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The correlation of clinical nurses' professional competence with professional perception and other factors

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ABSTRACT

The research aims to determine the correlation of nurses' professional competence with their professional perceptions and other factors. The research has a descriptive and correlational design. The research was conducted with 512 nurses. Nurse Info Form, Nursing Professional Competence Scale, Perception of Nursing Professional Scale were used as data collection tools. In the research, nurses' professional competence and nursing professional perception were found to be high, while the professional status sub-dimension was moderate. As nurses' professional competence increased/soared, nursing professional perception increased/soared too. When nurses have high levels of competence, their clinical skills and occupational professionalism will boost, and they will perform quality and safe nursing practices. It is necessary to determine the affecting factors and develop nurses' professional competence so that nurses take their place effectively in future health systems. Professional perception of nursing is substantial for nurses to adapt to the profession, maintain an efficient and effective working life, enhance their motivation and self-confidence, establish relationships with members of other disciplines, patients, and their relatives, and have professional competence.

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KEYWORDS
Clinical nurses'; nursing professional competence; competence; professional perception; nursing

Introduction

Competence is the combination of knowledge, attitudes, and skills of an individual, enabling them to fulfill expected roles and liabilities, and is the ability to perform safe and effective practices [1,2]. Professional competence denotes the basic standards in performing a profession. Competence in nursing refers to; knowledge, attitude, and acceptable professional performance at the psychomotor/kinetic level [3]; the effective application of a combination of knowledge, skill, and professional decisions in job performance and daily practice [4]; an expected level of performance that integrates ability and judgment [5]. Besides the knowledge, skills, personal characteristics, motives, and attitudes that nurses should have in order to exhibit effective performance throughout their entire professional life; the nursing competence can be described generally with the complicated processes such as leadership, professional development, diagnosis, planning, observation, motivation, cognitive ability (critical thinking, decision making, analysis, judgment, thinking ability, etc.), social participation, communication, assertiveness, self-perception, and eventually is the ability to take action by combining all these [6,7].

Today's changes and developments in scientific knowledge, technology, and economic, social, cultural, education, and health fields require nurses working in health care services to have the professional competence to fulfill their professional roles, functions, and liabilities [7–9]. According to ICN, core nursing competence areas and their sub-areas are; Professional, ethical, and legal practices (accountability, ethical practices, and legal), Care delivery and management (basic principles of care and leadership and management), Professional, personal and qualification development (professional development, qualification development, and continuing education) [10]. According to Fukada [7], nursing competence areas are Ability to understand needs, Ability to provide care, Ability to cooperate, Ability to support decision-making while

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Salem et al. [11]'s classification is Patient-centered care, Professionalism, Communication, Leadership, Safety, Research, Teaching, and Learning.

The competence areas that nurses are expected to have been affected by many factors. Professional perception is one of those factors. Professional perception is nurses' feelings, thoughts, and behaviors about themselves, their environments, nursing, and the appropriateness of nursing actions [12]. Professional perception (of nursing) is substantial for nurses to adapt to the profession, maintain an efficient and effective working life, enhance their motivation and self-confidence, establish relationships with members of other disciplines, patients, and their relatives, and have professional competence [13,14]. Nursing competence is also affected by the knowledge, skills, attitudes, behaviors, individual characteristics, etc. factors, which are essential for effective performance throughout the nurses' entire professional life and in their various clinical practices [15,16]. Thus, it is necessary to identify the professional competence areas expected of nurses, evaluate these areas at regular intervals, determine the affecting factors and develop nurses' professional competence so that nurses take their place effectively in future health systems [8,9,17].

Due to the rapid changes and developments in the health care system synchronously with the studies being carried out to determine the competence areas of nursing students who will graduate from nursing undergraduate and graduate education programs, the competence areas of nurses after graduation should also be diagnosed/identified, regulated, improved, and evaluated [9,18]. In this context, the present research, which aims to determine the correlation of nurses' professional competence with professional perception and other factors, significantly matters in terms of contributing to both the literature and new practices. The study aimed to determine the correlation of the nurses' professional competence with their professional perception and other factors.

Methods

For conducting the study, ethical approval was obtained from the Social Sciences and Humanities Ethics Committee at **XX** University (Date: **XX**, Number: **XX**). Institutional permissions were received from the institutions where the research would be carried out, scale usage permissions from the researchers who originated the scales being employed in the research, and the verbal and written permissions from the nurses taking part in the research. The study has a descriptive and correlational design. The STARD 2015 checklist was used in this research.

This study reports on sought to answer the following research questions:

(1) What is the level of professional competences of nurses?
(2) What is the level of professional perceptions of nurses?
(3) Is there a relationship between the professional competencies of nurses and their professional perceptions?
(4) Is there a difference in the professional competence levels of nurses according to their socio-demographic and professional characterisrics?

The research population comprised 3383 nurses working in three training and research hospitals with the highest bed capacity in **XX**, two university hospitals, and a private hospital. The sample was determined as 512 nurses from all nurse ($N = 3383$ nurses) working in the three hospitals where the research was carried out, calculated according to the formula for determining the sample with a 95% confidence interval and a margin of error of 0.05. Among the 512 nurses constituting the sample of the study, the nurses to be sampled according to the institutions were determined by stratified sampling method. The nurses were selected by random sampling method among those who voluntarily agreed to participate in the study.

The data were collected by the researcher between 16 September and 13 December 2019 by providing each participant with the relevant forms to be filled out. Nurse Information Form, Nursing Professional Competence Scale, and Perception of Nursing Professional Scale were used as data collection tools. These data collection tools do not have any limitations. The Nurse Information Form is a form for determining the socio-demographic and professional characteristics of the participants. The other data collection tools are scales with high validity and reliability and have been used in other studies.

Nurse Information Form: The researcher designed the form in line with the literature relating to the subject [8,19]. The form included 15 questions to specify the socio-demographic and professional characteristics (age, gender, marital status, working time as a nurse, working time in the institution, working unit, position) and professional development of the nurses (having a certificate related to the profession, following innovations and developments related to nursing practices, participation in scientific activities such as congresses, symposiums, etc. organized outside the institution, frequency of participation of those who stated that they participated in scientific activities, making scientific publications / oral presentations / posters, following publications related to the profession, the status of defining competences in the institution where they work and the existence of performance indicators related to competences).

Nursing Professional Competence Scale (NPCS): The scale was devised by Çalışkan and Şenyuva to determine the nurses' professional competence levels. The scale comprised 67 items dispersed in 7 sub-dimensions. Response options of the scale prepared in 4-point Likert type were 'Always (4), Never (1)'. All the items on the scale were positive, and there were no reverse-scored items. An increase in the score obtained from the scale denotes the increasing professional competence of the nurse for the relevant item. The Cronbach alpha reliability coefficient for the overall scale was 0.98 [20]. In the present research, the Cronbach alpha reliability coefficient for the total scale was found to be 0.977.

Perception of Nursing Professional Scale (PNPS): Aiming to determine the professional perception of nurses, the scale was devised by Eşer, Khorshid, and Denat. The scale comprised 22 items, dispersed in two sub-dimensions. Response options of the five-point Likert scale were Strongly Agree (5), Strongly Disagree (1), respectively. The scale had no reverse-scored items. The higher the score on the scale indicates, the better the nursing perception. The total Cronbach alpha reliability coefficient of the scale was 0.83 [12]. In the research, the Cronbach alpha reliability coefficient was calculated as 0.91 for the overall scale, 0.92 for the Professional Qualities sub-dimension, and 0.81 for the Professional Status sub-dimension.

Data analysis was performed using the Number Cruncher Statistical System 2007 (Kaysville, Utah, USA). Significance was evaluated at the $p < 0.05$ level. Descriptive statistical methods were employed to depict nurses' socio-demographic characteristics, professional characteristics, professional development, and distribution of scale items. The conformity of the data to the normal distribution was tested through the Kolmogorov–Smirnov, Shapiro–Wilk test, and graphical evaluations. While addressing the normally distributed data, the Student t-test was used for two-group comparisons, One-way Anova Test for comparisons of three and more groups, and Bonferroni test for pair-wise comparisons. For the data that did not meet normal distribution, Kruskal–Wallis Test was used for the comparisons of three or more groups and the Bonferroni-Dunn Test for pair-wise comparisons. Spearman's Correlation Analysis was applied to evaluate the association between the variables [21].

In the study, the data were collected one-on-one from the nurses by the researchers. The professional competences of the nurses were determined using the NPCS and their professional perception was determined using the PNPS. Here, the professional competences and professional perceptions of the nurses were made measurable with the answers they gave in line their subjective opinions and perceptions.

Results

The mean age of the nurses was 28.65 ± 7.1 (aged between 19 and 54). 84.8% of the nurses were female, 64.1% single. The attendee nurses had been working as nurses for 6.85 ± 7.40 years and in the same institution for 4.20 ± 5.06 years. Of all the nurses, 47.8% worked in surgical units and 42.4% in internal ones. 71.9% of the participants worked as service nurses, 16.6% as special branch nurses, 8.0% as service supervisor nurses, and all had been in the same position for 4.20 ± 4.82 years.

34.8% of nurses had a certificate relevant to their profession. Nurses tracked the innovations and developments related to nursing practices mostly through in-service training, the internet, congresses, and symposiums. 65.4% of the nurses participated in scientific events such as congresses, symposiums, etc. held outside the institution. 37.9% of the nurses who stated participation in scientific events such as congresses and symposiums attended less than once a year, while 33.7% attended only once a year. Only 16.4% of the nurses worked on scientific publications/oral papers/posters, and 17.0% followed professional publications. 85.5% of the nurses stated that competence areas were described in the institution they work in, and 52.1% characterized the competence areas and had performance indicators.

Table 1. Nurses' overall and sub-dimension mean scores and standard deviation values in NPCS and PNPS (N: 512)

NPCS	Minimum-Maximum	Mean(SD)
Diagnosis	1.10-4.00	3.51(0.56)
Implementation of Nursing Process	1.20-4.00	3.51(0.56)
Health/Patient Education	1.00-4.00	3.30(0.64)
Professional Development	1.00-4.00	3.25(0.70)
Ethical Practice	1.40-4.00	3.50(0.55)
Critical Thinking and Teamwork	1.80-4.00	3.50(0.48)
Research and Development	1.10-4.00	3.25(0.62)
Total	1.70-4.00	3.42(0.49)
PNPS	Minimum-Maximum	Mean(SD)
Professional Qualities	17.00-85.00	75.63(9.17)
Professional Status	5.00-25.00	16.28(5.45)
Total	22.00-110.00	91.91(12.19)

It was found that the nurses' overall mean score of the NPCS ranged between 3.42 (0.49). It was determined that the nurses' PNPS's overall mean score varied between 91.91 (12.19) (Table 1).

A positive and very weak significant correlation ($r = 0.257$) was found between nurses' overall mean score in the NPCS and the overall mean score of the PNPS. The overall mean score of the NPCS was detected to be in a positive and weak significant correlation ($r = 0.302$) with the Professional Qualities sub-dimension mean score of the NPCS; again, a positive and weak significant correlation was found ($r = 0.114$) between the overall mean score of the NPCS and the mean score of the Professional Status sub-dimension (Table 2).

It was determined that there was not a statistically significant difference ($p > 0.05$) between the ages, genders, marital status, and education levels of the nurses and the overall and sub-dimension mean scores of the NPCS.

It was determined that nurses working in other units (polyclinic, quality-efficiency, education, etc.) had higher mean scores of the NPCS than those working in surgical units and specialized units ($p = 0.022$; $p = 0.001$), and nurses working in internal units had higher mean scores than those working in specialized units (emergency clinic, etc.) ($p = 0.009$) (Table 3).

It was determined that the mean score of NPCS of nurses working as bedside nurses was higher ($p = 0.004$) than that of nurses working as special branch nurses (Table 3).

In the research, the working durations as a nurse, working durations in the institution, and working durations at the present job do not have a significant difference from the overall mean scores of the NPCS ($p > 0.05$) (Table 4).

The mean scores of the nurses who participated in scientific activities outside the institution in the sub-dimensions of Implementation of Nursing Process, Healthcare/Patient Education, Ethical Practice and Research and Development sub-dimensions and the mean scores of the NPCS ($p = 0.016$) ($p = 0.049$) ($p = 0.048$) ($p = 0.039$) ($p = 0.001$) were relatively higher than those who did not.

It was found that the mean scores of the nurses who followed up on the professional publications in the overall NPCS and Diagnosis, Professional Development and Research and Development sub-dimensions were higher than those who did not ($p = 0.026$) ($p = 0.035$) ($p = 0.015$) ($p = 0.004$).

Table 2. The correlation between nurses' overall and sub-dimension mean scores in NPCS and PNPS (N: 512).

PNPS NPCS		Professional Qualities	Professional Status	Total
Diagnosis	r	0.238	0.053	0.190
	p	0.001**	0.232	0.001**
Implementation of Nursing Process	r	0.304	0.071	0.242
	p	0.001**	0.110	0.001**
Health/Patient Education	r	0.242	0.126	0.224
	p	0.001**	0.004**	0.001**
Professional Development	r	0.221	0.119	0.197
	p	0.001**	0.007**	0.001**
Ethical Practice	r	0.207	0.039	0.165
	p	0.001**	0.384	0.001**
Critical Thinking and Teamwork	r	0.288	0.082	0.234
	p	0.001**	0.062	0.001**
Research and Development	r	0.242	0.153	0.226
	p	0.001**	0.001**	0.001**
Total	r	0.302	0.114	0.257
	p	0.001**	0.010*	0.001**

Table 3. Comparison of the nurses' professional characteristics and their overall and sub-dimension mean scores of the NPCS (N: 512).

		Diagnosis Mean(SD)	Implementation of Nursing Process Mean(SD)	Health /Patient Education Mean(SD)	Professional Development Mean(SD)	Ethical Practice Mean(SD)	Critical Thinking and Teamwork Mean(SD)	Research and Development Mean(SD)	Total Mean(SD)
Where the nurses worked	**[a]Internal units**	3.53(0.49)	3.58(0.45)	3.39(0.54)	3.21(0.72)	3.52(0.54)	3.53(0.45)	3.30(0.60)	3.47(0.43)
	[b]Surgical units	3.52(0.59)	3.46(0.64)	3.22(0.72)	3.26(0.70)	3.48(0.57)	3.45(0.50)	3.21(0.63)	3.38(0.53)
	[c]Featured units (Emergency clinic, etc)	3.03(0.75)	3.20(0.60)	3.01(0.52)	2.84(0.61)	3.23(0.63)	3.27(0.54)	2.91(0.52)	3.11(0.51)
	[d]Other units (polyclinic, quality-efficiency, education, etc)	3.67(0.46)	3.72(0.42)	3.51(0.53)	3.68(0.38)	3.67(0.37)	3.73(0.29)	3.52(0.53)	3.65(0.35)
	F	6.044	5.379	5.080	6.497	2.699	5.117	5.108	6.391
	p	**0.001**** **a,b,d > c**	**0.001**** **a,d > c**	**0.002**** **a > b; d > c**	**0.001**** **d > a,b,c**	**0.045*** **d > c**	**0.002**** **d > b,c**	**0.002**** **d > b,c; a > c**	**0.001**** **d > b,c; a > c**
Position	**[a]Bedside nurses**	3.56(0.48)	3.56(0.45)	3.35(0.55)	3.23(0.67)	3.52(0.52)	3.51(0.44)	3.25(0.61)	3.45(0.42)
	[b]Clinic manager nurses	3.46(0.47)	3.69(0.41)	3.57(0.42)	3.64(0.48)	3.66(0.44)	3.61(0.42)	3.40(0.47)	3.61(0.37)
	[c]Education nurses	3.90(0.16)	3.89(0.14)	3.54(0.35)	3.61(0.50)	3.80(0.31)	3.75(0.36)	3.65(0.55)	3.74(0.25)
	[d]Manager nurses	3.35(0.70)	3.40(0.62)	3.27(0.73)	3.66(0.39)	3.62(0.38)	3.52(0.43)	3.29(0.51)	3.42(0.49)
	[e]Special branch nurse	3.21(0.77)	3.21(0.86)	2.93(0.92)	3.06(0.86)	3.30(0.72)	3.34(0.62)	3.18(0.70)	3.18(0.69)
		22.624	17.868	21.926	23.098	9.469	7.592	5.637	16.741
	p	**0.001**** **a,b,c > e**	**0.001**** **a,b > e**	**0.001**** **a,b > e**	**0.001**** **b > a,e**	**0.049*** **a,b > e**	0.108 -	0.228 -	**0.002**** **b > e**
The working durations as a nurse	**r**	−0.058	0.013	0.027	0.080	−0.028	−0.031	−0.023	0.002
	p	0.193	0.776	0.548	0.072	0.531	0.490	0.607	0.971
The working durations in the institution	**r**	−0.058	0.019	0.026	0.107	−0.017	−0.035	−0.046	−0.001
	p	0.190	0.669	0.559	**0.015***	0.706	0.424	0.303	0.990
The working durations at the present job	**r**	−0.084	−0.002	−0.024	0.031	−0.052	−0.043	−0.036	−0.032
	p	0.057	0.960	0.586	0.486	0.243	0.331	0.410	0.469

Table 4. Comparison of nurses' occupational development with their overall and sub-dimension mean scores of the NPCS (N: 512).

		Diagnosis Mean(SD)	Implementation of Nursing Process Mean(SD)	Health /Patient Education Mean(SD)	Professional Development Mean(SD)	Ethical Practice Mean(SD)	Critical Thinking and Teamwork Mean(SD)	Research and Development Mean(SD)	Total Mean(SD)
To have job-related certificates	Yes	3.46(0.56)	3.52(0.57)	3.34(0.63)	3.30(0.68)	3.53(0.53)	3.49(0.48)	3.29(0.60)	3.43(0.49)
	No	3.54(0.56)	3.51(0.55)	3.28(0.65)	3.22(0.71)	3.49(0.56)	3.50(0.48)	3.23(0.62)	3.42(0.49)
	t	−1.354	0.348	0.865	1.214	0.748	−0.339	0.983	0.374
	p	0.176	0.728	0.387	0.225	0.455	0.735	0.326	0.709
Participate in scientific activities held outside the institution	Yes	3.54(0.55)	3.55(0.56)	3.34(0.63)	3.28(0.71)	3.54(0.51)	3.53(0.45)	3.33(0.57)	3.46(0.47)
	No	3.46 (0.57)	3.45(0.55)	3.22(0.65)	3.19(0.69)	3.43(0.62)	3.44(0.52)	3.10(0.67)	3.35(0.51)
	t	1.541	1.964	1.986	1.299	2.072	1.841	4.069	2.414
	p	0.124	0.049*	0.048*	0.194	0.039*	0.067	0.001**	0.016*
To do the scientific publications/oral presentations/ posters	Yes	3.49(0.63)	3.48(0.70)	3.27(0.75)	3.37(0.68)	3.55(0.56)	3.54(0.44)	3.37(0.58)	3.44(0.53)
	No	3.52(0.54)	3.52(0.53)	3.31(0.62)	3.22(0.71)	3.49(0.55)	3.49(0.49)	3.23(0.62)	3.42(0.48)
	t	−0.432	−0.431	−0.532	1.737	0.978	0.998	1.820	0.414
	p	0.666	0.667	0.595	0.083	0.329	0.319	0.069	0.679
To follow-up of professional publications	Yes	3.63(0.48)	3.59(0.48)	3.38(0.55)	3.41(0.61)	3.56(0.51)	3.56(0.40)	3.43(0.54)	3.51(0.40)
	No	3.49(0.57)	3.50(0.57)	3.29(0.66)	3.21(0.72)	3.49(0.56)	3.48(0.49)	3.22(0.63)	3.40(0.50)
	t	2.117	1.406	1.420	2.434	1.070	1.432	2.867	2.250
	p	0.035*	0.160	0.158	0.015*	0.285	0.153	0.004**	0.026*
State of definition of nursing competencies in the institution work in	Yes	3.53(0.55)	3.53(0.55)	3.31(0.64)	3.27(0.71)	3.52(0.55)	3.51(0.47)	3.27(0.60)	3.44(0.48)
	No	3.40(0.61)	3.42(0.61)	3.27(0.63)	3.11(0.68)	3.41(0.59)	3.42(0.50)	3.14(0.69)	3.34(0.52)
	t	1.826	1.559	0.452	1.760	1.514	1.518	1.739	1.593
	p	0.068	0.120	0.651	0.079	0.131	0.130	0.083	0.112
Performance indicators related to nursing competencies in the institution	Yes	3.56(0.55)	3.54(0.57)	3.35(0.64)	3.32(0.68)	3.55(0.54)	3.52(0.47)	3.31(0.57)	3.46(0.49)
	No	3.46(0.56)	3.48(0.54)	3.25(0.64)	3.17(0.71)	3.45(0.56)	3.47(0.48)	3.19(0.66)	3.38(0.48)
	t	2.153	1.349	1.691	2.551	2.165	1.111	2.224	2.008
	p	0.032*	0.178	0.092	0.011*	0.031*	0.267	0.027*	0.045*

*$p < 0.05$ **$p < 0.01$ SD: Standard deviation.
T: Student t Test NPCS: Nursing Professional Competence Scale.

The nurses' having job-related certificates, the competencies being already defined in the institution worked in, and the nurses' working on scientific publications/oral presentations/posters were determined not to be statistically significantly different ($p > 0.05$) from the attendee nurses' mean scores in the overall NPCS and all its sub-dimension.

A statistically significant difference was found between the case where the nurses' institutions characterized the competence areas and had performance indicators and the nurses' mean scores in the overall NPCS and Diagnosis, Professional Development, Ethical Practice, and Research and Development sub-dimensions ($p = 0.045$) ($p = 0.032$) ($p = 0.011$) ($p = 0.031$) ($p = 0.027$). As the results of the paired comparisons implied, this difference was because the nurses whose institutions characterized the competence areas and had performance indicators got a higher mean score than those who did not.

Discussion

In the research, it was determined that the mean working duration of nurses in nursing varied between 6.85 (7.4) years, and the working time in the present institution ranged between 4.20 (5.06) years. According to Benner [22], a person first gains competence after going through certain stages, then keeps on passing through the stages and periods from novice to proficiency, and finally becomes an expert. Regarding the 'Skill Acquisition Model', she states that 'To reach the *Expertise* stage, one must have a special education in the field and at least five years of experience' [22]. Due to this finding, it can be assessed that the nurses taking part in the present research were at their expertise stage, considering their working duration, and thus had professional knowledge and experience.

In the research, approximately one-third of the nurses had a certificate relevant to their profession. The research results of Bathish et al. [23], Garrison et al. [19], and Ichikawa et al. [24] conform to this statistic in the present research. This finding can be interpreted as that nurses opted to attend more certificate programs to update and increase their professional knowledge and skills related to the fields they work in, to keep up with the changes and developments, and to enhance their professional satisfaction, professionalism, and autonomy.

In the present research, the nurses followed up on the innovations and developments related to nursing practices mostly through in-service training, the internet, congresses, and symposiums, and attended scientific events such as congresses and symposiums. Likewise, Çalışkan and Kaya [25], Gcawu et al. [26], noted that many nurses attended in-service training programs, congresses, symposiums, etc., and took part in scientific activities 1–2 times a year. This finding is substantial as it indicates that nurses attended in-service training and scientific events such as congresses and symposiums to monitor the changes and developments in the nursing field, update their professional knowledge and skills, and enhance their professional competence levels.

In the research, the professional competence levels of nurses were high. Similarly, Notarnicola et al. [8], and Kuokkanen et al. [27] found that nurses and nursing students had a high level of professional competence. Khatri et al. [28], and Vázquez-Calatayud et al. [29] emphasized that professional development is essential for professionalizing the nursing, providing quality and safe nursing care, and this depends on their participation in post-graduation trainings, scientific meetings (symposiums, congresses, etc.), vocational courses, as well as conducting researches and following up on professional scientific publications, etc. At the same time, critical thinking, which means thinking about the pros and cons of a situation and making assessments based on research, intuition, experience, and logic, is a primary skill that nurses should have for occasions where they need to make quick and right decisions [30,31]. This finding suggested that nurses had a high level of professional competence in terms of diagnosing the patient, designing a care plan, implementing the plan, evaluating the care, ensuring patient safety, performing the healthy/patient education, contributing to the training of other healthcare team members/students/new recruits, tracking up-to-date knowledge and technologies in order to continue their personal and professional development, determining ethical dilemmas in care, acting in compliance with patient rights, taking precautions against patient rights violations, interpreting patient requirements, critically thinking and analysis, keeping awareness on the knowledge and skills they have, cooperation, attaching importance to teamwork in their nursing practices, communicating, etc.

The professional perception of the nurses taking part in the present research was high. Islam et al. [32] and Eşer et al. [12] revealed that the nursing perception of the nursing students was highly positive, and

clinical practices, in particular, had a positive effect on their professional perception. This finding was evaluated as the nurses' feelings, thoughts, and perceptions about themselves, their environment, and the nursing profession were positive.

In the present research, the nurses' mean scores in the overall NPCS and its sub-dimensions were in a positive and very weak significant correlation with their mean scores in the overall PNPS and its sub-dimensions. The presence of a positive perception towards the profession does matter in individuals' profession selection, high-performance delivery, putting effort into self-development, and enhancing professional competence [33,34]. This finding can be evaluated as the professional perception of nurses will increase as their professional competence levels increase.

In the research, the mean score of the nurses working in other (polyclinic, quality-efficiency, education, etc.) units for the overall NPCS was higher than those of the ones working in surgical units and featured units; likewise, the same mean score of the nurses working in internal units was higher than those of the ones working in featured units (emergency clinic, etc.). In the research by Elhami et al. [35], it was revealed that the professional competence levels of nurses working in pediatric services were higher than those of the ones working in other units. Feliciano et al. [36] found that the nurses' critical thinking and research attitude competencies in the neonatal unit in Iran were higher than other nurses. This finding gave rise to the thought that the nurses' professional competence levels on the nursing skills and responsibilities that they performed the most in the units they worked for were higher than the others.

In the present research, the service nurses' overall mean score on the NPCS was higher than that of special branch nurses. Similarly, in the research conducted by Gutiérrez-Rodríguez et al. [37], it was determined that the competencies of the advanced practice nurses were higher than other nurses. This finding can be interpreted that nurses had higher professional competence levels in the practices covered by their professional roles, liabilities, and their job descriptions.

In the research, the working durations as a nurse, working durations in the institution, and working durations at the present job did not have a significant difference from the overall mean scores of the NPCS. This finding implied that participants with longer working durations as nurses, working duration in the same institution and job felt more competent and powerful, and thus, they did not feel the need to attempt/make any effort for their professional development.

The nurses attending scientific events held outside the institution had a higher overall mean score on the NPCS than those of the ones who did not. This finding can be interpreted that nurses were aware that their attendance in scientific events held outside the institution was efficacious and substantial in updating and enhancing their occupational knowledge and skills, keeping up with changes and developments, and boosting their occupational satisfaction, professionalism, autonomy, and professional competence.

The overall NPCS means score of the nurses who followed up on the publications related to the profession was higher than those of the ones who did not. The literature specifies that it is an obligation to follow the publications related to the profession for the sake of keeping up with the changes and developments in healthcare services and nursing, and catching up with the continuous change [38,39]. In this respect, this finding can be evaluated as an expected positive result.

The attendee nurses with competence-related performance indicators where they worked had a higher overall mean score on the NPCS than those who did not have performance indicators. As the institution defined the competence areas and set performance indicators, the nurses got obliged to comply with the specified standards in their practices. Furthermore, as the results of performance indicators came out low in institutions, relevant trainings were designed, and thus the enhancement of nurses' performance and competence were sought.

Limitations

The research is limited to the nurses working in the institutions where the research was carried out, who voluntarily participated in the research and the self-reports of these nurses. In addition, since the research has a descriptive and correlational design, it aims to describe the professional competences and professional perceptions of nurses and to reveal the relationships between variables. In this context, the research cannot be generalized to all nurses.

Conclusion

In the present research, the nurses' professional competence and professional perception were at a high level. As nurses' professional competence increased/soared, so did their professional perceptions of nursing increase. Professional competence levels differ significantly according to the units in which the nurses work, their job descriptions, their participation in scientific activities, the frequency of following publications related to the profession, and whether there are competence-based performance indicators in their institutions. On the other hand, no significant difference was found between demographic characteristics duration of professional experience, and professional competence level. The finding obtained show that supporting the professional development of nurses, encouraging their participation in scientific activities, and implementing competence-based evaluation systems in institutions are important in terms of strengthening professional competence and belonging in nursing. In line with these results obtained from the research, it can be recommended that the nurses are encouraged to take part in scientific meetings, certificate programs, in-service trainings to increase their professional competence levels and enable them to keep up with the developments, nurses are provided with free access to international and national professional publications/journals, qualitative researches are conducted to reveal the variables affecting their professional competence.

Nursing competence is the core skill required for nurses to fulfill their responsibilities. When nurses have high levels of competence, their clinical skills and occupational professionalism will boost, and they will perform quality and safe nursing practices. It is necessary to determine the affecting factors and develop nurses' professional competence so that nurses take their place effectively in future health systems.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author, (E.Ş.).

Ethics Approval

Ethics committee permission was obtained from Istanbul University the Social Sciences and Humanities Ethics Committee (Date: 5 March 2018, Number: 2018/46) before starting the research.

All participants gave informed consent for the research, and that their anonymity was preserved.

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Authors contributions

Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; Figen Çalışkan, Emine Şenyuva.

Drafting the work or revising it critically for important intellectual content; Figen Çalışkan, Emine Şenyuva.

Final approval of the version to be published; Figen Çalışkan, Emine Şenyuva.

Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved; Figen Çalışkan, Emine Şenyuva.

The authors have read and approved the submitted manuscript.

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