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# A Postal Screener for Pain and Need for Treatment in Older Persons in Primary Care

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**OBJECTIVES:** To test the Pain intensity, Enjoyment in life, General activity questionnaire (PEG) as a postal screener for pain in older persons.

**DESIGN:** Population-based survey. Postal screening questionnaires followed by an interview of a sample of participants.

**SETTING:** Family practices.

**PARTICIPANTS:** Persons aged 75 and older (N = 243; 95 interviewed).

**MEASUREMENTS:** Screening included the PEG, a three-item abbreviated version of the Brief Pain Inventory (BPI), plus an additional question on treatment need. Pain severity and related interference was assessed (BPI) during the interview, as was the current (need for) pain treatment.

**RESULTS:** The median PEG score of the 243 persons participating in the screening (response 76%) was 2.0 (interquartile range 0–4.7). Seventy-nine (35%) had moderate to severe pain (PEG score  $\geq 4$ ), of whom 56% reported current pain treatment and 15% stated that they might ask for help. For a PEG score cutoff of 4 or greater, sensitivity was 0.81 and specificity was 0.78 to find scores of 4 or greater on one or both BPI subscales during the interview. For the question on need for treatment, replies on the screener and the interview were not always consistent. Of the 43 interviewed participants with a PEG score of 4 or greater, 60% received treatment. Of the 17 without current pain treatment, 10 still reported pain, three of whom said that they might ask for help.

**CONCLUSION:** The PEG can be used as a postal screener to detect the presence of pain in older persons, but treatment needs cannot be established using the PEG alone or in combination with a simple additional question. *J Am Geriatr Soc* 2014.

**Key words:** pain; screening; old age

Family physicians are faced with a growing population of older adults. For example, in the European Union, the percentage of people aged 65 and older is expected to rise from 18% in 2013 to 29% in 2080.<sup>1</sup> One of the challenges associated with older adults is management of pain.<sup>2–4</sup> Pain negatively affects all domains of health, including mobility and physical functioning, cognitive functioning, mood, and sleep–wake rhythm.<sup>5–10</sup> Because pain makes maintaining an independent daily life and sustaining social contacts difficult, it often leads to poor quality of life.

Family physicians perceive chronic nonmalignant pain to be a challenge and consider chronic pain and its effect on quality of life to be underassessed in primary care.<sup>4,11</sup> Older adults with pain may be less likely to report their pain symptoms to physicians than the younger, working-age population. One explanation for this is that the current generation of older people appear to be stoic about reporting pain sensations.<sup>12,13</sup> Another explanation is decreasing cognitive functioning and, therefore, decreasing ability to communicate pain.<sup>3,14</sup> Studies that quantify under-reporting are scarce. Forty-six percent of people aged 50 and older and 50% of those aged 75 and older with chronic knee pain had consulted their family physician regarding this symptom.<sup>15</sup> A Swedish study showed an increase in pain but a decrease in pain medication with age, raising concerns about the spontaneous reporting of pain of older adults and the ability of physicians to detect this almost “hidden” problem.<sup>16</sup>

Without explicit questioning, older people are likely to underreport chronic pain, so a more-proactive approach is recommended.<sup>5,17,18</sup> To tackle this problem, a suitable and feasible method of screening for pain should be developed and validated. Multidimensional pain measures, such as the Brief Pain Inventory (BPI), are widely used in specialized pain centers and research settings, but the BPI is too comprehensive for screening purposes in primary care,

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where a brief instrument would be more feasible. A three-item, abbreviated version of the BPI, assessing pain intensity and functional interference (Pain intensity, Enjoyment in life, General activity; PEG) has been developed for use in primary care.<sup>19</sup> There is strong evidence of its reliability, construct validity, and responsiveness when used in interviews with individuals in primary care with chronic musculoskeletal pain (mean age 59) and veterans recruited from ambulatory care (mean age 63).

The present study aimed to test the PEG using a postal questionnaire for pain screening in people aged 75 and older in primary care in terms of the presence of pain, whether or not it interferes with daily life and experienced treatment needs. Because the acceptance of an unsolicited treatment offer after screening is always a concern, an additional question was added asking about the need for treatment, because the PEG does not include such an item.

## METHODS

### Participants

This study was conducted within the larger Integrated Systematic Care for Older People (ISCOPE) study, in which data were obtained on demographic and clinical characteristics of individuals in primary care aged 75 and older living in the community and in care homes. The overall aim of the ISCOPE study was to assess the efficacy of a simple structural monitoring system to detect deterioration in the functional, somatic, mental, or social health of individuals aged 75 and older, followed by the execution of a care plan for those with a combination of somatic, functional, mental, and social problems.<sup>21</sup>

The ISCOPE study took place in 59 family practices in an urban area in the western part of the Netherlands. At baseline, screening questionnaires were sent to all persons aged 75 and older. The physicians excluded individuals with a life expectancy of <3 months. Participants were asked to fill in the questionnaire at baseline and again at 6 and 12 months. Of the older persons returning the screening questionnaire, a random sample was invited for an interview at home at baseline and 12 months after baseline. The interviews covered additional information on sociodemographic characteristics, chronic diseases, use of healthcare, functioning, and quality of life.

This article presents the data of an additional observational study on pain screening that was performed in three of the 59 family practices at the 12-month follow-up assessment of the ISCOPE study. For this, questions on pain and treatment were added to the postal screening (including the PEG) and the interviews.

All participants provided written informed consent. The medical ethical committee of the Leiden University Medical Center approved the ISCOPE study (NTR1946).

### Measures

#### Postal Screening

For the present cross-sectional study, the screening included two questionnaires: the PEG with the additional

question about treatment needs and the ISCOPE screening questionnaire.

The PEG is a three-item scale assessing pain intensity (P), interference with enjoyment of life (E), and interference with general activity (G) during the past week.<sup>19</sup> Each item is scored on a numeric scale from 0 to 10; a total score is computed by taking the mean score on all items (range 0–10). A question was added about the individual's treatment needs, in which four options concerning asking for advice or help for pain from a family physician or other caregiver were given. This question was constructed based on Prochaska's Stages of Change model, which describes the steps in the process of behavior change.<sup>20</sup> It indicates whether individuals might be motivated for treatment (ready to change).

The ISCOPE screening questionnaire contains items on somatic, functional, mental, and social health (4–7 questions per domain). If participants scored positive on two or more items, this domain was classified as a problem domain. Pain is excluded from scoring in all domains.

### Interview

All participants with problems ( $\geq 2$  positive answers) on three or four domains on the ISCOPE questionnaire were invited for an interview; this group was supplemented with a random sample of 60% of participants with problems on two domains and a random sample of 15% of participants with problems on none or one of the domains.<sup>21</sup>

The selected participants were interviewed with structured questionnaires about the presence and intensity of pain and its interference with daily life, use of pain treatment and pain medication, living arrangements, cognition, presence of chronic diseases, and self-reported use of health care.

The BPI short form includes four items on pain intensity (average, current, least, worst) and seven items on pain interference (interference with general activity, mood, walking, work including housework, relationships with others, sleep, enjoyment of life).<sup>22,23</sup> For each scale, a total score is computed by taking the mean score of all items (range 0–10). For this study, the time frame was adapted from "today" to the "past week." The official lead-in question of the BPI was extended with an additional sentence that asked about the use of pain medication or a change in lifestyle to relieve pain. Four extra questions about concerns about taking medication (taken from the long version of the BPI) were also added, as well as questions about knowledge of pain and treatment by the family physician or other caregivers.<sup>24</sup>

Cognition was assessed using the Mini-Mental State Examination.<sup>25</sup>

### Analyses

Descriptive statistics on screening outcomes of the total sample were determined. Descriptive statistics were also determined in the sample of interviewed participants, and the PEG was validated by analyzing Spearman correlations between total PEG score and BPI subscale scores.

Because there is no known cutoff score (and no criterion standard) for the PEG, participants were categorized into three groups according to score (0.0, 0.1–3.9,  $\geq 4.0$ ). Median scores and interquartile range (IQR) on both BPI subscales were calculated for these PEG groups, and differences between groups were tested using a nonparametric test. Percentages were calculated for dichotomous measures, and differences between groups were tested using the chi-square test.

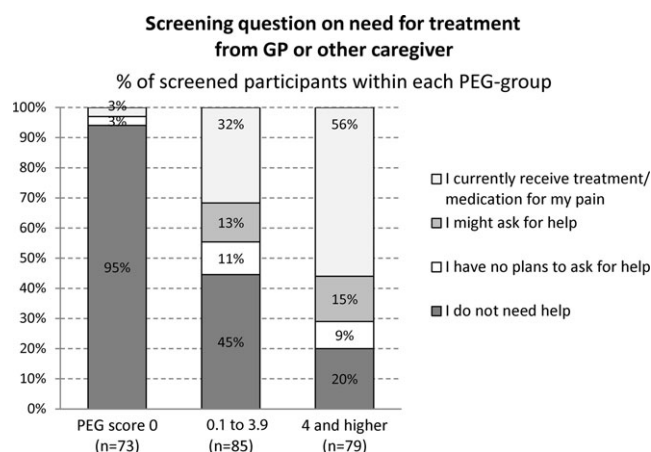
## RESULTS

In the three family practices, response at baseline in the ISCOPE study was 66% (354 of 528), and loss to follow-up after 12 months was 9% (33 of 354). Of the final sample of 321 participants who received the screening questionnaires at 12 months, 76% ( $n = 243$ ) fully completed the pain screening questionnaire.

### Pain Screening and Participants' Experienced Need for Treatment

Table 1 shows the characteristics of the participants and their screening outcomes. Mean age of participants was  $82.4 \pm 4.3$ ; 55% were female. General screening showed that 28% of participants had problems in three or more domains. PEG scores were 0.0 in 32%, 0.1 to 3.9 in 35%, and 4.0 or higher in 33%. The median PEG score was 2.0 (IQR 0; 4.7).

Overall, 30.8% reported current treatment or use of medication for pain, and 9.7% reported that they might



**Figure 1.** Participants' experienced need for treatment regarding pain according to Pain intensity, Enjoyment in life, General activity (PEG) score (range 0–10) ( $N = 237$ , missing for  $n = 6$ ). GP = general practitioner.

ask for help. Figure 1 presents the current treatment and treatment needs for the three PEG groups. Participants with a PEG score of 4.0 and greater were more likely to receive pain treatment (56%) than participants with a PEG score of 0.1 to 3.9 (32%, chi-square test  $P = .002$ ), although the percentage of participants who might ask for help in the future was similar in those with a PEG score of 4.0 and greater (15%) and 0.1 to 3.9 (13%, chi-square test  $P = .68$ ).

### Interview Results: Presence of Pain, Treatment, and Need for Treatment

A sample of 95 participants was interviewed. These participants indicated more problems on the ISCOPE screening questionnaire than the total sample (40% had problems in  $\geq 3$  domains). For six participants (6%), cognition was low, with Mini-Mental State Examination scores  $< 22$ . The main self-reported chronic diseases were osteoarthritis (59%), heart failure (44%), asthma or chronic obstructive pulmonary disease (26%), osteoporosis (23%), malignancy (13%), and diabetes mellitus (15%). According to the BPI, 50 participants (53%) reported having had pain in the previous week. The most frequently mentioned pain locations were the lower extremities (72%), back (46%), and upper extremities (40%); 44% of participants reported more than one location.

### Validation of the PEG with the BPI

PEG scores correlated highly with the BPI subscales severity (correlation coefficient ( $r$ ) = 0.668,  $P < .001$ ) and interference ( $r$  = 0.789,  $P < .001$ ). Table 2 shows the presence of pain and subscale scores of the BPI for groups according to PEG score. Participants with PEG scores of 4.0 and higher during screening reported pain in 81% of the cases, with a median BPI severity score of 4.5 (IQR 2.2–6.0) and a median BPI interference score of 3.9 (IQR 1.0–5.9). The sensitivity of a PEG score cutoff of 4 or greater to detect BPI severity or interference scores of 4 or greater was 0.81, the specificity was 0.78, and the positive

**Table 1.** Participant Characteristics ( $N = 243$ )

Characteristic	Value
Female, n (%)	134 (55.1)
Age, n (%)	
75–79	85 (35.0)
80–84	101 (41.6)
$\geq 85$	57 (23.5)
General screening on functioning, n (%)	
Problem domains	
Type	
Somatic	127 (53.4)
Functional	62 (26.1)
Mental	114 (47.9)
Social	78 (32.8)
$\geq 3$ domains	67 (27.6)
Pain screening	
PEG items, median (IQR)	
Average pain intensity	3.0 (0–5)
Interference with enjoyment in life	1.0 (0–5)
Interference with general activity	1.0 (0–5)
PEG score, median (IQR)	2.0 (0–4.7)
Participant's experienced need for treatment regarding pain, n (%)	
No need for help	123 (51.9)
Will not ask for help	18 (7.6)
Might ask for help	23 (9.7)
Current treatment or medication	73 (30.8)

IQR = interquartile range.

PEG = Pain intensity, Enjoyment in life, General activity questionnaire (range 0–10).

**Table 2. Reported Pain and Treatment of Interviewed Participants (n = 95) According to Total Pain intensity, Enjoyment in life, General activity (PEG) Score**

Characteristic	Screening Total PEG Score		
	0.0, n = 26	0.1–3.9, n = 26	≥4.0, n = 43
Brief Pain Inventory			
Pain present last week, n (%)	0 (0)	15 (58)	35 (81)
BPI severity subscale, median (IQR)	0 (0–0)	2.3 (0–4.8)	4.5 (2.2–6.0)
BPI interference subscale, median (IQR)	0 (0–0)	0 (0–2.3)	3.9 (1.0–5.9)
Reported treatment from healthcare professional <sup>a</sup> for pain <sup>c</sup>			
Treatment, n (%)	1 (4)	9 (35)	26 (60) <sup>b</sup>
No treatment, n (%)	25 (96)	17 (65)	17 (40)
Pain, n	0	6	10
No pain, n	25	11	7
Medication for pain, n (%) <sup>d</sup>			
Prescribed medication	1 (4)	6 (23)	23 (53)
Only over-the-counter medication	0 (0)	4 (15)	8 (19)
No medication	25 (96)	15 (58)	12 (28)

BPI = Brief Pain Inventory (range 0–10).

<sup>a</sup>Healthcare professional: specialist, family physician, or physiotherapist.

<sup>b</sup>Twenty-five of 26 participants with a PEG score ≥4.0 reported pain.

<sup>c</sup>Pearson chi-square test  $P = .04$ , degree of freedom ( $df$ ) = 1 when comparing groups with a score of 0.1–3.9 and ≥4.0.

<sup>d</sup>Pearson chi-square test  $P = .03$ ,  $df = 2$  when comparing groups with a score of 0.1–3.9 and ≥4.0.

predictive value was 0.70. The sensitivity of a PEG score of 4 or greater to detect BPI scores of 5 or greater was 0.82, the specificity was 0.70, and the positive predictive value was 0.53.

### Reported (Need for) Treatment

Table 2 presents the treatment as the interviewed participants reported it. Treatment from healthcare professionals included medication and other therapies (e.g., physiotherapy).

Of the participants with PEG scores of 4.0 or higher during screening, 60% ( $n = 26$ ) received treatment from healthcare professionals. Of the 17 participants without treatment, 10 reported pain, with a mean BPI interference score of 3 (range 1–5). When PEG scores were between 0.1 and 3.9, 35% ( $n = 9$ ) of the participants received treatment from healthcare professionals, and six of the 17 participants without treatment reported pain; these six participants had a mean BPI interference score of 2 (range 1–3).

These 10 and six patients without treatment but with pain were asked whether they had plans to ask for help from their family physician; three indicated that they might ask for help. Thirteen stated that their family physician had been informed about their pain, and 10 thought that nothing (more) could be done. Participants with a PEG score of 4.0 or greater and a PEG score of 0.1 to 3.9 with current pain (irrespective of present medication use) were asked whether they might need more or stronger medication; six of these 50 participants (12%) replied “yes.”

Of the interviewed participants with a PEG score of 4.0 or greater, 53% received prescribed medication; another 19% used over-the-counter medication. Participants with PEG scores between 0.1 and 3.9 used less medication (Table 2).

### Validation of Screening Question on Need for Treatment

The replies to the question on the need for treatment from the screener were also compared with that from the interview, regardless of PEG score. Of the 15 interviewed participants who reported in the screener that they might ask for help, five reported no pain during the interview, and four reported receiving treatment from a healthcare professional for pain. The remaining six participants were asked whether they had plans to ask for help from their family physician; two said that they might ask for help, and four did not intend to ask for help.

### DISCUSSION

Results of the present study with a postal screener for pain in a family practice population aged 75 and older confirmed previous studies that found that pain in older persons in primary care is highly prevalent. Thirty-three percent of participants reported moderate to severe pain during the last week (PEG total score ≥4.0), and 35% reported mild pain (PEG total score 0.1–3.9). The three-item PEG screening questionnaire appeared to be a valid instrument to identify those who are in pain. PEG scores were as good a reflection of pain severity and associated functioning as the BPI (construct validity).

Because the acceptance of an unsolicited treatment offer after screening is always a point of concern, an additional question on treatment needs was added to the postal screener. This revealed that most individuals with pain already received some form of treatment or medication, and only a minority reported a need for care. Of participants with a PEG score of 4.0 or greater, 56% reported current pain treatment or medication, and 15% indicated that they might ask for help in the future. When trying to validate the question, the need for treatment could not be



confirmed because the replies on the screener and the interview were not always consistent.

In the group with a PEG score  $<4.0$ , a similar percentage reported that they might ask for help; the reason for this similar percentage is not clear.

Few studies have used postal questionnaires for specific types of pain (e.g., knee pain<sup>15</sup>) or a more-general health screening questionnaire that includes a single item on pain. Apparently, pain is not high on the list of screening conditions. It seems that general guidelines and experts do not consider pain to be the most relevant topic for screening for healthy or vulnerable older persons.<sup>26</sup> One reason for this is that there is little evidence that screening will lead to better therapy and thus better health outcomes, although one study showed that treating individuals with pain detected using screening might be worthwhile. One study reported a modest but statistically significant improvement in a variety of outcome measures from a collaborative care intervention for chronic pain in primary care.<sup>27</sup> Routine pain screening during consultations (pain as the fifth vital sign) was promoted in clinics for veterans in the United States using a numeric rating scale, but a medical record review showed that simply implementing the numeric rating scale for pain did not necessarily improve subsequent pain evaluation and management.<sup>28</sup>

Do the current results suggest that postal screening for pain is useful? It was possible to detect who was in pain, but the need for treatment could not be fully determined. A postal screener alone is not enough to improve assessment and treatment. Most participants in pain had already had contact with a family physician or other caregiver. Therefore, more benefit might be expected from alertness, assessment, and clinical evaluation of pain during consultations. In general, it was found that communication of pain information by family physicians has some deficiencies. Assessment of pain information should be multidimensional and include eliciting pain treatment information as well as location and sensory aspects of pain information.<sup>12</sup> For individuals with cognitive problems (e.g., dementia), assessment is more complicated and cannot rely on self-report alone.<sup>14</sup> Education on assessment and treatment is important, and guidelines can provide this knowledge.<sup>18,29–31</sup> European primary care physicians emphasized in a survey the necessity of training in the use of assessment tools, the appropriate prescription of strong opioids, and the development of guidelines.<sup>4</sup>

In this study, 56% of the participants with moderate or severe pain (PEG score  $\geq 4.0$ ) reported current treatment, but 44% did not. From this latter group, one in three stated that they might ask for help. It is possible that participants had discussed their pain with a physician in the past but that the physician concluded that (at that time) nothing needed to be done (wait and see) or that nothing more could be done (no cure expected). Even though the pain was still present, the individuals might have given up or for some reason been waiting to visit the physician again. An often-stated reason for not asking or receiving help is ageism; individuals and physicians might see pain as a part of normal aging.<sup>32</sup>

Alternatively, in a qualitative study on joint pain from osteoarthritis, the fact that arthritis was seen as a normal part of old age did not hamper professional consultation for new joint symptoms if necessary.<sup>33</sup> It seems that most older adults are willing to seek help, but some may not find what they are looking for.

Qualitative research revealed that older adults are willing to try a variety of strategies to help manage persistent pain, although, on average, they view these strategies as only moderately helpful.<sup>34</sup> Older adults rely more on strategies that can be self-administered and are reluctant to take medication.<sup>35</sup> In line with this, a larger role for family physicians is suggested in discussing self-management with patients and providing guidance on the safety of specific self-care activities.<sup>36</sup>

It was possible to test the PEG in a family practice population aged 75 and older using only a few exclusion criteria. Because no criterion standard exists for pain, the well-known BPI and two cutoff points of the BPI 4 and 5 was used as the criterion standard. Higher cutoff scores would detect more-severe or more-interfering pain.

In the present study, there was no information from family physicians on the (need for) treatment of the participants. Thus, whether a new or different treatment or medication regime would be more effective, or even realistic, could not be evaluated.

Timely and adequate treatment for pain is important, because pain has many negative effects. This study shows that pain is highly prevalent and probably undertreated. The results indicate that screening for pain in primary care using a short postal questionnaire is feasible, although one written question is not enough to explore treatment needs; more benefit might be expected when the family physician assesses treatment needs explicitly during patient visits. Exploration of these treatment needs and the role of the family physician should be the subject of more in-depth study.

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**Conflict of Interest:** The editor in chief has reviewed the conflict of interest checklist provided by the authors and has determined that the authors have no financial or any other kind of personal conflicts with this paper.

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**Author Contributions:** All authors discussed the results and commented on the manuscript. MWMdW, JWB: conception and design, acquisition of data, analysis and interpretation of data, drafting and revising the article. WPJdE, JG: conception and design, acquisition of data, revising the article. WPA: writing and revising the article.

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