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# USING THE NURSE COMPETENCE SCALE TO EVALUATE THE NURSING COMPETENCIES IN ITALY: A CROSS-SECTIONAL STUDY


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# Introduction

- The assessment of nursing competencies' effectiveness is a crucial aspect for a reliable evaluation of them (1);
- Following the historical basis of Nursing competence Theory as it was carried out by Patricia Benner (2), Nurses are required to have the ability to enact factual knowledge in a real clinical situation (3);
- The assessment of nursing competencies with a reliable tool, as the Nurse Competence Scale, is pivotal for the evaluation of the nurses' abilities (4).


1) Defloor, T., Van Hecke, A., Verhaeghe, S., Gobert, M., Darras, E., & Grypdonck, M. (2006). The clinical nursing competencies and their complexity in Belgian general hospitals. *Journal of Advanced Nursing*, 56(6), 669-678.
2) Benner, P. (1982). Issues in competency-based testing. Nursing Outlook, 30(5), 303-309.
3) Dunn, S. V., Lawson, D., Robertson, S., Underwood, M., Clark, R., Valentine, T., Herewane, D. (2000). The development of competency standards for specialist critical care nurses. Journal of Advanced Nursing, 31(2), 339-346.
4) Wangensteen, S., Johansson, I. S., & Nordström, G. (2015). Nurse competence scale–Psychometric testing in a Norwegian context. Nurse Education in Practice, 15(1), 22-29.

# Background

- The Nurse Competence Scale (NCS) (1) is the tool mostly used for assessing the clinical competencies of nurses worldwide and has been implemented in the international research for more than a decade (2).
- The Nurse Competence Scale, factors influencing a high level of competence was found (2); such as age, years of work experience, length of service in the same ward, higher education and previous professional qualification and experience in health care facilities as well as job satisfaction (3).
- Several studies have evaluated the correlation between level of competence and other variables (1, 3, 4).


1) Meretoja, R., Leino-Kilpi, H., & Kaira, A. M. (2004). Comparison of nurse competence in different hospital work environments. *Journal of Nursing Management, 12*(5), 329-336.
2) Flinkman, M., Leino-Kilpi, H., Numminen, O., Jeon, Y., Kuokkanen, L., & Meretoja, R. (2017). Nurse Competence Scale: a systematic and psychometric review. Journal of Advanced Nursing, 73(5), 1035-1050.
3) Istomina, N., Suominen, T., Razbadauskas, A., Martinkenas, A., Meretoja, R., & Leino-Kilpi, H. (2011). Competence of nurses and factors associated with it. Medicina (Kaunas), 47(4), 230-237.
4) Salonen, A. H., Kaunonen, M., Meretoja, R., & Tarkka, M.-T. (2007). Competence profiles of recently registered nurses working in intensive and emergency settings. Journal of Nursing Management, 15(8), 792-800.

# Aim of the Study

- to describe the level of competence of the Italian registered clinical nurses
- to provide information about the Italian nursing practice development using the Nurse Competence Scale.

# Methods

## Study design

- It was used a cross-sectional survey by means of a structured questionnaire aimed to assess the perception of nurses' competencies in different clinical settings among 17 Italian hospitals.

## Sample

- A convenience sample was used.

# Instruments

- The structure of Nurse Competence Scale (NCS) is composed of seven competence categories or dimensions that are developed based on the nursing practice framework defined by Benner's theory (1).
- Each dimension of the NCS consists of different sets of core competencies distributed as it follows: ***Helping role (7 items); Teaching–coaching (16 items); Diagnostic functions (7 items); Managing situations (8 items); Therapeutic interventions (10 items); Ensuring quality (6 items); and Work role (19 items).***
- The NCS is composed of 73.

1) Benner, P. (1982). Issues in competency-based testing. Nursing Outlook, 30(5), 303-309.

# Results (n= 431)

| Hospitals | N | % |
|---|---|---|
| Centres Involved | 17 | |
| Hospital Physiotherapy Institutes | 100 | 24 |
| San Filippo Neri Hospital | 74 | 17 |
| Company Regional Health Emergency 118 | 48 | 11 |
| Private Structures | 46 | 11 |
| San Camillo Hospital | 31 | 7 |
| Local Health Company | 14 | 3 |
| Agostino Gemelli University Polyclinic Foundation | 13 | 3 |
| Foundation Polyclinic Tor Vergata | 9 | 2 |
| Other | 14 | 3 |
| Undeclared | 82 | 19 |

| Gender | N | % |
|---|---|---|
| Male | 158 | 36.66 |
| Female | 270 | 62.65 |
| Undeclared | 3 | 0.7 |

| Age | |
|---|---|
| Average (SD) | 43.8 (10.6) |

| Title | N | % |
|---|---|---|
| Nurse | 399 | 92.58 |
| Nurse Coordinator | 26 | 6.03 |
| Nurse Manager | 3 | 0.7 |
| Undeclared | 3 | 0.7 |

# Results

| Work settings investigated | N | % |
|---|---|---|
| Medicine | 94 | 21.81 |
| Critical Area | 82 | 19.03 |
| Surgical Area | 80 | 18.56 |
| Emergency / Urgency Area | 78 | 18.1 |
| Ambulatory | 31 | 7.19 |
| Other | 29 | 6.73 |
| Undeclared | 37 | 8.58 |

| Years of service | N | % |
|---|---|---|
| 0-3 years | 49 | 11.37 |
| 4-10 years | 68 | 15.78 |
| >10 years | 303 | 70.30 |
| Undeclared | 11 | 2.55 |

| Years of service in the same Operative Unit | |
|---|---|
| Average (SD) | 9.2 (7.7) |

| Basic Education | N | % |
|---|---|---|
| Professional Degree | 217 | 50.35 |
| University Degree Courses* | 50 | 11.6 |
| Nursing Degree** | 157 | 36.43 |
| Undeclared | 7 | 1.62 |

* Before Decree of the MURST 2 April 2001.
** After Decree of the MURST 2 April 2001.

| Post Basic Education | N | % |
|---|---|---|
| None | 7 | 0.46 |
| Specialist Postgraduate Course | 117 | 27.5 |
| Master's Degree | 17 | 3.94 |
| Master’s Degree in other fields | 12 | 2.78 |
| Undeclared | 278 | 64.5 |

# Results

**Cronbach's alpha and Intraclass Correlation coefficient calculated for VAS average score of the seven dimensions' items of the NCS (n =431)**

| Dimension NCS | N° item | Cronbach's Alpha * | Intraclass correlation coefficient (ICC) | 95% Confidence Interval |
|---|---|---|---|---|
| Helping Role | 7 | 0.93 | 0.9 | |
| Teaching Coaching | 16 | 0.96 | 0.9 | |
| Diagnostic Functions | 7 | 0.91 | 0.9 | |
| Managing Situations | 8 | 0.92 | 0.9 | |
| Therapeutic Interventions | 10 | 0.95 | 0.9 | |
| Eensuring Quality | 6 | 0.94 | 0.9 | |
| Work Role | 19 | 0.96 | 0.9 | |

**Cronbach's alpha and Intraclass Correlation coefficient calculated for Likert Scale average scores of the seven dimensions' items of the NCS (n = 431)**

| Dimension NCS | N° item | Cronbach's Alpha * | Intraclass correlation coefficient (ICC) | 95% Confidence Interval |
|---|---|---|---|---|
| Helping Role | 7 | 0.87 | 0.87 | 0.85-0.89 |
| Teaching Coaching | 16 | 0.94 | 0.94 | 0.93-0.94 |
| Diagnostic Functions | 7 | 0.86 | 0.86 | 0.84-0.88 |
| Managing Situations | 8 | 0.86 | 0.86 | 0.84-0.88 |
| Therapeutic Interventions | 10 | 0.91 | 0.91 | 0.90-0.93 |
| Eensuring Quality | 6 | 0.89 | 0.85 | 0.87-0.91 |
| Work Role | 19 | 0.92 | 0.92 | 0.91-0.93 |

# Results

**The perception of the level of nursing competencies (VAS averages) for the seven dimensions of the NCS (n = 431)**

| Dimension NCS | Average | SD |
|---|---|---|
| Overall | 74.8 | 13.8 |
| Helping Role | 72.9 | 15.7 |
| Teaching Coaching | 73.7 | |
| Diagnostic Functions | 72.6 | |
| Managing Situations | 77.9 | |
| Therapeutic Interventions | 76.1 | |
| Eensuring Quality | 72.9 | |
| Work Role | 77.6 | |

**The perception of their level of competence (VAS averages) stratified according to Frequency of using competencies for the seven dimensions of the Nurse Competence Scale (n = 431)**

| | | | Very often | Occasionally |
|---|---|---|---|---|
| Dimension NCS | Average | SD | Average (SD) | Average (SD) |
| Overall | 74.8 | 13.8 | 81.8 (9.2) | 74.1 (11.4) |
| Helping Role | 72.9 | 15.7 | 79.7 (10.4) | 70.7 (14.9) |
| Teaching Coaching | 73.7 | 15.0 | 80.9 (9.5) | 73.5 (11.7) |
| Diagnostic Functions | 72.6 | 16.2 | 80.4 (10.7) | 71.9 (13.5) |
| Managing Situations | 77.9 | 13.7 | 81.8 (10.4) | 75.3 (14.3) |
| Therapeutic Interventions | 76.1 | 15.0 | 82.4 (10.2) | 73.6 (13.7) |
| Eensuring Quality | 72.9 | 17.4 | 80.1 (11.7) | 73.5 (12.7) |
| Work Role | 77.6 | 13.5 | 83.3 (10.2) | 75.3 (12.1) |

**VAS = 0-25 low; 25-49 quiet good; 50-75 good; 75-100 very good**

# Results

**The perception of their level of competence (VAS averages) stratified according to Frequency of using competence and the years of service concurrently (n = 431)**

| Years of service 0-3 N = 49 | Average | SD | Very often | Occasionally |
|---|---|---|---|---|
| Overall | 68.4 | 11.6 | | |
| Helping Role | | | | |
| Teaching Coaching | | | | |
| Diagnostic Functions | | | | |
| Managing Situations | | | | |
| Therapeutic Interventions | | | | |
| Eensuring Quality | | | | |
| Work Role | | | | |

| Years of service 4-10 N=68 | | | | |
|---|---|---|---|---|
| Overall | | | | |
| Helping Role | | | | |
| Teaching Coaching | | | | |
| Diagnostic Functions | | | | |
| Managing Situations | | | | |
| Therapeutic Interventions | | | | |
| Eensuring Quality | | | | |
| Work Role | 79.0 | 15.3 | 84.5 (9.7) | 78.3 (11.0) |

| Years of service >10 N=303 | Average | SD | Very often | Occasionally |
|---|---|---|---|---|
| Overall | 75.5 | 13.8 | 82.5 (9.0) | 74.9 (11.4) |
| Helping Role | 73.6 | 15.8 | 80.9 (9.7) | 70.7 (15.2) |
| Teaching Coaching | 73.9 | 15.1 | 81.7 (9.6) | 74.2 (11.5) |
| Diagnostic Functions | 73.0 | 16.7 | 81.6 (10.1) | 72.5 (14.2) |
| Managing Situations | 78.8 | 13.7 | 82.3 (10.3) | 76.4 (14.5) |
| Therapeutic Interventions | 76.9 | 14.9 | 82.2 (10.4) | 74.7 (14.7) |
| Eensuring Quality | 73.9 | 17.1 | 79.9 (12.0) | 76.0 (12.1) |
| Work Role | 78.3 | 13.3 | 83.9 (10.0) | 75.7 (12.3) |

# Results

**The Kruskal-Wallis Test comparison of the nurses' self-assessed level of competence per Years of service for the seven dimensions of the NCS (n = 431)**

| | Years of service 0-3 N = 49 | | Years of service 4-10 N=68 | | Years of service >10 N=303 | | p-value* |
|---|---|---|---|---|---|---|---|
| | Average | SD | Average | SD | Average | SD | |
| Overall | 68.4 | 11.6 | 76.6 | 15.0 | 75.5 | 13.8 | <0.001 |
| Helping Role | 65.6 | 13.8 | 75.3 | 15.1 | 73.6 | 15.8 | <0.001 |
| Teaching Coaching | 69.2 | 12.6 | 75.4 | 16.2 | 73.9 | 15.1 | 0.003 |
| Diagnostic Functions | 67.1 | 12.8 | 74.9 | 16.2 | 73.0 | 16.7 | 0.001 |
| Managing Situations | 71.2 | 12.5 | 79.7 | 13.6 | 78.8 | 13.7 | <0.001 |
| Therapeutic Interventio ns | 68.7 | 13.0 | 77.9 | 16.3 | 76.9 | 14.9 | <0.001 |
| Eensuring Quality | 65.3 | 15.3 | 73.6 | 19.9 | 73.9 | 17.1 | <0.001 |
| Work Role | 71.8 | 11.7 | 79.0 | 15.3 | 78.3 | 13.3 | <0.001 |

*Kruskall-Wallis test.

# Discussion

- Nurses reported a high level of self-perceived competence overall the seven dimensions of NCS
- The highest average score was found in the “Managing situations”
- “Helping role” dimension reached the lowest level of competence
- Our results are consistent with other researches (1-3)


**1) O'leary, J. (2012). Comparison of self-assessed competence and experience among critical care nurses. Journal of Nursing Management, 20(5), 607-614.**

**2) Safadi, R., Jaradeh, M., Bandak, A., & Froelicher, E. (2010). *Competence assessment of nursing graduates of Jordanian universities. Nursing & Health Sciences, 12*(2), 147–154.**

**3) Bahreini, M., Shahamat, S., Hayatdavoudi, P., & Mirzaei, M. (2011). Comparison of the clinical competence of nurses working in two university hospitals in Iran. Nursing & Health Sciences, 13(3), 282-288.**

# Limitations

- The sample of our study concerned only one Italian Region, insufficient to represent the entire Italian nursing reality.
- The validity of the research would be increased if random cluster type sampling would have been used.
- Although 431 nurses participated in the study, determining a good sample size, a larger sample size would have strengthened the research.

# Conclusions

- to focus the goal on competencies’ evaluation remains an important issue for healthcare organizations,
- the analysis we carried out underlines the process of acquiring competence and its implementation into clinical practice
- the level of competence changes along the nursing career.

thank you
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kop khun krap
go raibh maith agat
mochchakkeram
arigatô
dakujem
grazie
terima kasih
감사합니다
merci
мерси
tapadh leat
dank je
mauruuru
hvala
sagolun
taiku
takk
ありがとう
ευχαριστώ
рахмат
Баярлалаа
хвала

can't scare me, i'm a nurse!
NURSES
ARE ALL
LPN
STAT!
SAY 'AHHHHH'
loving person near
behind every good doctor is a GREAT Nurse!
This won't hurt a bit!
Be nice, i'm in charge of the pills
nurses are real angels
Code Brown Queen
RN
I HEAL
Nurses are kind of a BIG deal
really nice
care
keep calm and nurse on
vein whisperer