

# The effects of a structured education program on preparedness for self-employed careers in Italian undergraduate nursing students

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**Abstract.** *Background and aim of the work:* Despite freelance careers in nursing has been becoming a promising component of the current labour market, in the Italian and also international contexts, there is still a paucity of evidence testing whether a structured educational intervention delivered from remote might be useful in increasing the levels of preparedness for self-employed careers among third-year nursing students. This study aimed to test the effects of a structured educational program on the preparedness for self-employed careers in Italian undergraduate nursing students. *Methods:* The study employed pre-post design with convenience sampling. Data were collected before the structured education program was delivered (T0) and up to one day after the instruction was delivered (T1). *Results:* In this study, 717 third-year nursing students were enrolled. The most significant difference between T0 and T1 was in the domain of knowledge about pensions and retirement issues, followed by administrative rules knowledge. There were substantial variations between T0 and T1 in the area of logistic characteristics in determining the price of a freelance nursing activity, as well as scores in the domain of care complexity in determining the price of the independent nursing occupation. *Conclusions:* This study proved the short-term impacts of a structured educational program on enhancing levels of preparation for self-employed professions among Italian undergraduate nursing students. This topic requires more attention from educators and researchers as the demands of prepared healthcare workers to undertake self-employed careers necessitate a greater capacity to properly educate nursing students for self-employed occupations within their undergraduate path. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Key words:** Education, freelance nursing, pre/post intervention, self-employed nurses, undergraduate students

## Introduction

In the last decades, qualified care has been necessary for ensuring high-quality care in community settings and at home (1). Indeed, in response to raising community health needs in primary care settings, health policy and politics have switched priority toward home-based treatment, with varying strategies,

to address issues associated with the ageing population and comorbidities (2). In this context, nurses are highly skilled professionals that contribute to the long-term viability of any healthcare system worldwide since their skills span a wide range of clinical, educational, academic, managerial, forensic, and highly specialized responsibilities (1,2). Working as a freelance nurse was

described as a trigger for establishing recognized nursing roles in the labor market (3).

Nurses who work as independent workers have more autonomy in their activities than those who work as employees, which raises employability and reduces the risk of burnout and discontent (2). The current labour market issues seem to prompt more nurses to start their own businesses in self-employment (4). As a result, achieving adequate knowledge of working as a freelancer and more awareness about legal, regulatory, and professional challenges is critical to sustaining nurses in successful self-employed endeavours, especially from undergraduate programmes.

Nurses are often not educated to work as freelance nurses throughout their undergraduate education (5,6), and the lack of teaching might limit the freelancing options among young nurses. Some authors suggested that a particular education could be created and offered in academic nursing undergraduate programmes (7). Because working and legislative rules for freelance nurses vary widely between nations, instruction regarding working as a freelance nurse should take into account local laws and regulations in addition to generic business topics.

In Italy, 8/9 newly qualified nurses out of 10 wish to work in the private or public sector, while just only 2 out of 10 wish to work as freelancers (8). Furthermore, six registered nurses out of 10 believe that undergraduate nursing programmes do not adequately educate students for a successful career as self-employed nurses (9). For this reason, Rocco et al. (10) recently developed and validated the "Preparedness to self-employed careers inventory" for nursing students. The proposed inventory has shown enough evidence of validity and reliability, and it includes two different scales (determining the prices of activities and knowledge regarding freelance-related characteristics) to fill the gap left by the lack of effective assessments for educators who want to measure nursing students' preparedness to pursue self-employed jobs.

Generating evidence to describe how remote educational interventions might help enhance the preparedness for self-employed careers might have the merit of stimulating the national debate on tuning the contents and strategies to allow nursing students to finish their undergraduate education with a proficient preparedness regarding nursing freelance activities.

However, in the Italian context, there is still a paucity of evidence testing whether a structured educational intervention delivered from remote might be useful in raising the levels of preparedness for self-employed careers among third-year undergraduate nursing students. Therefore, this study aimed to test the effects of a structured education programme on the preparedness for self-employed careers in Italian undergraduate nursing students.

## Methods

### *Study design*

The study used a pre-post design with convenience sampling. The intervention implemented after the baseline data collection (T0) was a structured education program delivered from remote to the undergrad nursing undergraduates attending the third year of the undergraduate nursing program. The post-intervention data collection (T1) was performed within one day after the delivered structured educational program.

### *Structured education programme*

The educational programme was structured to encompass each item of the inventory and to be delivered remotely during a live lecture. The authors developed content outlines and prepared a syllabus (11). The approach used to develop the content of the structured education programme had the meta-purpose of creating a network of experts with a specific focus on developing an educational research programme for the future scaling-ups of the project.

In particular, each element of the inventory was developed into a detailed oral explanation, with a visual aid consisting of a Microsoft PowerPoint® slide display, to increase teaching effectiveness (12). The next step was to assess the adequacy of the educational programme, involving an external panel of experts. Fifteen panellists were involved in evaluating the validity of the content of the educational programme (females = 10; 66.7%; mean age = 35.6 ± 6.5). The panellists were registered nurses, selected among those with experience in nursing education and involvement in freelance

nursing careers. A peer-observation model (13) consisted of a pre-observation meeting, a teaching observation, and a feedback discussion meeting. In the pre-observation meeting, the authors and the panellists defined the educational programme's goal, and the slides were evaluated to ensure correspondence with the inventory items. Then, one of the authors was selected to be the lecturer. A recent literature review (14) showed that lecturer effectiveness and teaching experience are significantly associated. The selected lecturer had fifteen years of experience in university teaching. Then, the panellists observed the sample educational programme that was offered to a pilot class of nursing students attending the third year of an undergraduate programme at a university in Rome, Italy, where 51 students were enrolled (females = 39; 76.4%; mean age =  $23.6 \pm 4.6$ ). The evaluation encompassed four presentation criteria: the presentation's content, structure, interaction with the audience, and delivery (15). Besides, the panellists assessed the lecturer using the "Oral presentation evaluation scale" (OPES), a validated tool to evaluate the content of a presentation itself (16). The OPES is a 15-item scale based on asking to rate statements encompassing three domains: accuracy of content, effective communication, and clarity of speech, with an evaluation from 1 = never accomplished to 5 = always accomplished. After the sample educational programme, the panellists and the authors discussed the results of the OPES. The results of the OPES are summarized in Table 1. The accuracy of content mean score was 4.980, the mean score of effective communication was 4.933, and the clarity of speech mean score was 4.955. In the final round, the panellists agreed that the lesson was effective and compliant with the inventory's items.

**Table 1.** Scores regarding OPES evaluation.

	Mean	SD
Accuracy of content	4.980	0.137
Effective Communication	4.933	0.251
Clarity of speech	4.955	0.208
Legend: SD = Standard deviation		

### *Participants and setting*

The course was dedicated to nursing undergraduates attending the third year of the undergraduate programme. The universities involved were selected using a convenience sample but represented different Italian macro-region (North West, North East, Centre, South and Islands). The selected universities were: the University of Cagliari, the University of Genoa, the University of Milan, the University of Naples Federico II, the University of Naples Vanvitelli, the University of Pavia, the University of Rome Sapienza, the University of Rome Tor Vergata, and the University of Trieste.

The educational programme was administered as a frontal lesson by a single trained lecturer in all the different settings. The lecturer was the coordinator of the developmental activities for the structured educational programme. The lessons included moments of interaction with students and lasted a mean of four hours. The covered topics were specular to the ones investigated by the inventory. The lesson included a break of twenty minutes between the first and the second section. Attendants could ask questions to the instructor at any time.

### *Data collection procedure, measures*

The baseline assessments (T0) aimed to gather the socio-demographics of the responders and the initial assessment of their preparedness for self-employed careers. Data was collected using Google Forms, a computer-assisted, free cloud-based tool that allows users to collaborate on data collecting forms (17).

With the first access to fill the baseline form (T0), the responders were identified with a unique key code (the first eight characters of their fiscal code number) that was necessary to fill the post-education electronic form to achieve the characteristics of a paired dataset and, therefore, allowing researchers to perform paired analyses. The socio-demographics were sex (males and females), age (years), residence/university (Northwest, Northeast, Central, South and Islands), and nationality (Italian and others). The preparedness for self-employed careers was assessed with the "Preparedness to self-employed careers inventory" for nursing students (10) in both T0 and T1.

The “Preparedness to self-employed careers inventory” has shown adequate evidence of content validity, psychometric validity (dimensionality), and adequate internal consistency in both the scales of the inventory (Scale A: awareness regarding factors for determining the prices of freelance activities; Scale B: knowledge regarding freelance-related norms/characteristics). Each scale is based on a five-point Likert measure.

The scale A on the awareness regarding factors for determining the prices of freelance activities is based on asking participants to rate ten meaningful statements to determine the price of a freelance nursing activity from 1=no important at all to 5 = very important, and it encompasses two domains: care complexity (7 items) and logistic characteristics (3 items). In this regard, the statements included in the tool provide measurability of which areas of care complexity and logistic characteristics might require educational interventions for undergraduates to understand the need for the right balance of care complexity and logistic characteristics when they are asked to set a fee for their future activities.

The scale B on the knowledge regarding freelance-related characteristics is based on 24 items measuring two domains: knowledge regarding administrative rules (12 items) and knowledge regarding pensions and retirement issues (12 items). The question “To what extent do you consider yourself informed about the following aspects related to a self-employed nursing career?” addresses each statement of the scale of knowledge regarding freelance-related characteristics. Participants are asked to decide by rating each statement on a five-point Likert scale (1 to 5), with 1 indicating no knowledge and 5 indicating complete knowledge.

### *Ethical procedures*

All participants were informed about the research’s purpose using an informative electronic sheet and granted their consent via an electronic form, according to the study protocol. The study was designed and conducted following the International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use Good Clinical Practice (ICH GCP) and the investigators achieved a certified education about ICH GCP. The protocol (1.14.8) was approved by the Institutional

Review Board of the Centre of Excellence for Nursing Scholarship -OPI Rome- in Italy, and each participating university agreed to be involved in the study.

### *Data analysis*

The demographic characteristics of the sample and the questionnaires were summarized using descriptive statistics. For categorical data, frequency and percentage were employed. For normally distributed continuous data, means and standard deviations (SD) were utilized, and the Shapiro-Wilk test was used as a preliminary test. The effects of a structured education programme on the preparedness for self-employed careers in Italian undergraduate nursing students were tested by employing parametrical paired inferential comparisons (paired t-tests) between each score at baseline and T1 after having tested the assumptions for the parametric comparisons. The scores were obtained by computing the items of the scales employing the mean function of the items kept by each domain per responder, and each score was assessed for its normality in order to exclude skewed distributions. The scores included in the two scales of the inventory were: (a) care complexity (b) logistic characteristics (for determining the price of a freelance nursing activity), (c) knowledge regarding administrative rules and, (d) pensions and retirement issues. One-way between-subjects ANOVAs were performed on the 4 scores at T1 to determine whether the scores between residence/universities (universities from Northwest, Northeast, Central, South and Islands) were stable. In the case of significant differences between scores, Bonferroni’s posthoc analyses were used.

All analytics had a two-tailed null hypothesis, and alpha was equal to 5%. The analytical procedures were performed via IBM SPSS Statistics for Windows, Version 22.0 (IBM SPSS, Armonk, NY: IBM Corp.) and figures were designed in GraphPad Prism version 8.0 for Windows (GraphPad Software, San Diego, California, USA).

### **Results**

The characteristics of the participants (n = 717) are shown in Table 2. The majority of the nursing

students were females ( $n = 535$ ; 74,6%), Italians ( $n = 691$ ; 96,5%), and from the South of Italy ( $n = 290$ ; 40.6%).

The baseline (T0) and T1 scores are summarized in Table 3 and Figure 1. The greatest difference ( $\Delta T1-T0 = 1,928$ ) between T0 and T1 was related to the domain of knowledge regarding pensions and retirement issues [ $t_{(716)} = 47,96$ ;  $p < 0,001$ ] and was followed by the knowledge regarding administrative rules [ $\Delta T1-T0 = 1,340$ ;  $t_{(715)} = 66,95$ ;  $p = 0,023$ ], both

domains of the scale concerned knowledge regarding freelance-related characteristics.

The scores of the awareness regarding factors for determining the prices of freelance showed differences between T0 and T1 as well. Precisely, the domain regarding the awareness of logistic characteristics in determining the price of a freelance nursing activity showed a greater  $\Delta T1-T0$  (0,375), and differences between T0 and T1 were significant [ $t_{(715)} = 103,77$ ;  $p < 0,001$ ]. Also, scores dealing with the awareness of care complexity were significantly higher at T1 [ $\Delta T1-T0 = 0,239$ ;  $t_{(715)} = 163,14$ ;  $p < 0,001$ ].

The comparison between T1 care complexity scores obtained in the different universities located in Italian regions from Northwest, Northeast, Central, South and Islands showed no significant differences between the involved centres [ $F_{(4, 681)} = 0,331$ ;  $p = 0,857$ ]. Likely, the comparison between T1 care logistic characteristics obtained in the different universities showed no significant differences between the involved centres [ $F_{(4, 681)} = 0,231$ ;  $p = 0,921$ ], as well as per the comparison regarding knowledge on administrative rules [ $F_{(4, 681)} = 0,231$ ;  $p = 0,644$ ]. The domain of knowledge dealing with pensions and retirement issues showed differences between T1 scores [ $F_{(4, 681)} = 0,231$ ;  $p = 0,024$ ]. For this comparison, the posthoc Bonferroni's test showed differences between the Northeast (lower scores) and Central Italy universities (higher scores) ( $p = 0,007$ ) and the Northeast (lower scores) and Islands (higher scores) universities ( $p = 0,007$ ), as depicted in Figure 2.

**Table 2.** Characteristics of the participants (N=717).

		N	%
Sex			
	Males	182	25,4
	Females	535	74,6
Age			
	Years (mean; SD)	23,72	4,19
Residence <sup>^</sup>			
	Northwest	144	20,1
	Northeast	56	7,8
	Central	138	19,3
	South	290	40,6
	Islands	87	12,2
Nationality <sup>*</sup>			
	Italians	691	96,5
	Other	25	3,5

Note: <sup>^</sup> = 2 missing data; <sup>\*</sup> = 1 missing data; SD = standard deviation

**Table 3.** Paired comparisons between T0 and T1 of the scores regarding preparedness for self-employed careers.

	Baseline (T0)		Post-education program (T1)		$t_{(df)}$	$\Delta T1-T0$	P
	Mean	SD	Mean	SD			
Care complexity	4,034	0,661	4,273	0,658	$t_{(715)} = 163,14$	0,239	<0,001
Logistic characteristics	3,761	0,969	4,136	0,863	$t_{(715)} = 103,77$	0,375	<0,001
Knowledge regarding administrative rules	2,667	1,065	4,007	0,747	$t_{(715)} = 66,95$	1,340	0,023
Knowledge regarding pensions and retirement issues	1,817	1,014	3,745	0,800	$t_{(716)} = 47,96$	1,928	<0,001
Legend:							
SD = Standard deviation							
df = Degrees of freedom							

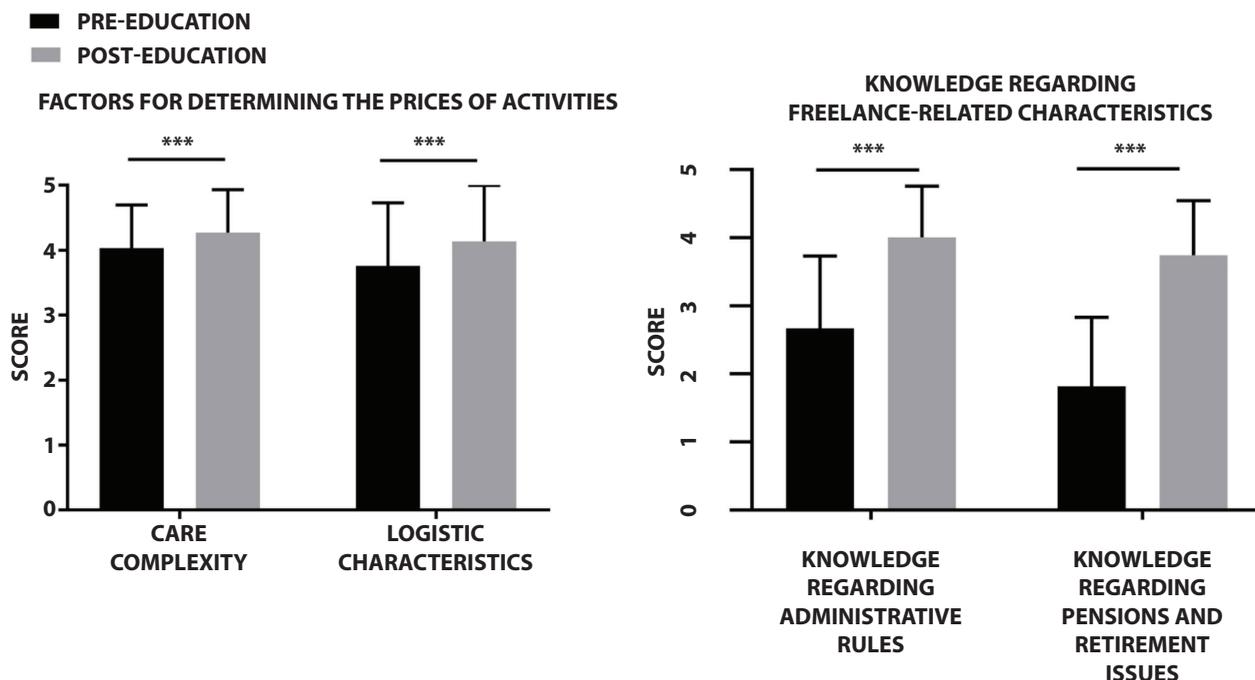


Figure 1. Comparisons between scores of pre- and post-education.

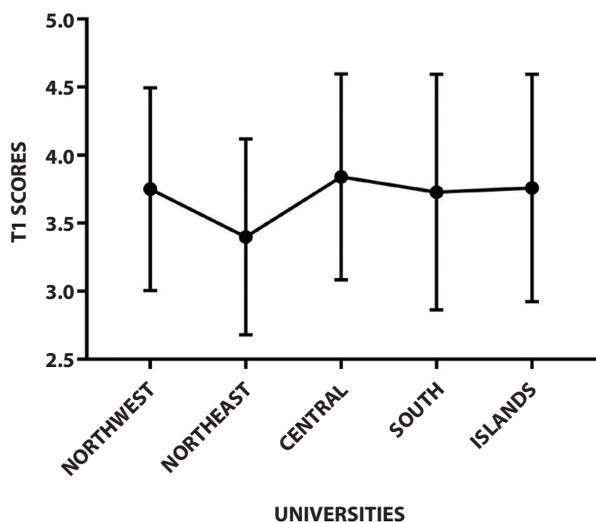


Figure 2. Knowledge regarding pension and retirement issues.

**Discussion**

This study tested whether a structured educational programme significantly improved the levels of preparedness for self-employed careers in Italian undergraduate nursing students. This educational area is still

underexplored in nursing learning despite the need to have well-educated nurses to assess the possibility of undertaking a freelance career to meet the labour market demand (4,7,18,19). This study showed that the developed structured teaching programme positively enhanced the levels of awareness regarding factors for determining the prices of freelance activities, including both logistic and care aspects, and the knowledge concerning pensions and retirement issues and administrative rules to undertake a self-employ occupation.

The main implication of these results might have some benefits concerning the possibility of nursing students evaluating with more awareness the possibilities derived by self-employed careers in their context, in a similar way to previous international experiences that highlighted a positive association between well-prepared self-employed nurses and increased levels of recognition and satisfaction regarding the own activity (6). Another important implication of describing the preparedness regarding self-employed careers in Italian undergraduate students is given by the possibility of comparing it internationally. Thus far, the epidemiological description of preparedness for self-employed careers in nursing is still lacking; however,

the levels of preparedness in the post-intervention might be considered adequate as per previous studies describing similar experiences in the international context, even if preparedness was not assessed using valid and reliable specific tools (6,18).

The scores with lower values at the baseline assessment were those dealing with the knowledge of administrative rules and retirement issues, which reported the greatest increase at T1. In this sense, administrative procedures, pensions, and retirement are all important parts of any nursing self-employment activity and help guarantee a safe practice (19). These aspects are more context-specific than those necessary for establishing the costs of activities and form the foundation of general knowledge that a prospective nurse must understand before beginning a self-employed career (3,10). These aspects are worthy of being covered in undergraduate nursing education, considering the complexity of the current labour market, where different healthcare workers are asked to work soundly together and under different types of contracts and job opportunities (20).

The scores related to awareness of including logistic aspects as well as evaluating the care complexity of the procedure showed improvements too. This aspect is relevant because a meaningful component of working as a freelance nurse is determining appropriate fees for nursing services (5). This study shows initial evidence of a rise in the awareness of which elements consider in determining the price of a freelance nursing activity, even if no long-term assessments are available in this respect. Future evaluations should consider the longstanding benefits of this kind of educational programme.

Another crucial point was the stability of scores in the comparisons between universities in different aggregated regions: Northwest, Northeast, Central, South and Islands. In this line of reasoning, except for knowledge regarding pensions and retirement issues, all the scores were equal across the universities from the five Italian geographical areas. The difference in knowledge concerning pensions and retirement issues might be explained by the limited sample size from the northeast universities. In fact, northeast universities constituted the smallest sub-group of the sample, and having few students in the educational programme

might limit the likelihood of detecting changes in the post-educational programme appraisal (T1).

Future research is needed to corroborate the stability of the findings of this study to determine whether well-designed educational intervention in undergraduate education might be enough to achieve a good preparedness for self-employed nursing careers over time. It is reasonable that an internship activity for nursing students with trained self-employed nurses could also be a possible scaling-up of the project for boosting innovation in the educational context. The developed structured educational programme might be adapted to educate self-employed nurses that can be involved in organizing internship programmes with universities. In this sense, the current study might pave the way for future implementation of more complex educational interventions and be considered a pilot experience in Italy.

This study has several limitations. The first limit is related to the convenience sample that reduces the generalization of the results. The absence of a control group excluded the possibility of testing the efficacy of the educational programme; in fact, it only allowed authors to appraise the effects from T0 to T1. The second drawback is related to the short-term follow-up. Therefore, no information is available regarding the long-term stability of the effects of the educational programme on the preparedness for self-employed careers in Italian undergraduate nursing students when students become registered nurses. The third limit is mainly linked to the unbalanced sub-groups among students in their respective universities: some observed effects, specifically the low scores at T1 in the northeast, might reflect unbalanced sub-groups; for this reason, caution is required in interpreting these context-specific differences. Future research should also consider assessing other measurements that might contribute to adjusting the analysis by considering academic performance indicators and other psycho-attitudinal variables.

## Conclusions

This investigation demonstrated the short-term effects of a structured educational programme for

improving the levels of preparedness for self-employed careers in Italian undergraduate nursing students, and this is the first Italian experience in this regard. Due to the sheer amount of possibilities to develop critical skills, autonomy, and increased job satisfaction, working as a freelance nurse becomes a catalyst and a strategy for developing recognized nursing jobs in the healthcare labour market. Italian nursing educators should tune the university programmes to sustain a brief structured education in the undergraduate nursing courses due to the currently limited education on the topic. Research should also highlight which strategies are more effective in enhancing the preparedness for self-employed careers among nurses and nursing students and could adopt the structure of a tested structured educational programme.

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