



RESEARCH ARTICLE

Strategies to build and maintain competence in pain management: Insights from a SIAARTI survey on educational needs among Italian anesthesiologists

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Abstract

Purpose: Fulfilling educational needs in pain management should be a lifelong process, even involving physicians board certified in pain medicine such as the anesthesiologists/pain therapists. The aim of the study was to investigate Italian anesthesiologists' self-perceived competency, confidence, and interest to attend educational programs in relation to their seniority in pain management.

Methods: SIAARTI members were sent an online questionnaire addressing the following items: education, skills (both soft and hard skills), technical expertise and engaged to participate between December 2020 and January 2021. Participants rated their competence based on the following range (no knowledge, knowledge, competence) while their agreement to attend educational courses was assessed using a 5-point Likert-type scale.

Results: Less than one in four participants declare to be dedicated to pain medicine activity with greater proportion among older (over 61 years) compared to younger ones (31–40 years). Regarding cancer and chronic noncancer pain a positive gradient of self-perceived competence has been observed in relation to seniority. In contrast, no gradient of self-perceived competence was reported about musculoskeletal and low back pain. Participants self-perceived competent in both opioid use and prevention of opioid-related adverse event while feeling less competent when

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managing drugs with abuse potential. The lowest competence has been observed in pediatric pain along with the lowest interest to attend educational courses. Participants were much and very much interested to education regarding cancer, noncancer, musculoskeletal, and low back pain, invasive analgesic procedures but less regarding items for which they declared less competence, such as use of pain scales, pain management in children, and use of drugs with abuse potential.

Conclusion: This work provides first evidence of a summative assessment of competency and related educational needs' profile of anesthesiologists/pain therapists thus paving the way for developing a nationwide educational program to improve chronic pain care in Italy.

KEY WORDS

awareness, competency, education, gap in knowledge, pain care

INTRODUCTION

During the last decades, deeper understanding of chronic pain (CP) etiology, assessment, and treatment has been gained.¹⁻⁶ These advances paved the way to the recognition of pain from a biopsychosocial perspective thereby reconsidering CP as a disease state^{7,8} thus laying the foundations for the new International Classification of Diseases (ICD)-11 classification of CP.^{9,10} Although clinicians may rely on several guidelines to pursue an effective management of multiple pain types including acute, chronic, cancer, and neuropathic pain, current knowledge is not effectively translated into routine clinical practice with most patients poorly taking advantage from the available evidence.^{1,11}

Limited education about pain pathophysiology and analgesic options as well as the heterogeneity of health-care professionals' viewpoints about opioids can contribute to the inadequate pain care across the globe.¹¹ Therefore, multiple educational needs should be effectively addressed¹² by improving both undergraduate and postgraduate training and making pain medicine a mandatory core subject.¹³ However, education in pain management is a marginalized issue¹⁴⁻²⁰ and monitoring the progressive competency in pain management appears actually unnecessary to health professionals to earn a license to practice.¹⁸

Promoting educational programs may provide the pain medicine field with meaningful benefits. First, educational interventions can be of help in limiting litigation issues as it has been recently documented that unqualified anesthesiologists may deal more likely with allegations for iatrogenic patient injuries.¹⁹ Second, education is a relevant component of therapeutic management as education alone was able to change appropriate analgesic use when motivated by the possibility to earn continuing medical education (CME) credits.²¹ In addition, developing further training/educational tools to address the unmet needs in pain practice stands as an educational obligation.^{22,23}

Since its foundation in 1934, the Italian Society of Anaesthesia, Analgesia, Resuscitation, and Intensive Care (Società Italiana di Anestesia, Analgesia, Rianimazione e Terapia Intensiva, SIAARTI) has been devoted to promote the scientific and cultural development in multiple anesthesia-related fields, including pain medicine, by issuing guidelines on pain management.²⁴⁻²⁷ Furthermore, in the last few years, SIAARTI promoted initiatives aimed at bridging the gaps in pain medicine in the Italian scenario which highlighted relevant educational needs to be addressed.^{28,29}

A previous study involving almost 400 pain centers in Italy unveiled the urgent need of further interventions towards a musculoskeletal (MSK) pain management-oriented education, even within clinicians holding master's degree or advanced training course in pain management, to ensure an appropriate pain management.²⁹ A further survey assessing the pros and cons of cancer pain management reported a significant underutilization of the pain-management guidelines thus suggesting that the mere existence of these resources as a means of optimizing pain management is insufficient.²⁸ However, Italian medical students are not currently receiving any education regarding pain therapy before graduation and there is still a lack of a core curriculum for practicing pain medicine.

Collectively, these findings prompted us to further assess the educational needs of Italian anesthesiologists managing patients with CP, by analyzing their self-perceived competency, confidence, and interest to attend educational programs in relation to their seniority. In our study we focus on the anesthesiologists/pain therapists as they are identified as the leading professionals of the national healthcare system-certified centers within the Italian pain-therapy network. In fact, anesthesiologists during their training period learn about and deal with pain, both acute and chronic.

The aim of this study was to identify areas of pain medicine for which educational efforts should be placed with the final goal of developing a roadmap for the

implementation by SIAARTI of a nationwide educational program on CP management.

MATERIALS AND METHODS

SIAARTI members were asked to participate by an email invitation and were sent a questionnaire to be completed between December 2020 and January 2021. Those who agreed, were administered an online questionnaire through a Computer-Aided Web Interview (CAWI) using the free software SurveyMonkey. No specific exclusion/ inclusion criteria were established as the scope of the survey is to provide the most complete and comprehensive scenario regarding training in pain therapy. Answers were collected on an anonymous basis.²⁹ The survey was organized by SIAARTI and conducted in compliance with the European Pharmaceutical Market Research Association (EphMRA) code of conduct. The overall response rate was 37% (3186/8500). The questionnaire comprised 72 questions addressing the following items: education, skills (both soft and hard skills), and technical expertise. The results were aggregated based on region of origin, year of specialization, and seniority [four groups of specialists: (31–40), (41–50), (51–60), over 61]. The data were analyzed and presented on a regional basis to highlight any interregional differences due to the organization of the Italian Health System, which provides for ample autonomy both in terms of budget and strategic choices of the regions.¹⁹ Participants were further aggregated by seniority and years of specialization considering that the anesthesia education plan has undergone several changes over the years, providing more and more attention to the study of pain.

Here, we report the findings stemming from 16 out of 72 questions and from an aggregate analysis of the answers from specialist participants who were administered questions assessing self-perceived competency and corresponding interest toward educational programs in relation to the seniority of the participant for the following: (a) management of different painful conditions including chronic noncancer pain, postoperative pain, MSK pain, acute and chronic low back pain (LBP); (b) pain terminology and physiopathology as well as capacity of differential diagnosis and of using scale to define pain type; (c) opioid usage, prevention of opioid adverse events (AEs), usage of analgesic with abuse potential; (d) pain management in special populations including children; (e) analgesic invasive procedures (Appendix S1).

The competence has been assessed based on the self-perceived competency declared by the surveyed specialist based on the following range [no knowledge (answers: I do not know, I do not have any knowledge); knowledge (answers: I do under supervision, I do independently); competence (I teach, or I supervise)]. For the comparison we constructed an indicator of self-perceived competence ranging from 0 (no knowledge) to 1.0 (I teach, or

I supervise). For the comparison of the frequency distributions of several items expressed on Likert scales (not at all, a little, enough, much, very much), we constructed an indicator of 5-point Likert-type scale.

Statistical analysis

The findings of the survey are presented with standard descriptive statistics: mean and standard deviation (SD), or median and interquartile range (IQR) or proportion for categorical variables as appropriate. Analyses were performed using the RStudio software.

RESULTS

Table 1 shows demographics of survey participants. Half the participants work in Northern Italy and belong to the youngest age group (31–40 years). Most participants work at the hospital (94,51%) — either public, private or university — and less than one in four (23%) declare to be dedicated to pain medicine activity with greater proportion among senior participants (over 61 years) compared to younger ones (31–40 years). Survey participants are spending an average of 25 h per month to attend educational and training courses and report to attend less than three CME courses per year.

To embed effective CP management into routine clinical practice is paramount to identify gaps in anesthesiologists' self-perceived pain competencies about different painful conditions including cancer, noncancer, and MSK pain. Regarding cancer and chronic noncancer pain a positive gradient of self-perceived competence has been observed in relation to seniority as shown by the competence indicator (Figure 1) with 40%–50% of participants working independently, regardless of seniority, when managing patients. Of note, a significant interest toward educational programs has been reported by participants, even in settings for which clinicians have declared greater self-perceived competence such as chronic noncancer pain and regardless of seniority. Conversely, no positive gradient of self-perceived competence has been observed in relation to seniority about MSK and LBP as shown by the competence indicator (Figure 2); importantly, across seniority groups, most participants reported to be much and very much interested to attend educational courses with no significant differences between older and younger participants.

Adequate pain management relies on pain assessment and clinicians' competence in identifying pain pathophysiology and making differential diagnosis while also taking advantage from tools such as mono- and multi-dimensional scales to define the type of pain. As shown in Figure 3, positive gradient of self-perceived competence has been observed in relation to seniority regarding pain physiopathology and terminology as well

TABLE 1 Demographics of survey participants.

Respondents (n = 3186)	
Gender (%)	
M	42
F	58
Geographical origin (%)	
Northern Italy	48.40
Central Italy	25.20
Southern Italy	26.40
Age groups (%)	
31–40	42.5
41–50	28.3
51–60	18.5
Over 61	10.6
Type of health facilities respondents are working for (%)	
Hospital	38.5
University Hospital	41.2
Private Hospital	5.68
Institute of Hospitalization and Scientific Care (IRCCS)	
Public	4.61
Private	3.86
Private Nursing home	2.70
University	0.60
Outpatient territorial ambulatory	0.85
Other	1.94
Time dedicated to education and training (mean h/month)	25
Median number of attended CME courses per year ^a	2,17
Anesthesiologists dedicated to pain medicine activity (%)	23
Anesthesiologists dedicated to pain medicine activity by age group (%)	
31–40	16
41–50	24
51–60	28
Over 61	33

Abbreviations: CME, continuing medical education; IRCCS, Institute of Hospitalization and Scientific Care.

^aThe number is referring to the year 2019.

as capacity to make differential diagnosis although the latter represents an item for which participants declare lower competence than the former. Despite this, a significant interest towards educational programs has been reported by participants, particularly to optimize their ability to make differential diagnosis. Of note, less interest has been reported in educational programs aimed at improving the use of scales to define pain for which participants perceived their competence as quite good (competence indicator ranging from 0.79 to 0.84) with greater interest within the (41–50) age group compared to (31–40) age group.

Clinicians' expertise in opioid use was also investigated with emphasis on their ability to prevent AEs and manage abuse potential. Figure 4 shows that participants self-perceived competent in both opioid use and prevention of opioid-related AE while feeling less competent when managing drugs with abuse potential. Interestingly, lower median interest indicator for educational programs on the management of drugs with abuse potential has been reported (0.81 vs 0.84 and 0.84, respectively interest indicator in being targeted by educational efforts about opioid use and prevention of opioid-related AEs) despite the lower competence declared on this topic, with no differences between older and younger participants.

As shown in Figure 5, confidence in pediatric pain management has been also assessed. A positive gradient of self-perceived competence has been observed in relation to seniority regarding pain management in frail subjects while no gradient has been reported about the ability to diagnose pain in pediatrics for which the lowest competence has been reported among participants. Interestingly, despite the lowest competence in pediatric pain, the lowest interest has been showed in the possibility to attend educational courses, particularly among older participants (51–60 and over 61 age groups), thus highlighting how much underserved is the pediatric population when it comes to pain.

Finally, the use of nonpharmacological approaches for treating CP by means of intra-articular infiltration, spinal regional blocks, and peri-nervous blockages/catheterizations was explored. As shown in Figure 6, limited self-perceived competency has been reported with a significant negative gradient in relation to seniority for the ultrasound-guided techniques. Accordingly, participants were much and very much interested in attending educational courses to ameliorate their practice.

DISCUSSION

As earlier advocated by the International Association for the Study of Pain (IASP) in the “2018 Year for Pain Education”,³⁰ a safe and proficient pain management cannot disregard pain education for all health professionals. Importantly, pain education efforts should be promoted not only at the outset of the profession, but also throughout the profession, to ensure professional competence over time.³¹ Therefore, fulfilling educational needs in pain management should be a lifelong process involving the anesthesiologists/pain therapists. Clear critical issues emerge from our results, being chronic pain, cancer pain, pediatric pain, MSK pain^{32–36} and the risk of addiction,^{37–39} in agreement with what has already been underlined by other studies and documents.^{20,28,40} Although in Italy the average percapita/year morphine equivalent dose (MED) is 144, which is far below the average of 693 MED a year in the USA and

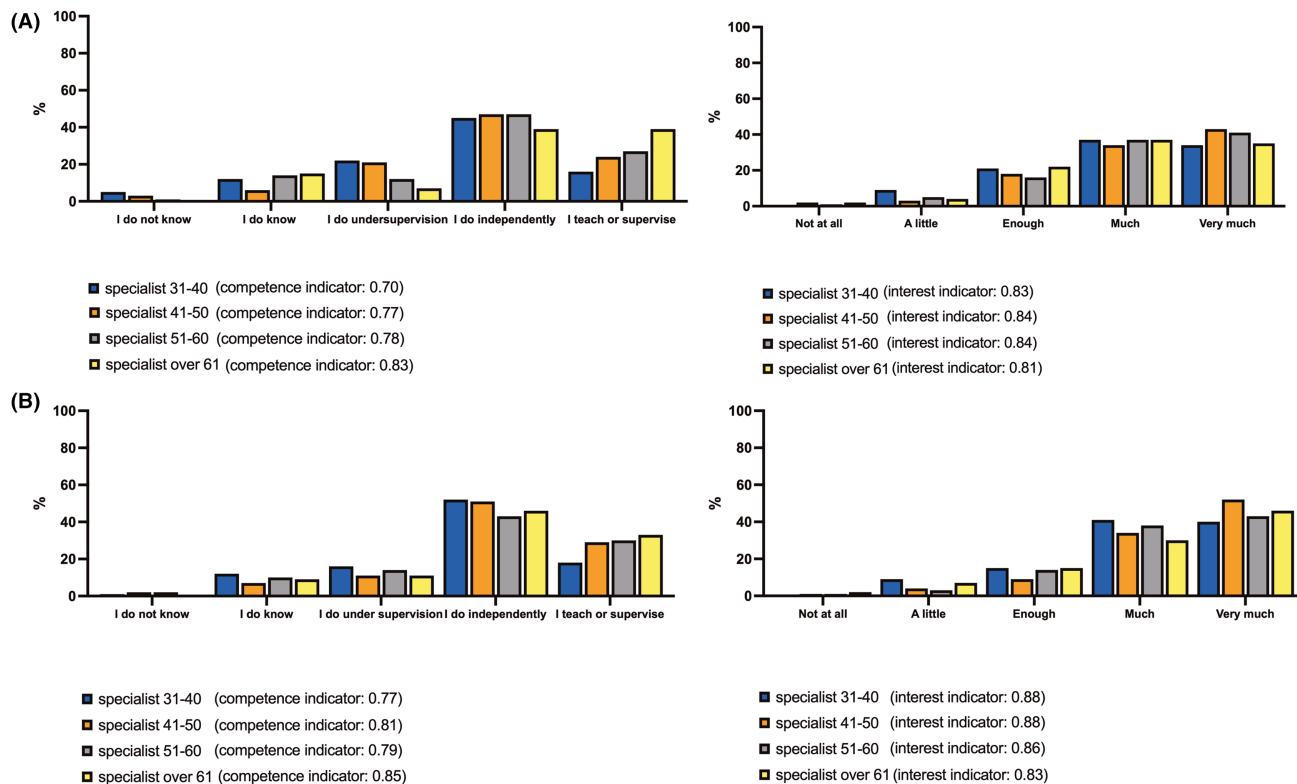


FIGURE 1 Self-perceived competence in managing chronic cancer (panel A) and non-cancer (panel B) pain and interest towards educational programs.

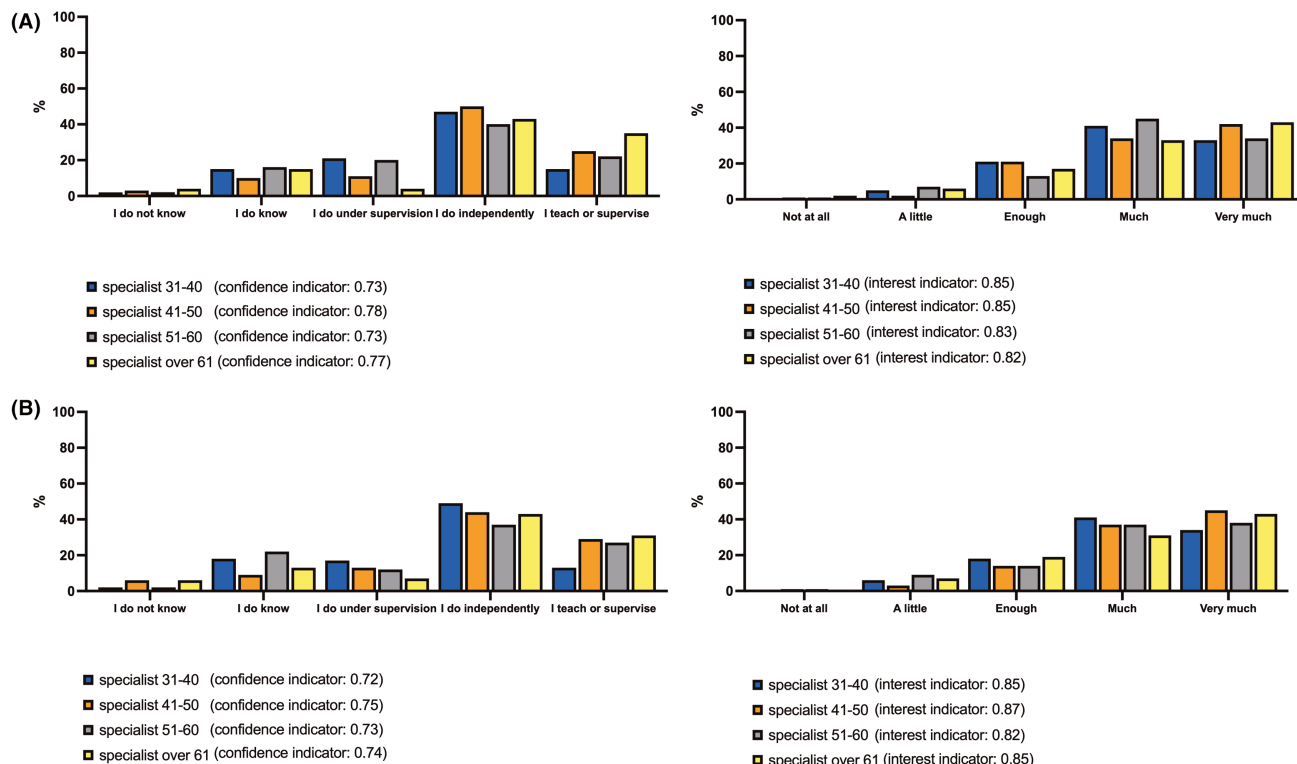


FIGURE 2 Self-perceived competence in managing musculoskeletal (panel A) and low back (panel B) pain and interest towards educational programs.

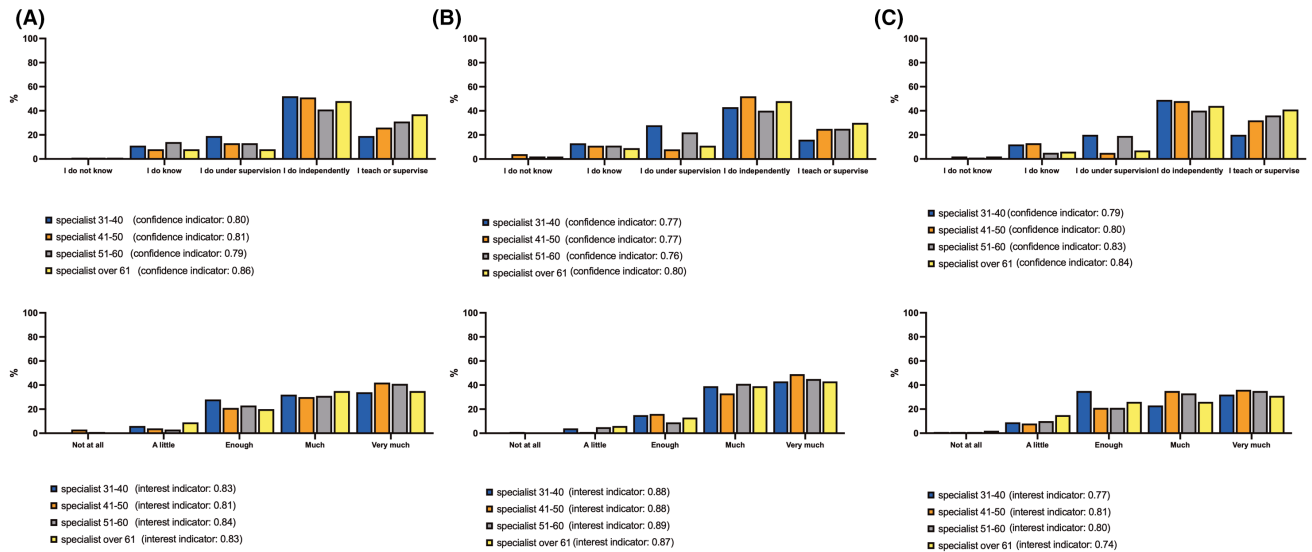


FIGURE 3 Self-perceived competence in pain terminology (panel A), in making differential diagnosis (panel B) and using scales to define pain (panel C) and interest towards educational programs.

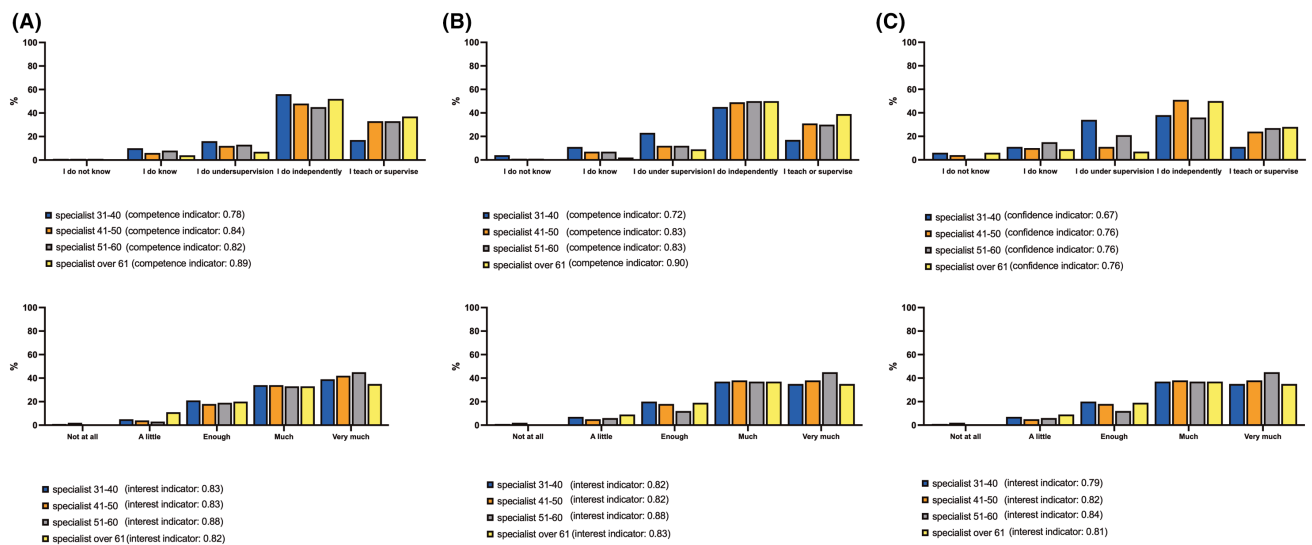


FIGURE 4 Self-perceived competence in opioid use (panel A), prevention of opioid-related adverse events (panel B) and management of opioids and drugs with abuse potential (panel C) and interest towards educational programs.

other European and non-European countries (taking in consideration the six most common opioids), addiction, abuse, and misuse of prescription opioid analgesics remain a concern.^{22,41-44} Interestingly, the participants reported lower competence scores (range 0.67–0.76) when managing drugs with abuse potential compared to the reported competence scores when using opioids (0.78–0.89) or preventing their related adverse effects (range 0.72–0.90). To interpret this seemingly conflicting finding, one should recognize that in addition to opioids, other drugs commonly used in pain management such as gabapentinoids and benzodiazepines have a potential risk of abuse, misuse, and dependence. Anesthesiologists may not be familiar with these drugs, whereas opioids are routinely used in the context of anesthesia.⁴⁵⁻⁴⁷

The intent of this survey was not only to have a snapshot of the training of Italian anesthesiologists regarding pain, but through the detection of critical issues, to implement concrete actions to fill the training gaps.^{48,49} These gaps have to be filled at different levels, which correspond to different levels of competence and responsibility.^{19,29} In fact, the actions that must be undertaken must start from the degree courses in medicine, where the teaching of anesthesia (classified in Italy as MED/41) must include specific notions of pain therapy. Going up to a higher level, ie during the postgraduate residency program in anesthesia, resuscitation and pain therapy, it is necessary to implement a standardized training curriculum in pain management which provides for the acquisition of theoretical

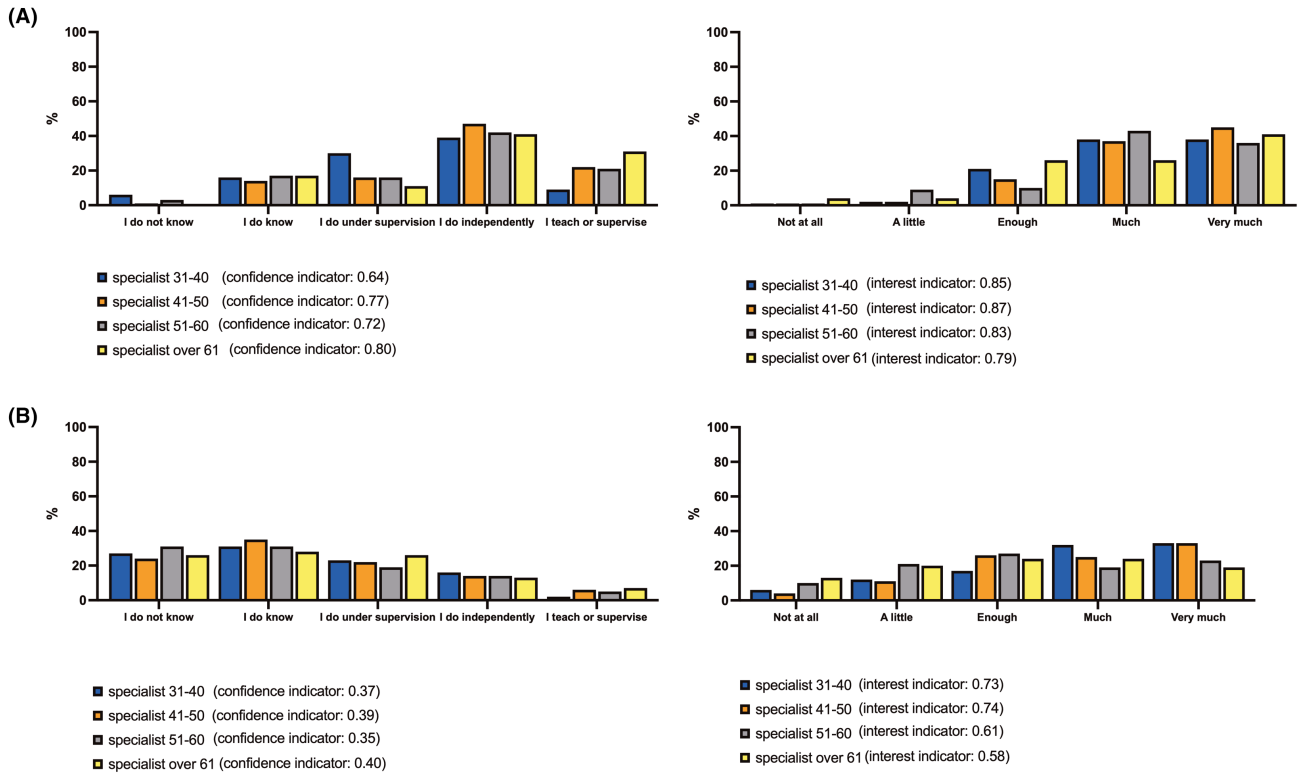


FIGURE 5 Self-perceived competence in managing pain in special populations: adult (panel A) and children (panel B) and interest towards educational programs.

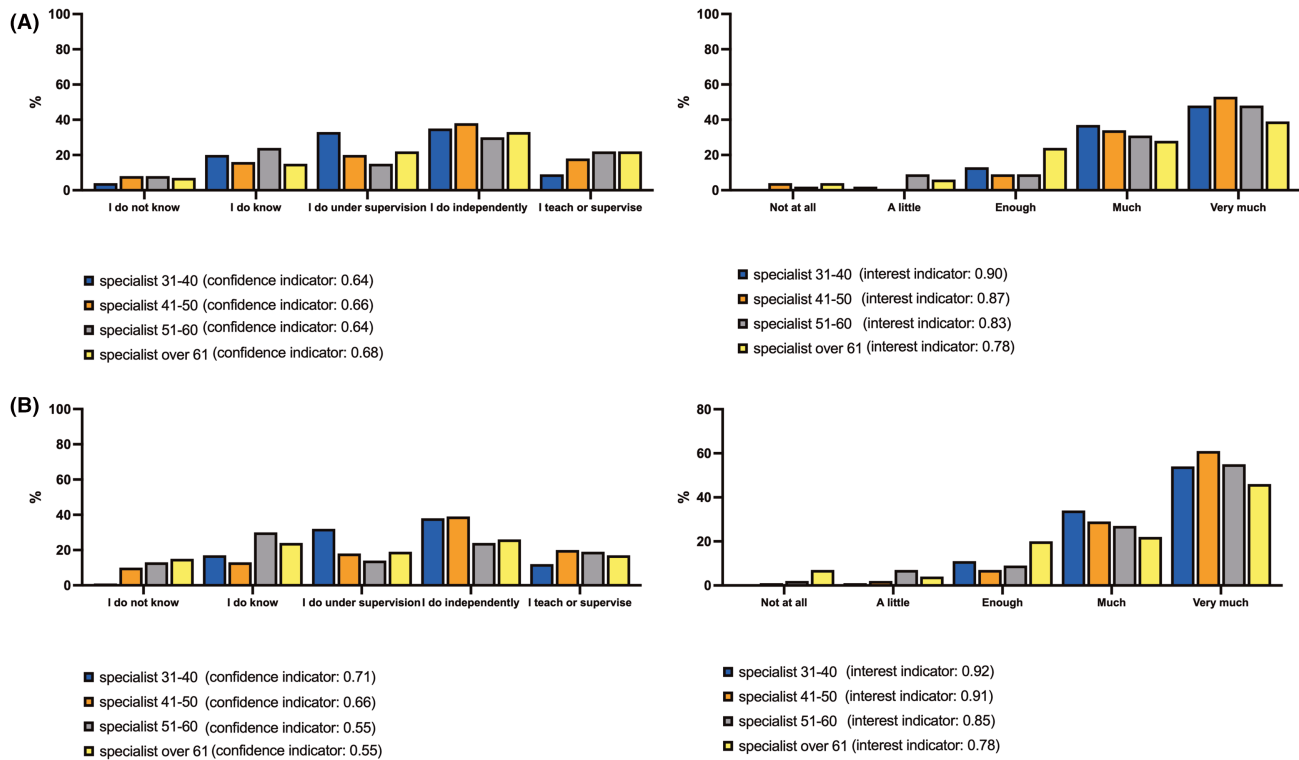


FIGURE 6 Self-perceived competence in using analgesic procedures: invasive (panel A) and ultrasound-guided (panel B) and interest towards educational programs.

as well as manual skills.³⁰ Thereafter, SIAARTI's commitment comes heavily into post-university training, with two different strategies. The first, and more universal, concerns congresses and conferences to discuss and update the need for research in the field of pain (through the promotion and endorsement of clinical and pre-clinical studies); the second through a training offer aimed at the needs of Italian anesthesiologists. It is from this point of view that the present study has sense and direction, which allows us to mark a starting point, analyzing what the gaps are, directing research and training, monitoring in a reasonable time the results achieved and those still to be achieved. Furthermore, training must be calibrated not only on the declared levels of competence, and on interest, but also on experience (as highlighted in the graphs), which in the health system allows for the assumption of growing responsibilities. Therefore, it appears evident that the most experienced anesthesiologists, together with clinical training, should be introduced to management, legislative, and economic issues.⁵⁰

CONCLUSION

Improvement of education, implementation of standardized pain coding, and the development of common diagnostic criteria may ensure a multidisciplinary CP management. Optimal pain management demands collaborative approaches; therefore, it would be desirable developing interprofessional group learning opportunities and set the stage for lifelong education and training interventions aimed at ensuring effective translation of the evolving pain knowledge into practice as advocated by the IASP 2022 Global Year.⁵¹

AUTHOR CONTRIBUTIONS

The authors applied the “first-last-author-emphasis” norm for the sequence of authors. All authors read and approved the final manuscript.

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CONFLICT OF INTEREST STATEMENT

In last two years, SN received an honorarium as a speaker directly or indirectly from Grünenthal Italia, Boston

Scientific, Laborest while AV received an honorarium as a speaker directly or indirectly from Grünenthal Italia. AC, MC, EGB, EP, MAI, AC, VT, FP, AG and FM declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Raw data from the study will be shared upon reasonable request to SIAARTI at info@siaarti.it.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

Appendix S1