

ACUTE PAIN MANAGEMENT AND PERCEPTIONS AMONG EMERGENCY HEALTHCARE WORKERS: FEEDBACK FROM GREECE

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Abstract

Background and Aims: Pain remains the most common reason patients seek assistance in emergency rooms. However, the level of pain management during emergencies, and subsequently during disasters and mass casualty incidents, remains disturbing.

Methods: A cross-sectional study was conducted using a structured anonymous questionnaire among a random sample of doctors working in different tertiary hospitals of Athens and of rural regions. The data were analysed using descriptive statistics and statistical significance tests via R-Studio, version 1.4.1103.

Results: The aforementioned sample yielded 101 questionnaires. Results show suboptimal knowledge and attitudes regarding acute pain management among emergency healthcare providers in Greece. The majority of responders are unaware of the term multimodal analgesia (52%), of newer pain treatment methods (59%), they have not attended pain management seminars (84%), nor are they aware of pain treatment protocols in their workplace (74%). Participants appeared to disregard successful pain relief due to time constraints (58%), while leaving certain parts of the population (children under 3 years of age -75%, pregnant women-48%) significantly undertreated in terms of analgesia. Demographic correlations showed that clinical experience and pain management education were associated with older and more experienced emergency healthcare workers. Specialties with a previous core training containing pain education (anaesthesiologists, emergency physicians) again showed better results in the majority of the questions.

Conclusions: Educational programs/seminars along with standardised algorithms should be developed in order to cover existing needs and misconceptions.

Keywords

acute pain • emergency department • oligoanalgesia • pain attitude • questionnaire • opiophobia

Introduction

Pain remains the most common reason patients seek assistance in emergency departments (EDs) [1]. Despite various effective pharmacological, non-pharmacological, and interventional treatments to reduce pain, and although national and European efforts, via comprehensive guidelines, offer assistance on acute pain management during emergencies, the level of pain management during emergencies, and subsequently during disasters and mass casualty incidents, remains disturbing [2,3]. Nearly two decades of reporting inadequate pain management have passed [4] and the landscape concerning the why's and how's such a tendency towards oligoanalgesia can be reversed, remain vague.

Back in 2014, Sampson et al. [5] made an effort of establishing a theoretical framework on the barriers (and thus the interventions)

that can change the delivery of pain management and pain perceptions within the ED's workforce. According to this systematic review, barriers involved are:

- low implementation of objective pain scoring tools
- structural barriers within the ED that cause delay in analgesia provision
- attitudinal and knowledge barriers of the healthcare personnel

An older study by Motov et al. [1] identifies failure to acknowledge and assess pain, failure to adhere to pain management guidelines, failure to observe treatment adequacy, failure to meet patient's expectations along

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with gender, ethnicity, racial, and age bias, in a context of opiophobia, and no formal training on acute pain management. It is common knowledge that treating acute pain, especially in emergencies, is almost never a topic of formal teaching, while pain management in general is rarely, mostly never, taught within most medical school programs.

As data from Greece remain scarce, we considered performing a survey in an attempt to understand perceptions among emergency physicians inside the ED with regard to acute pain assessment and management. It is only within the last few years that emergency medicine has striven to be established as a separate subspecialty by the Greek Commission on Medical Residencies. This is why EDs of tertiary hospitals in Greece involve medical personnel belonging to different medical specialties.

Study Design and Methodology

Study design

The study is a cross-sectional descriptive study conducted during the period December 2020–April 2021, using a questionnaire in online form, in a random sample of 101 emergency physicians actively working inside different EDs.

Study setting and sample

The ED of Greek tertiary hospitals does not yet constitute a separate and independent in-hospital department [6]. With very few physicians specialised in emergency medicine, ED triage and workload is in the hands of physicians and paramedics originating from different hospital departments, with different professional and educational backgrounds. The lack of organised primary care and outpatient clinics only increases the surge of patients the emergency department is being left to handle [4].

For our purpose, the questionnaire was distributed to physicians participating on shifts at the ED department of urban and provincial tertiary hospitals.

Data collection: The questionnaire

An anonymous structured questionnaire containing 40 questions was developed to be answered voluntarily by the participants. The first page of the questionnaire consisted of an accompanying text with information regarding the survey, its aims, and the institution behind organising the study. Full relevant contact details were included as this text held the position of an informed consent of each participant, while no personal details of participants were required or noted.

The questionnaire included : questions regarding the participant's demographic (age, gender), professional (working environment, specialty, years of work experience, city of working) and academic (pain guidelines, pain seminar participation) characteristics, as well as questions related

to certain aspects of pain management like medication preference (questions 9, 10,11, 17-19) pain assessment (questions 12, 13, 16, 27, 33, 37, 38), perceptions about pain (questions 21-24, 25, 26, 28, 29, 30, 34-36, 39, 40) and opiophobia or reluctance to use opioids for pain relief (questions 14, 15, 20, 31, 32).

Most of the questions were close-ended, some of them formed as multiple-choice questions (MCQs) (17 in total), and others as 5–point Likert-scale statements where 1 signified “absolutely agree” and 5 “absolutely disagree” (20 in total).

Data analysis

Data analysis was carried out using R-Studio, version 1.4.1103. The primary outcome of the study was to identify current knowledge regarding acute pain assessment and management with secondary outcomes being factors influencing scores, attitudes and practices. The five-point Likert scales were merged into three variables (correct, incorrect, neutral). For interpretation purposes incorrect and neutral answers were further collapsed into incorrect category.

Descriptive quantitative and qualitative analysis approaches were used to analyse the results. Demographic information (frequencies, percentages, medians, and ranges), survey responses (frequencies and percentages), and selected barriers and enablers of pain assessment and management (frequencies and percentages) were tabulated. To identify whether demographic information may influence overall results, the Pearson's chi-squared test and Fisher's exact test were performed. All statistical testing was performed using a two-sided significance level of $P = 0.05$.

Results

Demographic and background data of the participants

In a total of 101 participants, the final sample consisted of 58 (57%) male and 43 (43%) female medical doctors, with 57 (57%) of them being below 35 years of age and 44 (44%) above.

In terms of the participants' professional background, 44 (44%) declared having less than five years of work experience and 57 (57%) more than five. A majority of 87 (86%) participants worked in an urban environment with only 14 (14%) working in rural hospitals. Regarding the participant's medical specialty, a percentage of 56% belonged to surgical specialties, with 24% working in subspecialties of internal medicine, 12% in anaesthesiology and only 8% in the newly established specialty of emergency medicine.

As for the academic background, 84% of the participants had never attended any seminar related to acute pain management during emergencies and 74% declared that no pain protocol for acute pain management in the ED existed in their workplace (Table 1).

Responses on medication preferences

For the majority of the participants, intravenous (IV) administration seemed to be the preferred way to administer analgesia (75%), with intramuscular (IM) (13%) and per os (10%) routes coming second and third (Figure 1). Paracetamol as first line agent for acute pain alleviation was the choice of 62%, followed by opioids (15%) and then followed by NSAIDS (6%) (Figure 2). When asked about multimodal analgesia and nonpharmacological options for

pain relief, 52% and 59% of the participants respectively declared not being aware of them at all (Figure 4). The role of ultrasound and regional blocks in acute pain management were known by 64% of participants (Figure 4), even though participants did not choose the ultrasound approach for pain relief (Figure 2). When it comes to how accessible some drug categories are by healthcare workers inside the ED, we observed (Figure 3) that traditional therapeutic regimens like paracetamol, NSAIDS, and older opioids like tramadol and morphine appeared to be highly reachable, while drugs like fentanyl, ketamine, oxycodone, and adjuncts to analgesia (clonidine, dexmedetomidine, magnesium) were more rarely encountered.

Trying to search for factors affecting the participants' response, a further investigation was made regarding age, specialty, and work experience of the physicians. Regarding the idea of multimodal analgesia, older (above 35 years of age) and more experienced professionals (above 5 years of work experience) were those that responded being aware of it (73% with $P < 0.001$ and 63% with $P = 0.002$, respectively), showing that younger and less experienced physicians probably lack relevant knowledge (only 30% responded positively). The same trend pattern seemed to be the case with non-pharmacological approaches to pain: again, older professionals declared being more aware than younger colleagues (51%, $P = 0.084$ for those above 35 years of age), although with less statistical significance. Awareness on regional blocks for pain relief seemed to differ not only in terms of age and work experience but also by specialty. Those with longer work experience (77%, $P = 0.001$) and those being older of age (84%, $P < 0.001$) were more aware of this form of managing acute pain, as compared to younger and "newer on the job" colleagues. As for the specialty

Table 1: Demographic and background data of the participants (n=101).

	n (%)
Gender	
Male	58 (57%)
Female	43 (43%)
Age Groups	
<35	57 (57%)
>35	44 (44%)
Years of experience (range)	
<5	44 (44%)
>5	57 (57%)
Specialty	
Anaesthesiology	12 (12%)
Internal Medicine	24 (24%)
Surgical specialties	57 (56%)
Emergency medicine	8 (8%)
Region of Employment	
City	87 (86%)
Suburb	14 (14%)
Participation on course/seminar regarding acute pain management during emergencies	
Yes	16 (16%)
No	85 (84%)
Existing pain protocol in their workplace	
Yes	24 (26%)
No	69 (74%)
Unaware	8

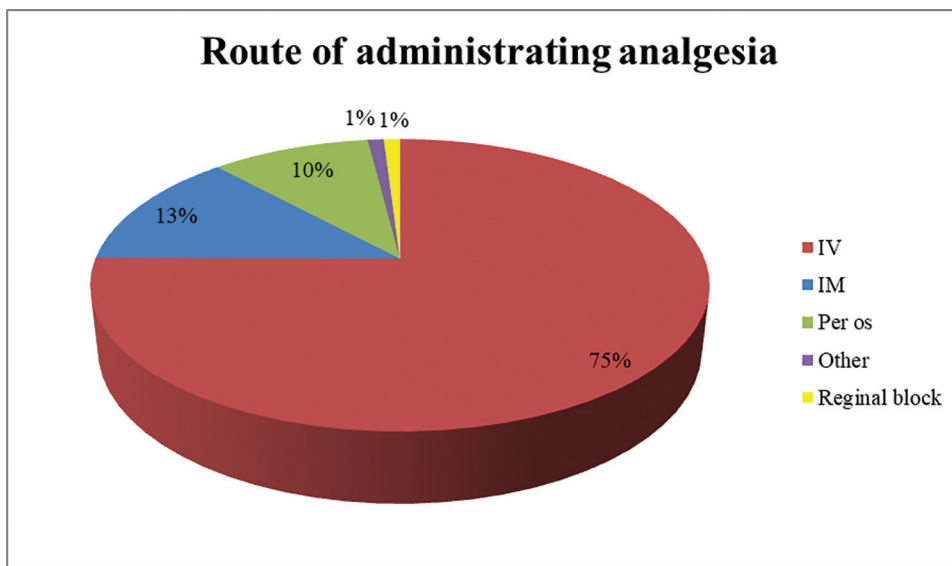


Figure 1. Route of administering analgesia.

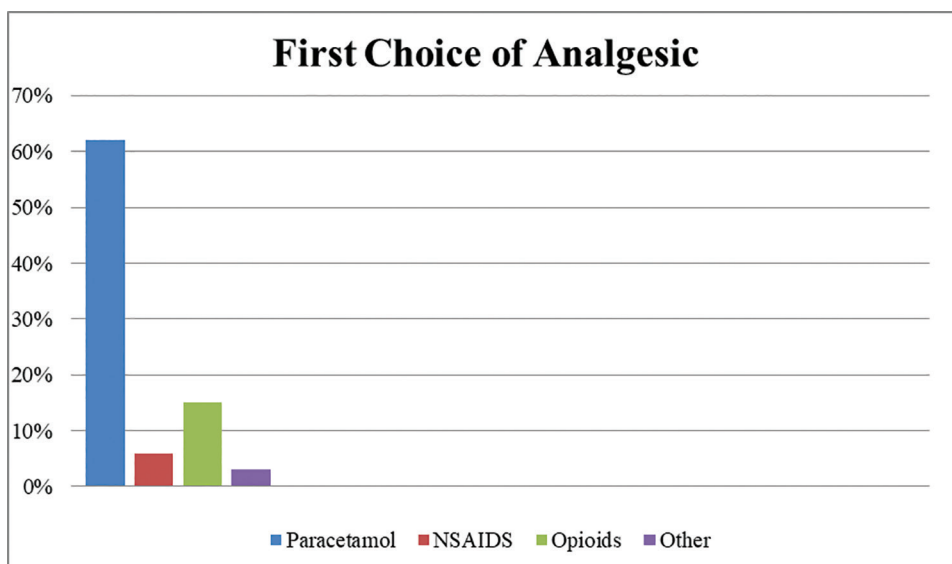


Figure 2. First choice of analgesic.

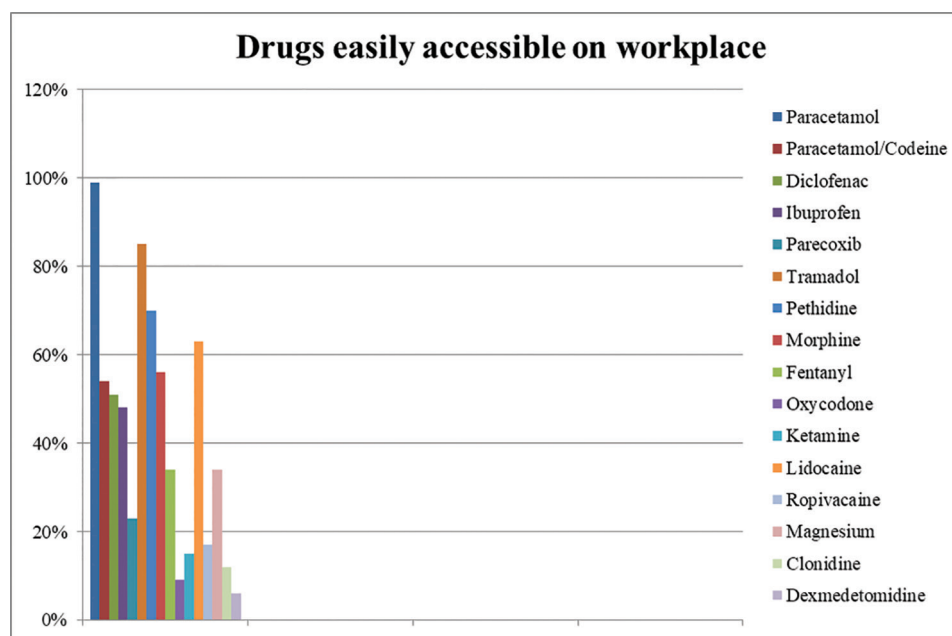


Figure 3. Drugs easily accessible in workplace.

factor, those in internal medicine and surgery appeared to be less aware of multimodal analgesia ($P = 0.033$) (internal medicine, 62%, surgery, 49% answering unaware, vs. 8.3% of anaesthetists and 38% of emergency physicians) and of nonpharmacological methods for pain alleviation ($P = 0.009$) (42% of internal medicine and 31% of surgery physicians declared being aware vs. 83% of anaesthetists).

For regional blocks, only 42% of those in internal medicine responded as being aware of that option for delivering

analgesia (versus 100% of anaesthetists, 75% of emergency physicians, and 63% of surgeons, $P = 0.009$). All in all, the best knowledge profile was presented by anaesthetists and emergency physicians.

Responses on opioids

Although opioids appear to be a second line agent in terms of preference (Figure 2), when asked about whether they feel comfortable administering them, only 33% responded

“much”, with 68% ranging from “not at all” to “a little” (Table 2). A majority of participants (55%) seemed to believe that opioids should not be used when the pain source remains unknown as the provoked pain alleviation can hide a potential diagnosis (Table 2). In an effort to understand why such lack of comfort and misconception on opioids exists, participants were asked about what makes them fear their use. The two main reasons are related to a fear of their side effects (51%) and a fear of hindering diagnosis (38%) (Figure 5). Even though 59% did not associate an increased need for opioids with patient dependence, 41% believed so (Table 2).

Regarding how comfortable one is when applying opioids, the older participants (over 35 years of age) (48%, $P = 0.019$), and similarly those with greater work experience (over 5 years) (44%, $P = 0.010$) were the ones feeling very comfortable, leaving the younger and inexperienced physicians more reluctant (21% and 18%, respectively). Inexperienced physicians were those agreeing more strongly with the assumption that opioids disturb the process of diagnosis (45% $P = 0.037$). Regarding participants’ specialties, those with a specialty related to internal medicine were the ones with the stronger misconception on whether pain of unknown

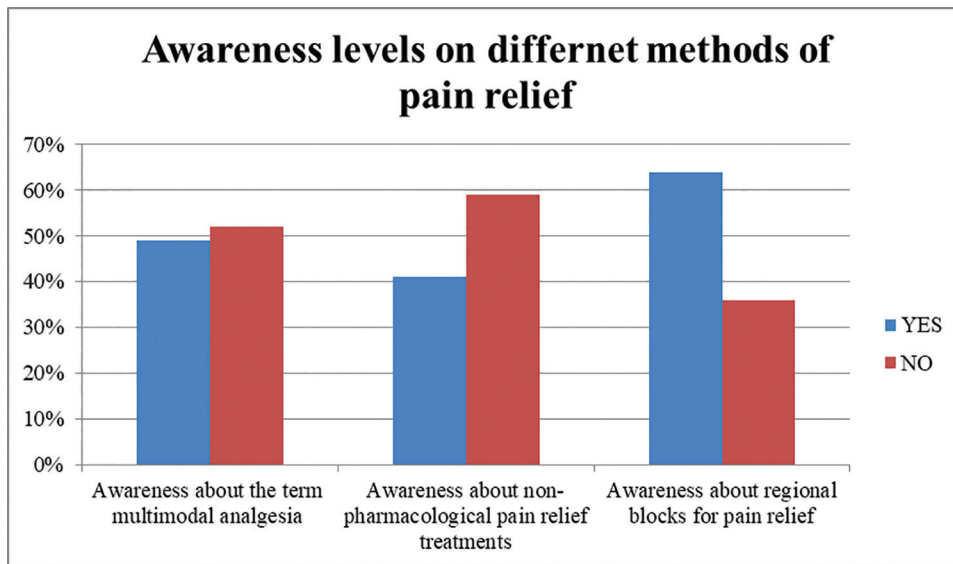


Figure 4. Awareness levels of different methods of pain relief.

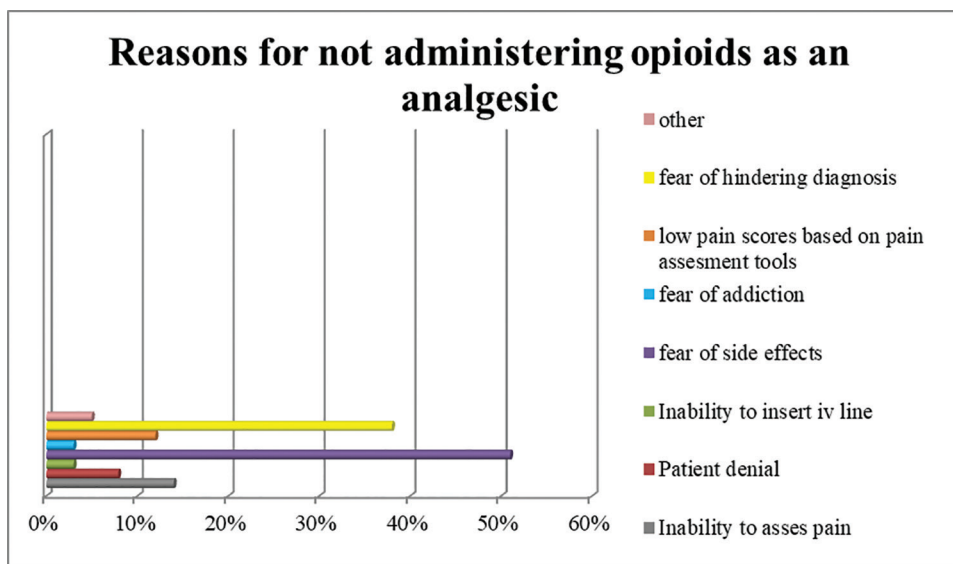


Figure 5. Reasons for not administering opioids as analgesic.

Table 2: Frequencies and percentages of correct responses on questions regarding opioids and opiophobia.

MCQs	“correct” answers n (%)	“incorrect” answers n (%)
Do you feel comfortable giving opioids for acute pain management?	Much 33 (33%)	The rest 68 (67 %)
Lickert		
Opioids can hide the diagnosis, therefore should not be given when the reason a person is in pain remains unknown.	Disagree 46 (46%)	The rest 55 (54 %)
An increased need for opioid analgesics is a sign the patient becomes dependent.	Disagree 60 (59 %)	The rest 41 (41 %)

Table 3: Frequencies and percentages of correct responses on questions regarding pain assessment.

MCQs	“correct” answers n (%)	“incorrect” answers n (%)
Which of the following pain assessment tools do you use more frequently in your everyday practice?	NRS 32 (33%) VAS 4 (4%)	The rest 62 (63%) 3 unaware of tools
When do you consider the analgesic regimen you provided successful?	When the score on the pain assessment tool I use becomes reduced 51 (52%)	The rest 49 (49 %)
Do you reassess a patient after providing analgesia?	Yes always 70 (69%)	The rest 31 (31%)
Lickert		
Vital signs are a reliable way to assess the intensity and the severity of pain a patient feels.	Disagree 31 (31%)	The rest 70 (69 %)
Absence of expression of pain by the patients signifies lack of pain.	Disagree 82 (81%)	The rest 19 (19 %)
Pain assessment tools are necessary.	Agree 76 (75%)	The rest 25 (25%)
The most reliable sign of the severity of pain someone is experiencing is the patient's description.	Agree 59 (58%)	The rest 42 (42%)

origin should be treated with opioids or not (58% claimed opioids should not be used when the source of pain is unknown vs. 32% for the surgical specialties, 25% for the emergency physicians, and 0% for anaesthetists, $P = 0.006$). Similar data arose when asked for the reasons they chose not to administer opioids, with those belonging to internal medicine being the ones believing more strongly that opioids hinder diagnosis (58%, $P = 0.034$).

Responses on pain assessment

Questions on this section (Table 3) are trying to identify the tools physicians tend to prefer in order to assess a patient's pain, whether they take into account parameters regarding the patient himself, and how they judge whether the pain medication applied suffices.

For assessing pain, categorical pain assessment scales such as the numerical rating scale (NRS) and visual analogue scale (VAS), gathered a 33% and 4% respectively, with the majority of the participants (63%) either relying on patients' verbal descriptors of pain and their facial expressions or not even assessing pain at all. For judging the success of a pain regimen, 52% of the participants claimed that they re-evaluated pain by implementing a pain assessment tool and observing its score reduction, a very large percentage (49%) responded that they either do not have the time to re-evaluate, that they do not re-evaluate at all, or that they rely simply on whether the

patient stopped complaining about his/her pain. Participants tended to agree that pain assessment tools (75%) and regular reassessment during pain treatment (69%) are necessary. The notion that absence of patient expression of pain indicates pain absence is met with a strong disagreement by those asked (82%). On judging pain intensity and severity, 69% seemed to heavily rely on vital signs, while the majority (58%) agreed on the fact that pain description by the patients is the most reliable way to understand its intensity. A large percentage (42%) of ED workers disagreed with the above notion. (Table 3).

Statistically significant difference by age, work experience, or specialty was not encountered among responses.

Responses regarding pain perceptions

On one hand, participants strongly believed that a patient has the right to seek pain relief (86%) and that every person's perception and response to pain can be affected by cultural, and religious factors and factors related to sex and previous experiences (81%) (Table 4). They disagreed with falsely formed statements such as: similar stimuli cause similar pain levels in different patients (79%); pain treatment has to wait for diagnosis first (61%); low or no level of consciousness impedes pain perception (79%); pain alleviation in the ED is an unrealistic goal (68%); if a physician does not consider a condition painful, he/she should not administer analgesia (70%); pain relief is for severe pain only (75%).

Table 4: Frequencies and percentages of correct responses on questions regarding pain perceptions.

Lickert	“correct” answers	“incorrect” answers
Due to time shortage when handling emergencies, there is no time to achieve effective analgesia.	Disagree 42 (42%)	The rest 59 (58%)
Up to diagnosis, no analgesia should be given to the patient.	Disagree 62 (61%)	The rest 39 (39%)
On patients having consumed alcohol, no analgesia should be given.	Disagree 57 (56%)	The rest 44 (44%)
Complete pain alleviation in the ED is not a realistic goal.	Disagree 69 (68%)	The rest 32 (32%)
Patients with no or low level of consciousness cannot perceive pain.	Disagree 80 (79%)	The rest 21 (21%)
If a patient’s attention can be distracted from his/her pain, then the pain is not severe.	Disagree 45 (45%)	The rest 56 (55%)
Administration of placebo to patients in pain is a useful way to understand if their pain is real.	Disagree 39 (38%)	The rest 52 (52%)
If a medical doctor does not consider a patient’s condition painful, he/she should not administer analgesia.	Disagree 71 (70%)	The rest 30 (30%)
Same stimuli on different patients cause pain of the same severity and intensity.	Disagree 80 (79%)	The rest 21 (21%)
It is a patient’s right to seek pain relief.	Agree 87 (86%)	The rest 14 (14%)
A patient’s opinion should not be included during decision making with regard to pain relief.	Disagree 70 (69%)	The rest 31 (31%)
The opinion of my peers in my workplace, strongly affects the way I handle a patient’s pain.	Disagree 51 (50%)	The rest 50 (50%)
Each patient’s perception of acute pain is unique due to factors such as sex, cultural and religious beliefs and previous experiences that influence a patient’s response to pain.	Agree 82 (81%)	The rest 19 (19%)
Medication for pain relief in the ED should be given only when the pain is severe.	Disagree 76 (75%)	The rest 25 (25%)

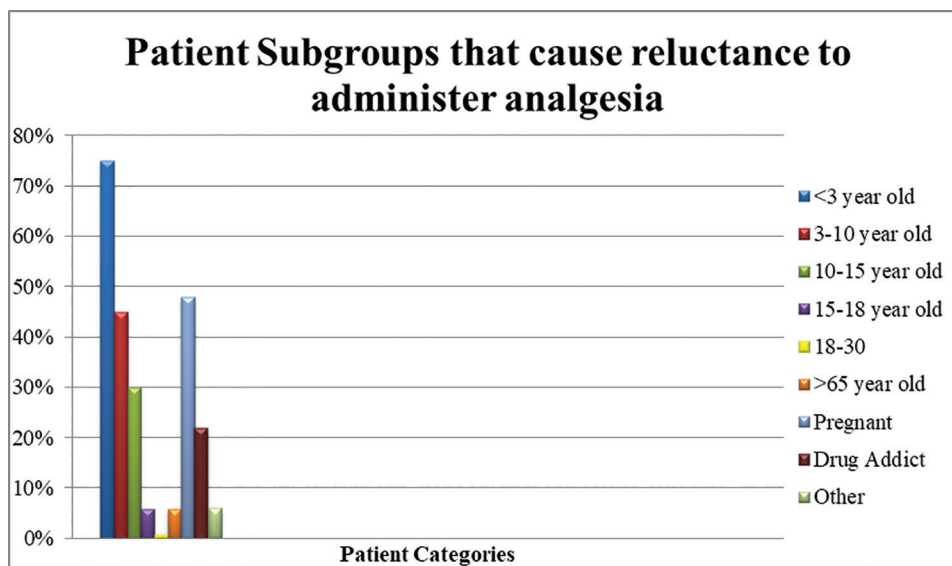


Figure 6. Patient subgroups that cause reluctance to administer analgesia.

On the other hand, 58% agreed that time shortage in the ED is a good enough reason for not achieving analgesia. Alcohol consumption also seemed to be an adequate reason for not implementing pain relief for 44% of the participants, a high percentage if compared with the 56% that disagrees. Further on, 56% of physicians not only believed that if someone can be distracted from his/her pain, then pain is not severe; they also claimed that placebo administration is an appropriate way of judging the truth behind one’s pain allegations (52%). Peer pressure affecting the way a physician confronts a patient’s

pain remained inconclusive, as 50% agreed on its effect while 50% disagreed (Table 4).

Experienced healthcare workers tended to agree more on the statement that if a doctor does not consider a condition painful, he/she should not administer analgesia (19% vs. 4.5%, $P = 0.090$). Inexperienced ED workers had a tendency to consider pain relief during emergencies as an unrealistic goal (27% vs. 12%, $P = 0.081$). Going by specialty, surgeons strongly believed that once attention from pain can be distracted, pain is not severe enough to alleviate (40% vs

0% for anaesthetists, 12% for emergency physicians, and 21% for those working in internal medicine, $P = 0.009$). For the placebo question, those in internal medicine were those strongly favouring its use as a means to judge the truth behind a patient's words (50% vs. 17% for anaesthetists, 25% for emergency doctors, and 28% for surgeons, $P = 0.006$).

As for Figure 6, we wanted to identify the patient subgroups that provoked a greater reluctance or even fear of administering analgesia in the emergency setting. It seems that children below 15 years of age (75% for those below 3 years of age, 45% for those between 3-10 years old and 30% for the children 10-15 years of age), pregnant women (48%) and drug addicts (22%) are the patient categories drawing the greatest concern. No statistically significant differences were encountered among responses when studied by age, specialty, and work experience.

Discussion

The ED constitutes the primary setting treating patients with painful traumatic and non-traumatic injuries [1]. To our knowledge this is the first study investigating ED acute pain knowledge, practices, and attitudes in Greek EDs of tertiary hospitals. Findings can be proven valuable in terms of identifying barriers in pain assessment and management originating from misconceptions and gaps in knowledge among ED healthcare providers.

As early as demographic data interpretation, one discovers the high percentages of workers lacking pain education (non-existent for the 84%) and acute pain guidelines (non-existent for the 74% in their workplace), informing researchers about the lack of organised education and treatment protocols in a Greek ED. Such an issue is far from uncommon, as several studies [4,7–10] from different countries around the world underline the absence towards an organised acute pain management.

On medication preferences

Literature search has demonstrated a vast range of methods for treating acute pain, from purely non-pharmacological to advanced interventional [11,12]. ED professionals who are unaware of non-pharmacological options for pain relief (59%), claiming they have not heard the term “multimodal analgesia” (52%) supports our belief that pain knowledge in Greece suffers from ignorance, which can be attributed to inadequate education. Availability and accessibility of pharmacological options seems to be restricted to older and more traditional drug formulations, with newer possibilities (ketamine, adjuncts, blocks with ropivacaine, fentanyl, inhaled analgesics) either being non-existent or scarce (Figure 3). The fact that greater age and work experience seems associated with more promising result profiles, in our opinion, suggests that what is not offered as formal education is obtained informally through

experience. However, such a case cannot be the foundation of pain management in a developed country. Younger colleagues cannot be left wondering about key pain concepts. Differences related to the specialty of the participants prove that specialties such as anaesthesia and emergency medicine that contain pain education in their core show better results; this further emphasises the need for proper education.

On opioids

Results on this section are in accordance with the already existing literature arguing that among physicians opioids are regarded with misconception and fear [1,7]. For fear of complications (51%) or of missing underlying disorders (38%), the majority of responses (68%) emphasised a lack of comfort when administering opioids for pain relief. As in the section above, greater age and work experience are followed by an increase in use of opioids in everyday practice. Specialties more accustomed to opioids since early in their training are not correlated with high percentages of misconception, with participants in internal medicine holding unfortunately the leading percentage in believing that opioids should not be administered before diagnosis for pain relief. The 41% of participants that correlated opioid dosage increase with dependence of the patients highlights how easily any narcotic in everyday practice can be accused of causing chronic dependence.

On pain assessment

A great number of pain measurement tools exist, with their use varying according to the target patient population, the conditions, and the questions formed. The observed preference on verbal categorical pain scales, instead of the numerical or the visual analogue scales, appears quite problematic, especially since European guidelines clearly mention that verbal scales rely too much on patients understanding and interpreting the pain descriptors offered, rendering it impossible to be used when language is a barrier [13,14]. A strong reliance on vital signs, observed also in the study by Castren *et al.* [7], again is in conflict with the EUSEM's guidelines, which state clearly that the sole reliable pain predictor is patient self-report, and that vital signs can help in making assessments of patient's pain, when alertness and coherence are lacking, and only as supportive cues [13]. Nearly half the participants (49%) argued that they do not have the time for pain reevaluation in the ED or that their chosen regimen's success is based on the patient ceasing to complain. Furthermore, 42% of the participants disagreed on whether the patient's description is the most reliable tool for judging pain intensity and severity.

On pain perceptions

Such problematic observations as the ones mentioned above, become more intense in this section, regarding how healthcare workers perceive pain and thus patients in pain.

For a great part of the participants, time shortage (58%) and alcohol consumption (44%) seemed justifiable reasons for not implementing pain relief at all. The notions that distraction from pain is a synonym for low severity (56%) and that placebo usage is permitted for judging the truth of a patient's report on his/her pain (52%), both represented by the majority of the study's participants, indicate that there is not only a seriously false basis regarding the essence of pain but also severe everyday malpractice in the ED. Such results are not a phenomenon unique to Greece. Lourens et al. [8], Dale et al. [2], and Galinski et al. [9], investigate similar misconceptions.

A tendency of inexperienced workers to believe that pain alleviation in the ED is unrealistic was observed. Furthermore, in relation to the specialty of the participants, specialties with no core training in pain management appeared to be more susceptible to misinformation.

The fact that children, pregnant women, and drug addicts were the patient groups least favoured during drug administration for pain relief, is in accordance with many studies presented in the literature. Especially for children, several articles have demonstrated healthcare workers' reluctance when it comes to opioid administration and their incapability as to proper pain assessment and evaluation [11,13,15–18].

Study limitations

The findings of this study can only be related to the specific relevant study population from which the participants' sample emerged. The results cannot be generalised because the total population of ED healthcare workers is larger than the study's proportion: doctors from only four tertiary hospitals were included in the study population. Participation was not great despite additional recruitment, thus leaving the study underpowered when it comes to determining relationships among different demographic groups (for instance rural vs. urban areas, level of education regarding pain). Reporting bias may have originated from participants responding in what they perceive to be a professionally desirable manner, instead of exclusively based on personal beliefs, but we believe this bias was reduced by anonymity of the survey and the wide range of questions in different formats.

Conclusion

Our results show suboptimal knowledge and attitudes regarding acute pain management among emergency care providers in Greece.

The majority of responders are unaware of the term *multimodal analgesia*, a key concept of pain alleviation no matter its cause or its context. Newer treatment methods, either non-pharmacological, interventional (regional blocks), or pharmacological (drugs as adjuncts to more traditional analgesics, forms of sedation, inhaled analgesics) appear

highly disregarded. A clear reluctance to administer opioids is depicted, mainly attributed to a fear of side effects and misconceptions on opioids impeding underlying disease diagnosis. Although responders seem to understand the need for pain assessment tools and post-treatment re-evaluation, they admit to not implementing them regularly in everyday practice due to time restraints. When they eventually evaluate pain, tools proven to be less efficient are chosen by the majority. Perceptions about placebo use for deciding whether pain allegations by patients are true and implying that distraction from pain is linearly associated with decreased pain intensity, are disturbingly popular. Certain parts of the population, be it children, pregnant women, or drug addicts, seem to be severely undertreated for pain.

In an effort to understand the "whys" behind our results, correlations were made between responses and responder's work experience, age, specialty, and sex. We discovered that older and more experienced emergency healthcare workers held a better response profile throughout the questionnaire in terms of awareness, assessment, opioid use, and perceptions. Specialties with core training containing pain education again showed better results in the majority of the questions. What remains disturbing is the lack of pain protocols and the non-attendance of acute pain alleviation seminars by almost the whole population questioned.

Our study was a first attempt to investigate the level of awareness among EMS providers concerning acute pain management. We tried to record the interventions and the treatment methods being used and the protocols followed. Further studies are needed so as to determine in a more clear way enablers and obstacles of acute pain treatment in the Greek ED. Work should focus on discovering the impact of educational interventions on pain care [10]. Patient-centred outcomes such as pain reduction post-interventions and satisfaction need to be evaluated by future research [5]. Studies with greater sampling, on a nationwide level, will help understand the level of acute pain management in Greece and whether the urban and the rural environments hinder or enable pain alleviation in the ED. Comparison between prehospital providers' and in-hospital ED providers' perceptions will also be valuable.

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Competing Interests

Authors state no conflict of interest.

Author Contributions

All authors have accepted responsibility for the entire content of this manuscript and approved its submission.

Informed consent

Informed consent has been obtained from all individuals included in this study. The first page of the questionnaire consisted of an accompanying text with information regarding the survey, its aims and the institution behind organising the study. Full relevant contact details were included as this text held the position of an informed consent of each participant.

Ethical Approval

Research involving human subjects complied with all relevant national regulations, institutional policies and is in accordance with the tenets of the Helsinki Declaration (as amended in 2013), and has been approved by the scientific council of “KAT” General Hospital (in Athens, Greece) as part of the corresponding author’s master thesis (master title “Global health and disaster medicine”). The received protocol number was 211/01-03-2021.

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