HHS Public Access

The Prevalence and Potential Role of Pain Beliefs When Managing Later-Life Pain

Ariel Shalev, BBA[a], **Charles R. Henderson Jr., MS**[b], **Iliana Gutierrez, BS**[a], **Evan Mullen, MSc**[c], **M. Carrington Reid, MD, PhD**[a]

[a]Department of Medicine, Weill Cornell Medicine, Cornell University, Ithaca, NY

[b]Department of Human Development, Cornell University, Ithaca, NY

[c]Mount Sinai Medical Center, New York, NY

Abstract

Objectives: In this study of 154 community-dwelling older adults with chronic non-cancer pain, we sought to assess participants' beliefs about pain as well as pain management treatments and determined the influence of those beliefs on participants' willingness to undertake three physician-recommended pain treatments, i.e., a pharmacologic, physical, and psychological therapy.

Methods: A 16-item questionnaire was employed to ascertain participants' pain beliefs, divided into four subscales representing 1) negative beliefs about pharmacological treatments, 2) positive beliefs about physical treatment approaches, e.g., exercise; 3) positive beliefs about psychological treatments, and 4) fatalistic beliefs about pain. Participants were asked to rate their willingness to undertake a pharmacologic, physical, or psychological therapy if their physician recommended that they do so. Agreement with each belief was measured, and we examined willingness to undertake each treatment as a function of pain belief subscale scores after controlling for relevant covariates.

Results: Positive beliefs about physical treatments (e.g., benefits of exercise) were the most strongly endorsed items on the pain beliefs questionnaire. All three treatment-focused pain beliefs subscales were significantly associated with willingness to undertake that form of treatment (e.g., negative beliefs about pain medication use were associated with decreased willingness to take pain medication). Fatalistic attitudes were significantly associated with a decreased willingness to undertake physical treatments.

Discussion: These results support the notion that patients' beliefs about pain and pain treatments can have important effects on treatment engagement and, if assessed, can help guide clinical management of chronic pain in older adults.

Keywords

pain; aging; pain beliefs; treatment engagement

Correspondence: MC Reid, Division of Geriatrics & Palliative Medicine, Weill Cornell Medical Center, New York, NY 10065, USA, Tel: 212-746-1378; Fax: 212-746-4888 mcr2004@med.cornell.edu.

There are no conflicts of interest.

Introduction

Chronic pain is one of the most common conditions healthcare physicians encounter when treating patients over 65.[1] A nationwide survey of older adults in the United States found that approximately half reported bothersome pain in the previous month, and this rate is similar or higher for patients residing in long-term care institutions.[2–5] While pain affects older adults disproportionately, it can negatively impact both physical and mental health as well as quality of life throughout the life span.[6–8] Although pain is often the result of underlying physiological processes, a large body of evidence confirms the important role that social and psychological factors play in the pain experience.[9, 10]

The biopsychosocial model of pain posits that pain-specific psychological factors and beliefs affect patient experiences and should be considered when treating pain.[11] Pain-specific psychological factors and beliefs can either be protective or can increase risk for poor outcomes. Research has shown that increased self-efficacy, the confidence in one's ability to successfully manage pain and associated symptoms, is related to lower levels of functional impairment in patients with chronic pain.[12] In contrast, negative attitudes, such as the belief that pain indicates disability, are associated with poor psychological function and lower physical activity levels.[13]

Further, existing research indicates that pain beliefs are influenced by culture and have an impact on both treatment adherence and satisfaction.[14–16] It therefore stands to reason that patients' views regarding pain and pain treatments also likely affect patients' willingness to engage in specific pain therapies.[17] One qualitative study examining adherence to home exercise treatments among individuals with neck pain found that participants' beliefs and perceptions, for example regarding the efficacy of the exercises and their prognosis, influenced their decision to adhere to treatment.[18] Similar results appear in a systematic review examining adherence to rehabilitation programs among patients with chronic pain, which found that low self-efficacy and a high degree of catastrophizing were associated with poor adherence to and early cessation of treatment.[15] Beliefs about specific treatments can also affect pain management behaviors but have been studied less extensively. A study examining treatment decisions among patients with osteoarthritis found that positive beliefs regarding a specific treatment modality were associated with the intention to choose that treatment.[19] Given the ability of patient pain beliefs to alter relevant health behaviors, additional research on this relationship is crucial to managing chronic pain.

The body of research evaluating relationships between pain-related beliefs and health behaviors in older adults, however, remains quite limited. Given the high prevalence and impact of pain in later life, as well as the many barriers physicians routinely encounter in managing this condition, efforts to identify malleable targets for intervention in this population are needed. These efforts are particularly needed in the United States given the continued aging of the population and the changing socio-cultural landscape. Accordingly, our study sought to assess beliefs both about pain and pain management interventions among community-dwelling older adults with chronic non-cancer pain and to examine their effect on participants' willingness to undertake three broad forms of treatment:

pharmacologic, physical, and psychological therapy. We also ascertained the degree to which these associations varied as a function of participants' age, gender, race, number of chronic medical conditions, and functional status, as well as level of pain intensity, pain-related disability, and pain self-efficacy.

Materials and Methods

Study Sites and Sample Assembly

Participants were recruited from one ambulatory care practice serving older adults and three senior centers located in New York City. Of the three senior centers, one served a predominantly Hispanic clientele, a second provided services mostly to African Americans, while the third center provided services to a population heterogeneous with respect to race/ethnicity. Participants had to be at least 60 years of age, report the presence of pain on most days for three or more months, speak English, and have no significant cognitive deficits as determined by a standard cognitive screening tool described below.[20] For recruitment from the medical practice, research assistants approached potential participants prior to a scheduled medical appointment and described the study in detail before asking if they were interested in participating. Recruitment at the senior centers involved having a project team member provide a general talk about pain issues to clients attending the center that typically lasted between 20–30 minutes. These talks provided general information about causes of pain, customary methods of managing pain, and information about where interested persons could go to learn more about pain (e.g., local Arthritis Foundation chapter). The talks did not include any discussion about pain beliefs and their possible relationship with health behaviors. At the end of the talk, members of the audience were informed about the study, and interested persons with a pain problem were asked to meet with research personnel to determine their eligibility status. Each senior center (as well as the medical practice) provided private office space where screening, consent, and administration of the survey took place.

Prospective participants were first screened (after obtaining oral consent) for the presence of significant cognitive impairment.[20] Individuals who answered at least five of six questions correctly passed this screener and were subsequently asked if they experienced pain on most days over the past three months and if they felt comfortable answering a series of questions in English. Individuals who answered yes to both questions were invited to participate. Written consent was obtained prior to having participants complete the full survey.

Of 228 individuals approached for participation beginning in June 2017 and ending in September 2017, 206 (90%) agreed to undergo screening. Of these, 52 were screened out owing to either significant cognitive impairment (n=12), not endorsing the presence of chronic pain (n=26) or having limited English skills (n=14), leaving a final sample of 154. Of the final sample, 62 were recruited from the ambulatory care practice and 92 from the three senior centers. The Weill Cornell Institutional Review Board approved the study. Participants received a $25 gift card to compensate them for their time.

Data Collection

Standard questions were administered to obtain data on participants' sociodemographic status to include age, gender, race/ethnicity status, marital status, and years of education. Co-morbidities were determined by asking, "As far as you know, do you have any of the following health conditions at the present time?" Participants responded "Yes," "No," or "Unsure" for 16 chronic conditions that included: asthma, arthritis, cancer, diabetes, digestive problems, heart trouble, kidney disease, liver problems, stroke, high cholesterol, high blood pressure, osteoporosis, Parkinson's disease, glaucoma, problems with hearing, and problems with mouth or teeth. "Yes" responses were summed to create a composite co-morbidity score. Participants' functional status was assessed by inquiring about their ability to perform seven instrumental and seven basic activities of daily living (ADLs).[21] Responses included self-reported ability to perform each activity "without help," "with some help," or "completely unable." Scores for the ADL and IADL subscales ranged from 0 (completely unable to do all seven items) to 14 (completely independent in all seven activities).

Participants' level of pain was determined using a 0–10 pain intensity scale (0 = no pain and 10 = pain as bad as you can imagine).[22, 23] Pain-related disability was assessed with a Roland Morris Disability Questionnaire (RMDQ) modified for populations with chronic pain.[24] The RMDQ was originally used to quantify the degree of disability due to back pain, but is increasingly being employed to ascertain pain-related disability in general pain populations.[24–27] Finally, participants' level of self-efficacy for managing pain was ascertained using the 10-item Pain Self-Efficacy questionnaire.[28]

Assessing Participants' Beliefs about Pain and Pain Treatments

Based on a literature review and the experience of the senior author (MCR) caring for older adults with persistent pain over the past two decades, a set of 16 questions was selected to capture participants' beliefs about pain and pain management treatments. The 16 questions were classified into four specific domains specified *a priori* and included: 1) concerns about pain medication use (e.g., addictive nature of pain medications), 2) physical approaches to managing pain in the form of exercise (e.g., exercise is a good way to mitigate pain), 3) psychological approaches to managing pain (e.g., distraction is an effective way to reduce pain), and 4) fatalistic beliefs about pain (e.g., pain levels are not likely to improve with time). Of the 16 items, 11 were drawn from established pain belief questionnaires;[19, 29–32] three had been employed in prior investigations of pain beliefs,[33–36] while the remaining two items were developed de novo and supported by prior research.[37, 38] The number of items in each domain was: pharmacologic (five items), physical (three items), psychological (four items), and fatalistic (four items). Table 2 shows all 16 items administered as part of the assessment battery. An estimate of internal consistency for the total scale is 0.73.

Response scales for the 16 belief items ranged from 1 to 5, where 1 = completely disagree and 5 = completely agree. Scale responses for two of the questions (7 and 8, Table 2) were reversed so that all questions in the pharmacologic subgroup reflected generally negative beliefs about analgesic medication use and all questions in the physical modality

reflected generally positive attitudes about this treatment approach. All questions in the psychological treatment subscale were framed to capture generally positive beliefs about this form of treatment. The decision to frame questions about pain medication use in a negative manner is consistent with literature documenting generally negative views about analgesic medication use in older adults with pain.[39–41] We elected to frame questions about physical and psychological approaches to pain management in a positive manner to be consistent with literature encouraging physicians to advocate use of these approaches when managing chronic pain in patients of all ages, including older adults.[42–44]

Composite scores were created for all four subscales. Scales were constructed as means of their component items, with the requirement that three out of four of the items not have missing data for an individual (none did). We also constructed a total mean score across the 16 items.

Following data collection we recognized that three items—"taking pain medication is the best way to reduce pain"; "the best strategy for dealing with pain is to simply accept it as part of your life"; and "I use pain medication infrequently because if you take them too often they stop being effective"—could be viewed differently by different respondents. For example, participants with a positive or negative belief about pain medication use may have answered affirmatively to the question about analgesic tolerance. The same was felt to be true for the two other items listed above. We therefore excluded these three items from the subscale analyses. In the analysis we did examine the subscales including and not including all three items. There were no substantive differences in the results.

Participants' intentions to undertake three physician-recommended treatments for pain were the dependent variables in the study. To gauge willingness to undertake a pharmacologic treatment, participants were asked: "Your doctor recommends that you take a very strong pain reliever as a way of helping you manage your pain. It is one of the strongest pain relievers known and while it can reduce pain it has several side effects such as constipation, drowsiness, and on occasion nausea and vomiting." To gauge willingness to undertake a physical treatment, participants were asked: "Your doctor recommends that you see a physical therapist who is skilled in teaching older adults how to do specific exercises as a means of reducing pain." Finally, to gauge willingness to undertake a psychological treatment for pain, participants were asked: "Your doctor recommends that you receive training from a psychologist who is skilled in teaching older adults with pain how to use psychological treatments such as relaxation to help you reduce your pain." For each of the three situations above, participants were asked: "how likely would you be to go along with what your doctor has said?" Possible responses for all three questions were 1=not likely at all, 2=somewhat unlikely, 3=uncertain, 4=somewhat likely, to 5=completely likely.

Statistical Analysis

The focus of the analysis is an examination of the relation between the four pain belief subscales and the three self-reported behavior outcomes. We specified an *a priori* set of additional independent variables to be included in the models, based on our previous research and the literature.[45–47] These included fixed classification factors for gender and race/ethnicity (non-Hispanic white, Hispanic, African-American, other) and covariates age,

number of chronic medical conditions, Roland Morris score, pain level, pain self-efficacy, IADL, and ADL.

We examined each of the three behavior variables as a function of these variables and a focal belief variable (one at a time) in general linear models. We carried out a full examination of interactions between the belief variable and each of the other independent variables, looking at homogeneity of regressions of behavior on beliefs by levels of categorical variables and at cross products for quantitative variables (we also categorized quantitative variables by clinically meaningful cutoffs and tested homogeneity of regressions).

The estimates of regressions of behavior 5-point scales on belief subscales do not have a ready clinical interpretation. As a heuristic, we categorized the behavior scales (1 = original codes 4 and 5 (somewhat likely and completely likely) and 0 = original codes 1–3 (not at all likely, somewhat unlikely, uncertain)) and also categorized the belief subscales in three ranges (bottom category approximately 20% of responses, top category approximately 20%, and the middle category the remaining responses) and estimated odds ratios for top versus bottom.

As a final model—one not independent of the preceding—we created a fixed repeated measures factor for the three behavior variables and included that classification factor in the model, its interaction with a given belief variable, along with the other *a priori* variables. Patients were included as levels of a random classification factor, and the analysis was by general linear mixed models.

Results

Participant Demographics

Table 1 shows the demographic characteristics of the sample (N=154). Most participants were female (79%); 79% were single. There were close to equal numbers of African American (33.1%) and Hispanic participants (31.2%) and 28% of participants were Caucasian. The mean age for the sample was 75.82 (SD= 7.51) and the mean education level indicated that about half of all participants completed at least one year of college (mean=13.40, SD=3.93). The mean average pain intensity score was 4.42 out of 10 (SD=3.02) and the mean Roland Morris disability score was 11.48 out of 24 (SD= 6.57). The mean pain self-efficacy score was 48 out of 60 (SD= 12.50).

Prevalence of Specific Pain Beliefs

Table 2 shows the percent agreement (proportion who somewhat agreed or completely agreed) and mean score for each individual pain belief item. Of the 16 pain belief items, positive beliefs about the ability of physical treatments (e.g., exercise) to reduce pain were frequently endorsed, with 93% (mean 4.57, SD 0.97) agreeing with the statement that exercise is a good way to manage pain, while 92% (mean 4.57, SD 0.94) endorsed the notion that physicians should educate patients about safe ways to exercise as a means of managing pain. Items representing positive beliefs about psychological interventions for chronic pain, such as relaxation techniques, also had high levels of endorsement, with percent agreement ranging from 79% (mean 4.08, SD 1.30) for the statement that relaxation

techniques can help to reduce pain levels to 88% (mean 4.48, SD 0.99) for the statement that physicians should educate patients about ways to use relaxation to help reduce pain. For pharmacological interventions, participants were asked about four negative beliefs regarding analgesic use. The majority of participants endorsed negative beliefs about pain medication use, with 66% (mean 3.64, SD 1.46) agreeing with the statement that pain medications are dangerous and 73% (mean 3.98, SD 1.50) agreeing with the statement that they take as little pain medicine as possible because they are addictive. The exception was the statement that "I know someone who has been harmed because of taking a pain medication," which was endorsed by 42% (mean 2.83, SD 1.81) of participants.

Participants were asked about their level of agreement with 4 statements reflecting a fatalistic attitude toward pain. Only two of these statements, "one should expect to have pain with advancing age" and "the best strategy for dealing with pain is to accept it," were endorsed by a majority of participants, with 66% (mean 3.61, SD 1.58) and 57% (mean 3.23, SD 1.74) agreement respectively.

Regressions of Behavior Variables on Pain Beliefs Subscales

Table 3 shows the estimated regressions and their significance level associated with the three behavior variables (participants' expressed willingness to undertake three physician recommended treatments for pain) and the four belief subscales. Increased scores on the pharmacological subscale, which represented negative views of pharmacological interventions, were associated with a decreased likelihood of undertaking a physician recommendation to take a strong pain reliever (P=.02). Higher scores on the physical subscale, which represented positive views of physical modalities such as exercise, were associated with an increased likelihood to undertake a physician recommendation to see a physical therapist for pain management (P=.0002). Higher scores on the psychological subscale, which represented positive views on behavioral techniques such as relaxation, were associated with an increased likelihood to undertake a doctor's recommendation to see a psychologist skilled in teaching older adults psychological techniques for pain management, such as relaxation (P=<.0001). In addition, positive attitudes regarding psychological interventions were associated with a decreased likelihood of undertaking a pharmacological intervention (P=.01).

There were no other significant relationships between beliefs regarding one treatment and willingness to undertake a different treatment. Fatalistic attitudes were associated with a decreased willingness to undertake physical therapy (P=.04) but had no significant associations with willingness to undertake pharmacological or psychological forms of treatment.

We also analyzed the 16-item pain belief score and its associations with the three behavior variables, but the total score showed less coherence than the individual subscales, indicating the utility of the subscales, and are not reported here.

The analyses of interactions between belief subscales and sociodemographic and clinical variables, while showing a few such interactions (mainly involving pain level and pain-related disability), had no meaningful or consistent pattern and none that changed the overall

results discussed above. The analyses of behavior variables as a repeated measure confirmed these results.

Discussion

Our study indicates that certain pain beliefs are independently associated with willingness to undertake various forms of pain treatments in community-dwelling older adults with chronic non-cancer pain. Three pain belief subscales were constructed to quantify participants' beliefs about specific forms of chronic pain treatment directly, namely pharmacological, physical, and psychological interventions. Composite scores from each subscale were independently associated with willingness to undertake that specific form of treatment, i.e., positive beliefs about psychological and physical therapies were independently associated with greater likelihood of undertaking a psychological or physical treatment, while negative beliefs about pain medications were independently associated with a decreased likelihood of undertaking a course of a strong pain medication. These findings are consistent with the existing literature evaluating relationships between patient beliefs and health behaviors, which has found that patient beliefs influence willingness both to undertake and adhere to various treatments. [15, 19, 45, 46, 48–51] Our results add new knowledge to the field by focusing on specific beliefs about treatment rather than more general pain beliefs such as pain catastrophizing, pain self-efficacy, and fear avoidance beliefs, which have been the focus of most existing research. As importantly, ours is one of the first investigations to demonstrate a relationship between pain beliefs and willingness to undertake commonly recommended pain treatments among community-dwelling older adults. Our results also indicate that the effect of pain beliefs on willingness to engage in these treatments is likely not affected by demographic variables such as age, gender, educational level, or race/ethnicity status, although additional research would be needed to confirm these findings.

One way to gauge the impact of these beliefs on pain care is to examine the odds of undertaking a physician recommended treatment for pain in those at either end of the distribution of the pain belief subscales. For example, the odds of agreeing to undertake a physician recommendation to see a physical therapist as a means of managing pain was very low (adjusted odds ratio (AOR) = 0.13) among participants scoring in the approximate lowest (vs. highest) quintile of the physical subscale. Similarly, for participants scoring in the approximate lowest quintile of the psychological subscale, their odds of agreeing to see a psychologist to learn psychological methods of managing pain was also considerably diminished (AOR = 0.22) relative to participants scoring in the approximate highest quintile. These results reinforce strongly the need to address patients' negative beliefs about pain treatments. One way to do this would be with the use of open-ended questions such as, "Do you have any thoughts or opinions about specific pain treatments that you believe would be important for me to know?"[52] Physicians can then work to align treatment recommendations with patients' beliefs either by finding treatments that are consistent with patients' preexisting beliefs (e.g. recommending physical therapy to a patient who endorses positive beliefs about exercise) or working to adjust patients' beliefs through conversation and education. In addition, physicians should reassess patient beliefs after initiating a treatment to ensure that patients have positive beliefs regarding the necessity and efficacy of the treatment they are receiving, as these beliefs may influence adherence.

Existing data support the idea that patients' pain beliefs should be the target of intervention efforts to encourage both treatment engagement and adherence, as well as to influence treatment outcomes.[49, 53–58] For example, one study investigating the effects of psychosocial factors on treatment outcomes in patients with neck pain found that patient expectations regarding treatment helped predict treatment success as measured by patient functioning, pain, and global perceived effect.[59] Another study evaluating the use of psychological factors to predict long-term outcomes in patients with musculoskeletal injuries who received physical therapy found significant associations between pain catastrophizing and pain intensity, as well as between fear of movement and return to work.[60] These studies highlight the importance of considering patient beliefs not just in the context of health behaviors but as a potential focus for interventions prior to or concurrently with treatment in order to increase treatment efficacy.

Our findings along with existing literature reflect the importance of patient beliefs; however, research on this topic remains limited and at times contradictory. For example, our study found that fatalistic attitudes towards pain were generally not significant predictors of willingness to undertake commonly recommended treatments for pain. In contrast, a number of studies have found evidence that fatalistic beliefs are in fact relevant to patient health behaviors.[50, 61] However, the majority of research on fatalism has been conducted in populations and contexts that differed from ours—for example within the context of cancer screening or preventive health behaviors—and measures to capture fatalism remain inconsistent across studies.[62–65] Better understanding of which patient beliefs are most strongly related to patient health behaviors, specifically in older adults with chronic pain, could help to guide future interventions based on these data.

In addition to more research establishing the relationships between patient beliefs and health behaviors, interventions targeting specific patient beliefs should be further investigated. An intervention among patients with musculoskeletal injuries that focused on decreasing psychosocial risk factors for disability found that a reduction in pain catastrophizing was correlated with a greater chance of returning to work.[66] However, the efficacy of interventions targeting patient beliefs remains unclear.[67] An educational intervention for patients with hypertension that sought to increase patient knowledge of antihypertensives found that patient beliefs regarding the necessity of medication and patient concerns regarding medications were measurably changed after the intervention, but there was no corresponding change in medication adherence.[68] Further research is needed to understand how to develop and implement interventions to change patient beliefs and how to translate those changes into salutary effects on health behaviors and treatment outcomes.

An additional potential target for intervention that warrants further research is family and caregiver beliefs regarding pain treatment of the care recipient. Existing research has shown that family and caregiver beliefs regarding treatment can act as a potential barrier to adequate pain control, especially in the setting of cancer treatment and hospice care. [69–72] However, there is less research on the influence of family and caregiver beliefs on the healthcare behaviors of community-dwelling older adults with chronic pain. Better understanding the relationship between family beliefs and patient willingness to undertake treatment in this population is an important area for future research. Furthermore, our results

shed light on the frequency of positive beliefs regarding non-pharmacologic treatment modalities, which has particular relevance in the opioid epidemic era. Ninety three percent of participants agreed that general exercise is a good strategy for relieving pain, while 88% agreed that physicians should educate patients about ways to use relaxation to help reduce pain. In light of growing research on the lack of efficacy and significant risks associated with long-term opioid use in the management of chronic pain, it is vital that physicians and patients consider alternate forms of pain treatment.[42, 73] Our findings are consistent with existing literature, which suggests that older patients are open to non-pharmacologic forms of treatment, such as exercise and cognitive behavioral therapy.[74–76] Research has also elucidated various patient perceived barriers that need to be addressed in order for patients to undertake and adhere to these forms of treatment.[76–79] These findings support the idea that patients are generally receptive to these treatments and would like physicians to discuss them in the context of chronic pain management.

When viewed within the context of existing data, our results help to expand the growing body of evidence, which suggests that beliefs about pain can impact specific health behaviors. Despite the importance of these findings, there are limitations to our study that should be considered. First, participants were geographically limited to New York City. The lack of geographic diversity may limit the generalizability of these findings. Additionally, our study measured participants' theoretical willingness to undertake three physician recommended treatments. Future studies looking at the associations between health beliefs and actual rather than intended health behaviors are needed to confirm the results reported here. A third limitation was the lack of both positive and negative beliefs represented in the pain beliefs survey. Certain research has suggested that positive and negative beliefs are not equally influential in their effects on health behaviors and effects on treatment outcomes.[17, 80] Some subscales represented positive beliefs, while other subscales represented negative beliefs. This is a possible confounding factor, and future studies should measure the effects of both positive beliefs and negative beliefs separately. Further, the data were collected over 3 years ago, which represents a possible limitation. Lastly, in asking about participants' willingness to undertake a physician's recommendation to take a strong pain reliever, a number of possible side effects were listed. The side effects were based on the common side effects of opioid pain relievers; our results may not represent older adults' willingness to take other prescription-strength analgesic medications.

In conclusion, our results help to establish relationships between beliefs about pain and pain treatments and willingness to undertake specific treatments for pain in a sample of community-dwelling older adults with chronic pain. In addition, they emphasize the positive beliefs that many older adults have regarding non-pharmacologic treatment, which is relevant given increasing calls for the consideration of nonpharmacologic therapies when managing pain.[42, 81] These findings add to a growing body of literature regarding patient beliefs and health behaviors and have direct clinical relevance. By addressing pain beliefs in encounters with older patients, physicians can enhance patient willingness to undertake recommended treatments, thereby improving pain care in this growing population of patients.

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Table 1:

Sociodemographic, Medical, and Psychological Characteristics

Characteristic	N (%)
Gender	
Female	123 (79.87%)
Male	31 (20.13%)
Marital Status	
Widowed	48 (31.17%)
Divorced	36 (23.38%)
Married/Partner	33 (21.43%)
Never Married	28 (18.18%)
Separated	9 (5.84%)
Race	
African American	51 (33.12%)
Hispanic	48 (31.17%)
Caucasian	43 (27.92%)
Other	12 (7.79%)
	Mean (SD)
Age	75.82 (7.51)
Education	13.40 (3.93)
No. Chronic Conditions	4.34 (2.12)
Pain Level (0–10)	4.42 (3.02)
Roland Morris Score (0–24)	11.48 (6.57)
Pain Self Efficacy (0–60)	47.27 (12.50)
IADL (0–14)	5.40 (1.10)
ADL (0–14)	5.92 (1.56)

Table 2:

Percent Agreement and Means for Pain Beliefs Items

Pain Belief/Attitude	% Endorsing Somewhat or Completely Agree	Mean (SD)[1]	Item
Fatalistic subscale			
One should expect to have pain by the time you get to be in your 80's or 90's.	66%	3.61 (1.58)	1
I don't believe there is any treatment that can make my pain better.	30%	2.42 (1.54)	5
Once you develop a pain problem it will only get worse.	39%	2.76 (1.58)	12
The best strategy for dealing with pain is to simply accept it as part of your life.	57%	3.23 (1.74)	13
Physical subscale			
General exercise is a good strategy for relieving pain.	93%	4.57 (0.97)	2
Physicians should educate patients about safe ways to exercise as a means of managing pain.	92%	4.57 (0.94)	6
Avoiding physical activity is a good way to reduce pain.	23%	2.04 (1.48)	8
Pharmacologic subscale			
Pain medications are dangerous.	66%	3.64 (1.46)	3
Taking pain medication is the best way to reduce pain.	44%	2.84 (1.58)	7
I know someone who has been harmed because of taking a pain medication.	42%	2.83 (1.81)	9
I take as little pain medicine as possible because they are addictive.	73%	3.98 (1.50)	11
I take pain medication infrequently because if you take them too often, they stop being effective.	63%	3.64 (1.65)	16
Psychological subscale			
Using relaxation techniques helps to take my mind off of the pain.	79%	4.08 (1.30)	4
Pain can be reduced by focusing the mind on other things.	81%	4.14 (1.17)	10
When I am relaxed, I feel less pain.	83%	4.26 (1.20)	14
Physicians should educate patients about ways to use relaxation to help reduce pain.	88%	4.48 (.99)	15

[1] Each mean represents agreement on a scale of 1–5, with 1 representing completely disagree and 5 representing completely agree.

Table 3:

Associations Between Pain Belief Subscale Scores and Intent to Try Three Physician Recommended Pain Treatments

	Doctor recommends taking strong pain reliever with potential adverse side effects	Doctor recommends seeing a physical therapist to learn exercises as a way of reducing pain	Doctor recommends seeing a psychologist to learn psychological techniques as a way of reducing pain
Pharmacological subscale[1]	−.25 (0.02)	−.07 (0.48)	−.10 (0.44)
Physical subscale[2]	.25 (0.11)	.50 (<0.001)	.31 (0.09)
Psychological subscale[3]	−.35 (0.01)	.19 (0.12)	.66 (<0.001)
Fatalistic subscale[4]	−.02 (0.88)	−.21 (0.04)	−.22 (0.11)

Results reflect regression coefficients and associated p values.

Corresponding pain beliefs items for each subscale:

[1]Pharmacological subscale: Pain medications are dangerous. I know someone who has been harmed because of taking a pain medication. I take as little pain medicine as possible because they are addictive.

[2]Physical subscale: General exercise is a good strategy for relieving pain. Physicians should educate patients about safe ways to exercise as a means of managing pain. Avoiding physical activity is a good way to reduce pain.

[3]Psychological subscale: Using relaxation techniques helps to take my mind off of the pain. Pain can be reduced by focusing the mind on other things. When I am relaxed, I feel less pain. Physicians should educate patients about ways to use relaxation to help reduce pain.

[4]Fatalistic subscale: One should expect to have pain by the time you get to be in your 80's or 90's. I don't believe there is any treatment that can make my pain better. Once you develop a pain problem it will only get worse.