Factors determining the choice of a career in geriatrics among students in geriatric in-hospital training: a single-center prospective study of 74 students

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Abstract

Background: To understand the reasons for the lack of attractiveness of the Diploma of Specialized Studies (DSS) in Geriatrics (DSSG), we conducted a study to identify the factors influencing medical students' choice of their future specialty. In addition, we assessed the impact of in-hospital training (IHT) in the departments of our geriatric center on the students' choice of their future specialty.

Methods: We included all students who passed an IHT course in the geriatric center of our university hospital between 1 May 2018 and 31 October 2018. The data were collected using a questionnaire in two parts: one given before the IHT and the other after. The students were classified into two groups: those considering a career in geriatrics before IHT (GDSSG+) and those not considering it (GDSSG−).

Results: Seventy-four students, aged a mean 22 years, were included. Of these students, 26%, were considering the possibility of a career in geriatrics before the IHT course (GDSSG+). This rate significantly increased to 42% after IHT (p=0.04). However, none of the students in GDSSG+ preselected geriatrics as their first option; general medicine was the most frequent option.

For more than 92% of the students, the comprehensive care of geriatric patients was an asset. The main drawbacks were diagnostic and therapeutic limitations for 60% of the students, and managing aging, disability, and major neurocognitive disorders (MNCD) for 55%. After IHT, the view of geriatrics improved by 74%.

Conclusion: Geriatric IHT improves students' opinions of geriatrics and significantly increases the number of students considering a potential career in geriatrics. However, geriatrics still suffers from a lack of prestige.

Background

Life expectancy is growing, resulting in an increased number of frail elderly [1]. Care of the elderly, whose population continues to increase [2], is becoming a medical priority and a real public health challenge today and in the years to come.

Geriatrics is a recent specialty and in 2017 became a Diploma of Specialized Studies (DSS).

Despite significant needs in personnel, hospitals are struggling to recruit geriatricians and particularly to attract young physicians to this specialty [3]. Indeed, medical students seem to have little interest in geriatrics.

It seems important to understand the reasons for this low interest in geriatrics. The hypotheses include a lack of information and/or knowledge of this specialty, the fear of a specialty judged as being relational and insufficiently technical, and the fear of being confronted with end-of-life situations and death.

We therefore conducted this study to identify the reasons for the lack of attractiveness of the DSS in Geriatrics (DSSG) diploma and the factors influencing medical students in their choice of specialty. In addition, we evaluated the impact of the in-hospital training (IHT) in the geriatrics department of our university hospital on this specialty choice.

Methods

Study design

We conducted a prospective, descriptive, and single-center study of medical students in the geriatric center of a university hospital.

The Ethics Committee of our institution was consulted. However, because it was a non-medical and non-interventional anonymous survey (not performed with patients and no attempt to obtain a medical impact), this study was outside Jardé's law field (French legislation) and the Ethics Committee approval was considered unnecessary under French law. This project was formally determined to be quality improvement, not human subjects' research.

Verbal consent was obtained from all students included in this study, and the data were processed anonymously.

Population

All medical students who completed an IHT course in our geriatric center during their 2nd cycle of medical studies (SCMS) were included between 1 May 2018 and 31 October 2018. The geriatric center comprised an ambulatory geriatric department, acute geriatric units, geriatric rehabilitation units (GRU), and a nursing home.

There was only one non-inclusion criterion: the Internal Functioning Role status, i.e., students who were not interns.

The students included were divided into two groups: those who were considering a career in geriatrics before the IHT course, called the DSSG+ (GDSSG+) group, and those who were not considering it, called the DSSG− (GDSSG−) group.

The advantages and disadvantages of geriatrics from the students' point of view were also analyzed at two time points, before and after the IHT course, in both groups (GDSSG+ and GDSSG−). In addition, the change in the number of students in the two groups between the beginning and end of IHT was analyzed.

Data collection

For each student included, the following data were collected, using a two-part anonymized questionnaire. The latter was completed before and after the IHT:

- Demographic data: age, gender, year of study (4th-, 5th-, or 6th-year students).
- Data regarding the choice of a specialty after the French National Ranking examinations (*épreuves classantes nationales*): practice type and conditions intended, medical specialty considered, and specialty choice criteria.
- Data concerning geriatrics before IHT: (1) Was it the first experience in a geriatric environment? (2) Was the choice of IHT in a geriatric center made out of conviction and knowledge of the DSSG?
- Data concerning geriatrics before and after IHT: (1) advantages and disadvantages of geriatrics and (2) career in geriatrics considered or not.
- Data concerning geriatrics after IHT: (1) changing opinions on geriatrics due to geriatric courses, bedside teaching, immersion in the care team, and contact with the elderly patients, (2) progress or not in the medical management of the elderly, (3) quality of the supervision, (4) quality of the care team's supervision, (5) sufficient immersion in geriatric culture, (6) would or would not recommend IHT in geriatrics to other students, and (7) ways of improving IHT.

Statistical analysis

Categorical variables are described as numbers and percentages, while quantitative variables are expressed as medians and interquartile ranges and/or means and standard deviations.

We described the data collected on the criteria influencing students' choice of a future specialty before IHT, the strengths and weaknesses of geriatrics before and after IHT, and the change in the students' opinions on geriatrics after IHT: first in the total study population and then in the GDSSG+ and GDSSG− groups. Finally, we compared the impact of IHT on whether or not students considered a career in geriatrics between the GDSSG+ and GDSSG− groups.

Chi-square and Fisher tests were used to analyze categorical variables, while the Student *t*-test was used for quantitative variables. Statistical significance was set at $p<0.05$.

Results

Total population

Analysis of the total study population before in-hospital training

Characteristics of participants before in-hospital training

After excluding one student who did not return the questionnaire, 74 participants, 43 women and 31 men, aged 22 ± 1.69 years were included.

In total, 42% of the students were in year 4 of medical studies or masters in medicine (MM) 1 (MM1), 39% were in in year 5 or MM2, and 19% were in year 6 or MM3.

Furthermore, 55% percent of the students completed their IHT in acute geriatric units, 34% in the GRU, and 22% in the nursing home. Of the students, 9% were attracted to in-hospital practice, 34% where attracted to private medicine, 30% to a mixed practice, and 27% were undecided. The geriatric IHT was a convincing choice for 52 students (70%). For 31 students (61%), it was the first experience in geriatrics.

Among the students, 57 students (77%) had already chosen their future specialty: 27 (36%) had a preference for general medicine and 16 (22%) for another medical specialty, six (8%) preferring surgery, six (8%) preferring gynecology or pediatrics, and emergency medicine for two students (3%). None of these students had a preference for geriatrics.

Forty-five students (61%) had heard about the DSSG, but 71 students (96%) felt that the information received was insufficient or nonexistent, expressing a desire for more information. Among these students, 56 (76%) wanted to receive information (on the DSS) through the faculty, 25 (34%) wanted more exchanges with gerontology professionals including geriatricians, 15 (20%) preferred the creation of a DSSG website, and two (3%) wanted IHT in geriatrics to become mandatory (Table 1).

Criteria influencing students' choice of a future specialty before the in-hospital training course

The main relevant criteria for the choice of the specialty were the varied activity in the specialty for 66 students (89%), intellectual attractiveness for 54 (73%), the possibility of private practice for 47 (64%), the possibility of undergoing additional medical training for 41 (55%), flexible working hours for 39 (53%), the variety of their medical practice (possibility of in-hospital and private practices) for 35 (47%), and geographic location for 23 (31%). The relational dimension was found in only 4% of cases. All criteria are reported in Table 2.

Comparison of pre- and post-course questionnaire

Strengths of geriatrics

The main strengths of geriatrics were comprehensive patient management for 92% of the students before IHT and 93% after (p=1), the interest in ethical issues for 81% before and after IHT (p=1), the multidisciplinary teamwork for 73% before IHT and 81% after IHT (p=0.24), and the varied activity for 74% before IHT and 68% after IHT (p=0.37). There were no significant differences between the two time points, pre- and post-IHT, regarding the positive points of geriatrics (Table 3).

Disadvantages of geriatrics

The main negative points of geriatrics were the frustration of having to limit diagnostic investigations and therapeutic options for 59% of the students before IHT compared with for 61% after; dealing with aging, disability, and MNCD for 55% before IHT versus 58% after; contending with death for 46% before IHT versus 43% after; and the current impossibility of private medicine for 49% before IHT compares with 53% after IHT. There was no significant difference between the two time points, pre- and post-IHT, regarding the negative points of geriatrics (p=0.87, p=0.74, p=0.74, and p=0.62, respectively) (Table 4).

Description of the total study population at the end of in-hospital training

Change in students' opinions of geriatrics

The opinion of geriatrics evolved positively in 55 students (74%). Seventy students (95%) agreed that IHT had resulted in a positive change in their approach to managing the elderly. The impact of the teaching during IHT was found to be positive for 60 students (81%) in terms of the theoretical aspects, and for 59 students (80%) in terms of the practical aspects. The practice of elderly care in the geriatric center was positively impacted by theoretical content for 63 students (85%), while it was positively impacted by the practical courses for 67 students (91%) (Table 5).

Comparison of GDSSG+ and GDSSG− groups

Characteristics of participants before the in-hospital training

At inclusion, there were 19 students (26%), with a mean age of 23±1.48 years, in the GDSSG+ and 55 (74%), with a mean age of 20±1.77 years, in the GDSSG− group. There was no significant difference between the two groups concerning age (p=0.86).

In the GDSSG+ group, 68% of the students had chosen an acute geriatric unit versus 36% in the GDSSG− group, with a significant difference (p=0.02).

Of the students in the GDSSG+ group, 26% had a preference for in-hospital practice versus 4% in the GDSSG−, with a significant difference (p=0.01). Although the rate of students who had a preference for private practice was lower in the GDSSG+ (26%) than in the GDSSG− group (36%), the difference was not significant (p=0.77). Even though the rate of students with a preference for mixed practice was higher in the GDSSG+ (37%) than in the GDSSG− group (27%), the difference was not significant (p=0.43).

In the two groups, none of the students had chosen geriatrics as the first option for his/her future specialty. A total of 58% of the students in the GDSSG+ had chosen general medicine as the first option for their future specialty versus 29% in the GDSSG−, with a significant difference between the two groups (p=0.02). Conversely, the choice of a medical specialty as the first option was higher in the GDSSG− (27%) group than in the GDSSG+ group (5%), with a significant difference (p=0.05).

A total of 89% of the students in the GDSSG+ group had chosen geriatric IHT by conviction versus 63% in the GDSSG− group, with a significant difference (p=0.04).

At the time of this study, it was the first experience in a geriatric environment for 58% of the students in the GDSSG+ and 36% in the GDSSG− group, with no significant difference (p=0.10). In all, 68% of the students had heard about the DSSG in the GDSSG+ and 58% in the GDSSG− group, with no significant difference (p=0.43).

Criteria influencing students' choice of a future specialty

Among the criteria influencing students' choice of their future specialty before the IHT course, only the desire for high earnings was significantly greater in the GDSSG− (22%) than in the GDSSG+ group (0%) (p=0.03).

No significant difference was found between the GDSSG+ and the GDSSG− groups regarding criteria influencing students in the choice of their future specialty before and after IHT.

Advantages and disadvantages of geriatrics according to students before and after the in-hospital training

Advantages of geriatrics

There was no significant difference between the GDSSG+ and the GDSSG− groups concerning the positive points of geriatrics both before and after IHT (Table 3).

Disadvantages of geriatrics

Poor knowledge of geriatrics was considered a more significant negative point in the GDSSG− than in the GDSSG+ group, both before (40% of students vs. 11%, respectively; p=0.02) and after IHT (38% of students vs. 11%, respectively; p=0.03).

The overemphasis on the social dimension was the only other negative point for which the difference was significant between the GDSSG− and the GDSSG+ groups after IHT (25% of students vs. 0%, respectively; p=0.02) (Table 4).

Impact of the in-hospital training course on change of students' view of geriatrics

The students' view of geriatrics improved after IHT with no significant difference between the GDSSG+ and the GDSSG− groups (89% of students vs. 69%, respectively; p=0.13).

A majority of students in the two groups agreed that IHT had had a positive impact on how they managed the elderly patients, with no significant difference between the GDSSG+ (100%) and GDSSG− (93%) groups (p=0.57). There was no significant difference between the two groups regarding the impact of theoretical lessons on both their opinion of geriatrics (95% vs. 76%, respectively; p=0.10) and the care methods for the elderly (95% vs. 81%, respectively; p=0.27). Similarly, there was no significant difference between the two groups regarding the impact of clinical coursework on both their view of geriatrics (95% vs. 75%, respectively; p=0.10) and the care methods for the elderly (95% vs. 89%, respectively; p=0.67).

After IHT, 89% of students in the GDSSG+ group recommended the geriatric IHT compared with 95% in the GDSSG− group, with no significant difference (p=0.60).

Impact of the in-hospital training course on whether or not students would consider a career in geriatrics

There were significantly more students considering a career in geriatrics after the IHT course (42%) than before (26%) (p=0.04).

Discussion

Promotion of geriatrics is becoming essential. It has been shown that management of the elderly by geriatricians who perform a comprehensive geriatric assessment is beneficial in reducing short-term mortality and improving physical and cognitive capacities [4]. Therefore, we wished to understand the reasons for the lack of attractiveness of the DSSG and the factors influencing students' medical specialty choice. To this end, students in the SCMS undergoing their IHT in our geriatric center were questioned.

Despite an overall positive change in their view of geriatrics for 74% of students, only 31% were considering a career in geriatrics after their IHT. This result is similar to that of a British study reporting that one third of students were considering a career in geriatrics and 76% considered that geriatrics had a positive impact on the lives of the elderly [5]. However, in the present study, none of the students mentioned geriatrics as their first choice. In comparison, another British study reported that 4% of students decided to specialize in geriatrics [6]. In our study, 77% had already chosen their future specialty before the IHT course. This result is quite close to that found in an Irish study (> two thirds of students) [7]. This low interest in geriatrics may partly be explained by the fact that this specialty is relatively new in some countries, even nonexistent in others. A 2015 review, including 31 European countries, showed that geriatrics was only recognized as a specialty of its own in 61.3% of the countries. [8]. In France, the recognition of geriatrics dates back to 2004. The DSSG started in 2017, with approximately 200 intern positions advertised in geriatrics after the French National Ranking. In addition, one of the reasons for the lack of attractiveness of geriatrics could be its low exposure during the SCMS. Similar to our study, others linked students' growing interest for geriatrics to the increase in the number of geriatric courses [9, 10].

One of the negative points of geriatrics reported by students was the frustration of being limited in diagnostic investigations and therapeutic options. This result is similar to that reported by Bagri et al., who described discouragement in students who did not observe the immediate effects of certain treatments [11]. Having to deal with aging, disability, and MNCD is another major negative point, as was dealing with death. These factors were reported by Bagri and Tiberius [11]. These authors also

mentioned the chronic nature of the diseases of the elderly as a drawback of geriatrics. Therefore, the physician's role appears less attractive [11].

Not being able to practice in private medicine, also reported in previous studies [12], was another limiting factor for the choice of geriatrics, and thus a negative point, for half of the students in our study. By contrast, low income was also listed as a major drawback in other studies [11, 13].

The lack of prestige was a deterrent in 16–20% of the cases in our study. This was also reported by Meiboom et al. as a minor deterrent [12]. Another study reports the contribution of the lack of peer recognition in maintaining this perceived lack of prestige [14]. Geriatrics is a recent specialty, which became a DSS in 2017. This could partly explain the lack of consideration of this specialty due to a lack of knowledge about it. Nevertheless, most geriatricians express satisfaction in their specialty, however unpopular the field may be, and clearly deem it indispensable [15]. Despite efforts to fill the lack of visibility in geriatrics research, too many research programs are developed outside the geriatric units, which contributes to this lack of visibility [12, 16].

The impact of teaching geriatrics on improving the attractiveness of this specialty was mentioned by 80% of students in the present study. A previous work reported an increase in the attractiveness of geriatrics for students after clinical learning experiences lasting more than 8 days [12]. Two other studies showed greater interest in the specialty after a training program of, respectively, 5 weeks and 1 month [17, 18]. The study by Nasiya evaluated the effects on students of a new university IHT program in geriatric medicine and palliative care. The students' knowledge and behavior toward patients significantly improved in the 4th-year students who participated in this program [19].

The number of students considering a career in geriatrics was significantly higher after IHT, although we were unable to determine specific reasons for this. In the current study, students considering a career in geriatrics listed the variety and transversality of geriatrics (47%), its intellectual appeal (74%), and comprehensive management of patients (79%) as the main reasons for this choice. These results are similar to those reported in an Irish study [7], and could be explained by the humanity and empathy values that are even more necessary in geriatrics than in other more technical specialties. Indeed, creating empathy among medical students is associated with positive changes in attitudes toward the elderly [20]. A British study reported that students from a university attached to a health center for the elderly showed better behavior toward these individuals than other students did, even before the start of geriatric teaching [18]. For Cankurtaran et al., the attitude of medical students toward the elderly is closely related to the experiences and knowledge acquired in medical school [12]. However, the teaching of geriatrics during the SCMS is not always sufficient. Moreover, the attitude and knowledge of geriatric students are closely related to the level of geriatric training [21].

A study of students’ training needs in geriatrics noted particular gaps in the skills and knowledge needed to recognize complex pathologies, prioritize interventions, and communicate with families. This suggests the need for both assessment of training programs and increasing the number of qualified teachers [22]. In 2009, the "Aging Q3" program implemented in South Carolina aimed to improve students' knowledge, skills, and behavior toward the elderly by improving the development and quality of teaching [23]. It also seems necessary to refocus training around the patient and to highlight the intellectually attractive aspects of geriatrics. Furthermore, a presentation of future professional prospects is essential [24]. Indeed, almost all students included in our study declared that they had not received sufficient information about the DSSG, which suggests that communication and visibility of this DSS among students must be improved.

An early appetite for geriatrics does not predict a possible future career in the field. Indeed, a survey showed that among physicians who finally chose a geriatric career, only one-third had made this choice 3 years after the SCMS [25]. Moreover, some studies highlight that geriatricians choose their specialty relatively late in their studies [6].

Although this is an original study, it also has some limitations. First, it is a single-center study with few students. Another bias could be related to a possible subjectivity of answers induced by the multiple-choice questionnaires.

Conclusion

One of the strengths of this study lies in the prospective collection of data and the anonymity of the students. This study shows that the IHT at the Geriatrics Pole improves students' view of geriatrics and significantly increases the number of students considering a potential career in geriatrics. Several factors influence students in the choice of their future specialty, the most important of which are intellectual attractiveness, varied activity, and comprehensive patient care. Geriatrics still suffers from a negative image and lack of prestige. Contending with chronic pathologies, complex patient management, and death make the specialty unattractive at first sight. In addition, training is often insufficient due to the lack of exposure to the specialty and the low number of trained teachers. Moreover, reliable tools for evaluating the various training programs are still lacking.

Abbreviations

AGU: short geriatric stay; DSS: diploma of specialized studies; DSSG : diploma of specialized studies in geriatrics; GP: general practitioner; GDSSG+: diploma of specialized studies in geriatrics envisaged; GDSSG- : diploma of specialized studies in geriatrics not envisaged; GRU: geriatric rehabilitation unit; ; IHT: in-hospital training; MM : master's degree in medicine ;MM1: master's degree in medicine 1st year; MM2: master's degree in medicine 2nd year; MM3: master's degree in medicine 3rd year; MNCD: major neurocognitive disorders; N: number; SD : standard deviation; SMDS : second cycle of medical studies

Declarations

Availability of data and materials

The datasets generated and/or analyzed during the current study are not publicly available due to small class sizes and the sensitivity of data points but are available from the corresponding author on approval of request.

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None.

Authors' contribution

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Authors Contributions

All authors, VN, JB, CL, JV, MD, AM, AP and PM, were involved in the conceptualization of the study. VN was primary responsible for the collection of the data. VN and PM analyzed the data. All authors (VN, JB, CL, MD, AM, AP and PM) contributed to the interpretation of the results.VN drafted the manuscript. All authors contributed to critical revisions of the manuscript. All authors, (VN, JB, CL, MD, AM, AP and PM) contributed to important intellectual content of the study and approved the final version of the manuscript.

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Ethics approval and consent to participate

The Ethics Committee of our institution was consulted. However, because it was a non-medical and non-interventional anonymous survey (not performed with patients and no attempt to obtain a medical impact), this study was outside Jardé's law field (French legislation) and the Ethics Committee approval was considered unnecessary under French law. This project was formally determined to be quality improvement, not human subjects' research.

Verbal consent was obtained from all students included in this study, and the data were processed anonymously.

Consent for publication

Not applicable

Competing interest

The authors declare that they have no competing interests.

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Tables

Table 1. Student characteristics at the beginning of in-hospital training.

		Total population N=74	GDSSG+ N=19	GDSSG- N=55	P
		N (%)	N (%)	N (%)	
Median age (years)		23 [22-24]	23 [21-23]	23 [22-24]	0.86
		mean ± SD	mean ± SD	mean ± SD	
Mean age (years) ± standard deviation		22±1,69	23±1,48	20±1,77	0.86
		N (%)	N (%)	N (%)	
Female gender		43 (58)	13 (68)	30 (54)	0.29
Education level	MM1	31 (42)	10 (53)	21 (38)	0.27
	MM2	29 (39)	6 (32)	23 (41)	0.43
	MM3	14 (19)	3 (16)	11 (20)	1
Place of IHT	AGU	33 (45)	13 (68)	20 (36)	0.02
	GRU	25 (34)	3 (16)	22 (40)	0.09
	Nursing home	16 (22)	3 (16)	13 (24)	0.75
Type of envisaged exercise	In hospital	7 (9)	5 (26)	2 (4)	0.01
	Liberal	25 (34)	5 (26)	20 (36)	0.77
	Mixed	22 (30)	7 (37)	15 (27)	0.43
	Unkown	20 (27)	2 (11)	18 (33)	0.08
Idea of Specialty		57 (77)	14 (74)	43 (78)	0.75
In case of specialty idea, which one?	*General Medicine*	27 (36)	11 (58)	16 (29)	0.02
	Medical Specialty	16 (22)	1 (5)	15 (27)	0.05
	Surgical Specialty	6 (8)	0 (0)	6 (15)	0.32
	Gynecology/ Pediatrics	6 (8)	0 (0)	6 (15)	0.32
	Emergencies	2 (3)	2 (11)	0 (0)	0.06
	Geriatrics	0 (0)	0 (0)	0 (0)	1
Choice of geriatrics IHT by conviction		52 (70)	17 (89)	35 (63)	0.04
First experience in geriatrics		31 (42)	11 (58)	20 (36)	0.10
Ever heard of the DSS in geriatrics?		45 (61)	13 (68)	32 (58)	0.43
Students' opinion	*Information on DSS considered sufficient*	3 (4)	2 (11)	1 (2)	0.16

on DSS information	*Information on DSS considered not sufficient*		71 (96)	17 (89)	54 (98)	0.16
	If not sufficient, wishes to receive information in the form of :	Website dedicated to the DSS	15 (20)	6 (35)	9 (16)	0.10
		Communication to the university	56 (76)	9 (52)	47 (85)	0.00
		Exchange with professionals and GPs	25 (34)	2 (12)	23 (42)	0.02
		Compulsory IHT in geriatric	2 (3)	1 (6)	1 (2)	0.42

N: number; GDSSG+: Diploma of Specialized Studies in Geriatrics envisaged; GDSSG- : Diploma of Specialized Studies in Geriatrics not envisaged; SD: standard deviation; MM1: master's degree in medicine 1st year; MM2: master's degree in medicine 2nd year; MM3: master's degree in medicine 3rd year; AGU: short geriatric stay; GRU: geriatric rehabilitation unit; IHT: in-hospital training; DSS: Diploma of Specialized Studies; GP: General Practitioner.

P: comparison of GDSSG+ to GDSSG –

Table 2. Criteria for choosing the future specialty.

	Total population (N=74)	GDSSG+ (N=19)	GDSSG- (N=55)	P
	N (%)	N (%)	N (%)	
Intellectual Attractiveness	54 (73)	14 (74)	40 (73)	1
Technicality of the specialty	16 (22)	3 (16)	13 (24)	0.75
Varied activity	66 (89)	19 (100)	47 (85)	0.10
Variety of exercise patterns	35 (47)	9 (47)	26 (47)	0.99
Comprehensive patient care	47 (64)	15 (79)	32 (58)	0.17
Possible Liberal Activity	47 (64)	11 (58)	36 (65)	0.55
Opportunity to pursue a career at hospital	18 (24)	3 (16)	15 (27)	0.37
Possibility of doing research	8 (11)	0 (0)	8 (15)	0.10
Possibility to have an educational activity	15 (20)	3 (16)	12 (22)	0.67
Flexible working hours	39 (53)	8 (42)	31 (56)	0.28
Work in multidisciplinary teams	28 (38)	7 (37)	21 (38)	0.92
High earnings	12 (16)	0 (0)	12 (22)	0.03
Possibility of partnerships with foreign countries	10 (14)	1 (5)	9 (16)	0.44
Possibility of doing a post-IHT	16 (22)	0 (0)	16 (29)	0.01
Possibility of carrying out additional training courses	41 (55)	12 (63)	29 (53)	0.43
Geographic location	23 (31)	4 (21)	19 (35)	0.39

Relational dimension	3 (4)	0 (0)	3 (5)	0.56

N: number; GDSSG+: specialized geriatric studies diploma group envisaged; GDSSG-: specialized geriatric studies diploma group not envisaged.

P: comparison of GDSSG+ to GDSSG -

Table 3. Strengths of geriatrics according to students before and after IHT for the GDSSG+ or GDSSG− groups.

	Before IHT			P*	After IHT			P#	P$
	GDSSG+ (N=19)	GDSSG- (N=55)	Total population (N=74)		GDSSG+ (N=19)	GDSSG- (N=55)	Total population (N=74)		
	N (%)	N (%)	N (%)		N (%)	N (%)	N (%)		
Intellectual Attractiveness	11 (58)	21 (38)	**32 (43)**	0,13	13 (68)	24 (44)	**37 (50)**	0,06	**0.41**
Technicality of the specialty	2 (11)	4 (7)	**6 (8)**	0,64	2 (11)	4 (7)	**6 (8)**	0,64	**1**
Varied activity	15 (79)	40 (73)	**55 (74)**	0,76	15 (79)	35 (63)	**50 (68)**	0,02	**0.37**
Variety of exercise patterns	10 (53)	27 (49)	**37 (50)**	0,79	11 (58)	30 (54)	**41 (55)**	0,80	**0.51**
Specialty of the future	10 (53)	29 (53)	**39 (53)**	0,99	11 (58)	32 (58)	**43 (58)**	0,98	**0.51**
Comprehensive patient care	18 (95)	50 (91)	**68 (92)**	1	18 (95)	51 (93)	**69 (93)**	1	**1**
Richness of ethical reflection	16 (84)	44 (80)	**60 (81)**	1	17 (89)	43 (78)	**60 (81)**	0,50	**1**
Opportunity of pursuing a career at hospital	2 (11)	14 (25)	**16 (22)**	0,21	3 (16)	12 (22)	**15 (20)**	0,75	**0.84**
Possibility of doing research	1 (5)	6 (11)	**7 (9)**	0,67	1 (5)	9 (16)	**10 (14)**	0,44	**0.44**
Possibility to have an educational activity	2 (11)	16 (29)	**18 (24)**	0,13	2 (11)	0 (0)	**17 (23)**	0,06	**0.85**
Flexible working hours	0 (0)	4 (7)	**4 (5)**	0,57	0 (0)	3 (5)	**3 (4)**	0,57	**1**
Multidisciplinary teamwork	15 (79)	39 (71)	**54 (73)**	0,56	16 (84)	44 (80)	**60 (81)**	1	**0.24**
Satisfactory salary	0 (0)	3 (5)	**3 (4)**	0,56	1 (5)	5 (9)	**6 (8)**	1	**0.44**
Opportunities for foreign partnerships	0 (0)	3(5)	**3 (4)**	0,56	0 (0)	3 (5)	**0 (0)**	0,57	**0.25**
Possibility to do a post-IHT	2 (11)	10 (18)	**12 (16)**	0,72	2 (11)	13 (24)	**15 (20)**	0,33	**0.52**
Possibility of carrying out additional training courses	2 (11)	10 (18)	**12 (16)**	0,72	4 (21)	12 (22)	**16 (22)**	1	**0.40**

IHT: in-hospital training; GDSSG+: specialized geriatric studies diploma group envisaged; GDSSG-: specialized geriatric studies diploma group not envisaged; N: number.

P*: comparison of the GDSSG+ group to the GDSSG- group before the course

P[#]: comparison of the GDSSG+ group to the GDSSG- group after the course

P[$]: Comparison of total pre-placement population group to total post-placement population group

Table 4. Negative points of geriatrics according to students before and after IHT for the GDSSG+ or GDSSG− groups.

	Before IHT			P*	After IHT			P#	P$
	GDSSG+ (N=19)	GDSSG- (N=55)	Total population (N=74)		GDSSG+ (N=19)	GDSSG- (N=55)	Total population (N=74)		
	N (%)	N (%)	N (%)		N (%)	N (%)	N (%)		
Intellectually unattractive activity	0 (0)	3 (5)	**3 (4)**	0,57	0 (0)	3 (5)	**3 (4)**	0,57	**1**
Not technical enough	2 (11)	7 (13)	**9 (12)**	1	1 (5)	9 (16)	**10 (14)**	0,44	**0.81**
Too much variety	0 (0)	7 (13)	**7 (9)**	0,18	1 (5)	6 (11)	**7 (9)**	0,67	**1**
Not enough variety	0 (0)	3 (5)	**3 (4)**	0,57	0 (0)	3 (5)	**3 (4)**	0,57	**1**
Few opportunities for liberal activity	11 (58)	25 (45)	**36 (49)**	0,35	13 (68)	26 (47)	**39 (53)**	0,11	**0.62**
Too broad discipline	2 (11)	6 (11)	**8 (11)**	1	1 (5)	7 (13)	**8 (11)**	0,67	**1**
Too strong emphasis on the social dimension	1 (5)	12 (22)	**13 (18)**	0,16	0 (0)	14 (25)	**14 (19)**	0,02	**0.83**
Too much time for families	1 (5)	6 (11)	**7 (9)**	0,67	0 (0)	9 (16)	**9 (12)**	0,10	**0.60**
Dealing with old age/disability/MNCDs	8 (42)	33 (60)	**41 (55)**	0,18	8 (42)	35 (64)	**43 (58)**	0,10	**0.74**
Confrontation with death	7 (37)	27 (49)	**34 (46)**	0,36	6 (32)	26 (47)	**32 (43)**	0,23	**0.74**
Frustratingly limited diagnostic and therapeutic options	11 (58)	33 (60)	**44 (59)**	0,87	12 (63)	33 (60)	**45 (61)**	0,81	**0.87**
Little opportunity for research	0 (0)	3 (5)	**3 (4)**	0,57	0 (0)	4 (7)	**4 (5)**	0,57	**1**
Multidisciplinary teamwork	1 (5)	0 (0)	**1 (1)**	0,26	0 (0)	0 (0)	**0 (0)**	1	**1**
Insufficient earnings	0 (0)	1 (2)	**1 (1)**	1	0 (0)	2 (4)	**2 (3)**	1	**1**
Too few foreign partnerships	0 (0)	2 (4)	**2 (3)**	1	1 (5)	0 (0)	**1 (1)**	0,26	**1**
Poor knowledge of geriatrics	2 (11)	22 (40)	**24 (32)**	0,02	2 (11)	21 (38)	**27 (36)**	0,03	**0.60**
Working with the elderly perceived as low value	2 (11)	12 (22)	**14 (19)**	0,50	2 (11)	9 (16)	**11 (15)**	0,72	**0.51**
Lack of prestige of the specialty	2 (11)	10 (18)	**12 (16)**	0,72	1 (5)	13 (24)	**14 (19)**	0,10	**0.67**
Few opportunities for post-IHT	0 (0)	0 (0)	**0 (0)**	1	0 (0)	0 (0)	**0 (0)**	1	**1**
Few opportunities for further training	0 (0)	1 (2)	**1 (1)**	1	0 (0)	0 (0)	**0 (0)**	1	**1**
	0 (0)	0 (0)	**0 (0)**	1	0 (0)	1 (2)	**1 (1)**	1	**1**

Other : Lack of human and financial resources									
Other : limitation to the elderly	0 (0)	0 (0)	**0 (0)**	1	0(0)	1 (2)	**1 (1)**	1	**1**

IHT: in-hospital training; GDSSG+: specialized geriatric studies diploma group envisaged; GDSSG-: specialized geriatric studies diploma group not envisaged; N: number; MNCD: major neurocognitive disorders.

P*: comparison of the GDSSG+ group to the GDSSG- group before the course

P#: comparison of the GDSSG+ group to the GDSSG- group after the course

P$: Comparison of total pre-placement population group to total post-placement population group

Table 5. Impact of in-hospital training on students' view of geriatrics.

	Total population (N=74)	**GDSSG+ (N=19)**	**GDSSG- (N=55)**	**P**
	N (%)	N (%)	N (%)	
Positive evolution of the view of geriatrics	**55 (74)**	17 (89)	38 (69)	0.13
Positive change in the way the elderly are treated	**70 (95)**	19 (100)	51 (93)	0.57
Positive impact of the theoretical education provided on the view of geriatrics	**60 (81)**	18 (95)	42 (76)	0.10
Positive impact of the theoretical education provided on how to care for the elderly	**63 (85)**	18 (95)	45 (81)	0.27
Positive impact of clinical teaching on the view of geriatrics	**59 (80)**	18 (95)	41 (75)	0.10
Positive impact of clinical education on how to care for the elderly	**67 (91)**	18 (95)	49 (89)	0.67
Positive change in the view of geriatrics thanks to medical and health care team	**54 (73)**	16 (84)	38 (69)	0.25
Positive change in the way the elderly are treated with Medical and health care team	**65 (88)**	19 (100)	46 (84)	0.10
Sufficient medical supervision	**66 (89)**	15 (79)	51 (93)	0.19
Pleasant welcome from the health care team	**73 (99)**	19 (100)	54 (98)	1
Sufficient impregnation of a geriatric culture	**69 (93)**	18 (95)	51 (93)	1
Recommendation of IHT to other external students	**69 (93)**	17 (89)	52 (95)	0.60

GDSSG+: specialized geriatric studies diploma group envisaged; GDSSG-: specialized geriatric studies diploma group not envisaged; N: number; IHT: in-hospital training.

P: comparison of GDSSG+ to GDSSG –