

Temporal Horizons in Pain Management: Understanding the Perspectives of Physicians, Physical Therapists, and Their Middle-Aged and Older Adult Patients

Corinna E. Löckenhoff, PhD,^{*1} Seth S. Laucks, BA,² Alexander D. Port, BA,² Judy Tung, MD,⁴ Elaine Wethington, PhD,⁵ and M. Carrington Reid, MD, PhD³

¹Department of Human Development, Cornell University, Ithaca, New York.

²Division of Medicine,

³Division of Geriatrics and Gerontology, and

⁴Weill Cornell Internal Medicine Associates, Weill Cornell Medical College, New York.

⁵Department of Human Development, and Department of Sociology, Cornell University, Ithaca, New York.

*Address correspondence to Corinna E. Löckenhoff, PhD, Department of Human Ecology, Cornell University, Martha van Rensselaer Hall, Ithaca, NY 14853. E-mail: cel72@cornell.edu

Received June 4, 2012; Accepted September 18, 2012

Decision Editor: Nancy Schoenberg, PhD

Purpose: The management of chronic noncancer pain (CNCP) involves trade-offs between immediate and delayed consequences of various treatments. Temporal trade-offs may be particularly salient for older adults because of age-related differences in prognosis and perceptions of future time. This study examined how perceptions of time influence the management of CNCP among patients and providers with particular emphasis on age differences. **Design and Methods:** Focus groups were conducted with 28 CNCP patients (5 groups), 21 physicians (4 groups), and 23 physical therapists (3 groups). Audiotapes were transcribed and analyzed using standard qualitative methods. **Results:** Analyses identified multiple aspects of time perceptions that are relevant to the management of CNCP: the long-term prognosis, the time horizon used for concrete treatment planning, and concerns about future side effects. Although there was some overlap, these aspects showed divergent patterns across age groups and between patients and providers. Patients and providers agreed that pain is more stable and chronic in older adults. Time horizons in treatment planning differed between patients who were present-focused and providers who were

focused on longer term effects, but treatment horizons did not differ by patient age. Finally, although providers were more concerned about future side effects in older people, patients' concerns did not differ by age. **Implications:** Time horizons have practical implications for the quality of the patient-provider relationship and self-management of CNCP. A better understanding of the underlying mechanisms could inform interventions to reduce age disparities in pain care.

Key Words: Pain management, Focus groups, Decision making, Time and temporal horizons, Qualitative research methods

According to the latest estimates, 116 million Americans are living with chronic pain (Institute of Medicine, 2011). Compared with younger adults, older adults are at higher risk of experiencing pain and at greatest risk of being undertreated (for recent reviews, see Bruckenthal, Reid, & Reisner, 2009; Herr, 2010). Potential mechanisms behind age disparities may operate at both the patient and the provider level. Among providers, adequate pain management for older patients was found to be

limited by a lack of screening and identification of pain, inadequate training in pain management, and fear of causing harm with pharmacologic interventions (Bruckenthal et al., 2009; Monti & Kunkel, 1998). Among older patients, psychosocial factors and cognitive impairment were found to be associated with an underreporting of pain (Bruckenthal et al., 2009; Monti & Kunkel, 1998). Moreover, both patients and providers may believe (incorrectly) that pain is a natural part of aging (Appelt, Burant, Siminoff, Kwoh, & Ibrahim, 2007; Sofaer et al., 2005).

Treating chronic noncancer pain (CNCP) requires long-term therapeutic measures, and, as such, involves inherent trade-offs between immediate and delayed effects of various treatments (Chapman, 2003). Some treatments, such as non-steroidal anti-inflammatory drugs (NSAIDs), offer swift pain relief but have problematic side effects over time; others, such as exercise regimens or surgery, may temporarily exacerbate pain but promise longer lasting relief. Thus, pain management preferences may be influenced by temporal horizons, that is, the length of time patients and their providers look ahead when anticipating the course of the pain condition and planning treatments.

Time horizons may be particularly salient in treating older patients because of age differences in the time course and long-term prognosis of CNCP (Bruckenthal et al., 2009; Herr, 2010). Prior research has shown that temporal horizons influence various aspects of decision making and that such effects may differ by age (for reviews, see Klapproth, 2008; Löckenhoff, 2011). Yet little is known about their role in pain management. This study extends prior work by examining age-related differences in patients' and providers' temporal horizons in the context of pain management decisions (Bruckenthal et al., 2009; Herr, 2010). Although this question has not been directly examined, evidence from psychology and behavioral economics suggests that, relative to physical time, subjective perceptions of time show systematic distortions, which may have important implications for decision making (for a review, see Klapproth, 2008; Löckenhoff, 2011). Within this body of work, two lines of research are particularly relevant for understanding potential age differences in pain management.

The first line of evidence examines intertemporal choices, that is, choices involving trade-offs between immediate and delayed outcomes (for a review, see Frederick, Loewenstein, & O'Donoghue,

2002). In laboratory contexts, respondents were found to prefer smaller, immediate monetary gains over larger delayed gains and larger, delayed losses over smaller immediate ones (Frederick et al., 2002). This tendency to devalue delayed outcomes relative to immediate ones is also known as *temporal discounting*, and recent evidence suggests that it shows a linear decrease with age (Löckenhoff, 2011; Löckenhoff, O'Donoghue, & Dunning, 2011). The ability to anticipate future affective states, in turn, is stable or improves with age (for a review, see Scheibe, Mata, & Carstensen, 2010). If this pattern translates to pain management, one might expect that preferences for immediate pain relief wane with age, whereas concerns about future side effects and the willingness to commit to long-term regimens increase as one ages. Also, if older adults and their physicians perceive pain conditions to be more chronic in nature, they may be encouraged to take a more long-term view with respect to treatment planning.

A second line of research, however, suggests a different pattern of age effects. Guided by the theoretical framework of socioemotional selectivity theory (Carstensen, Isaacowitz, & Charles, 1999), researchers have examined how global time horizons, that is, perceived time remaining in life, affect motivational priorities. Growing evidence suggests that open-ended time horizons are associated with a focus on information acquisition and future planning, whereas limited time horizons emphasize emotional well-being and gratification in the present moment (for a review, see Carstensen, 2006). In the context of pain management, older adults' time horizons may be perceived as more limited because they are both subjectively and objectively nearer to the end of life (Carstensen, 2006; Hancock, 2010). Thus, advanced age may be associated with a preference for prompt pain relief over long-term outcomes. By the same token, physicians might be more likely to focus on immediate quality of life if they do not expect their patients to live long enough to experience long-term side effects.

In summary, perceptions of temporal horizons may contribute to age differences in patients' and providers' approaches to pain management, but to date, the direction and underlying mechanisms of such effects have not been explored. Moreover, it is not clear to what extent treatment time horizons are similar (or dissimilar) among groups of stakeholders (e.g., patients vs. different types of providers). Translating laboratory-based research on decision

making to realistic settings is notoriously difficult (Chapman, 2003). To successfully apply insights from psychology and behavioral economics to pain management, they need to be integrated with conceptualizations of time horizons in clinical contexts.

Given the lack of published research in this area, we employed a focus group approach to obtain qualitative data on perceptions of temporal horizons among patients living with CNCP and among the providers involved in their treatment. Following the considerations outlined previously, we focused on (a) providing detailed descriptions of conceptualizations of time horizons among key stakeholders involved in pain treatment, (b) gathering initial evidence for broad age differences in such concepts, and (c) exploring potential implications for clinical practice.

Methods

Study Sites and Participants

Following standard qualitative research practices, we employed purposive (rather than representative) sampling to identify individuals with experiences and insights relevant to the research questions (Bernard, 2006). On the provider side, we recruited both physicians and physical therapists because these groups frequently encounter patients with CNCP in practice and because pharmacological and nonpharmacological treatment approaches may differ in their relative balance between immediate and delayed outcomes. On the patient side, we recruited patients with a history of CNCP. Participants were stratified into a middle-aged (40–59 years) and an older group (60 years or older) because age 60 is widely considered as the onset of old age (e.g., Chan et al. [in press]) and may make temporal horizons more salient. Although we attempted to recruit patients younger than 40 years, the youngest participant was 43 years old, which is consistent with the epidemiology of chronic pain (Elliott, Smith, Penny, Smith, & Chambers, 1999).

Patients and physicians were recruited from Weill Cornell Internal Medicine Associates (WCIMA) and the New York-Presbyterian Hospital (NYPH) Wright Center on Aging, the faculty outpatient practices at Weill Cornell Medical College/NYPH for internal medicine and geriatric medicine, respectively. Physical therapists were recruited from the Department of Rehabilitation Medicine at NYPH, a large, academic, tertiary care facility in Manhattan. All participants were fluent in English.

Providers were contacted during routine staff meetings and via staff e-mail lists. They were eligible if they had been working with pain patients for more than 1 year and reported that at least 10% of their patient panel experienced CNCP.

Patients were referred by their physicians based on meeting the following criteria: (a) reported CNCP for more than 1 year, (b) endorsed an average pain level of 2 or greater on a 10-point scale (McCaffery & Pasero, 1999) at the time of enrollment, and (c) exhibited no cognitive impairment based on their providers' judgment. Further, because this study sought to examine perceptions of long-term treatment horizons, participants had to have a remaining life expectancy of more than 1 year (based on providers' judgment).

Before the group discussion, participants completed a background questionnaire assessing demographic information. In addition, providers indicated whether they had received specific training in pain management and described their patient panel with regard to age and the proportion of patients with chronic pain. Patients rated their current pain levels on a 10-point scale (McCaffery & Pasero, 1999), indicated how long they had been suffering from chronic pain (in years), and described their specific diagnosis (open-ended format). Finally, patients rated how often they felt sad/depressed/miserable on a 4-point Likert scale (from 1 = never to 4 = always; Osborn et al., 2003). Table 1 provides demographic characteristics for the different groups as well as descriptive information about patients' pain. Table 2 provides training and practice characteristics for the two types of providers. Apart from the age difference between the two patient groups, none of the between-group differences reached statistical significance.

Focus Group Methodology

The focus group guide (see Supplementary Material) was designed to address the specific research questions listed earlier. We obtained feedback on an initial draft from an advisory panel of key informants including a geriatrician, a gerontologist, a behavioral economist, a social psychologist, and three patients suffering from chronic pain. Revisions were made to improve understanding and clarify concepts (four review cycles).

Apart from a warm-up question (asking providers to discuss their training and asking patients to describe their pain condition), focus group guides for patients and providers followed a parallel

Table 1. Demographic Characteristics of Participants by Group

Variable	Middle-aged patients	Older patients	Physicians	Physical therapists
<i>n</i> (# of groups)	10 (2)	18 (3)	21 (4)	23 (3)
Mean age (<i>SD</i>)	52.2 (5.5)	82.7 (6.3)	44.6 (11.4)	36.4 (8.7)
Age range	43–59	69–94	27–62	25–58
% Female	60%	66%	71%	70%
% White	40%	77%	67%	87%
Pain duration (years)	10.1 (7.0)	9.8 (8.4)		
Pain intensity	7.2 (2.2)	6.4 (1.8)		
% Arthritis/joint pain	67%	67%		
% Spinal/back pain	67%	28%		
Mean depression (<i>SD</i>)	1.7 (.95)	1.1 (.68)		

Note: Pain intensity was rated on 10-point scale. Pain diagnosis was coded from open-ended question (multiple responses possible). Depression was rated on a 4-point scale.

Table 2. Providers' Training and Practice Characteristics

Variables	Physicians	Physical therapists
Specific training in pain management	33%	57%
Percentage of patients estimated to have chronic pain, <i>M</i> (<i>SD</i>)	30.7 (20.6)	49.6 (25.1)
Patient age*		
Full adult age range	43%	81%
Only younger (age <60)	0%	6%
Only older (age >60)	52%	6%

Note: *Percentages do not add up to 100 because of missing data.

construction. Questions targeted temporal stability and fluctuations in pain levels, predictability of pain, temporal horizons for different treatment regimens, trade-offs among immediate and delayed consequences of treatments, and discrepancies in treatment time horizons between patients and providers. Because of our interest in age differences, providers were prompted to discuss the role of patient age and patients were prompted to discuss perceived changes over the course of their condition. To ensure complete coverage, the guide ended with open-ended questions to elicit additional insights about the role of time horizons in pain management.

Focus groups were scheduled from August 2010 until April 2011 and held in meeting rooms at the three study sites. Groups ranged from 4 to 9 participants and were conducted by trained facilitators. The primary facilitator holds an EdD in Health Education and had extensive experience conducting focus groups with medical patients and providers. The secondary facilitator, who holds a BA in psychology, was trained by the primary facilitator and shadowed her on five sessions before leading sessions independently. To further enhance consistency, the same focus group guides were used within each type of group, and each group was attended by a second staff member who monitored

for deviations from protocol and wrote down the sequence of speakers to facilitate transcription of the audio recordings.

Upon arrival, participants provided oral consent (approved by the local Institutional Review Board) and completed the background questionnaires. The facilitator then introduced the study aims and explained the purpose and protocol for the focus groups. The group discussions closely followed the written guide and facilitators used directed follow-up questions to pursue relevant concepts or provide clarification. In exchange for their participation, physicians received a catered meal, whereas patients and physical therapists received financial compensation.

Digital audio recordings were reviewed immediately for completeness and adherence to protocol and transcribed verbatim by trained personnel. To ensure consistency, each protocol was transcribed twice by two different individuals and reviewed for discrepancies by a third person.

Analysis

Because this study extends concepts from behavioral economics and psychology to the clinical context of pain management, we employed directed

content analysis (Hsieh & Shannon, 2005), which is more structured than conventional approaches and draws on existing theories to establish initial categories for coding. Three major themes references to perceptions of time and time horizons, references to age and age differences, and references to patient–provider discrepancies were derived a priori based on the general aims of the study (Hsieh & Shannon, 2005). Associated themes and subtopics were identified from an exploratory analysis of the transcripts. The first three authors read through all transcripts on an ongoing basis and developed an initial list of themes and accompanying definitions. Data acquisition continued until no new themes emerged in the last group indicating that thematic saturation had been reached (Krueger, 1994).

For systematic analyses, the first three authors developed a standardized coding guide to identify parts of the transcript related to each of the three major themes. To enhance consistency, the guide was reviewed by the last two authors and amended until consensus was reached (two revision cycles). The transcripts were then entered into NVivo 9 (QRSInternational, 2011), a qualitative analysis software program, and the first author trained two research assistants in the use of the standardized coding guide. Next, the two assistants coded the full set of transcripts independently from each other.

To establish reliability, consistency indices (% agreement between raters) were computed for each group of respondents (Table 3). Average consistency was 87%, which is considered strong evidence for reliability (Boyatzis, 1998) but indices were somewhat lower for time horizons. Most discrepancies in that theme were due to coders being more or less inclusive in marking sections of the same passages. Any remaining discrepancies were reconciled in a joint session among coders and the first author with the latter serving as a tiebreaker.

Following common practice in qualitative research (Bernard, 2006), the Results section presents concepts and ideas mentioned across multiple groups along with representative quotes. To enhance rigor and consistency, the first author prepared an initial draft of this section, which was then reviewed

independently by both the coauthors and the coders for consistency with the original transcripts and the coded responses, respectively (three review cycles). Quotations are labeled with speaker’s age, gender (M = male and F = female), race (Asian, Black, White, or other), and type of respondent (PA = patient, PT = physical therapist, and MD = physician).

Results

Age Differences in Time Horizons

When describing the temporal course of pain and pain treatments, both patients and providers differentiated among multiple time periods in the near or more distant future. In doing so, they used temporal markers (e.g., “next/last week,” 59/M/White/PA, 85/F/Black/PA, 58/F/White/PT; “years from now”/“in terms of years,” 53/F/Black/PA, 55/F/White/PA, 44/M/White/MD) as well as event-based or seasonal markers (e.g., “when I have surgery,” 55/F/other/PA, “when they’re going to need a knee replacement,” 62/M/White/MD, and “when it’s going to snow,” 53/F/Black/PA). This provides initial evidence that temporal perspectives are a meaningful aspect of patients’ and providers’ conceptualizations of chronic pain management.

We also found that respondents mentioned several distinct aspects of time horizons: the long-term prognosis of the pain condition, the time horizon for concrete treatment planning, and concerns about future side effects. Although these components overlapped in some respects, they showed divergent patterns by age and among patients and providers. We therefore discuss each of them separately.

Long-Term Prognosis.—Patients and providers agreed that long-term prognoses differ by age such that pain conditions among older adults are more likely to be chronic and more likely to show a downward trajectory. Specifically, comments from middle-aged respondents reflected some hope for positive future developments. One middle-aged woman, for instance, stated that she had “faith [. . .] in finding a cure or something for my pain

Table 3. Consistency Indices by Respondent Group and Category

Coding	Physicians (%)	Physical therapists (%)	Patients (%)
Age	93	94	98
Patient–provider relations	92	84	94
Time horizons	85	69	72

and not [be] the way I am today” (59/F/Black/PA), and another noted “eventually your body will get stronger and your pain will be better” (55/F/White/PA). Older respondents, in contrast, explicitly referred to their age as a reason for pessimism. One octogenarian remarked, “At 89, I don’t expect for things to get any better” (89/M/Black/PA) and another stated, “I’m almost 82, how good could it get?” (82/F/White/PA). A striking illustration of how age may affect patients’ perceptions of their prognosis came from a middle-aged woman who explained: “when I first got sick [. . .] I was 15. So even though I was in a lot of pain, I wasn’t depressed because I knew it was going to get better eventually, but at 55 you know it’s not [. . .] going to get better” (55/F/other/PA).

Providers generally concurred with patients’ assessments. A physical therapist stated “the older the patient is [. . .] the pain [. . .] tends to be more chronic” (28/F/White/PT). Similarly, a physician observed that for some patients, the “pain level would get better on subsequent visits [. . .] and they tended to be the younger population. [. . .] For older patients [. . .] I think those patients tend to have a more stable level of pain” (27/F/Asian/MD).

Although both patients and providers consistently described pain among older people as more stable and chronic, some providers questioned whether such assessments realistically reflect older patients’ prognoses. A physical therapist, for example, noted that there is a “stereotype that as you get older it’s the expectation that you may have pains because things [. . .] start to break down” (30/F/White/PT).

Treatment Planning.—For time horizons in treatment planning, the most consistent finding was patients’ strong emphasis on the present moment. When asked how far they thought ahead with regard to pain management, both younger and older patients reported that they were taking it “day by day” (53/F/Black/PA, 77/F/White/PA, and 81/F/White/PA) or even “minute by minute” (55/F/Other/PA). Similarly, when asked how they approached trade-offs between present and future outcomes, the majority of patients reported an exclusive focus on the present, whereas those patients who tried to balance present and future experienced difficult trade-offs: “It’s like juggling. You’re actually juggling with it” (53/F/Black/PA). Interestingly there was no evidence for any age differences in patients’ tendencies to prioritize the present moment. Thus, although patients perceived

pain to be more chronic in advanced age, this did not appear to affect their time horizons for treatment planning.

Patients offered several explanations for their present-focused attitude. Some found future planning difficult because they could not forecast their pain: “I don’t look ahead; I just go with the moment. [. . .] I can’t foresee [. . .] when it’s gonna hurt again or if it’s gonna hurt and where it’s gonna hurt. So I just go along with it as it happens” (83/F/White/PA). Patients were also wary of thinking about and hoping for a better future because they had been disappointed before “It’s no longer [. . .] ‘all right ten years from now they’re going to get some miracle drug and I’m going to be flying in the air like the Jetsons and it works’—no!” (53/F/Black/PA). Other patients actively avoided thoughts of the future because they feared what lay ahead: “I don’t want to think down the road and say you know what, I’m going to be like this or worse in the future. So I’m just living in the present right now” (55/F/White/PA). Consistent with this notion, the rare instances when patients referred to the future mostly involved concerns about negative future developments (“If I have the other knee done I’m going to have a lot of pain,” 88/M/White/PA).

Patients’ present-focused treatment time horizons stood in stark contrast with providers’ perspectives. With the exception of cases of acute pain, providers consistently reported that they planned and administered pain management regimens for the long run. This pattern was found for both physicians and physical therapists. For instance, one physician stated: “you realize that you really need to [. . .] think in terms of years, in terms of a much longer time strategy” (44/M/White/MD). A physical therapist put it similarly: “It’s not going to be gone in a week. This is something that’s going to be a long process” (42/F/White/PT). Importantly, providers were well aware that their time horizons differed from those of their patients. As one physician stated: “For patients it’s [. . .] days to weeks. For physicians I would say it’s more months to years” (44/M/White/MD). This sentiment was echoed by both physicians and physical therapists.

Concerns About Future Side Effects.—Even though pain patients reported a strong present focus with regard to treatment planning, they were aware that some treatments could cause negative long-term side effects. Importantly, concerns about future side effects appeared to

be relatively independent from time horizons for treatment planning. For instance, the same woman who approached her treatment on a “minute-by-minute” basis declared herself “terrified” of medications because they might cause untoward side effects in the future (55/F/other/PA).

Apprehension about negative side effects differed widely among patients, but we found no evidence that such concerns increased with age. In fact, an older woman directly invoked her limited time horizons to explain why she was not concerned about negative future effects: “I mean, you do become addicted somewhat [. . .] But at this point in our lives it doesn’t really matter” (83/F/White/PA). Similarly, an 88-year-old man selectively prioritized current well-being over future outcomes: “My theory is that if it helps, I don’t care if it has a long-term effect or not” (88/M/White/PA).

Consistent with the observed heterogeneity among patients, providers differentiated between two broad types of patients: those who are seeking immediate pain relief with little regard to the future and those who accept less than adequate pain relief in exchange for fewer treatment-related side effects in the future. However, although responses from patients did not suggest any age differences in these tendencies, physicians were more concerned about side effects among older patients compared with younger patients. As one physician remarked: “I definitely treat my elderly patients very differently from my younger patients, [. . .] I do feel more [concern about] their side effects to opiates and [benzodiazepines]” (31/F/White/MD). At the same time, older adults were seen as less willing to accept narcotic medications. One physician observed that “among elderly patients, there is a frequent bias against narcotics because folks are scared of getting hooked or addicted [. . .] I think the opposite exists sometimes with my younger patients” (44/M/White/MD).

In summary, our analyses indicated that there are several distinct aspects of time horizons in pain management that appear to be relatively independent from each other and show divergent patterns across age groups and among patients and providers. With regard to long-term prognoses, patients and providers agreed that pain is more stable and chronic in older compared with younger adults. Horizons for treatment planning, in contrast, did not appear to vary by age but differed markedly between patients and providers: Patients described a present-focused attitude, whereas providers reported a longer term orientation. Finally, patients

varied widely in their concerns about long-term side effects, but this variability was not explained by age. Providers, however, were more concerned about negative long-term treatment effects in older compared with younger patients.

Implications for Practice

A better understanding of time horizons in the context of CNCP is not an end in itself but has implications for practice. Our analyses revealed two broad areas of concern. First, discrepant time horizons may prompt misunderstandings and adversely affect the patient–provider relationship. Second, patients’ present-focused approach to treatment planning may pose a challenge to successful self-management. We now examine each of these points in more detail.

Patient–Provider Relationship.—Patients and providers agreed that discrepancies in time horizons resulted in conflicts during treatment planning. In fact, some of their statements reflected considerable levels of frustration. Specifically, patients voiced concerns that providers’ treatment plans were not meeting their immediate needs. As one patient remarked: “You know, [. . . if] my jeans were on fire, I wouldn’t say, well, next week will be okay” (59/M/White/PA). Although immediate access to pain relief was a major concern for many patients, some patients would have liked their providers to take a longer term perspective: “They’ll say [. . .] take this and [. . .] give you this prescription but they really don’t follow through” (51/F/other/PA).

Providers, in turn, were mostly concerned that patients’ focus on the present would prevent them from reaping the long-term benefits of certain treatments. Both physicians and physical therapists mentioned this problem, but the issue was particularly salient when recommending physical therapy. One physician stated: “They will tell me it doesn’t work why are you bothering and [. . .] I’m trying to get them to understand that physical therapy may take months but it [. . .] often times is the best long term relief” (53/F/MD/White). A physical therapist echoed this sentiment: “Patients often want a quick fix [. . .] because they just want to feel better and so sometimes you struggle with okay, well you have to go through a little bit of pain sometimes to get to where you want to go” (26/F/White/PT).

Among physicians, there were specific concerns that some patients were so apprehensive

about future side effects that they refused certain treatment approaches. In this context, one physician described the challenges of getting patients to accept opioids: “When they really really really need [. . .] some kind of relief, [. . .] sometimes they will resist and resist and resist” (59/F/White/ MD).

If not addressed, discrepant time horizons may lead patients to switch providers. One patient, for instance, noted that “surgeons are always eager to do something. But I could find an orthopedist who’s not a surgeon, and go to him” (88/M/White/PA). On one hand, a switch in providers may improve patient outcomes. One patient who had recently switched practices happily reported that “they’re specialized in what [. . .] I’m dealing with” (55/F/White/PA). On the other hand, excessive “doctor shopping” can stand in the way of consistent treatment (37/M/White/MD).

Providers reported a three-pronged conflict resolution strategy. First, they focused on establishing good rapport. One physician explained: “[It’s important to] make them feel that you [. . .] understand what they’re going through” (29/M/White/MD). Similarly, a physical therapist noted that “I tend to give them that moment and I validate their feelings, I validate that—yes you do have pain” (25/F/Black/PT).

Second, providers made small concessions to patients’ immediate needs. As one physician put it: “You have to meet them halfway” (60/F/Asian/MD). However, providers emphasized that they used such early concessions as leverage to pursue long-term goals. One physical therapist explained

When I initially see a patient I may use more short-term [strategies] for many reasons: to get them to relax, to get them to trust me, to get them to move better. [. . .] then I will [. . .] start to introduce the long-term things which are going to help them manage it on their own (42/F/White/PT)

Finally, providers tried to educate patients about temporal trade-offs. As one physical therapist put it: “If they are taking drugs for the short term [. . .], [to] educate them that certain ones will not be able to be continued at such high doses [. . .] that they might need to be more proactive with their care” (25/F/White/PT). Providers reported no attempts to tailor conflict resolution strategies to patients’ age, suggesting that the same strategies are used across age groups.

Self-Management of Chronic Pain.—Even if providers and patients agree about the best course

of treatment, following a long-term treatment regimen requires successful self-management, and this may pose a challenge for treatment compliance. Although the focus group guides did not explicitly probe for self-management, both patients and providers raised this topic on multiple occasions.

Entering into a long-term treatment regimen was perceived as an initial hurdle. As one physical therapist noted

We do get a lot of patients that are not complying. Just for [the] initial evaluation they break [the appointment] three times. [. . .] They come once. And they decide to show up three weeks later for their second appointment, [. . .] that’s not going to work” (40/M/White/PT)

Responses from patients suggest that, at least for physical therapy, there is concern that initial increases in pain and discomfort are difficult to overcome. As one patient stated: “The doctor tells you ‘listen you got to move the leg. Especially if it hurts your leg. Exercise the leg, get it strong.’ We don’t want to do that because we are scared to take the initial pain” (49/M/Black/PA).

Aside from concerns about initial exacerbations in pain, patients reported problems with inertia and a lack of motivation for maintaining long-term treatments. One patient explained: “I won’t follow up because I’m a procrastinator [. . .] I have lots of [. . .] hope and goals and yoga and this and that and the other thing but I don’t know if I’ll do it or not” (59/M/White/PA). Echoing this sentiment, another patient reported: “We have to participate in our own recovery, [. . .] some of us [are] just lazy, we don’t exercise, don’t walk, we don’t want to swim, we don’t do anything. But we [are] mad at the doctor because, why isn’t this working?” (49/M/Black/PA).

Physical therapists are well aware of such problems: “There are [. . .] patients that [. . .] are totally unrealistic in terms of how they’re doing and what can be expected from us. They expect us to just take care of everything and they’re not going to do anything at home” (58/F/White/PT). To overcome patients’ inertia, one therapist said that she was trying to “steer away from that pain focus and try to focus more on function and long-term goals” (25/F/Black/PT). The importance of setting specific future goals was reiterated by another physical therapist: “I think it’s important [. . .] to have the patient phrase the goal in the sense of something they really want to do in [. . .] either functionally or recreationally” (52/M/White/PT).

Providers also reported that patients' self-management abilities differed by age. Older patients were perceived as more passive than younger patients and less likely to take an active role in their treatment. One physical therapist suggested that "the older that the patient gets, the more they would like to [. . .] think of it as a something out of their control like the weather [. . .]" (30/M/White/PT). This sentiment was echoed by a physician who found that among older patients "there tends to be a passivity about [the pain] that you sometimes don't see in younger patients" (46/F/Black/MD). Perhaps as a result of this passivity, one physical therapist perceived older adults as "less receptive to the fact that they can have control over their pain with exercise" (42/F/White/PT).

Ultimately, maintaining treatment adherence in the long run remains a challenge because the realization that a life-long commitment is required can be daunting. As one patient put it: "I had physical therapy, and I liked it a lot. But the [. . .] therapist told me when I'm finished, you have to do this exercise every day for the rest of your life. So that kind of threw me" (74/M/White/PA).

Discussion

Taken together, our findings represent a first step toward a better understanding of the role of temporal horizons and time perceptions in the management of CNCP among patients of different ages. First and foremost, our results suggest that patients and providers differentiate among multiple aspects of time horizons including the long-term prognosis of a pain condition, the temporal scope of treatment planning, and concerns about long-term side effects. Although there is some overlap among these concepts, we found divergent patterns among patients of different age groups, between patients and providers, and even within the same individual.

We also found that perceptions of time horizons differed by age. As outlined in the introduction, existing theoretical frameworks did not allow for consistent predictions about the direction of age differences. Age-related limitations in life expectancy might point toward a more present-focused attitude among older adults (Carstensen, 2006). At the same time, older adults appear to be better at construing future outcomes (Löckenhoff, 2011), which would suggest an age-related focus on the future. Supporting the notion that multiple

mechanisms are at play, we found divergent age patterns for specific aspects of time horizons. Consistent with an age-related focus on long-term outcomes, older adults perceived their conditions as more chronic than younger adults and expected to live with pain for the rest of their lives. In contrast, we found no evidence for age differences in time perspectives for treatment planning. If anything, older patients voiced less concern about future side effects than younger patients and limited time left in life appeared to be a contributing factor.

We also found that perceptions of age differences varied considerably among groups of stakeholders. Although patients and providers agreed that pain is more chronic among geriatric populations, we found large discrepancies in the temporal scope of treatment planning such that providers favored a long-term approach, especially for older adults, whereas patients favored immediate pain relief regardless of their age. Also, although providers perceived older adults to be more concerned about long-term side effects, responses from patients did not support this observation. Discrepancies in time horizons between patients and providers have important practical implications because they may negatively affect the patient-provider relationship and lead to frustration on both sides. Our findings suggest that—ultimately—such concerns may limit compliance with treatment regimens and lead patients to switch providers.

Our results further suggest that time horizons play a critical role in the self-management of CNCP. Both physicians and physical therapists reported difficulties with the initiation and long-term maintenance of self-management techniques, especially with respect to physical therapy. Patients, in turn, acknowledged the benefits of long-term strategies but reported difficulty in trading off immediate pain for future pain relief and in maintaining efforts over time. Conceivably, older adults, who are more likely to see their pain as chronic, may find it particularly daunting to adhere to a treatment regimen for the rest of their lives, and this may explain why providers perceive them as more passive.

Ultimately, a better understanding of the role of time horizons in the self-management of CNCP can inform appropriate behavioral interventions. Current approaches primarily target pain education, self-efficacy, and goal setting (Carnes et al., 2012, Krein, Heisler, Piette, Butchart, & Kerr, 2007). However, our findings suggest that even if patients

understand the benefits of certain treatments and feel confident in performing specific exercises, they may have difficulty accepting trade-offs between present and future outcomes and may not be able to maintain their engagement over time.

Clearly, a better match between patients' conceptualizations of treatment time horizons and providers' persuasive and educational strategies is needed. Comments from providers suggested that in-depth conversations can help to improve consensus regarding optimal courses of treatment. However, because of logistic and financial considerations, such lengthy exchanges may be difficult to implement in routine clinical practice. To address this problem, future research could develop brief screenings assessing multiple aspects of patients' time horizons. Interventions could then target the specific concerns (e.g., not being able to imagine the future vs. not wanting to do so) that prevent patients from adopting and adhering to long-term treatment regimens. At the same time, educational programs for medical providers need to foster a better understanding of individual differences in time horizons and their implications for treatment outcomes.

In interpreting the results of this qualitative inquiry, important limitations need to be acknowledged. First, our data collection occurred at a major teaching institution with highly trained providers. Also, when asked to refer participants for a focus group study, providers may have selected patients who were particularly vocal and insightful with regard to their pain condition. As a result, the pattern of responses may reflect a higher level of differentiation and self-reflection than would be found in the general population. Also, our focus group guide was specifically designed to elicit discussions of treatment time horizons. The practical relevance of such considerations in everyday treatment contexts and their relative importance in comparison to other contextual factors has yet to be determined. Moreover, the limited sample size in this initial, qualitative inquiry did not allow us to systematically examine relevant covariates such as gender and race (Nguyen et al., 2012; Unruh, 1996) or to differentiate among specific age groups (e.g., young-old vs. old-old patients), and multiple short- and long-term horizons. Future quantitative inquiries should also control for areas of specialization and training among providers and type of pain, intensity of pain, time since diagnosis, recollections of previous pain episodes, and global time horizons among patients.

In summary, this study provides initial evidence for the role of time horizons in the treatment of CNCP across the life span. Although preliminary in nature, our findings suggest that time perspectives are multidimensional, differ between patients and their providers, and vary by age. In practical terms, perceived time horizons may affect treatment preferences and adherence and affect the quality of the patient-provider relationship. Future research should aim to further elucidate such phenomena by using quantitative approaches and recruiting more diverse populations. Ultimately, this line of research may inform interventions to improve long-term treatment adherence and alleviate age disparities in the treatment of CNCP.

Supplementary Material

Supplementary material can be found at: <http://gerontologist.oxfordjournals.org>.

Funding

This research was supported in part by a pilot grant to C. E. Löckenhoff from Cornell's Translational Research Institute on Pain in Later Life (TRIPLL), an NIA funded Edward R. Roybal Center (P30AG022845).

Acknowledgments

We thank Piyumika Kularatne for her contribution as a focus group facilitator; Joshua Rutt, Katya Swarts, and Alexander Simson for their help with coding and analysis; and the members of the Cornell Healthy Aging Laboratory for help with transcription.

References

- Appelt, C. J., Burant, C. J., Siminoff, L. A., Kwok, C. K., & Ibrahim, S. A. (2007). Arthritis-specific health beliefs related to aging among older male patients with knee and/or hip osteoarthritis. *Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 62, 184–190. doi:10.1093/gerona/62.2.184
- Bernard, H. (2006). *Research methods in anthropology*. Walnut Creek, CA: Altamira.
- Boyatzis, R. (1998). *Transforming qualitative data*. Thousand Oaks, CA: Sage.
- Bruckenthal, P., Reid, M. C., & Reisner, L. (2009). Special issues in the management of chronic pain in older adults. *Pain Medicine*, 10, S67–S78. doi:10.1111/j.1526-4637.2009.00667.x
- Carnes, D., Homer, K. E., Miles, C. L., Pincus, T., Underwood, M., Rahman, A., et al. (2012). Effective delivery styles and content for self-management interventions for chronic musculoskeletal pain: Systematic literature review. *Clinical Journal of Pain*, 28, 344–354. doi:10.1097/AJP.0b013e31822ed2f3
- Carstensen, L. L. (2006). The influence of a sense of time on human development. *Science*, 312, 1913–1915. doi:10.1126/science.1127488
- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, 54, 165–181. doi:10.1037/0003-066X.54.3.165
- Chan, W., McCrae, R., De Fruyt, F., Jussim, L., Löckenhoff, C. E., De Bolle, M., et al. (in press). Stereotypes of age differences in personality traits: Universal and accurate? *Journal of Personality and Social Psychology*.
- Chapman, G. B. (2003). Time discounting of health outcomes. In G. Loewenstein, D. Read, & R. Baumeister (Eds.), *Time and decision: Economic and psychology perspectives on intertemporal choice*. New York: Russel Sage Foundation.
- Elliott, A. M., Smith, B. H., Penny, K. I., Smith, W. C., & Chambers, W. A. (1999). The epidemiology of chronic pain in the community. *Lancet*, 354, 1248–1252. doi:10.1016/s0140-6736(99)03057-3

- Frederick, S., Loewenstein, G., & O'Donoghue, T. (2002). Time discounting and time preference: A critical review. *Journal of Economic Literature*, 40, 351–401. doi:10.1257/002205102320161311
- Hancock, P. A. (2010). The effect of age and sex on the perception of time in life. *The American Journal of Psychology*, 123, 1–13. doi:10.1016/j.actpsy.2009.11.005
- Herr, K. (2010). Pain in the older adult: An imperative across all health care settings. *Pain Management Nursing*, 11, S1–S10. doi:10.1016/j.pmn.2010.03.005
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15, 1277–1288. doi:10.1177/1049732305276687
- Institute of Medicine. (2011). *Relieving pain in America. A blueprint for transforming prevention, care, education and research*. Washington, DC: National Academies Press.
- Klapproth, F. (2008). Time and decision making in humans. *Cognitive Affective & Behavioral Neuroscience*, 8, 509–524. doi:10.3758/cabn.8.4.509
- Krein, S. L., Heisler, M., Piette, J. D., Butchart, A., & Kerr, E. A. (2007). Overcoming the influence of chronic pain on older patients' difficulty with recommended self-management activities. *The Gerontologist*, 47, 61–68. doi:10.1093/geront/47.1.61
- Krueger, R. A. (1994). *Focus groups: A practical guide for applied research*. Thousand Oaks, CA: Sage Publications.
- Löckenhoff, C. E. (2011). Age, time, and decision making: from processing speed to global time horizons. *Annals of the New York Academy of Sciences*, 1235, 44–56. doi:10.1111/j.1749-6632.2011.06209.x
- Löckenhoff, C. E., O'Donoghue, T., & Dunning, D. (2011). Age differences in temporal discounting: The role of dispositional affect and anticipated emotions. *Psychology and Aging*, 26, 274–284. doi:10.1037/a0023280
- McCaffery, M., & Pasero, C. (1999). *Pain: A clinical manual*. St. Louis, MO: Mosby.
- Monti, D. A., & Kunkel, E. J. S. (1998). Management of chronic pain among elderly patients. *Psychiatric Services*, 49, 1537–1539.
- Nguyen, Q. C., Hussey, J. M., Halpern, C. T., Villaveces, A., Marshall, S. W., Siddiqi, A., et al. (2012). Adolescent expectations of early death predict young adult socioeconomic status. *Social Science & Medicine*, 74, 1452–1460. doi:10.1016/j.socscimed.2012.01.006
- Osborn, D. P. J., Fletcher, A. E., Smeeth, L., Stirling, S., Bulpitt, C. J., Nunes, M., et al. (2003). Performance of a single screening question for depression in a representative sample of 13 670 people aged 75 and over in the UK: Results from the MRC trial of assessment and management of older people in the community. *Family Practice*, 20, 682–684. doi:10.1093/fampra/cm610
- QSRInternational. (2011). *NVivo 9*. Cambridge, MA.
- Scheibe, S., Mata, R., & Carstensen, L. L. (2010). Age differences in affective forecasting and experienced emotion surrounding the 2008 US presidential election. *Cognition and Emotion*, 25, 1029–1044. doi:10.1037/a0025655
- Sofaer, B., Moore, A. P., Holloway, I., Lambert, J. M., Thorp, T. A. S., & O'Dwyer, J. (2005). Chronic pain as perceived by older people: A qualitative study. *Age and Ageing*, 34, 462–466. doi:10.1093/ageing/afi139
- Unruh, A. M. (1996). Gender variations in clinical pain experience. *Pain*, 65, 123–167. doi:10.1016/0304-3959(95)00214-6