



Becoming a nurse in Italy: A multi-method study on expenditures by families and students

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SUMMARY

Potential nursing students and their families are faced with difficult decisions regarding the amount of time and money required to complete the nursing programme and the availability of funds to cover the costs and this seems to have received little no attention to date. With the aim of describing the costs incurred by Italian nursing students and/or their families per academic year and compare cost trends incurred from 2004–05 to 2010–11, a multi-centre qualitative/quantitative study design was adopted. Italian Nursing students attending the first, second and third academic years in 2004–05 and those attending the first, second and third academic years in 2010–11 were eligible. Five hundred and six students were involved: 215 (out of 300 eligible, 71.6%) attended the bachelor's degree in nursing in 2004–05 and 291 (out of 383 eligible, 75.9%) in 2010–11. On an annual basis, the average annual expenditures increased by 12% for nursing education from 2004–05 to 2010–11. Given that qualification as a nurse requires at least three years, and considering inflation, for a student who matriculated in 2005 an average of 2485.7€ per year (7457.0€ in total) was required. Data suggest that students have modified their spending behaviour (limiting lunches at public bars, buying books and photocopies) in order to handle the rise of non-discretionary costs, such as tuition fees and the costs of attending lectures and hospital/district trainings. Policies supporting nursing education in general and for those students who are motivated but unable to undertake the course for economic reasons are urgently needed.

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Introduction

The worldwide economic crisis (Newbold, 2008) is having an increasing impact on nursing education and clinical practice (Shipman and Hooten, 2008; Bestini et al., 2008; Bortoluzzi and Palese, 2010). The lack of Nursing educators in faculties (Aiken, 2008; Shipman and Hooten, 2008; Potempa et al., 2009), which is also related to economic constraints, is threatening the intended increase of candidates to contrast the current shortage of educated nurses (Starck, 2005). The consequent lack of nurses at the bedside has negative effects on patients (e.g. Aiken, 2008; Newbold, 2008) which can be evaluated in financial terms. Also, the general opinion is that the educational transition from regional schools/colleges to universities has increased costs for the students (Mooney, 2009). Some European countries still have education at a local level (Zabalegui et al., 2006) but others are fighting back with attempts to re-establish nursing education at a local vocational-college level (Palese, 2011). The lack

of nurses educated at a higher level negatively affects patient outcomes (Aiken, 2008), which can again be seen from an economic perspective.

Nursing education costs are an emerging issue but their relevance started to gain attention in 1972 when Johnsen and Eady (1972) published the first article on how much a nursing diploma really costs. A few years later, Knopf (1982) documented the expenditure to consider when nursing education costs are evaluated in order to assure the comparability of the analysis conducted. Moreover, subsequent studies (Roberts, 1989; Babroff et al., 2009; Palese et al., 2011; Roa et al., 2011; Watt et al., 2011) have been largely based on faculty perspectives. Family and/or student expenditures suggested since 1983 by the Division of Health Care Services Institute of Medicine (1983) as an important perspective in economic assessments, seem to have received no attention to date.

Potential nursing students and their families are faced with difficult decisions regarding the amount of time and money required to complete the nursing programme and the availability of funds to cover the costs. The costs to be met by nursing students undertaking the nursing programme are tuition fees, other educational expenses such as books and supplies, and living expenses (e.g., rent, food,

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transportation). According to the Division of Health Care Services Institute of Medicine (1983), in 1981–82 tuition fees for a nursing degree were 996US\$ (median) for public universities and up to 3880\$ for private universities. On average, an annual sum of 251\$ to 263\$ was allocated by students and their families for books and educational supplies; living expenses were also evaluated. To complete a United States four-year bachelor's degree at a public university, a resident student faced a total expenditure of 18,800\$.

The general aim of this study is to contribute to knowledge on student and/or family nursing education expenditures in order to shed light on the financial situation of nursing students, at a time of national and international financial difficulties.

The study

Aims

Describing and comparing nursing education expenditures incurred in 2004–05 and those incurred in 2010–11 by Italian nursing students and/or their families were the main aims of the study. The secondary aims were to compare the expenditures incurred on an academic year basis and those necessary to complete a three-year Italian nursing degree both in 2004–05 and in 2010–11.

Study design

The research process was articulated in two phases: the first was based on a qualitative method and the second on a quantitative-retrospective method.

Setting

The study was performed in the north of Italy, involving two public universities.

The nursing candidate admission criteria were homogeneous and based on a questionnaire made up of 80 items. Whereas in 2004–05 there were on average 1.2 candidates per each place available, in 2010 there were on average 3.5 candidates/place, without any statistical difference between the involved universities.

First, nursing curriculum homogeneity among the included universities and over the years (from 2004 to 2011) was assessed in terms of the number of elective courses, credit hours dedicated to clinical training, lectures, seminars and the amount of time dedicated to individual study. In accordance with the Bologna Declaration and its associated process (European Ministers of Education, 1999; Vassiliou, 2010), the standard duration of the degrees was three years, requiring 180 European Credit Transfers (ECTS User's guide, 2009), 60 for each academic year. As stated by the Council Directive 77/452/EEC (1977), which has been amended over time (Council Directive 77/453/EEC (1977), Council Directive 89/595/EEC (1989), and the following amendments), Italian nursing students have to attend at least 5400 h of education, an average of 8.5 h/day for 20 days/month/year. Part-time study at the time of this research project was not allowed.

The academic year started each October and finished in September (= 11 months): August was dedicated to students and faculty holidays. A block system model, in which 6 months was dedicated to lectures/seminars and 5 months to clinical training, was adopted by both universities. Uniforms for clinical training washed on a weekly basis were supplied to students free of charge.

The nursing degree course accessibility was evaluated and homogeneity has emerged over the years. The buildings were located in the centre of two different cities with around 100,000 inhabitants. The hospital and community/district centres where students pursued their clinical training were located 1 km away from the university buildings. Public transport (e.g. train, bus) was also located nearby. The buildings were open from 08.00 to 20.00 from Monday to Friday

and students had free internet connections. The library was also open from 08.00 to 22.00 including Saturday. Book and scientific journal consultations were free. Photocopies were paid by students: cards costing 5€ for 70 copies (0.07€/page) were sold to students.

Rules regarding university fees were also compared and homogeneity has emerged. The tuition fees (2004–05 = 1026€/year; 2010–11 = 1525€/year) were reduced in two cases: for students obtaining an average of ≥ 26 points out of 30 in their annual examinations (where 30 is considered the maximum level), and for students from low-income families. Whereas for the former, the criteria were stable over the years (from 2004 to 2011), while the criteria identifying low-income families had changed in line with economic trends. Students were entitled to receive a reduction when their family's declared annual gross incomes were <53,000€/year (2004–05) and <60,000€/year (2010–11).

Students did not receive any payment for their clinical practice.

Sample

After the aims of the study had been explained to the Deans of the Nursing Faculty and authorisation by the University Internal Review Board was granted, the students were approached. The first cohort was composed by all those students attending the first, second and third academic years in 2004–05 (N=300) and the second cohort was composed of those attending their courses in 2010–11 (N=383). All nursing students were eligible for the study: students following the lectures and the clinical trainings on a regular basis (>70% of the lessons as defined by university rules) and who gave informed consent were included. Students absent for long periods (more than 30% of the expected lessons/clinical training) or abroad for international experience, were excluded.

Data collection procedures

Qualitative phase

Six students in the first cohort (2004–05) selected on a voluntary basis and representative of each course (first, second and third years) were interviewed in focus groups (December 2004). The aim was to determine the expenditures exclusively related to nursing education incurred by them and/or their families on a daily, monthly and yearly bases (Division of Health Care Services Institute of Medicine, 1983). After the first focus group, the students were invited to discuss the emerging expenditures with their families. In a second focus group involving the same students, the following nursing education expenditures were identified:

- (1) living away from home during lectures and/or clinical training (e.g. having a room on campus, renting a flat/room),
- (2) using transport to attend lectures/seminars/clinical training (e.g. car, motorbike, train, bus),
- (3) having lunch (e.g. in a pub, canteen),
- (4) purchasing books and (5) photocopies,
- (6) paying university tuition fees.

Students agreed on the need to consider the transport costs differently for months dedicated to lectures/seminars and those dedicated to clinical training: attending lectures is more likely to mean shared transport expenditure (e.g. car), whereas attending clinical training, given that students need to follow nurse educators' shift/work patterns (e.g. from 07.00 to 14.00) makes the use of public transport difficult and the individual use of a car more likely. Students also agreed to exclude some expenditures such as clothing, eating lunch at home or eating a home-prepared lunch at university, as these were not strictly related to nursing education. The agreed expenditure list was the basis of the questionnaire composed of eight questions articulated in nursing students' behaviour decisions (e.g. the use of train to attend lectures, having lunch at the university canteen)

and the related expenditure(s) (in €). While nursing students' behaviours were collected with close-ended questions, the related expenditures were collected with open-ended questions.

The questionnaire was tested for understandability in a pilot phase involving 10 students.

The same list of expenditures was discussed in a two-round focus group involving six students from the second cohort (2010–11) selected according to the same criteria adopted for the first cohort. The objective was to determine if new expenditure(s) had emerged in addition to or to replace those identified in 2004. No new expenditures have emerged: thus, the questionnaire adopted in the first survey (2004–05) was confirmed and adopted in the second survey (2010–11). Variables included in the questionnaire are reported in Table 1.

Quantitative retrospective phase

After the aim of the research had been explained to the first cohort (2004–05) in September 2005, eligible students were invited to participate in the study on a voluntary basis. Those accepting were invited at the end of a lesson to indicate the expenditures incurred in the last academic year by answering to each question included in the questionnaire. In order to promote voluntary participation, full confidentiality of the data collected and anonymity were guaranteed; the questionnaires were anonymous and collected after 40 min in a white box. The same questionnaire was distributed following the same procedure to the second cohort of students (2010–11) in September 2011.

Data analysis

Data analysis was performed with the Statistical Package for the Social Sciences v.18 for Windows (SPSS Inc., 2010). First, in order to explore any differences within the expenditures incurred by first, second and third-year students comprising each cohort, an ANOVA test was performed. When it was assured that expenditures were homogeneous, comparative analysis began. The level of data analysis was fixed at the overall level (all students involved) and at the cohort level (first cohort = 2004–05; second cohort = 2010–11). According to the principal and secondary aims of the research project:

- Students' behavior decisions and expenditures in 2004–05 were compared with those incurred in 2010–11 adopting the Chi Square Test (χ^2) and the *t* Test (two tailed).
- Each expenditure was evaluated on a daily basis (e.g. having lunch at the pub), transformed to a monthly basis according to the number of days required to attend lectures/clinical trainings; then, the monthly expenditures were summarised in order to obtain the total expenditures on an academic year basis. Differences between cohorts (2004–05 vs. 2010–11)

were examined with the *t* Test (two tailed). Statistical significance was fixed at $p > 0.05$.

- In order to calculate the expenditures incurred by the first cohort to obtain a nursing degree, the average annual expenditure was multiplied by three, incremented with the annual inflation rate observed from 2004 to 2007 (2004 = 2.2% to 2007 = 1.8% [ISTAT, 2011]). For the second cohort, given that the end of the course for those attending the first year is expected in 2013, the last average annual inflation rate (2011 = 2.8% [ISTAT, 2011]) was considered.

Results

Participants

Five hundred and six students were involved: 215 (out of 300 eligible, 71.6%) attending the nursing degree in 2004–05 and 291 (out of 383 eligible, 75.9%) in 2010–11. Within the first cohort, 86 students (out of 215, 40%) were at the end of their first academic year, 80 (37.3%) at the end of their second year and 49 (22.8%) at the end of their third year. Within the second cohort, 97 (out of 291, 33.3%) were at the end of their first academic year, 112 (38.5%) at the end of their second year and 82 (28.2%) at their third and final year. Differences were not statistically significant (χ^2 2.959, $p = 0.22$).

The average age of the first cohort was 26.2 (± 3.83) years and that of the second cohort was 25.2 (± 7.79) years [$p = 0.919$].

Most participants lived in the province/county where the degree was located (446/506, 88.1%) and only 60 (11.9%) were from outside the province/county (first cohort: 34, 15.8% vs. second cohort: 26, 8.9% [χ^2 5.599, $p = 0.018$]). Moreover, the average distance from home to the university building was homogeneous (first cohort: 24.40 km CI 95% 21.04 to 27.76 vs. second cohort: 22.28 km CI 95% 19.96 to 24.59) [$p = 0.28$].

Nursing student behaviours

Nursing student behaviours are reported in Table 2. During the academic year, 400 students (79.0%) lived with their family, 93 (18.4%) in a flat rented near the university building and 13 (2.6%) on campus. No statistical differences emerged within the cohorts (χ^2 4.191, $p = 0.123$).

The transport usually adopted by students to attend lectures and clinical training was the car/motorbike (172/506; 34%), followed by the bus (137; 27.1%), the train (88; 17.4%), or a mix (e.g. bus + train) [53, 10.5%]. Only 56 (11.10%) students walked or cycled. Moreover, no statistical differences emerged within the cohorts involved (χ^2 6.427, $p = 0.169$).

Table 1

Nursing student behaviour and expenditure variables included in the questionnaire.

- Age, academic year (2004–05 or 2010–11), course attended (first, second, third year)
- Distance (in kilometres [km]) from where the student lives and the university building
- Where the student lived during lectures/clinical training (e.g. with family, on campus, in a rented room/flat)
 - Cost on a monthly basis for those not living with the family
- Transport used by the student to attend lectures/clinical placements at hospital/districts (nothing, train, bus, motorbike, car, multiple transport [e.g. train + bus])
 - Cost of transport on a monthly basis
- When the student has lunch (at home with the family, at university but lunch prepared at home, at university canteen, at a public bar)
 - Cost of lunch (only for those having lunch at university canteen or at a public bar) on a daily basis
- Book purchase (yes/no); if yes, number of books acquired
 - Cost of books
- Photocopies made (yes/no)
 - Cost of photocopies on a monthly basis
- University fees paid (total fee/reduced fee)
 - Cost of university fees on academic year basis
 - Reason for tuition fee reduction: merit/low-income family

Table 2
Nursing students' behaviour decisions.

Freq (%)	Total = 506 (%)	First cohort 2004–05 = 215 (%)	Second cohort 2010–11 = 291 (%)	p-value
Living during the academic year				
With my family	400 (79.0)	171 (79.5)	229 (78.7)	0.123
Flat/room	93 (18.4)	42 (19.5)	51 (17.5)	
Campus	13 (2.6)	2 (0.9)	11 (3.8)	
Attending lectures/clinical training				
Walking/bicycle	56 (11.0)	28 (13.0)	28 (9.6)	0.169
Car/motorbike	172 (34.0)	68 (31.6)	104 (35.8)	
Bus	137 (27.1)	50 (23.3)	87 (29.9)	
Train	88 (17.4)	44 (20.5)	44 (15.1)	
Mix (e.g. bus + train)	53 (10.5)	25 (11.6)	28 (9.6)	
Having lunch				
At university canteen	173 (34.3)	57 (26.5)	116 (40.0)	0.000
At home with my family	29 (5.7)	20 (9.3)	9 (3.1)	
At the public bar	32 (6.3)	23 (10.7)	9 (3.1)	
Packed lunch	207 (41.0)	100 (46.5)	107 (36.9)	
Varied	64 (12.7)	15 (7.0)	49 (16.9)	
Buying books				
Yes	361 (71.8)	144 (67.6)	217 (74.8)	0.126
Average number (CI 95%)	3.4 (3.2–3.6)	3.5 (3.2–3.8)	3.3 (3.1–3.6)	0.330
Making photocopies				
Yes	454 (89.7)	211 (98.1)	245 (84.1)	0.00
Paying university fees				
Full fee ^a	297 (58.7)	143 (66.5)	154 (52.9)	0.002
Fee reduction	209 (41.3)	72 (33.5)	137 (47.1)	
Low income family ^b	129 (61.7)	56 (77.7)	73 (53.3)	0.000
Merit ^c	80 (38.3)	16 (22.3)	64 (46.7)	

^a 2004–2005 = 1026€/year; 2010–2011 = 1525€/year.

^b Annual gross income ≤ 53,000€/year (2004–05) and ≤ 60,000€/year (2010–11).

^c ≥ 26 out of 30 points on annual basis.

Two hundred and seven students (41.0%) reported that during the academic year they ate a packed lunch, 173 (34.2%) ate lunch at the university canteen, 32 (6.3%) in a public bar, 29 (5.7%) at home with their family, and 65 (12.8%) varied (e.g. at home/in the pub). The likelihood of lunch being eaten at the university canteen by the second cohort of students was higher than the first cohort [OR 1.85 CI 95% 1.24 to 2.76, $p=0.000$].

Also explored was whether or not students buy books and to what extent: only 362 students (71.5%) reported buying books with no

differences between the cohorts ($p=0.126$). On average, students bought 3.4 books per year (CI 95% 3.2 to 3.6) with no difference between cohorts ($p=0.330$). A recurrent use of photocopies emerged (546; 89.7%); only 52 (10.3%) students had never made photocopies. Moreover, the recurrence of photocopies has significantly decreased from 2004–05 to 2010–11 ($p=0.00$).

Lastly, 209 (41.3%) students benefited from tuition fee reduction, 72 (33.5%) within the first cohort and 137 (47.1%) of the second cohort. The likelihood of obtaining a tuition fee reduction for the students in the 2010–11 academic year was higher (OR 1.77 CI 95% 1.21 to 2.59, $p=0.000$) than for those comprising the first cohort. Moreover, in 2004–05 the likelihood of obtaining a fee reduction for low-income reasons was higher than in 2010–11 (first cohort: 56, 77% vs. second cohort: 73, 53.3% [OR 3.07 CI 95% 1.53 to 6.20, $p=0.000$]). Differently, obtaining a fee reduction for merit was less probable (first cohort: 16, 23.3% vs. second cohort: 64, 46.7% [OR 0.33 CI 95% 0.16 to 0.65, $p=0.000$]).

Nursing education expenditures

Students/family expenditures incurred on daily, monthly, or annual basis are reported in Table 3. At overall level, for those living away from the family, the expenditure was on average 261.25€/month (CI 95% 233.3–289.1). Attending lectures and clinical training required on average respectively 64.10€/month (CI 95% 58.6–69.5) and 99.86€/month (CI 95% 91.52–108.2) while having a lunch from 3.24€/day for those eating at the university canteen to 4.09€/day for those eating at public bars. Expenditures for books and photocopies per academic year were on average below 200€/year.

Comparing the expenditures documented by the first cohort of students with those comprising the second cohort, living expenditures including rent, transport and lunch demonstrated a tendency to increase, particular for students attending clinical trainings (+24.9%). Moreover, the amount of expenditure for lunch in a public bar decreased significantly (–48.6%). Significant decreasing expenditures emerged also for books (–5.9%) and photocopies (–34.6%) whereas the tuition fee average had increased (+24.6%). Differences in the expenditures incurred by students from outside the province/county, compared with those living inside, were statistically significant for both cohorts ($p=0.001$).

Table 3
Students and/or family expenditures for nursing education.

Expenditures for	Total = 506 Average (CI 95%)	First cohort 2004–05 = 215 Average (CI 95%)	Second cohort 2010–11 = 291 Average (CI 95%)	Δ 2010–11/2004–05 +/- %	p-Value ^a
Living away from the family	261.25€/month (233.3–289.1)	248.20€/month (201.3–295.1)	270.30€/month (235.1–305.5)	+ 8.9	0.14
Attending lectures	64.10€/month (58.6–69.5)	61.00€/month (51.4–70.6)	66.40€/month (60.0–72.7)	+ 8.8	0.333
Attending hospital/district training	99.86€/month (91.52–108.2)	87.97€/month (77.35–98.5)	109.93€/month (97.51–122.3)	+ 24.9	0.010
Having lunch					
At university canteen	3.24€/day (2.7–3.7)	2.71€/day (2.4–3.0)	3.49€/day (2.8–4.1)	+ 28.7	0.119
At public bar	4.09€/day (3.3–4.3)	5.92€/day (4.1–7.6)	3.04€/day (2.6–3.4)	– 48.6	0.000
Buying books	192.50€/year (177.6–207.4)	199.60€/year (174.1–225.1)	187.70€/year (169.5–205.9)	– 5.9	0.14
Buying photocopies	121.65€/year (110.9–132.3)	149.50€/year (131.41–167.60)	97.66€/year (86.0–109.2)	– 34.6	0.00
Paying tuition fees	1022.12€/year (985.8–1058.3)	895.50€/year (862–928.1)	1115.60€/year (1059.5–1171.7)	+ 24.6	0.00
Total cost/month	217.11€ (204.7–229.5)	203.11€ (183.9–222.2)	227.50€ (211.1–243.8)	+ 12.0	0.05
Total cost/year	2605.70€ (2456.5–2754.0)	2437.40€ (2207.3–2667.4)	2730.00€ (534.0–2925.9)	+ 12.0	0.05

^a Statistical difference, if any, in the average expenditures documented in 2004–05 and 2010–11.

The result is that whereas students'/families' expenditures in 2004–05 on a monthly basis were on average 203.11€ (CI 95% 183.9–222.2), while in 2010–11 they were 227.50€ (CI 95% 211.1–243.8). On a monthly and annual basis, nursing education expenditures increased by 12%.

Given that qualification as a nurse requires at least three years, and considering inflation, for a student who matriculated in 2005 an average of 2485.7€ per year (7457.0€ in total) was required. For a student who matriculated in 2010, an average of €2771.2 per year (8313.5€ in total) was required, considering that inflation should remain constant (2.8%/year) until the end of 2013.

Discussion

Study limitations

Given that expenditure and tuition fee reduction for low-income reasons may be considered as sensitive topics and because of the disclosure of highly personal and confidential information (Brannen, 1988), accuracy of the data collected may be affected. Some expenditures have not been assessed (e.g. packed lunch prepared at home and consumed at the university) because they were not strictly influenced by nursing education and this might reduce the precision in the analysis.

Contrary to the recommendations made by the Division of Health Care Services Institute of Medicine (1983), the time invested by the student to become a nurse was not assessed economically because it did not emerge in the focus group.

Students reported expenditures incurred in the last academic year. Recall bias might affect accuracy in reporting some data. Students attending different years (first, second or third) were included without following the same cohort of students for three years and this might affect accuracy in terms of the overall expenditures incurred in becoming a nurse.

The research participation was high (>70% of the eligible students) but the exclusion of those not attending lectures or clinical trainings on a regular basis, who probably spend at least four years on gaining the degree, allows for the creation of a generalised cost estimate only for students finishing the curriculum on time.

Family/student behavioural decisions and expenditures

The students involved were mature (average > 25 years), in line with national trends (Federazione Nazionale Collegi IPASVI, 2007). They were mainly living with their family at the time of the survey in accordance with Italian culture (Kertzer and Saller, 1993) and owing to economic constraints (Bortoluzzi and Palese, 2010).

Students were mainly resident within the province/county where the courses were located and the reduction observed from 2004 to 2010 of those from different provinces/county raises some concerns. The degree courses seem to play a key role mainly for local students and hold little attraction for students from outside. Attractiveness is an embodied concept of university, offering the opportunity, both to teachers and students, to explore new territories, cultures and knowledge, and also to learn from this exploration (Nakpodia, 2009). According to the significant differences in the expenditures incurred by students from inside to outside the province/county where the university was located, the observed reduction of attractiveness, which needs further studies, may reflect an adverse effect of economic austerity.

Some living expenditure decisions, i.e. where the students live and the use of transport, were homogeneous between the cohorts and over the years. Moreover, the increased cost of attending clinical trainings in 2010–11 compared with 2004–05 suggests the need to assess student provenance and to design strategies in order to develop opportunities for car-sharing or to improve public transport.

A significant proportion of students in 2010–11 (40.0%) preferred to have lunch at the university canteen and there was a reduction in those eating lunch in pubs (from 10.7% to 3.1%), probably for cost-containment reasons. The proportion of students who prepared a packed-lunch was high (41%) and even that has decreased from 2004–05 to 2010–2011, as an average of 100 students arrive at university with their own lunchbox every day. This suggests the need to project new spaces within the university buildings dedicated to students' free time and lunchtime. It also suggests the need to evaluate the hygiene of areas where meals are conserved and consumed and, in the long term, their nutritional impact (i.e. whether sufficient or not).

Regarding educational supplies (books and photocopies), several concerns arise. More students have acquired books over the years, but around 25% have completed an academic year without buying any. Although this may have been acceptable in 2004, when Italy celebrated its first class of nursing graduates (Law No. 2001) and the available books were very limited, this is a source of concern in 2010 as several options were available. Also, the number of books bought was very limited: three books per year means that at the point of graduation each nurse had in his/her personal library only nine books (if they decided not to sell them at the end of the year, as is often the case).

On the other hand, the number of students using photocopies is large (89.7%) with a significant reduction over the years (from 98.1% in 2004–05 to 84.1% in 2010–11). Considering that the cost of photocopies at 0.07€/page was stable over the years, the number of pages copied on an annual basis may be estimated at around 3135 in 2004–05 and 1395 in 2010–11.

The high proportion of students using photocopies suggests different interpretations: (a) an upsurge of PowerPoint presentations used by nursing and non-nursing teachers/professors; (b) a lack of financial support to buy books (a 500-page nursing book costs around 85€ on average [anecdotal evidence, January 2012]), whereas the cost of a copy is very low (0.07€ per page) and this encourages students to photocopy book chapters even if it is prohibited by law. The high number of photocopies and the low book purchases need to be addressed in the near future in order to discover the reasons and design appropriate strategies.

The number of students who obtained a reduction of tuition fees significantly increased over the years (from 33.5% to 47.1%) but the reasons are profoundly different. In fact, among the first cohort in 2004–05, the likelihood of obtaining a fee reduction for reasons of low-income was three times as high as that in 2010 (OR 3.07 CI 95% 1.53 to 6.20). In the same first cohort, the fee reduction for merit was 77% less compared with the second cohort (OR 0.33 CI 95% 0.16 to 0.65). A substantial modification in the social and economic background of Italian nursing students seems to emerge: in the past the traditional Italian nursing student came from a low-income family (Cunico and Saiani, 2007) while to date, the number of students obtaining reduction in the fees for 'economical' reason seem to be limited. In the same time, students seem to be better able to achieve a higher performance in their exams. These two preliminary interpretations, together with the increasing frequency of Italian nursing students who have already achieved a degree in another discipline (e.g. primary education, biotechnology, languages) (Dante et al., 2011), suggest different patterns in students' social and educational background, motivation, and academic performance which, in the long-term, could affect the entire nursing profession. These preliminary interpretations need to be treated with caution and future research and analysis at both national and international levels are required: exploring whether there is a decline in the proportion of nursing students coming from lower-income families will require further study examining the family income of the respondents and classifying them into different income groups, hence profiling student financial demographics.

Impact of nursing education on families

In 2004 the Italian average net annual salary was 23,724.4€ and in 2010 it was 27,926.7€ (ISTAT, 2011). The annual nursing education expenditure for a family was respectively 10.3% (2437.4/23,724.4€) and 9.7% (2730.0/27,926.7€).

This means that, on average, the total costs of education have remained in line with the cost of living, even though significant differences emerge. In particular, the data suggests that students have modified spending behaviour (limiting lunches at public bars, buying books and photocopies) in order to handle the rise of non-discretionary costs, such as tuition fees and the costs of attending lectures and hospital/district training.

These changes in the spending behaviour documented by students can be explained by two related facts. First, since 2008 the Italian economy has been facing a very dramatic economic crisis (Bortoluzzi and Palese, 2010). During this period consumers have reduced spending, worried about a grim future. Second, the actual economic expectations are even worse for Italy, due to the concrete risk of a recessionary spiral that will further reduce family spending and saving.

Conclusions and policy implications

The burden of nursing educational costs lies on the shoulders of the students and their families. Around 10% of their average annual net income is dedicated to supporting a daughter or son attending a nursing programme. The cost of becoming a nurse has increased in the last five years from 7457.0€ to 8313.5€, and for those students who require more time because of learning difficulties, the costs are even higher.

In times of economic crisis, families and students have to consider the high investment required to complete the nursing programme. Policies supporting nursing education in general and those students who are motivated but unable to undertake the course for economic reasons are needed:

- A lack of nursing student mobility within provinces/counties seem to emerge and this might be related to the financial crisis. This could also affect in the near future students' desire for experiences abroad under the Socrates/Erasmus programme umbrella which would cost more. In order to recruit a more diverse student body and to sustain mobility, in accordance with the mission of the university education, there is a need to offer additional incentives to students from rural areas and for those coming from different provinces/counties.
- Nursing degree courses are responsible for student well-being: students' lunches, hygiene and more affordable costs in university canteens are a priority in order to reduce the risk of poor nutrition.
- Clinical learning attendance may be supported by negotiating different shift/work schedules for students or developing alliances with the mayors of cities or with political decision-makers in order to provide public transport and avoid the individual use of the car, which could be dangerous after a night shift both for nurses and students. To note that at the time of publication of this manuscript, average petrol costs in Italy are over 1.8€ per litre (\$9 per gallon).
- Financial aid, whether from public or private sources, is needed for all students, at all levels. As Benner et al. (2009) suggested, more focused attention is needed to support the education of nurses. Health science education centres could add fellowships to annual campaigns; and healthcare organisations could promote programmes that provide loans that are subsidised or cancelled if the graduate works for the organisation.

This study seems to be the first within Europe: comparative international research of student and/or family expenditures dedicated to nursing education is needed.

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