G Ital Med Lav Erg 2021; 43:1, 74-81
ISSN 1592-7830



Roberto Casale[1], Paolo Boldrini[2], Nicolas Christodoulou[3] and The Special Interest Group on "Pain and Disability" of the Italian Society of Physical Medicine & Rehabilitation (SIMFER)[4]

# Pain, its diagnosis and treatment in a rehabilitation setting: A national survey

[1] Roberto Casale MD PhD - Opusmedica, PC&R, Persons, Care & Research Network - ESPRM Chair of Pain & Disability Committee - 29121 Piacenza, Italy
[2] Paolo Boldrini MD - SIMFER - Italian Society of Physical & Rehabilitation Medicine, Piazza Cairoli 2, 00120 Rome, Italy, paolobold@gmail.com
[3] Nicolas Christodoulou MD - ESPRM president, Physical Medicine and Rehabilitation, Medical School, European University Cyprus, Cyprus, chrisfam@logosnet.cy.net
[4] Special Interest Group on "Pain and Disability" of the Italian Society of Physical Medicine & Rehabilitation SIMFER-: Allorto Vittorio; Asseretto Enzo; Bargellesi Elbanio; Bilardi Caterina; Buggiani Pierangelo; Buonocore Michelangelo; Casali Roberta; Castelli Sonia; Celia Andrea; Cena Paola; Chiarelli Domenico; Curti Aurelio; Delbarba Damiano; Di Lorenzo Luigi; Di Monda Daniele; Fassola I. Calisto; Fazio Nunzio; Ferraro Francesco; Floridia Maurizio; Forte Francesco; Fundarò Cira; Gallucci Sandro; Garetti Maria Chiara; Giannella Margherita; Greco Mariachiara; Guida Lucia; Maggi Loredana; Mandala' Giorgio; Marani Silvia; Marcato Antonio; Martinelli Marco; Martini Stefano; Menna Marina; Moos Edoardo; Negrin Livio; Nicolosi Antonino; Nobile Valter; Perotti Eugenio; Perticaro Vincenzo; Piazza Paolo; Pignataro Gianpaolo; Puddu Alberto; Romeo Maurizio; Rovacchi Claudio; Sartini Silvana, Sartor Fabio; Sciarra Tommaso; Scocchi Marco; Sconocchia Chiara; Symeonidou Zaira,Taveggia Giovanni; Tozzi Roberto; Trevisan Ketty; Ucci Filomena; Ventura Francesco

***ABSTRACT. We are presenting the results of the* DO-RIA survey (DO*lore in* RIA*bilitazione or Pain in Rehabilitation) a web-based questionnaire. Its aim was to acquire objective truthful insights into the dimension of pain its diagnosis, treatment and impact in a rehabilitation setting.***
***The questionnaire was e-mailed to the physicians belonging to the Italian Society of Physical and Rehabilitation Medicine (SIMFER). The questionnaire was constructed to respond to five major answers related to a) the dimension of the problem (number and characteristics of patients and type of pain (acute, chronic, neuropathic, nociceptive/inflammatory); b) the burden of pain on disability; c) how pain is assessed (i.e. the use of questionnaires) and managed (i.e. the presence of a pain management programme in or outside a rehabilitation setting) and if there is adherence to guidelines; d) the prescribing habits for medications and physical therapies. Questions were also addressed to set respondents' self-assessment of their ability to diagnose and treat pain, whether they consider the need of further training and, if so, what aspects would be most useful.***
***Conclusion: In contrast with the high number of people undergoing rehabilitation who report any form of pain and pain-related disability, there is a lack of pain management program considering chronic pain as a disabling disease in itself and therefore deserving of specific skills and rehabilitative programs. This is stressed by the perceived need expressed by the responders to implement continuous medical education in order to make rehabilitation an essential element in the management of the disability related to chronic pain.***

***Key words:*** *rehabilitation, chronic pain, disability, pain related disability, physiatry, web based questionnaire.*

**RIASSUNTO. Vengono presentati i risultati dell'indagine DO-RIA (DOlore in RIAbilitazione o Pain in Rehabilitation) condotta attraverso un questionario web-based. Il suo scopo era acquisire informazioni oggettive sulla dimensione del dolore, la sua diagnosi, trattamento e impatto in un contesto riabilitativo. Il questionario è stato inviato per posta elettronica ai medici appartenenti alla Società Italiana di Medicina Fisica e Riabilitativa (SIMFER). Il questionario è costruito per rispondere a cinque risposte principali relative a) la dimensione del problema (numero e caratteristiche dei pazienti e tipo di dolore (acuto, cronico, neuropatico, nocicettivo / infiammatorio); b) il peso del dolore sulla**

## Introduction

Chronic pain is a common finding in work medicine often leading to some form of rehabilitation, however its under-treatment confers a substantial burden not only on individuals and their families but also on the healthcare systems and society in general (1), and there is now considerable concern that their increasing number among an aging population will challenge the resources of national health services (2), particularly as the burden of co-morbidities contributes to worsening pain and performance-based physical functions (3). An European population based survey has estimated that more than 30% of its interviewers with chronic pain had undergone some form of physical or rehabilitation therapy, two-thirds of whom had undergone non-pharmacological treatment such as massage (30%), physical therapy (21%) or acupuncture (13%) (4).

These findings prompted us to design an in-depth survey among Italian physical and rehabilitation medicine (P&RM) specialists with the primary aims of assessing the extent of the problem, including the disability induced by pain and the diagnostic procedures and treatments used. A secondary but not less important aims were to ascertain the use of pain questionnaires, adherence to national and or international guidelines and the respondents' self-assessment of their ability to diagnose and treat pain.

## Material and Methods

The DO-RIA survey (DO*lore in* RIA*bilitazione* or Pain in Rehabilitation) made use of a web-based questionnaire implemented on a SurveyMonkey platform that was e-mailed to the 3020 physicians belonging to the Italian Society of Physical and Rehabilitation Medicine (SIMFER). The structure of the questionnaire was developed during the second half of 2015, and the questionnaire

**disabilità; c) come viene valutato dal fisiatra il dolore (ad esempio l'uso di questionari) e gestito (ad esempio la presenza di un programma di gestione del dolore all'interno o all'esterno delcontesto riabilitativo) e se vi è aderenza alle linee guida da parte del fisiatra; d) le abitudini di prescrizione di farmaci e terapie fisiche. Una parte del questionario è stata dedicata alla autovalutazione da parte degli intervistati circa la loro capacità di diagnosticare e trattare il dolore,e se considerano necessaria una ulteriore formazione sul dolore e, in tal caso, quali aspetti sarebbero più utili. Conclusione: in contrasto con l'elevato numero di persone in fase di riabilitazione che riferiscono una qualsiasi forma di dolore e per i quali la disabilità correla con il dolore, manca un programma di gestione del dolore che consideri il dolore cronico come una malattia disabilitante in sé e quindi meritevole di competenze specifiche e programmi riabilitativi. Ciò è sottolineato dalla necessità percepita espressa dai fisiatri che hanno risposto al questionario di una formazione medica continua sul dolore al fine di rendere la riabilitazione un elemento essenziale nella gestione della disabilità correlata al dolore cronico.**

**Parole chiave:** riabilitazione, dolore cronico, disabilità, fisiatra.

was launched through the SIMFER web page in 2016. The data were downloaded from the SurveyMonkey platform in 2017 and processed by an independent third party (IBIS Informatica S.r.l., Milan, Italy). The general characteristics of the respondents were collected and reported in tab.1. Other information such as the area of Italy in which they work, the year of graduation and specialisation, and any other specialisations were also collected but not herein reported.

The questionnaire was constructed to respond to five major answers related to a) Dimension of the problem: the number of patients with pain examined by respondents per week and their characteristics (age, gender, type(s) of disease, and source of referral), and the type of pain (acute, chronic, neuropathic, nociceptive/inflammatory): b) Perception of the burden of pain on disability, and the relationship between the pain and the condition for which the patient was referred; c) How pain is assessed and managed and in particular if there is a pain management programme and who manages it (in or outside a rehabilitation setting), and the presence and adherence to guidelines including the Italian Low 38/2010 on pain management (5); d) Which are their prescribing habits of medications and physical therapies. A final set of questions investigated the respondents' self-assessment of their ability to diagnose and treat pain, whether they consider they need further training and, if so, what aspects of the subject would be most useful.

The questionnaire was first sent with an accompanying letter stressing the importance of collecting information about pain in P&RM, and then sent again after two months. During the phase of data acquisition, the physicians were not monitored or pressed for a reply, and the questionnaires were completed on a purely voluntary basis.

### Data analysis

The questionnaires were e-mailed to 3020 P&RM specialists and were returned by 495. A quality check led to the exclusion of ten: seven because they were considered incomplete (>10% of questions were answered) and three because they were duplicates. The final analysis was therefore based on a total of 485 questionnaires, representing 16% of the specialists to whom they were sent. The total number of responses to each question was often not the same as the total number of expected responses, and so the percentages given relate to each specific question.

As the survey was structured using broad-scale Internet research methods, it is possible that the number of respondents was biased by factors such as accessibility to the Internet, firewalls blocking the reception of e-mails, and a lack of familiarity with computer-based technologies.

## Results

***a) The dimension of the problem (number and characteristics of patients and type of pain (acute, chronic; neuropathic, nociceptive/inflammatory)***

The possibility of giving multiple answers to the questions in this section means that the sum of the percentages is >100%.

**a.1) Number and characteristics of patients** (Fig. 1). Seventy-two % of the specialists said they saw ten or more patients with chronic or acute pain per week with a prevalence of females with decades over 45 years as the most represented. As expected the most represented basic conditions were neurologic, orthopaedic and rheumatologic ones, however it is worth of note that 31% of the respondents also see oncologic patients, and 5% see patients with pain associated with other (cardiological, lung, gynaeco-urological) problems. According to 94% of the respondents, the pain is related to the pathology for which the patients were referred to rehabilitation and that the prevalence of patients referred by GPs to rehabilitation is more than 80%.

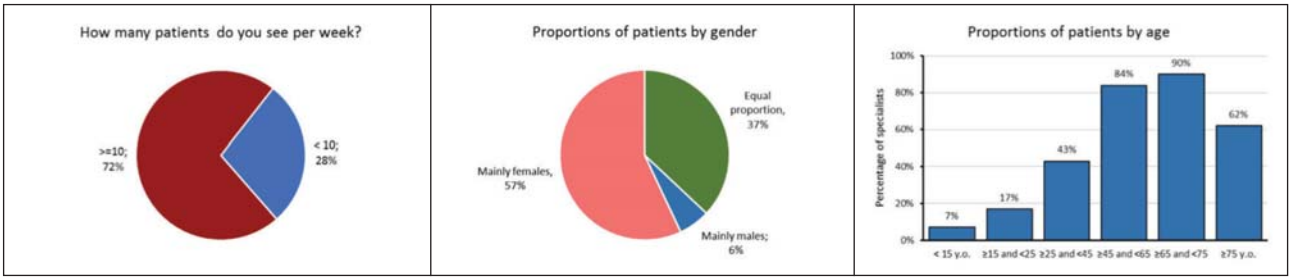


**Figure 1.** ***The dimension of the problem: Graphics represent the percentage of respondents visiting more or less than ten patients on pain per week (a) and the percentage of patients with pain divided per gender (b) and age (c). Note that giving the possibility of multiple answers to the questions, in this graphical representation the sum of the percentage may be more than 100%***

**a.2) Type of pain (acute, chronic, neuropathic, nociceptive/inflammatory** (Fig. 2). Fifty-nine % of the respondents said they see more patients with chronic pain, 23% see equal proportions of patients with acute and chronic pain while only 18% see more patients with acute than chronic pain.

In the case of the question "What is the type of chronic pain?", it was decided to give the definitions of neuropathic and nociceptive pain as currently used in the accompanying text: "neuropathic pain generated by a lesion or disease of the sensory nervous system, nociceptive/inflammatory pain generated by an activation of nociceptors (6). The respondents were asked to indicate the frequency of the different types of chronic pain seen in their patients where the frequency of each type of pain was defined on the basis of a cut-off value of <50% and ≥50%.

Twenty % of the specialists said that neuropathic pain accounted for more than 50% of the cases of chronic pain; 44% said that inflammatory/nociceptive pain accounted for than 50% of the cases; and 21% said that mixed pain accounted for more than 50% of the cases.

***b) The perceived burden of pain on disability*** (Fig. 3)

At this pivotal question if pain limits the rehabilitation process and to what extent an impressive 91% of the respondents state how pain impacts on rehabilitation and that this limitation is quite severe with only 9% of respondents thinking that pain does not limit the rehabilitation process. Among those who replied positively, 15% said that the limitation was 50-75%, 46% that it was 26-50%, 28% that it was <25%. Only 1.5% of respondents said that the limitation was >75%.

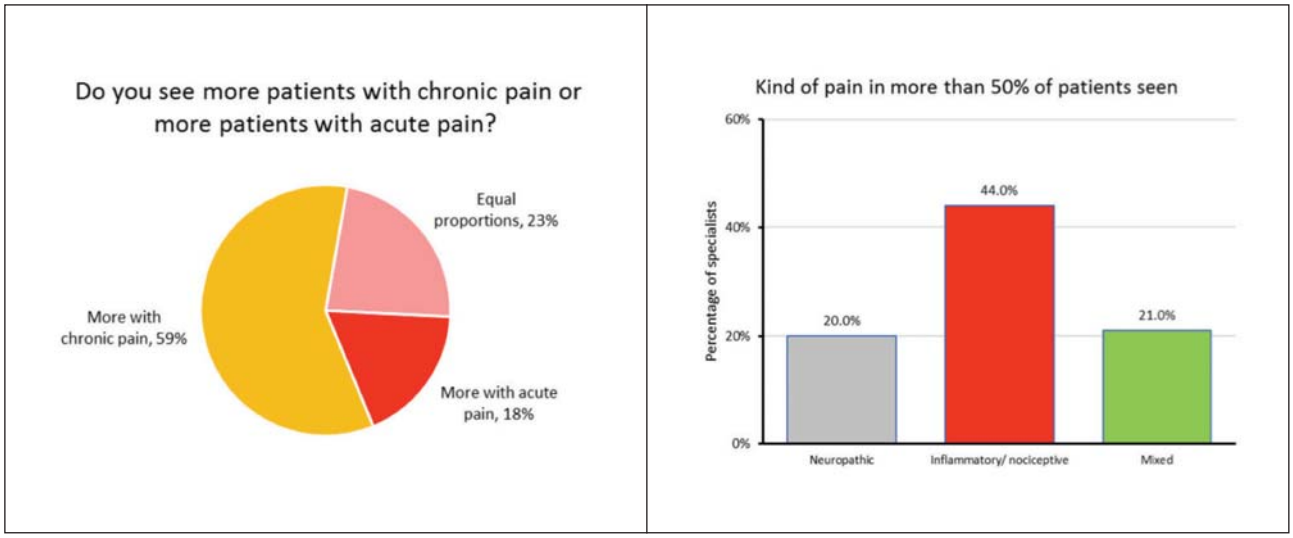


**Figure 2.** ***Graphic represents the percentage of responses given by responders at the question if they see more patients with chronic, acute or both types of pain and the percentage of responses given by responders at the question if the majority of their patients have a neuropathic or nociceptive/inflammatory pain. In this question the cut off was considered > or < 50%. Not surprisingly more than 50% of the respondents saw more chronic than acute pain patients (with a consistent 27% visiting acute and chronic pain patients in an equal percentage) while only 18% of physiatrists is dealing with more acute pain problems than chronic pain disability***

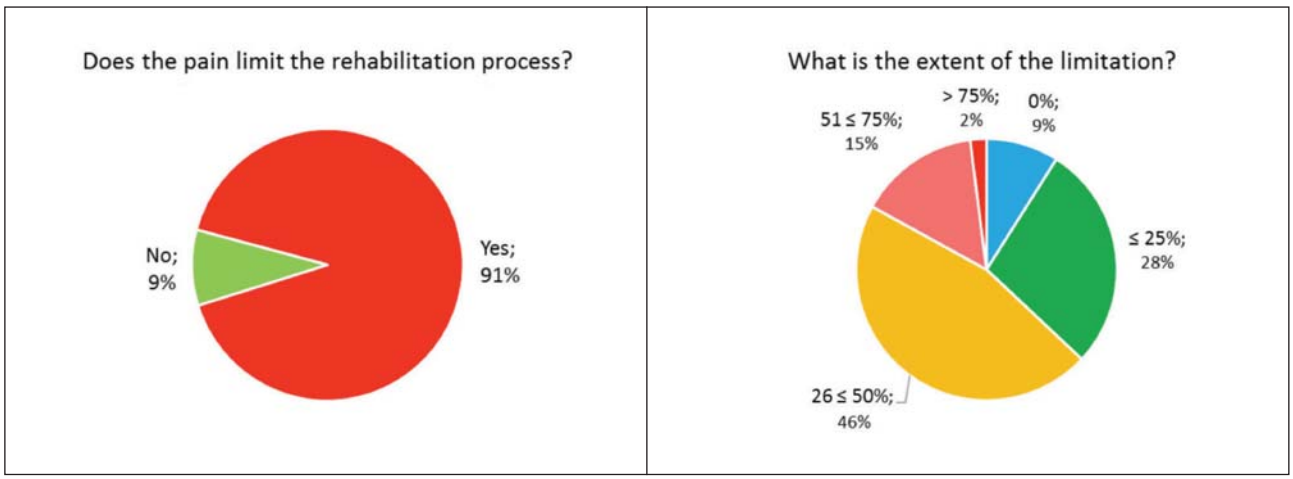


**Figure 3.** ***Graphic representation of the response at the pivotal questions if pain limits the rehabilitation process and to what extent. An impressive 91% states how pain impacts on rehabilitation in the perception of physiatrists (a) and that this limitation is quite severe (b). Please note in both graphics that for only 9% of respondents think that pain does not limit the rehabilitation process***

***c) Pain measurement and treatment, adherence to guidelines, and pain management programmes*** (Fig.4&5)

**c.1) pain measurement and treatment**: Almost all (99%) of the respondents said they treated pain. However, only seventy-six % of the respondents said that they routinely measure pain; 22% that they measure it "sometimes, only if necessary", and only 2.4% that they never measured pain. Seventy-seven % of the respondents who routinely or occasionally measure pain use numerical scales (VAS or NRS), 10% verbal scales, 10% disease-related questionnaires, and 3% other unspecified methods.

**c.2) adherence to guidelines**: Twenty-five % of the specialists who treated pain said they regularly followed treatment guidelines, whereas 60% followed them only occasionally, and 15% did not use them at all. The vast majority of the responders who said they used guidelines (78%) did not specify which one. Only 6.1% said they used the WHO guidelines (together with other guidelines in six cases), 5.4% said they followed the provisions of Italian Law 38/2010, 4.7% observed hospital protocols or guidelines, 1.4% those of the International Association for the Study of Pain (IASP), 1.1% those of the Italian Society of Anesthesia, Analgesia, Resuscitation and Intensive Care (SIAARTI), and 0.7% those of the European Federation of Neurological Societies (EFNS).

**c.3) pain management programmes**: Half (50%) of the respondents said that their rehabilitation centres has a pain management programme, 36% said that their centres doesn't have such a programme, and 14% said that a programme exists but was not in a rehabilitative setting.

***d)* Prescribing habits for medications and physical therapies *for pain***

**d.1) Prescribing habits for medications** (Fig. 6). Paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs) were the most used drugs followed by weak opioids as single compound or in combination. Paracetamol is used by 89.9% of the respondents: 34% in <25% of patients, 30% in 26-50% of patients, 22% in 51-75% of patients; and 5% in >75% of patients. NSAIDs are used by 89.3% of the respondents: 41% in <25% of patients, 32% in 26-50% of patients, 12% in 51-75% of patients, and 4.4% in >75% of patients.

Weak opioids and their combinations are used by 79.2% of the respondents: 46% in <25% of patients, 28% in 26-50% of patients, 5% in 56-75% of patients, and 0.7% in >75 of patients. Strong opioids are less used in rehabilitation by 41% of the respondents: 27% in <25% of patients, 9.7% in 26-50% of patients, and 4.4% in 51-75% of patients. Antiepileptics and antidepressants are almost equally used by 50 to 40% of the respondents. Antiepileptics are used by 51% of the respondents: 37% in <25% of patients, 10% 26-50% of patients, 2.7% in 51-75% of patients, and 1.3% in >75%. Antidepressants are used by

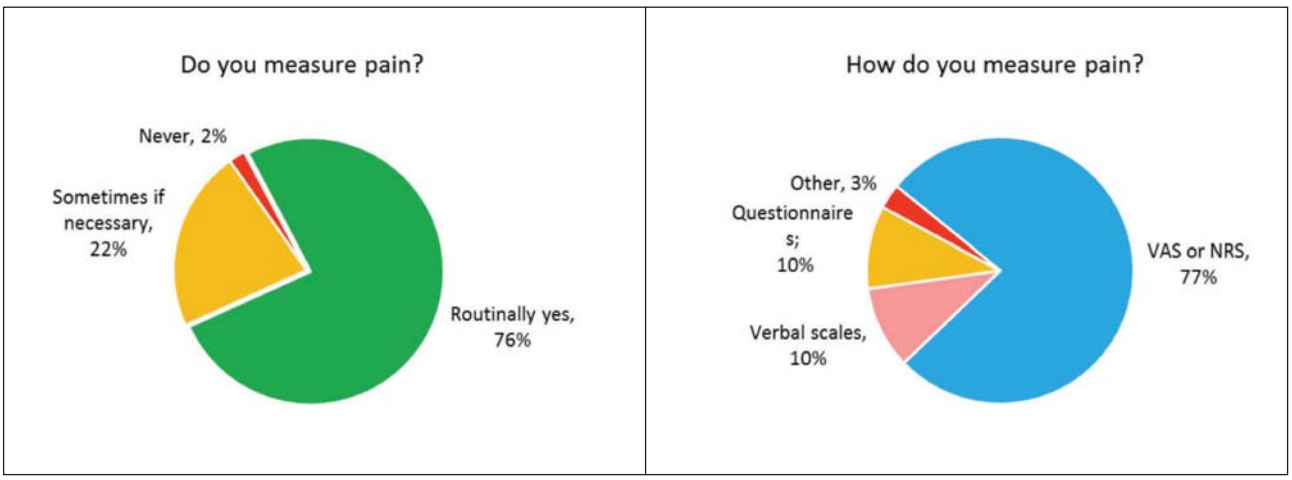


**Figure 4.** ***Graphics represent the percentage of respondents who use to measure pain (a) and information on which method is used namely what kind of measurement is used (Visual analogic scales, Numerical rating scale, verbal scale, more complex questionnaires or other type of measure) (b)***

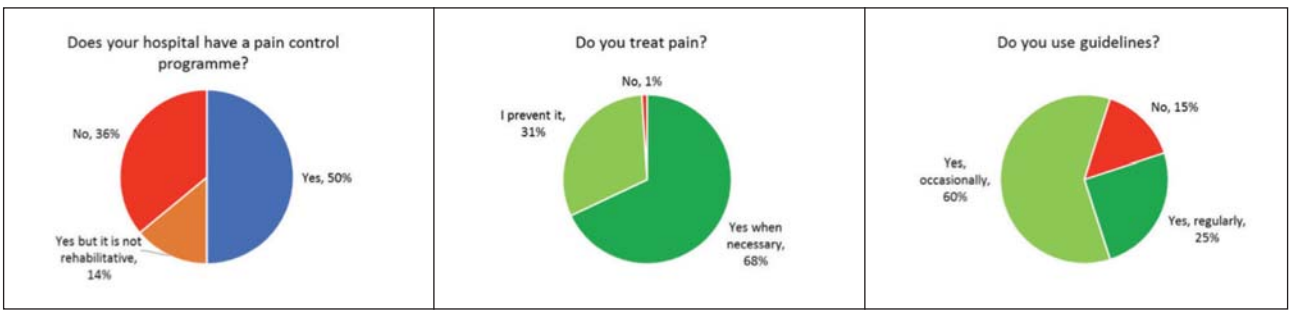


**Figure 5.** ***Graphics refer to the reply to the answer if the respondents use to treat pain (a), if in treating pain guide lines are used (b) and if in their setting exits a pain control program and if it is in charge to other specialization (c)***

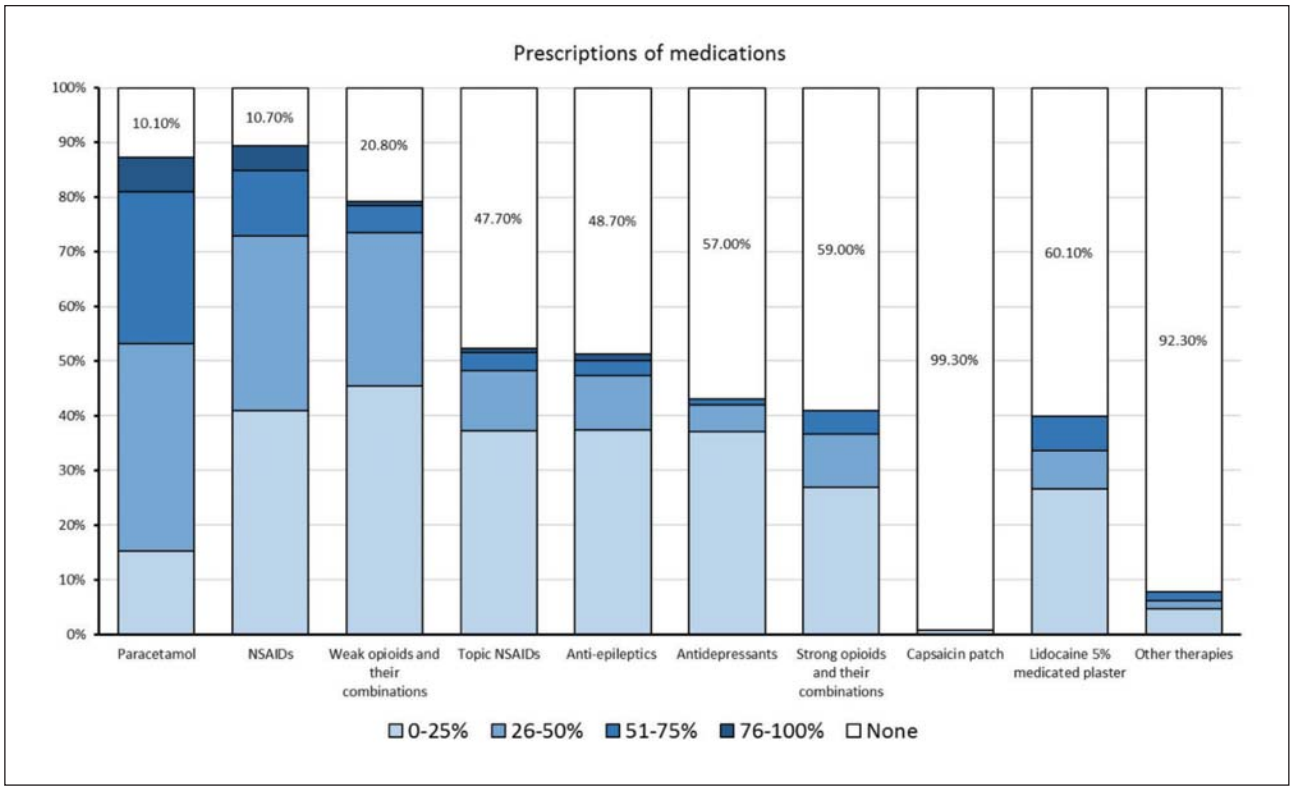


**Figure 6.** ***The histogram reports the more frequent prescriptions of medication divided for the more frequent compound used (x axis) the percentage of respondents using the specific compound (y axis) and stratified for frequency of use in five level (0-25%; 26-50%; 51%-75% and 76%). For instance Paracetamol and NSAIDs are the most frequently used in term of percentage of respondents and percentage of patients treated while capsaicine patch is used only by 0,7% of respondents in only <25% of patients and lidocaine 5% medicated plaster is use in a more consistent 40% of respondents***

43% of the respondents: 37% in <25% of patients, 5% in 26-50% of patients, and 1% in 51-75% of patients. None of the respondents uses them in >75% of patients.

As far as Topical treatments, NSAIDs are used by 52% of the respondents: 37% in <25% of patients, 11% in 26-50% of patients, 3.4% in 51-75%, and 0.7 in >75% of patients. Other topicals such as capsaicin patches, its use is very rare: only 0.7% of the respondents said they used them, and then only in <25% of patients. Lidocaine 5% medicated plasters are used by 40% of the respondents: 31% in <25% of patients, 7% in 26-50% of patients, and 2.3% in 51-75% of patients.

As far as other medical therapies such as supplements, nutraceuticals, magnesium, muscle relaxants, etc. only 8% of the respondents used some of them.

**d.2) Prescribing habits for physical therapies and minimally invasive techniques** (Fig. 7): Eighty-four % of the respondents said that they routinely used non-pharma-

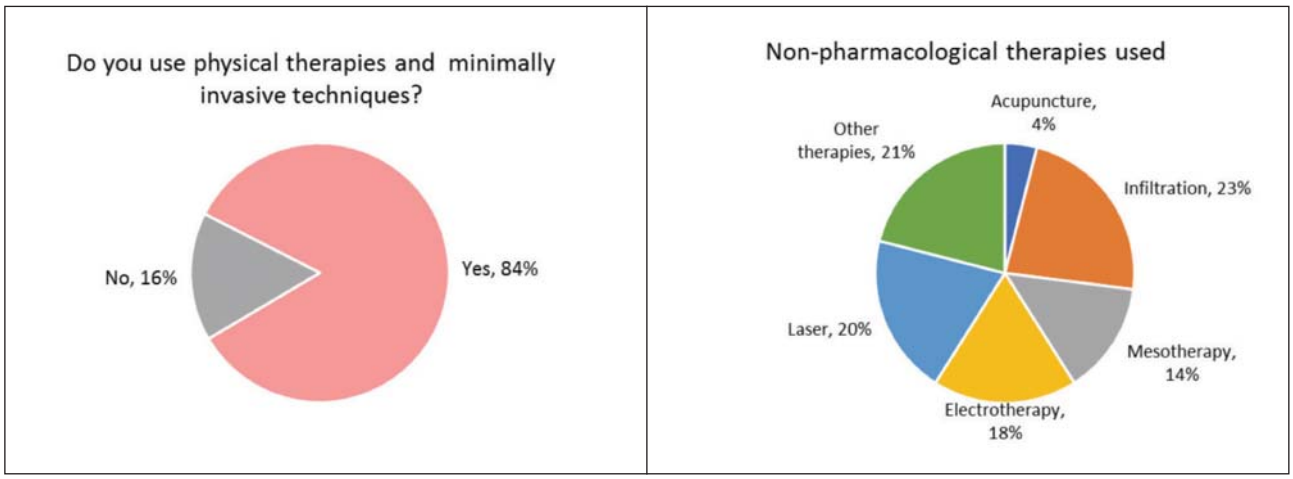


**Figure 7.** ***Graphical representation of the percentage of respondents using physical therapies or minimally invasive techniques to treat pain (a) and the type of non pharmacological therapies used. It is worth of mention the shift from traditional physical therapies to more advanced form of physical therapies such as LASER as well as the frequent use of minimally invasive treatments (infiltration with mesotherapy) (b)***

cological physical therapies and minimally invasive techniques. The most frequently used are physical therapies such as LASER treatment (20%), electrotherapy (18%) including transcutaneous electrical nerve stimulation (TENS), heat and cold, ultrasound, and other unspecified physical treatments (21%). Many said they used joint and/or trigger point infiltrations (23%) and mesotherapy (43%), apparently regardless of the type of pain.

***e) Self-assessment of ability to diagnose and treat pain, and need for further training)***

Only 13.6% of the respondents said that they were good at diagnosing and treating pain, whereas the majority (61.7%) said that they were fairly good, and 24.8% that they knew little or nothing about it. In answer to the specific question concerning the Italian Law No. 30/2010 relates to the use of opioids and on the obligation of all healthcare facilities to record and assess pain, most of the respondents (57.4%) said they knew its content quite well, 28.5% said that they did not know very much, and 14.1% said that they did not know it at all.

When asked whether they considered further training in pain and pain management necessary, almost all of the respondents answered positively (79.8% said it was very important, and 18,9% that it was quite important); only 1.3% said that it was not very important.

## Discussion

Patients experiencing acute as well as chronic pain associated with various diseases, disabilities and reduced physical function performances are being increasingly referred to rehabilitation services (1), and this will put increasing pressure on the national health service resources available for chronicity and rehabilitation (7). The most frequently cited survey of chronic pain among European patients was predictive of this trend as it found that nearly 70% chronic pain sufferers had undergone physical therapies and some form of rehabilitation alone or in combination, thus indicating the widespread use of healthcare resources (4). In this underlining the increasing importance of rehabilitation in the management of disability due to chronic pain and highlighting the need for mutual relationships not only between patients and doctors (4), but also among the practitioners of different medical specialties (8).

Although a number of recent international, European (7, 9, 10, 11, 12) and national (13) studies of specific diseases and pain conditions, the influence of age and gender (14), and the impact of pain on daily life (15) have been published, to the best of the knowledge, ours is the first attempt to describe the global dimension of the problem of pain in a national rehabilitation setting. More specifically this survey shows how the burden of pain on disability is perceived by PM&R specialists, how pain is assessed and managed in adherence to guidelines as well as the prescribing habits for medications and physical therapies.

The work herein presented has some biases that have to be declared being the first related to the number of respondents that although suitable for a meaningful statistical elaboration, weakens the possible extrapolation of data to the whole physicians belonging to the Italian Society of Physical and Rehabilitation Medicine. Possible explanations for this are that older doctors are less familiar with the Internet, and younger doctors have less professional experience of pain. It is also possible to argue that the low number of responses is, at least in part, referred to the consideration of pain as a symptom within pathologies of rehabilitation interest and not as a chronic disabling disease and thus of less importance. A datum possibly misinterpret as a weak point is that two-thirds of the respondents examine more than 10 patients with pain per week, a finding that should not be under-estimated as these are patients referred for rehabilitation and not patients attending a specialised pain clinic. It is worth of mention also that in this survey we considered chronic pain as a whole while recently the International Association of the Study of Pain (IASP) has suggested a distinction between chronic primary pain (disease of its own right) and chronic secondary pain (pain as a symptom of an underlying disease). Althought this new distinction between primary and secondary pain is still considered more scholastic than effective (16, 17), this distinction must be considered in future researches.

From this survey some interesting points emerge also from the general feature of the patients as reported by the respondents. Most of the patients seen in a rehabilitation context were aged 50-80 years, which indicates that pain management in a rehabilitation setting is not only required for the oldest patients, but also for patients still of working age, among whom the social burden of pain is known to be high in both blue- and white-collar workers (18, 19). As expected, the majority of patients were referred to rehabilitation because of neurological, orthopedic and rheumatological conditions, but it is very interesting to note that 31% of our P&R M specialists take care of patients with cancer-related disabilities (20). This also applies to another 5% of patients undergoing cardiological or pneumological rehabilitation with any form of pain, who are treated with physical therapies such as TENS and cryotherapy (21). Even more interesting is the fact that 81% of the responders saw patients with pain who were directly referred by their GPs, thus suggesting that (at least in Italy) rehabilitation is on the first line intervention for pain. Twenty % of the respondents said that more than 50% of their patients experienced neuropathic pain, a percentage that seems to be much higher than the incidence of neuropathic pain in the general population, which tends to be lower when specific causes are considered (1-2%) than when it is based on reports of classic symptoms (6-8%) (22). This high percentage may reflect a certain difficulty in the diagnostic procedure as a relatively low percentage of P&RM specialists are following diagnostic guidelines.

Pain-related disability is a pivotal point in the discussion as to how pain becomes chronic and leads to disability (23). Indeed, there is no benefit in rehabilitation outcomes without appropriate pain control and *vice versa* (8) as pain interferes or limits individual's physical, mental as well as

social activities (24). Our survey illustrates this with striking clarity as all of the respondents said that pain is a crucial element determining rehabilitative outcomes. At this pivotal question if pain limits the rehabilitation process and to what extent an impressive 91% of the respondents state that pain impacts on rehabilitation and that this limitation is quite severe as more than half of the respondents believe that pain impacts on their patients for more than 25% and only 9% of respondents report that pain does not limit the rehabilitation process. Indeed one of the characteristics of rehabilitation is its focus on the reciprocal interference between pain and motor outcomes (25, 26).

In answer to the specific question concerning whether pain depends on the underlying pathology, 94% of the respondents said that it depends on the pathology for which the patient was referred possibly underestimating the presence of a chronic pain as a disease no more related to the initial underlying pathology (27). In dissonance, all of the respondents (99,6%) said that they treated pain, however there was a lower percentage of responders who measure pain. Seventy-six % of the respondents measure pain, preferentially using simple visual analogue or numerical rating scales and most of those who claim to use guidelines did not specify the type of guidelines used. Moreover the same low percentage of respondents declare to have a pain management programme at their rehabilitation centre, or have established and respected guidelines for treating pain including the Italian Law No. 30/2010. The even lower percentage of respondents whose centres have a pain management programme suggests that most of them use personalised strategies or therapeutic approaches not included in any *prise en charge* rehabilitation protocol, and only 25% use guidelines regularly.

The prescription habits of PR&M specialists of medications and physical therapies, shows that most of the respondents use paracetamol and NSAIDs most frequently, regardless of whether the pain is diagnosed as being acute or chronic, neuropathic or nociceptive pain. As far as the use of opioids is concern, our data seem to indicate that opioids are less used in the rehabilitation setting in Italy than in other national context where chronic pain is present. Sixty-six % of our respondents do not use weak opioids or use them in fewer than 25% of their patients, and 86% do not use strong opioids, or use them in fewer than 25% of their patients. From how the questionnaire was structured it is not possible to extrapolate whether this low prescription of opioids is due to a cautious and responsible use or to a lack of skill and confidence in using opioids. It is worth of mention that when asked about the need of continuing education in P&RM, their answers pinpointed the need to updating the use of opioids in a rehabilitation setting. This may suggest how the scarce use of opiates in rehabilitation depends on the lack of familiarity with their use in term of efficacy and contraindications.

Questions were also addressed to set respondents' self-assessment of their ability to diagnose and treat pain, whether they consider the need of further training and, if so, what aspects would be most useful. Three-quarters of them admitted that their ability was no more than "quite good" and, almost in confirmation of what was implied by questions concerning the obligations of assessment laid down in Art. 7 of Italian Law No. 30/2010, nearly half of them (42.6%) admitted they knew little or nothing about the law itself.

However, in this context of obvious unfamiliarity with chronic pain as a disease in its own right (27), one comforting fact was that only a negligible percentage of responders (1.3%) considered further training unnecessary, which not only indicates their awareness of their inability to manage pain-related disability appropriately, but also demonstrates their absolute willingness to improve. In relation to the areas they consider most important in terms of their continuing education in P&RM, their answers were evenly divided among how to use drugs, particularly opioids; general guidelines for pain management and specific guidelines for different pathologies; and the differential diagnosis of neuropathic and nociceptive pain. As further confirmation, the most cited specific topics were neuropathic pain, complex regional pain syndrome and, perhaps surprisingly, the use of physical pain therapies.

## Conclusions

PM&R specialists are well aware of the relevant number of patients with pain in a rehabilitation setting as well as they are aware of the need to improve knowledge about differential diagnosis and the use of drugs with special emphasis on opioids. Indeed pain and chronic disabling pain control does not seem to be a primary goal of rehabilitation in Italy, as has also been shown among European specialists (28). The national and European data reflect a sort of scotoma in the perception of the rehabilitation importance of pain-related disability and in its effect on the rehabilitation process, in striking contrast with the number of people who report any form of pain as assessed by the respondants themself.

The survey herein presented doesn't merely identify possible critical areas in the perception of the burden of pain, and the ability of P&RM specialists to diagnose and treat pain. On the contrary, thanks to their collaboration in participating in the survey it had acquired objectively truthful insights into the current situation in order to understand how to improve knowledge and awareness on disabling pain when using rehabilitation to manage chronicity. Indeed the data emerging from this survey can be used to identify the most critical areas and consequently encourage stakeholders and decision makers to implement continuous medical education in order to make rehabilitation an essential and more efficent element in the management of the disability related to chronic pain (29).

## References

1) Reid KJ, Harker J, Bala MM, Truyers C, Kellen E, Bekkering GE, Kleijnen J: Epidemiology of chronic non-cancer pain in Europe: narrative review of prevalence, pain treatments and pain impact. Curr Med Res Opin 2011, 27: 449-462. 10.1185/03007995.2010.545813.
2) www.horizon2020.it&spell=1&sa=X&ved=2ahUKEwi7hc20nv_oAhWK_qQKHVKTBWsQBSgAegQIEBAm

3) Calders P, Van Ginckel A. Presence of comorbidities and prognosis of clinical symptoms in knee and/or hip osteoarthritis: A systematic review and meta-analysis. 1. Semin Arthritis Rheum 2018 Jun; 47(6): 805-813.
4) Breivik H, Collett B, Ventafridda V, Cohen R, Gallacher D. Survey of chronic pain in Europe: prevalence, impact on daily life, and treatment. Eur J Pain 2006 May; 10(4): 287-333. Epub 2005 Aug 10.
5) www.salute.gov.it Official Gazette No. 65 of 19 March 2010
6) Loeser JD, Treede RD. The Kyoto protocol of IASP basic pain Terminology. Pain 2008 Jul 31; 137(3): 473-7.
7) Kress HG, Casale R. No (rehabilitation) gain without pain (management). Am J Phys Med Rehabil 2013 Jan; 92(1): 90-2.
8) Henschke N, Kamper, S J. Maher C G, The Epidemiology and Economic Consequences of Pain. Mayo Clin Proc 2015 Jan; 90(1): 139-47.
9) Reid KJ, Harker J, Bala MM, Truyers C, Kellen E, Bekkering GE, Kleijnen J. Epidemiology of chronic non-cancer pain in Europe: narrative review of prevalence, pain treatments and pain impact. Curr Med Res Opin 2011 Feb; 27(2): 449-62.
10) Juniper M, Le TK, Mladsi D. The epidemiology, economic burden, and pharmacological treatment of chronic low back pain in France, Germany, Italy, Spain and the UK: a literature-based review. Expert Opin Pharmacother 2009 Nov; 10(16): 2581-92.
11) Farioli A, Mattioli S, Quaglieri A, Curti S, Violante FS, Coggon D, Musculoskeletal pain in Europe: role of personal, occupational and social risk factors. Scand J Work Environ Health 2014 Jan; 40(1): 36-46.
12) Bouhassira D, Lantéri-Minet M, Attal N, Laurent B, Touboul C. Prevalence of chronic pain with neuropathic characteristics in the general population. Pain 2008 Jun; 136(3): 380-7. Epub 2007 Sep 20.
13) Cimmino, M A, Ferrone C, Cutolo M. Epidemiology of chronic musculoskeletal pain. Best Pract Res Clin Rheumatol 2011 Apr; 25(2): 173-83.
14) Pieretti S, Di Giannuario A, Di Giovannandrea R, Marzoli F, Piccaro G, Minosi, Aloisi AM. Gender differences in pain and its relief. Ann Ist Super Sanità 2016 Apr-Jun; 52(2): 184-9.
15) Salaffi F, De Angelis R, Stancati A, Grassi W; MArche Pain; Prevalence INvestigation Group (MAPPING) study. Health-related quality of life in multiple musculoskeletal conditions: a cross-sectional population based epidemiological study. II. The MAPPING study. Clin Exp Rheumatol 2005 Nov-Dec; 23(6): 829-39.
16) Treede RD, Rief W, Barke A, Aziz Q, Bennett MI, Benoliel R, Cohen M, Evers S, Finnerup NB, First MB, Giamberardino MA. Chronic pain as a symptom or a disease: the IASP Classification of Chronic Pain for the: International Classification of Diseases: (: ICD-11: ). Pain 2019 Jan 1; 160(1): 19-27.
17) Nicholas M, Vlaeyen JWS, Rief W, Barke A, Aziz Q, Benoliel R, Cohen M, Evers S, Giamberardino MA, Goebel A, Korwisi B, Perrot S, Svensson P, Wang SJ, Treede RD; IASP Taskforce for the Classification of Chronic Pain.The IASP classification of chronic pain for ICD-11: chronic primary pain. Pain 2019 Jan; 160(1): 28-37
18) Herr RM, Bosch JA, Loerbroks A, van Vianen AE, Jarczok MN, Fischer JE, et al. Three job stress models and their relationship with musculoskeletal pain in blue- and white-collar workers. J Psychosom Res 2015 Nov; 79(5): 340-7
19) Angst F, Angst J, Ajdacic-Gross V, Aeschlimann A, Rossler W. Epidemiology of Back Pain in Young and Middle-Aged Adults: A Longitudinal Population Cohort Survey From Age 27-50 Years. Psychosomatics 2017 Nov - Dec; 58(6): 604-613.
20) Boyd C, Crawford C, Paat CF, Price A, Xenakis L, Zhang W. Evidence for Massage Therapy (EMT) Working Group. The Impact of Massage Therapy on Function in Pain Populations - A Systematic Review and Meta-Analysis of Randomized Controlled Trials: Part II, Cancer Pain Populations. Pain Med 2016 Aug; 17(8): 1553-1568
21) Rodriguez-Aldrete D, Candiotti KA, Janakiraman R, Rodriguez-Blanco YF. Trends and New Evidence in the Management of Acute and Chronic Post-Thoracotomy Pain - An Overview of the Literature from 2005 to 2015. J Cardiothorac Vasc Anesth 2016 Jun; 30(3): 762-72.
22) Smith BH, Torrance N. Epidemiology of neuropathic pain and its impact on quality of life. Curr Pain Headache Rep 2012 Jun; 16(3): 191-8.
23) Lee H, Hübscher M, Moseley GL, Kamper SJ, Traeger AC, Mansell G, McAuley JH. How does pain lead to disability? A systematic review and meta-analysis of mediation studies in people with back and neck pain. Pain 2015 Jun; 156(6): 988-97.
24) Dworkin RH, Turk DC, Farrar JT, Haythornthwaite JA, Jensen MP, Katz NP, et al. Core outcome measures for chronic pain clinical trials: IMMPACT Recommendations. Pain 2005. pp. 9-19.
25) Amtmann D, Cook KF, Jensen MP, Chen WH, Choi S, Revicki D, et al. Development of A Promis Item Bank to Measure Pain Interference. Pain 2010 Jul; 150(1): 173-82.
26) Casale R, Chimento PL, Bartolo M, Taveggia G. Exercise and movement in musculoskeletal pain: a double-edged problem. Curr Opin Support Palliat Care 2018 Sep; 12(3): 388-392.
27) Niv D, Devor M Chronic pain as a disease in its own right. Pain Practice 2004 Sep; 4(3): 179-81
28) Casale R, Negrini S, Franceschini M, Michail X. Chronic disabling pain: a scotoma in the eye of both pain medicine and rehabilitation in Europe. Am J Phys Med Rehabil 2012 Dec; 91(12): 1097-100.
29) Rice K, Ryu JE, Whitehead C, Katz J, Webster F. Medical Trainees' Experiences of Treating People With Chronic Pain: A Lost Opportunity for Medical Education. Acad Med 2018 May; 93(5): 775-780.

**Correspondence:** *Roberto Casale, Opusmedica PC&R Network, Via Scalabrini 7, 29121 Piacenza, Italy, Tel. +393358337895, robertocasale@opusmedica.org*