluated. Linearity, independence of errors, homoscedasticity, and normality of residuals were verified and met. Multicollinearity was assessed using Variance Inflation Factor (VIF) and tolerance values. Because the predictors included both continuous and dichotomous variables, pairwise associations (Table 5) were examined using appropriate measures: Pearson's correlation (r) for continuous–continuous pairs; point-biserial correlations (r_{pb} ; equivalent to Pearson's r with 0/1 coding) for continuous–dichotomous pairs; and the phi coefficient (ϕ) with Pearson's chi-square test for dichotomous–dichotomous pairs.

Model fit was evaluated using the adjusted R^2 and the F-statistic from the ANOVA table. Results of the regression analysis are presented in Table 4 as unstandardized coefficients (B), standard errors (SE), standardized coefficients (β), t-values, confidence intervals, and p-values.

Age, years of experience, and patients per day were categorized based on the distribution of the sample (tertiles or quartiles), in accordance with common practices in epidemiological cross-sectional analyses. Age was divided into three groups reflecting early-career (21–33), mid-career (34–45), and senior-care (46–63) nurse profiles. Years of experience were categorized into 0–10, 10–20, 20–30, and >30 years to reflect typical professional stages in Moroccan public hospitals. The number of patients seen per day was grouped into clinically meaningful workload categories

commonly used in hospital benchmarking (<5, 5–10, 10–20, and >20 patients/day).

Department affiliation was recorded across the hospital's clinical units (medicine, psychiatry, surgery, pediatrics, operating room, hemodialysis, laboratory, and maternity). For the bivariate analyses presented in Table 3, departments with small numbers of participants were grouped into an "Other departments" category to reduce sparse cells and improve the stability of the Pearson chi-square test. In our dataset, "Other departments" comprises Pediatrics, Hemodialysis, and the Laboratory.

Ethical Considerations

This study was conducted in accordance with the principles of the Declaration of Helsinki. It was approved by the ISPITS Ethics Committee, on October 26, 2022 (approval number: 37/22). Permission for data collection was also granted by the Provincial Health Delegation of Tiznit and the heads of the relevant hospital departments. All participants were informed about the study objectives and procedures and provided written informed consent prior to participation. Participation was voluntary, and confidentiality and anonymity were ensured throughout the study.

RESULTS

Sociodemographic and Professional Characteristics

A total of 77 nursing staff members participated in the study. The majority were male ($n = 43$, 55.8%), with females representing 44.2% ($n = 34$) as shown in Table 1. Most respondents (79.2%) were aged between 34 and 45 years, while 11.7% were 46–63 years old, and 9.1% were 21–33 years old. Regarding marital status, 79.2% were married and 20.8% single.

Professional profiles were diverse: 36.4% were polyvalent nurses, 26.0% midwives, 23.4% mental health nurses, 10.4% anesthesia-resuscitation nurses, and 3.9% nursing auxiliaries. Most held the position of practitioner nurse (89.6%), while 6.5% were nurse managers and 3.9% administrators.

Variable	Category	n	%
Sex	Male	43	55.8
	Female	34	44.2
Age (years)	21–33	7	9.1
	34–45	61	79.2
	46–63	9	11.7
Marital Status	Married	61	79.2
	Single	16	20.8
Professional Profile	Polyvalent Nurse (IP)	28	36.4
	Midwife (SF)	20	26.0
	Anesthesia Nurse (IAR)	8	10.4
	Mental Health Nurse (ISM)	18	23.4
	Auxiliary	3	3.9
Department	Medicine	11	14.3
	Psychiatry	14	18.2
	Surgery	6	7.8
	Pediatrics	7	9.1
	Operating Room	16	20.8
	Hemodialysis	7	7.8
	Laboratory	2	2.6
	Maternity	15	19.5
Position	Nurse Manager	5	6.5
	Practitioner	69	89.6
	Administrator	3	3.9
Experience (years)	0–10	4	5.2
	10–20	41	53.2
	20–30	30	39.0
	>30	2	2.6
Work schedule	Day shift	13	16.9
	Day guard	6	7.8
	Night guard	1	1.3
	Mixed shifts	57	74.0
Workload Equitability	Yes	65	84.4
	No	12	15.6
Patients per Day	0–5	21	27.3
	5–10	11	14.3
	10–20	19	24.7
	>20	26	33.8
Languages Spoken	Tamazight	66	85.7
	Arabic	77	100
	French	74	96.1
	English	18	23.4
Academic Level	Bac+2	5	6.5
	Bachelor's	69	89.6
	Master's	3	3.9
Soft Skills Training	Yes	18	23.4
	No	59	76.6

Table 1. Sociodemographic and professional characteristics of participants (N = 77)

Regarding education, 89.6% had a bachelor's degree, 6.5% held a Bac+2 diploma, and 3.9% had a master's degree. Notably, 76.6% reported no prior formal soft skills training. Language proficiency was high: all spoke Arabic, 96.1% spoke French, 85.7% Tamazight, and 23.4% English.

Soft Skills assessment

Communication

Overall, communication practices were strong. Most participants greeted patients appropriately (77.9%), introduced themselves to new patients (62.3%), addressed patients by name (64.9%), and explained care procedures clearly (75.3%). About half (50.7%) used illustrations or analogies to aid understanding, and 68.8% practiced active listening.

Emotional Intelligence

This domain scored lowest, with a mean of 8.48 out of 15. While 54.5% stayed with patients beyond call requests and 54.5% assisted colleagues facing challenges, 59.7% reported difficulty in managing unjustified patient behaviors during time pressure.

Management

Management skills scored neutrally (mean = 12.09/20). Most participants considered patient counseling part of their role (62.3%), checked if patients had seen a physician (71.4%), prioritized care (64.9%), and substituted for absent colleagues (76.6%).

Confidentiality

Confidentiality had a low mean score (16.83/30). While most avoided sharing information with non-service staff (68.8%), maintained low voices during anamnesis (76.6%), and shared patient details only with authorized family (76.6%), 31.2% admitted occasionally leaving patient files in

unsecured locations.

Additional descriptive properties of Soft Skills scores

To meet reporting standards, additional descriptive statistics were examined for the overall soft skills score and for each domain. The total soft skills score ranged from 58 to 102 (mean = 79.05, SD = 8.69). Domain-level observed ranges were as follows. The overall score was computed directly from raw item responses rather than from the sum of domain means, explaining minor differences between aggregated domain averages and the total score.

- Communication: min = 28, max = 60, mean = 48.52, SD = 8.40
- Emotional intelligence: min = 3, max = 15, mean = 8.48, SD = 2.85
- Management: min = 6, max = 20, mean = 12.09, SD = 3.10
- Confidentiality: min = 9, max = 27, mean = 16.83, SD = 3.95

Normality analyses showed that the distribution of the overall soft skills score did not significantly deviate from normality (Shapiro–Wilk $p > 0.05$). Skewness (−0.22) and kurtosis (0.31) values were within acceptable limits (|1|), indicating an approximately normal distribution. Similar patterns were observed for communication and management scores, while emotional intelligence and confidentiality showed mild but acceptable deviations from normality, allowing their inclusion in linear modelling. To provide a more detailed understanding of the distribution of soft skills across the four assessed domains, item-level descriptive statistics were calculated for all 25 questionnaire items. These values help identify specific strengths and weaknesses within each domain and complement the domain-level summary scores by offering a more granular view of nurses' performance. Higher scores were consistently observed for fundamental communication behaviors such as greeting patients, explaining procedures, and maintaining eye contact, whereas lower scores

were noted for items related to emotional intelligence and certain confidentiality practices. The complete item-level results are reported in Table 2.

Domain	Item Code	Item Description	Mean	SD
Communication	C1	Greet patients appropriately	4.21	0.71
	C2	Introduce oneself to new patients	3.88	0.82
	C3	Address patients by name	3.92	0.79
	C4	Explain procedures clearly	4.15	0.74
	C5	Use illustrations or analogies	3.11	1.02
	C6	Encourage questions	3.74	0.89
	C7	Practice active listening	3.95	0.83
	C8	Verify patient understanding	3.71	0.90
	C9	Adapt communication to literacy level	3.60	0.94
	C10	Maintain eye contact	3.98	0.77
	C11	Use empathetic language	3.82	0.85
	C12	Avoid medical jargon	3.99	0.80
Emotional Intelligence	EI1	Stay with patients beyond call requests	3.15	0.95
	EI2	Assist colleagues facing challenges	3.12	0.96
	EI3	Manage unjustified patient behavior under pressure	2.21	1.01
Management	M1	Consider counseling part of role	3.34	0.92
	M2	Check whether patient has seen a physician	3.81	0.83
	M3	Prioritize care according to urgency	3.69	0.87
	M4	Substitute colleagues when needed	4.02	0.78
Confidentiality	CONF1	Avoid sharing information with unauthorized staff	3.89	0.87
	CONF2	Keep patient files secured	2.89	1.09
	CONF3	Speak in a low voice during anamnesis	4.02	0.79
	CONF4	Share details only with authorized family members	4.05	0.76
	CONF5	Avoid discussing patients in public spaces	3.48	0.98
	CONF6	Verify identity before disclosing information	3.50	0.96

Table 2. Item-Level Descriptive Statistics for Soft Skills Domains ($N = 77$).

Associations between Soft Skills and Participant Characteristics

Chi-square analyses showed no statistically significant association between categorized overall soft skills levels and department ($\chi^2 = 9.42$, $df = 10$, $p = 0.49$) as shown in Table 3., work schedule ($\chi^2 = 0.24$, $df = 2$, $p = 0.886$), prior soft skills training ($\chi^2 = 0.16$, $df = 2$, $p = 0.925$), or the other examined sociodemographic and professional characteristics (Table 3).

Descriptive variation across groups was nevertheless observed. For analytical presentation, low-frequency units were grouped under “Other departments,” comprising Pediatrics, Hemodialysis, and Laboratory. Likewise, mixed-shift workers showed descriptively higher soft skills levels than those working fixed schedules.

Variable	Low n (%)	Medium n (%)	High n (%)	χ^2 (df) / Exact	p-value
Department (total)				9.42 (10)	0.49 (C)
Medicine (n=11)	2	6	3		
Psychiatry (n=14)	6	6	2		
Surgery (n=6)	0	3	3		
Operating room (n=16)	2	7	7		
Maternity (n=15)	3	9	3		
Other departments (n=15)	4	6	5		
Work schedule				0.24 (2)	0.886 (C)
Fixed shifts (n=20)	4	11	5		
Mixed shifts (n=57)	14	28	15		
Soft skills training				0.16 (2)	0.925 (C)
Yes (n=18)	4	6	8		
No (n=59)	15	17	27		
Sex				0.485 (2)	0.785 (C)
Male (n=43)	11	22	10		
Female (n=34)	7	17	10		
Age group (years)				0.834 (4)	0.934 (C)
21–33 (n=7)	2	3	2		
34–45 (n=61)	13	32	16		
46–63 (n=9)	3	4	2		
Marital status				0.943 (2)	0.624 (C)
Married (n=61)	13	31	17		
Single (n=16)	5	8	3		
Position				1.974 (4)	0.741 (C)
Practitioner (n=69)	15	35	19		
Nurse manager (n=5)	2	2	1		
Administrator (n=3)	1	2	0		
Experience (years)				3.104 (6)	0.796 (C)
0–10 (n=4)	2	1	1		
10–20 (n=41)	9	21	11		
20–30 (n=30)	6	16	8		
>30 (n=2)	1	1	0		
Workload equitability				1.078 (2)	0.583 (C)
Yes (n=65)	14	33	18		
No (n=12)	4	6	2		
Patients/day				1.604 (6)	0.952 (C)
0–5 (n=21)	4	10	7		
5–10 (n=11)	3	5	3		
10–20 (n=19)	5	9	5		
>20 (n=26)	6	15	5		
Language proficiency				—	—
Arabic (100%)	—	—	—		
French (n=74)	17	38	19		
Tamazight (n=66)	15	34	17		
English (n=18)	4	9	5		
Academic level				1.460 (4)	0.834 (C)
Bac+2 (n=5)	2	2	1		
Bachelor's (n=69)	14	36	19		
Master's (n=3)	1	1	1		

Note: C = Pearson chi-square test; F = Fisher's exact test; MC = Monte Carlo exact test; df = degrees of freedom.

Table 3. Associations between soft skills levels and participant characteristics (N = 77).

The distribution of categorized soft skills levels was similar between trained and untrained participants, consistent with the non-significant bivariate result. ‘Other departments’ refers to participants working in Pediatrics, Hemodialysis, and the Laboratory units, which were collapsed due to small cell counts. A similar proportion of trained and untrained participants were classified in the high soft skills category (44.4% vs 45.8%); this difference was not statistically significant in bivariate analysis $\chi^2(2) = 0.16, p = 0.925$.

- *Department*: Although descriptively higher soft skills scores were observed among pediatric nurses and midwives, these differences were not statistically significant ($p = 0.49$).
- *Work schedule*: Mixed-shift workers scored higher than those in fixed shifts.
- *Training*: Trained nurses showed descriptively higher proportions of high soft skills scores than untrained nurses (44.4% vs 45.8%), although this difference was not statistically significant.

No significant associations were found with sex, age, marital status, professional profile, position, years of experience, workload, patients per day, language proficiency, or academic level (Table 3).

Overall, the total soft skills score ranged from 58 to 102 (mean = 79.05, SD = 8.69), indicating satisfactory but improvable performance. Communication was the highest-scoring domain (mean = 48.52/60), whereas emotional intelligence was the lowest (mean = 8.48/15). Confidentiality showed notable gaps (mean = 16.83/30), particularly regarding secure handling of patient files (CONF2 mean = 2.89; Table 2).

Multivariable linear regression analysis (Table 4) provided additional insight after adjustment for organizational and professional factors. In the adjusted model, prior soft skills training emerged as a significant predictor of higher overall soft skills scores ($B = 4.80, p = 0.001$), alongside years of professional experience ($B = 0.45, p = 0.048$) and department affiliation (Other vs Medical; $B =$

3.25, $p = 0.021$). Night work schedule was associated with lower scores ($B = -2.10$, $p = 0.034$), whereas age was not a significant predictor ($p = 0.215$). Department was dichotomized for regression (Medical vs Other departments (Pediatrics, Hemodialysis, and the Laboratory)) due to sparse cell counts in several units.

Part A — Regression coefficients

Predictor	B	SE	β	t	95% CI	p-value	Tolerance	VIF (R^2)
Department (ref = Medical)	3.25	1.38	0.24	2.35	0.52 to 5.98	0.021*	0.81	1.23 (0.19)
Years of experience	0.45	0.22	0.19	2.03	0.01 to 0.89	0.048*	0.77	1.29 (0.23)
Work schedule (Night vs Day)	-2.10	0.98	-0.20	-2.14	-4.06 to -0.14	0.034*	0.84	1.19 (0.16)
Soft skills training (Yes)	4.80	1.42	0.32	3.38	1.97 to 7.63	0.001**	0.93	1.07 (0.07)
Age (years)	0.12	0.10	0.11	1.24	-0.08 to 0.32	0.215	0.89	1.12 (0.11)

Note: Dependent variable = overall soft skills score (range 25–125). B = unstandardized coefficient; SE = standard error; β = standardized coefficient; CI = confidence interval. VIF (R^2) represents the Variance Inflation Factor followed by the coefficient of determination obtained by regressing each predictor on all other independent variables. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Part B — Model fit and diagnostics

Statistic	Value
Adjusted R^2	0.42
R^2	0.46
F-statistic	12.31
df (Regression, Residual)	(5, 71)
ANOVA Model p-value	<0.001
Durbin–Watson	1.91
Residual distribution	Normal (Shapiro–Wilk $p > 0.05$)
Homoscedasticity	Verified (Breusch–Pagan $p > 0.05$)
Multicollinearity	Moderate collinearity, generally acceptable. (all VIF < 1.3)

Note: Dependent variable = overall soft skills score (range 25–125). Department was dichotomized for regression: 0 = Medical unit; 1 = Other departments. B = unstandardized coefficient; SE(B) = standard error; β = standardized coefficient; CI = confidence interval; VIF = variance inflation factor. Reference categories: Department = Medical; Work schedule = Day shift; Soft skills training = No. Significance threshold $p < 0.05$. The model met assumptions of normality, homoscedasticity, independence of errors, and absence of multicollinearity.

Table 4. *Multivariable Linear Regression Predicting the Overall Soft Skills Score (dependent variable; range 25–125), with VIF and R^2 Diagnostics.*

Table 5 presents the pairwise associations among the predictor variables included in the regression model, allowing assessment of potential multicollinearity.

Variable	Department (0 = Medical; 1 = Other)	Experience (years)	Work schedule (0 = Day; 1 = Night)	Soft skills training (0 = No; 1 = Yes)	Age (years)
Department	—	0.18 (0.120)	-0.12 (0.280)	0.09 (0.410)	0.04 (0.720)
Experience (years)	0.18 (0.120)	—			
Work schedule	-0.12 (0.280)	-0.22 (0.050)	—		
Soft skills training	0.09 (0.410)	0.15 (0.190)	-0.05 (0.640)	—	
Age (years)	0.04 (0.720)	0.72 (<0.001)*	-0.08 (0.490)	0.11 (0.320)	—

Note: Cells report effect size with two-tailed p-values in parentheses. Continuous–continuous associations are reported using Pearson’s correlation coefficient (r). Continuous–dichotomous associations are reported using the point-biserial correlation (r_{pb}) (equivalent to Pearson’s r with 0/1 coding). Associations between two dichotomous predictors are summarized using the phi coefficient (ϕ), with p-values derived from Pearson’s chi-square test ($df = 1$). Dichotomous predictors were coded 0/1 as follows: Department (0 = Medical unit, 1 = Other departments), Work schedule (0 = Day, 1 = Night), Training (0 = No, 1 = Yes). *: significant test

Table 5. Pairwise associations among predictor variables included in the regression model ($N = 77$).

The resulting correlation matrix provides an overview of the relationships between variables and helps identify whether any strong dependencies could jeopardize the stability of the multivariable model. Examination of the matrix showed a discrete dependence between age and years of experience ($r = 0.72$, $p < 0.001$), which was expected given the conceptual link between both variables. A weak negative correlation was also observed between work schedule and experience ($r = -0.22$, $p = 0.05$), however, it did not reach statistical significance ($r_{pb} = -0.22$, $p = 0.050$) given the prespecified threshold ($p < 0.05$). Although these relationships indicate some degree of interdependence among predictors, their magnitude remained below the commonly accepted threshold for problematic multicollinearity ($r < 0.75$). This was further supported by the Variance Inflation Factor (VIF) values reported in Table 4, all of which were below 1.3. These findings indicate the presence of moderate but acceptable collinearity, which does not compromise the stability or interpretability of the regression model.

DISCUSSION

This study evaluated the soft skills of nursing staff at Hassan I Provincial Hospital in Tiznit, Morocco, and examined their associations with sociodemographic and professional characteristics. The findings highlight both strengths and areas for improvement in these non-technical competencies, which are essential for delivering safe, effective, and patient-centered care [1,2].

Overall, communication skills emerged as the strongest domain, with most nurses reporting that they greeted patients, introduced themselves, addressed patients by name, and explained care procedures clearly. These results are consistent with evidence showing that effective communication improves patient satisfaction, adherence to treatment, and clinical outcomes [5]. The widespread use of active listening reinforces the principles of patient-centered care, which emphasize empathy and understanding [15]. However, only half of the participants reported using visual aids or analogies to enhance understanding, despite their proven benefits for patients with limited health literacy [15]. This represents an opportunity for targeted training aimed at diversifying communication strategies.

Emotional intelligence scored lowest among the four domains, suggesting difficulties in managing emotions and interpersonal relationships in a demanding work environment. Similar findings in other studies have linked lower emotional intelligence among nurses to high workload, stress, and burnout [6,11]. The tendency to overlook unjustified patient behaviors during busy periods may reflect emotional fatigue or cognitive overload, which can negatively impact both patient care and staff well-being [11].

Management skills were at a neutral level, indicating that while many nurses acknowledged responsibilities such as advising patients, prioritizing care, and supporting colleagues, formal managerial competencies may be underdeveloped. Prior research has similarly highlighted the need for structured managerial training in nursing education and continuing professional development [7,12]. Confidentiality practices showed mixed results. Although most participants-maintained

discretion during patient interactions and limited the sharing of sensitive information to authorized individuals, approximately one-third admitted to leaving patient files unsecured. Such lapses raise ethical and legal concerns and may undermine patient trust. Contributing factors may include infrastructural limitations, shared ward environments, and heavy workloads—barriers also reported in comparable healthcare settings [8,13,14]. Strengthening both awareness and institutional support for confidentiality protocols is therefore critical. Although descriptive differences were observed across departments and work schedules, these associations were not statistically significant in the bivariate analyses and should therefore be interpreted cautiously. Prior soft skills training was not associated with categorized soft skills levels in the unadjusted comparisons; however, it emerged as an independent predictor in the adjusted linear regression model based on the continuous total score. This apparent discrepancy is not contradictory, because the bivariate analysis examined grouped categories of soft skills, whereas the multivariable model estimated the association with the continuous outcome after adjustment for other predictors. Higher scores in some departments may reflect differences in clinical demands and relational intensity, but these patterns remain descriptive in this cross-sectional sample. Similarly, longer professional experience was associated with higher soft skills scores in the adjusted model, suggesting that cumulative clinical exposure and professional maturity may contribute to the development of interpersonal competencies. These findings support the integration of structured soft skills training into both undergraduate nursing curricula and continuing professional development, with content tailored to specific departmental needs and work conditions. More structured pedagogical approaches—such as simulation-based training [25,26], supervised mentorship and preceptorship programs [27,28], reflective practice groups [29,30], and scenario-based workshops [30]—may help nurses translate communication, emotional regulation, and management principles into clinical behavior.

At the organizational level, targeted interventions such as workload redistribution [32], reinforcement of team-based care models [33], the implementation of clinical supervision [34], and

the creation of dedicated confidential spaces for patient interviews could address several structural barriers identified in this study. Strengthening information-security systems and ensuring protected storage of patient records may further reduce confidentiality breaches [35,36]. These results also carry policy implications for nursing governance in Morocco. Integrating formal soft skills modules into ISPITS curricula [36], implementing mandatory continuing education credits focused on non-technical competencies, and aligning training standards with current health sector reforms [30] would contribute to enhancing the professionalization of the nursing workforce. At a broader level, incorporating soft skills indicators into hospital accreditation frameworks and performance evaluation systems may support more consistent and evidence-based development of these competencies nationwide [31].

The study's cross-sectional design limits the ability to draw causal conclusions, and the single-center setting may reduce generalizability. Reliance on self-reported data also introduces the possibility of social desirability bias, particularly regarding sensitive topics like confidentiality. Future research should consider multi-center designs, larger and more diverse samples, and incorporate objective or observational measures.

Longitudinal studies could further illuminate how soft skills evolve throughout nurses' careers, while qualitative approaches could offer deeper insights into the contextual factors influencing their development in Morocco and other African healthcare systems [16,17].

CONCLUSION

This study emphasizes the essential role of soft skills among nursing staff at Hassan I Provincial Hospital in Tiznit (Morocco) and offers a detailed assessment of their current competencies within this Moroccan healthcare context. The findings indicate that while communication skills are generally strong among nurses, notable deficiencies exist in emotional intelligence, management abilities, and adherence to confidentiality practices. These areas are crucial not only for delivering

effective and compassionate patient care but also for promoting a supportive work environment and fostering teamwork across disciplines.

In adjusted analyses, prior soft skills training and professional experience were associated with higher soft skills scores. This highlights the urgent need for healthcare institutions and policymakers in Morocco to prioritize tailored continuing education programs focusing on these competencies. Integrating training on emotional intelligence, managerial skills, and ethical standards around patient confidentiality into both initial nursing education and ongoing professional development will be fundamental.

Enhancing soft skills among nurses has the potential to significantly improve patient outcomes, satisfaction, and trust in healthcare providers. As healthcare delivery grows increasingly complex, equipping nurses with these essential non-technical skills is vital to adapt effectively to diverse patient needs and ensure holistic, quality care.

Finally, the study underscores the importance of further research using larger samples and multi-center approaches, as well as longitudinal designs, to better understand the evolution of soft skills and their influence on healthcare quality across different settings. Addressing these gaps will require collaborative efforts between academic institutions, healthcare organizations, and regulatory bodies. In conclusion, investing in the development of nursing soft skills is a critical step towards strengthening healthcare systems in Morocco and similar contexts, ultimately leading to improved patient care and professional nursing practice.

Limitations

This study has several limitations. First, its cross-sectional design limits the ability to establish causal relationships between soft skills and associated factors such as training or department. Second, the study was conducted in a single provincial hospital with a relatively small sample (N = 77), which may restrict the generalizability of the findings to other hospitals or regions in Morocco.

Third, the use of a self-administered questionnaire introduces the potential for social desirability bias, particularly regarding sensitive domains such as confidentiality. In addition, the online distribution of the questionnaire through Google Forms and WhatsApp may have introduced selection and response bias, as nurses with high workload, limited availability, or reduced access to digital devices may have been underrepresented. This limitation may have affected the representativeness of the sample and the accuracy of certain domain scores. Fourth, the absence of objective or observational assessments of soft skills may limit the accuracy of the measurements. Finally, non-participation of some eligible nurses and the short data collection period may have introduced selection bias and may not fully capture temporal variations in practice. In particular, although the study used a census-based sampling approach, 36 eligible staff members did not participate, which may have introduced additional selection bias if non-respondents differed systematically from respondents—for example, if nurses with heavier workloads or lower soft skills were less available to participate.

Conflict of interest

The authors declare no conflicts of interest related to this work.

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Author contributions

1. Ahmed Ouaamr: Conceptualization, study design, data collection, data analysis, manuscript drafting, and corresponding author.

2. Naima Taramitte: Data collection, data curation, and manuscript review.
3. Yassine Ben Ali: Data analysis, interpretation of results, and manuscript editing.
4. Mohamed Chaf: Data collection and administrative support.
5. Siraj Adil: Statistical analysis and methodological guidance.
6. Abouri Otmane: Data collection and questionnaire administration.
7. Elbouzidi Mouhamed: Literature review and manuscript editing.
8. Katim Alaoui: Supervision, validation of study design, and critical revision of the manuscript.

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