Acta Biomed 2023; Vol. 94, N. 2: e2023067 DOI: 10.23750/abm.v94i2.13618

The expert vascular access nurse: a pilot study of competencies

Elisa Fabbri[1], *Alfonso Sollami*[2], *Luca Bertolaccini*[3]

[1]Regional Agency for Health and Social Care, Emilia-Romagna Region, Italy); [2]University Teaching Hospital of Parma (Italy); [3]Division of Thoracic Surgery, IEO, European Institute of Oncology IRCCS, Italy

Abstract. *Background and aim:* In health care, competencies evolving with clinical and professional practice increasingly need to be defined. Identifying professional competencies in a general sense is no longer enough; it is necessary to define what competencies the professional must possess to ensure the appropriateness and effectiveness of their work. This pilot study aims to outline an initial competency framework specifically for vascular access nurses. *Methods:* A transversal observational study was conducted through the administration of an ad hoc questionnaire, which after a review of the literature aimed to identify the necessary skills for nurses involved in placing vascular accesses in situ. The questionnaire thus constructed identified 108 competencies, which were subjected to content validation by expert nurses through the calculation of a critical content validity ratio (CVR). *Results:* The research involved 14 expert professionals who reported no significant language barriers or comprehensibility difficulties. The expert review showed that the content was valid for all proposed items in a critical Content Validity Ratio (CVR .571 to 1.0). This implies that the proposed competencies can be considered a starting structure for further and necessary analyzes of the same. *Conclusions*: The findings of our study are encouraging, for a more robust assessment of identified competence, futher in-depht studies and evaluation need to be conducted (e.g. qualitative studies). (www.actabiomedica.it)

Key words: Nursing skills, Vascular Access Devices, Competency Assessment, Conceptual Framework, Professional Competence

Introduction

The development of the nursing profession is an essential process that aims to provide activities to meet the care needs of citizens. Nurses, who numerically are a large group of professionals, have a significant impact on human health, so much so that the care provided must meet the requirements for high-quality care (1). The increased complexity of today's health care environment and patient care means that nurses must acquire essential skills to provide high-quality care (2). Today, nursing is seen as a true science and a profession that prescribes and practices activities aimed at acquiring well-being based on acquired and established scientific skills and knowledge (3). What has been assumed defines that the assessment of competencies possessed by nurses should be a continuous process, to be carried out at recruitment and repeated, more or less regularly, throughout professional life.

Similarly, Italian health authorities, which must provide an immediate response to the needs of citizens in terms of improving the quality of services, ensure the recognition of professionalism through the identification, description and promotion of the knowledge and skills in an organization. Competency management, at the various organizational levels, obliges the structure to consider knowledge as the true asset of the organization itself: this asset

must therefore be known, promoted, disseminated, developed and protected(3). According to Tilley(4) , the roles and responsibilities expected of nurses change along with the changing health care system; therefore, the definition of competence is constantly being questioned (5). Today, nursing is considered a complex profession that requires a variety of competencies. As a result, nurses are expected to expand further their ability to adapt to new technologies, new roles, new workplaces, and new health challenges (6).

Last but not least, it is the responsibility of all practising nurses to maintain their competence in practice. For this to be ensured by regulators, well-developed and comprehensive continuing competence frameworks are necessary (7). With this in mind, both undergraduate and professional education plays a crucial role in implementing the competencies that are necessary for effective and appropriate care, from theoretical preparation to practice, critical components of nursing curricula and, most importantly, necessary for nurses and nursing students to achieve a professional level of nursing competence (8). Indeed, with advances in medicine and diversifying patient needs, modular and complex nursing care is also required, capable of evolving dynamically by changing skills and competencies. Among the various definitions of competence found in the literature, we recall the one initially proposed by Klemp (9), later reformulated by multiple scholars(10) (11) and, finally, used by Levati and Saraò(12) in their most famous text: "by competence we mean an intrinsic individual characteristic, causally related to effective and/or superior performance in a task or situation and assessable based on an established criterion." The authors conceive of competence as the product of the interaction of several components, three of which are "core": skills, knowledge, and purposeful experience. The concepts of knowledge and purposeful experience do not require particular specifications, while the concept of ability is to be distinguished from the concept of skill. Skill translates the English term skill and is often misused to define competence. The social and economic changes that have taken place in recent years have profoundly altered the business environment: creating a global market, international competition, and changing demographics have created a new habitat to which organizations must adapt, or else they will disappear. For companies in general, and for healthcare companies in particular, uncertainty, unpredictability, competition and innovation have become constants, to which it is essential to respond through the transformation of the organizational structure into different forms that are flexible and ready for change. All this is possible only by investing in people, their continuous learning and their competencies since these represent the true and, in some cases, unique assets of the company. The concept of "competence" has stimulated rich reflection in various educational, psychological and organizational sciences fields. The Anglo-American literature has two terms. Competence is used in colloquial language, and competency with a more technical connotation (13). Wright (14) defines "competence" as the application of knowledge, skills and behaviours necessary to fulfil organizational duties in specific contexts. In more detail, Di Leonardi and colleagues (15) describe "competency" as what a nurse can do in terms of skills and manifest in measurable actions and behaviours. Ultimately "competence" refers to being able to do things in a given context, which becomes "competency" when measured by a standard. These definitions, in our view, represent a crucial node so that in operational contexts, the competencies acted upon for that specific function can be defined according to a shared framework.

Methodology

Objective

The study aims to validate the content of a framework of skills that the expert nurse working in a vascular access center must possess.

Design and procedure

A pilot observational study was conducted between April and October 2021 by developing an instrument (questionnaire) administered to a pool of

experienced vascular access management professionals recruited from different companies (Sardinia, Tuscany, Emilia-Romagna), with a total of fourteen (14) professional nurses.

The pool of professionals was a convenience sample selected for their knowledge of the topic. A criteria for recruited professionals were at least 1 year of experience in a vascular access implant center and they have performed at least 4 implants in the last 6 months. Professionals rated 108 questions using a Likert rating scale from 1 (not relevant) to 4 (very relevant) which allowed us to carry out the evaluation of the content through the Lawshe method (see data analysis).

Instrument

The tool used was built ad hoc. Starting from the literature search by consulting the major databases (PubMed, Scopus, Cinhal, Medline, and Cochrane Library) and some of the reference sites for vascular accesses, we aimed to identify a likely competency framework for experienced nurses implanting venous accesses. The purpose-built instrument, derived from the analysis of the available literature and the recent guidelines published by the Emilia-Romagna Region (16), involved the proposal of 108 items, which therefore identify what skills a nurse expert in the creation of venous accesses must possess (see instrument).

The questionnaire/framework defines four macro areas of relevance:

1. Collaboration area (22 items)
2. Organizational area (34 items)
3. Training area/guidelines (30 items)
4. Care/anamnestic area (22 items)

For each item, respondents gave their assessment using a rating scale from 1 (not relevant) to 4 (very relevant).

To complement the questionnaire and assess the experience of the professionals surveyed, professional experience in vascular access implantation (e.g., PICCs. Medline...) and the number of vascular accesses performed in the past six months were asked.

Data analysis

Data analysis was conducted using the method developed initially by Lawshe and recently revived by Ayre, and Scally (17), which starts from the paradigm that content validity is different from face validity, the latter referring not to the test measures but to what it superficially appears to measure. Conversely, content validation refers to a process that aims to assure that an instrument (checklist, questionnaire or scale) measures the content area it is supposed to measure (17). To assess content validity, the procedure involves a panel of subject matter experts who consider the 'importance of individual items within the instrument. Lawshe's method has been widely used to establish and quantify content validity in several fields, including health care, education, organizational development, personnel psychology, and market research (18). The method requires that the panel of experts indicate which of the items that make up the instrument are defined as "essential" and which as "nonessential/not necessary," and only those that reach the critical content validity ratio (CVR) can be included in the final instrument. Ayre & Scally's (17) recent revision of the method, echoing the original methodology proposed by Lawshe, indicates that this coefficient is valid only if a significant proportion of experts judging that particular item as essential is reached relative to the total number of experts (17). When that proportion is reached, the CVR can be calculated according to the following formula:

$$C V R = (n e - N /2) / (N / 2), \text{ where:}$$

ne= number of experts who rated the item as essential (in our study, we considered those who responded with "fairly relevant" and "very relevant."

N= number of experts responding.

Comer indicated by Ayre and Scally (17), in the specifics of our study, the minimum proportion to be achieved is .786 or 78.6% (in our study, this proportion meets the ratio of 11/14) of the responding

experts will have to indicate the item as essential. At the same time, the corresponding critical CVR value is .571.

Ethical consideration

After reading the informed consent and expressing their agreement, the participants filled out the questionnaire. Because we did not collect personal information, the participants were adults, and voluntary participation, Ethics Committee approval was not required following national laws.

Results

Sample

Fourteen experts from the Health Boards of Tuscany, Sardegna, and Emilia-Romagna responded to the questionnaire, of whom 64.3% (n=9) stated that they had professional experience in the field of venous access implants (PICCs, Medline...) of more than five years, 14.3% (n=2) between two and five years, and 21.4% (n=3) of less than two years. Similarly, 64.3% (n=9) of the respondents report having performed more than ten implants in the past six months, 7.1% (n=1) between five and ten implants, and 28.6% (n=4) less than five.

Concordance analysis

As indicated by Ayre & Scally (17), the number of experts who rated each item as essential was counted for each item. All proposed items were judged essential. Only three items (2.8%) had a minimum consensus of 11 experts, six items (5.6%) had a consensus of 12, and 21 items (19.4%) had a consensus of 13 experts. As many as 78 items (72.2%) were judged essential by all experts.

Therefore, the critical CVR was calculated for each proposed item according to the formula. Again, all proposed items reached the critical level of .571. Only items 1, 9, and 51 reached the minimum level of .571, while items 2, 5, 10, and 19 recorded a medium/low CVR of .714. In contrast, the remaining 99 items recorded a medium/high CVR of .857 (16 items) or a maximum of 1.0 (83 items) (see table 1).

Limits

The limits of the study can be referred to the heterogeneity of the origin of the experts, which could lead to a bias, determined by the non-contextualization of the skills and/or in their subjective interpretation in the declension used.

Discussion/conclusions

The results seem to show good content validity for most of the proposed items/competencies, except for the three items with a minimal content validity ratio. One hypothesis could be due to the unclear identification/description of the items and a non-technical transposition of clinical needs and responsiveness to daily actions. The hypotheses described and these results indicate the need for further study through qualitative studies, for example, through the analysis of the results within Focus Groups (FGs), in order to broaden and focus the analysis of the questions in the context of the confrontation between professionals, the criticalities that emerged, hypothesize actions for improvement of the adopted instrument, analyzing in addition to specific technical competencies also the whole field of soft skills, also described in this paper, now an integral part of all professional activities and increasingly tools/skills/attitudes that can convey/facilitate the information/training/educational transition both between professionals and users and between professionals themselves and, last but not least, between professionals and the directorates of competence.

Once the competency framework has been discussed and defined, further studies will need to be conducted to assess the psychometric qualities of the framework, including, for example, the internal consistency of the proposed instrument. In this regard, the one proposed in the appendix represents a hypothesis of item classification, dividing the items into areas defined as care/anamnestic area, training/guidelines area, organizational area, a collaboration area.

Table 1. Professional Skills.

Care/Anamnestic Area (Description Expertise)	**CVR**
1. Accommodating the patient and possible caregiver in different care settings.	0,571
2. Orient the patient and possible caregiver within the diagnostic/therapeutic/care pathway.	0,714
3. Collect nursing history by recording/using nursing chart significant data for estimating care needs.	1,000
4. Communicate with patient and possible caregiver using interpersonal verbal and nonverbal communication modalities	0,857
5. Identify the patient and possible caregiver the type and level of reactions to the illness and its treatment	0,714
6. Detect signs and symptoms concerning the patient's clinical situation.	1,000
7. Assess signs and symptoms for ascertaining the patient's problems using appropriate scales (examples: Visual Infusion Phlebitis Score (VIPS) - Infiltration Scale (IS) - Visual Exit-Site Score (VES)	0,857
8. Monitor the evolution of physiological signs, symptoms, and/or complications over time.	0,857
9. Diagnose patient problems related to the disease, hospitalization, treatment, lifestyle, changes in activities of daily living, and perceived quality of life (e.g., anxiety, uncertainty, etc.)	0,571
10. Identify, based on the clinical condition, the need for help in meeting the patient's basic needs, support in the impact of the disease and treatment;	0,714
11. Formulate the individual care plan by recording the goals of care to be provided and the schedule of activities to be carried out;	0,857
12. Make care decisions consistent with the legal and ethical dimensions of the situation.	1,000
13. Involve the patient and possible caregiver in formulating and implementing the care plan.	0,857
14. Seek the advice of other professionals to address problems of a multidisciplinary nature;	0,857
15. Advise other non-expert nurses on care planning in complex situations.	1,000
16. Respect the affective, expressive and educational needs of the patient and possible caregiver.	0,857
17. Foster the autonomy of the patient and caregiver, if any, in the execution of nursing interventions	0,857
26. Evaluate the nursing care provided	1,000
27. Identify critical situations and apply agreed-upon procedures to deal with them while waiting for medical intervention	1,000
28. Inform the patient and caregiver, if any, of the opportunities offered by community services that can be used to support their needs	1,000
29. Is able to recognize possible allergic reactions during the performance of the procedure and communicates them promptly to the physician	1,000
51. Provides information on user access to services (information, hours, contact information).	0.571
Training Area/Guidelines (Description Expertise)	**CVR**
18. Apply technical procedures to support diagnostic and therapeutic pathways	0,857
19. Organize prescribed diagnostic pathways	0,714
20. Identify the need to vary care protocols in the face of particular situations and agree on their adaptation	1,000
21. Monitor the functioning of the technologies used by reporting any malfunctions to the appropriate persons	1,000
22. Detect signs and symptoms of complications or side effects of treatments and apply the protocol	1,000
23. Collaborate with other professionals in the team in implementing and adapting the integrated care plan	0,857
24. Document in the nursing record the care implemented	1,000
25. Supervise the quality of information to be recorded for HST activities	1,000
65. Perform patient mobilization safely to prevent harm to patients and caregivers.	1,000
66. Knows elements of anatomy and physiology concerning:.....	1,000

Table 1 (*Continued*)

Table 1. Professional Skills. (*Continued*)

67. Knows and applies-insofar as pertinent to the professional profile-the indications for placement of a central venous catheter	1,000
68. Knows and applies-as far as pertinent to the professional profile-the indications for placement of a peripheral venous catheter	1,000
69. Knows and applies as far as pertains to the professional profile guidelines about local analgesia	1,000
70. Knows and applies-as far as pertinent to the job profile-guidelines about catheter fixation and dressing (e.g., cyanoacrylate/intradermal suture)	1,000
71. Knows and applies - as far as pertinent to the professional profile - guidelines about the appropriateness of use	1,000
72. Knows and applies - as far as pertinent to the professional profile - the algorithm for choosing venous access	1,000
73. Knows and applies - as far as pertinent to the professional profile - the guidelines and regulations about the Information and Consent to be given to the patient	1,000
74. Knows and applies - as far as relevant to the professional profile - the guidelines about checking the exact position of the central venous catheter tip - Tip location	1,000
75. Knows and applies - as far as relevant to the professional profile - the guidelines to the support of the ultrasound probe for the correct placement of a venous catheter - Tip Navigation:	1,000
76. Knows and applies - as far as pertinent to the job profile - guidelines about hygiene measures.....	1,000
77. Knows and applies company guidelines on the operation of the Vascular Access Team (VTA)	1,000
78. Knows and applies - as far as pertinent to the professional profile - guidelines and regulations about health professional liability	1,000
79. Is familiar with and applies-as far as relevant to the professional profile-the guidelines about Centrally Inserted Central Catheter (CICC) and Femorally Inserted Central Catheter (FICC) venous catheter placement	1,000
80. Knows and applies-as about professional profile guidelines about catheter placement of PORT (Thoracic PORT; PICC PORT; Femoral PORT) (Indications, placement, contraindication and complications)	1,000
81. Knows and applies--as about the professional profile--the guidelines about peripherally inserted central catheter (PICC) placement (Indications, placement, contraindication and complications)	0,857
82. Knows and applies - as far as pertinent to the professional profile - the guidelines about Midline/MiniMidline catheter placement (Indications, placement, contraindication and complications)	1,000
83. Knows and applies - as far as pertinent to the professional profile - the guidelines about long catheter placement for internal jugular vein.....	1,000
84. Knows and applies - as far as relevant to the professional profile - the guidelines about complications (prevention and treatment)	0,714
85. Knows and applies - as far as pertinent to the professional profile - the guidelines about Clinical-care aspects of vascular access	1,000
86. Knows and applies/uses - as far as relevant to the professional profile - Documentation of the clinical-care pathway	1,000
Organizational Area (Description Expertise)	**CVR**
30. Manages the maintenance of the emergency trolley.	0,857
31. Manages own emotional state in emergency cases.	1,000
32. Identify with the patient and possible caregiver lifestyle habits that may constitute health risk factors	1,000
33. Assess the type of information held by the patient and possible caregiver and the degree to which they understand it	1,000
34. Identify the educational needs of the patient and possible caregiver	1,000
35. Define educational goals referring to the patient and possible caregiver acquisition of correct living habits, taking into account their mental representation of the disease and behavioural differences related to their culture	0,857
36. Inform the patient about his or her health condition and the procedures to which he or she will be subjected in language that is understandable and appropriate to his or her development and maturation	1,000
37. Inform the patient and possible caregiver in a focused and scientifically sound manner	0,857

38. Prepare informational materials related to the control of risk factors	1,000
39. Train the patient and possible caregiver to identify signs and symptoms of complications to prevent or reduce side effects of treatments	1,000
40. Apply educational methods relevant to identified needs	1,000
41. Give directions to other caregivers, based on the assessment of specific patient needs, according to care activities consistent with various profiles.	1,000
42. Set priorities to make optimal use of existing resources.	1,000
43. Identify the type and cost of instrumental and environmental resources needed for nursing care.	1,000
44. Request the collaboration of other resources after judging their capabilities and operational possibilities to be insufficient for the complexity of care required.	1,000
45. Using resources by applying cost-effectiveness criteria.	1,000
46. Adapt resources (material and professional) and activities to achieve objectives.	1,000
47. Use integration tools (guidelines, procedures, care protocols, standard care plans) designed with the team or by other services to homogenize operating methods.	1,000
48. Use effective communication channels concerning the type of information to be transmitted	1,000
49. Collaborate with team members in the implementation of activities.	1,000
50. Manage change projects to improve the quality of care.	1,000
52. Collaborate with the coordinator on procuring healthcare materials to optimize resources.	1,000
53. Manages the continuity of care of turnaround and readiness.	0,857
54. Monitors the expiration of medications, preps and material inventories in everyday use.	0,714
55. Performs requests for repair of instruments in use in the operating unit when needed.	1,000
56. Manages paper and computer information systems to support care.	1,000
57. Manages organizational contingencies and adapts behaviours of cooperation and personal helpfulness, analyzing organizational problems and proposing solutions.	1,000
58. Ensures continuity of care between different shifts and services/facilities by ensuring the proper passage of information by documenting care provided in accordance with legal and ethical principles.	1,000
59. Ensures the completeness and relevance of clinical/assistance information entered in the clinical record/ documentation, being responsible for the transcribed content and activities under nursing responsibility.	1,000
60. Works in an integrated manner in the team, respecting the spaces of competence.	1,000
61. Implements hand washing correctly.	1,000
62. Supervises and implements proper disposal of hospital waste.	1,000
63. Implements and supervises the proper use of PPE.	1,000
64. Reports any adverse events.	1,000
Collaboration Area (Description Expertise)	**CVR**
87. Coordinate a working group on specific care issues	1,000
88. Draft and provide a report on counselling	1,000
89. Implement training interventions aimed at staff in the specific area of expertise	1,000
90. Define training objectives	1,000
91. Select learning and evaluation methods	1,000
92. Construct assessment tools	1,000
93. Manage active learning methods	1,000
94. Participate with the educational institution in the preparation of an internship project for the area of expertise	1,000
95. Carry out clinical mentoring activities towards students or other professionals in training	1,000
96. Supervise newly assigned practitioners	1,000

Table 1. Professional Skills. (*Continued*)

97. Disseminate information and scientific articles to the care team	1,000
98. Self-assess one's level of professional competence and report one's training needs	1,000
99. Design and implement self-training experiences	1,000
100. Identify specific problems and areas for research in clinical settings	1,000
101. Conduct research in collaboration with multidisciplinary teams	0,857
102. Verify the application of monitoring systems on standards of care	1,000
103. Identify problem areas in need of evaluation and review.	1,000
104. Participate in critical events or event-sentinel monitoring programs.	1,000
105. Verify the application of research findings to achieve quality of care improvement.	1,000
106. Lead the nursing team in identifying, interpreting, and applying research findings in practice.	1,000
107. Document specific nursing experiences and disseminate them to activate comparison.	1,000
108. Disseminate research findings and specific literature to the nursing team.	1,000

CVR = Content Validity Ratio

Acknowledgements: The authors want to thank colleague Montalti S. (IRST-IRCCS Meldola - FC) and colleagues who contributed to the data collection.

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article

References

1. Stievano A, Tschudin V. The ICN code of ethics for nurses: a time for revision. Int Nurs Rev. 2019;66(2):154–156.
2. Beauvais AM, Phillips KE. Incorporating future of nursing competencies into a clinical and simulation assessment tool: Validating the clinical simulation competency assessment tool. Nurs Educ Perspect. 2020; 41(5):280–284.
3. Alfieri E, Alebbi A, Bedini MG, Boni L, Foà C. Mapping the nursing competences in neonatology: a qualitative research. Acta Biomed 2017;88 (3S):51-58.
4. Tilley DDS. Competency in Nursing: A Concept Analysis. J Contin Educ Nurs. 2008;39(2):65–66.
5. Bektas I, Bektas M, Ayar D. Developing and Evaluating the Psychometric Properties of the Pediatric Nursing Competency Scale for Nursing Students. Florence Nightingale J Nurs. 2020;28(2):133–142.
6. Valizadeh L, Zamanzadeh V, Eskandari M, Alizadeh S. Professional Competence in Nursing: A Hybrid Concept Analysis. Med - Surg Nurs J. 2019;8(2):1-8.
7. Vernon RA, Chiarella M, Papps E. Assessing the Continuing Competence of Nurses in New Zealand. J Nurs Regul. 2013;3(4):19–24.
8. Immonen K, Oikarainen A, Tomietto M, Kääriäinen M, Tuomikoski AM, Kaučič BM, et al. Assessment of nursing students' competence in clinical practice: A systematic review of reviews. Int J Nurs Stud. 2019;100:103414.
9. Klemp GO. The assessment of occupational competence. National Inst. of Education (DHEW), Washington, DC; 1980.
10. Boyatzis R. The competent manager: a model for effective performance. New York: John Wiley & Sons. 1991.
11. Spencer LM, Spencer SM. Competenza nel lavoro. Modelli per una performance superiore (Competence in work. Patterns for superior performance) (Vol. 2). Milano: Franco Angeli; 2003.
12. Levati W, Saraò MV. Il modello delle competenze. Un contributo originale per la definizione di un nuovo approccio all'individuo e all'organizzazione (The skills model. An original contribution to the definition of a new approach to the individual and to the organization). Milano: Franco Angeli; 1998.
13. Gandini T. Le competenze e la valorizzazione del patrimonio umano in sanità. Una proposta metodologica per definire le competenze dell'infermiere con funzioni di coordinamento. (Skills and valorisation of human assets in healthcare. A methodological proposal to define the skills of the nurse with coordination functions) Milano: Franco Angeli;2005.
14. Wright D.K. The ultimate guide to competency assessment in health care, 3rd edition. Creative nursing. 2006; 12(1):15-15.
15. Di Leonardi BC, Hagler D, Marshall DR, Stobinski JX, Welsh SS. From competence to continuing competency. J Contin Educ Nurs. 2020 Jan;51(1):15–24.
16. Regione Emilia Romagna Direzione Generale Cura della persona e Welfare - Servizio Assistenza Ospedaliera Linee di indirizzo regionali sulla buona pratica di cura degli accessi

vascolari (Regional guidelines on good practice in vascular access care). Bologna; 2021.
17. Ayre C, Scally AJ. Critical values for Lawshe's content validity ratio: Revisiting the original methods of calculation. Meas Eval Couns Dev. 2014;47(1):79–86.
18. Wilson FR, Pan W, Schumsky DA. Recalculation of the critical values for Lawshe's content validity ratio. Meas Eval Couns Dev. 2012;45(3):197–210.

Correspondence:
Received: 25 August 2022
Accepted: 7 February 2023
Alfonso Sollami, RN, MSN, PhD
Azienda ospedaliero Universitaria di Parma, Italy
Via Gramsci 14 - 43125 Parma, Italy
E-mail: sollamiphd@gmail.com