The Functional Pain Scale; changing the conversation about pain

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January 22, 2020

Target Audience

- The overarching goal of PCSS is to train a diverse range of healthcare professionals in the safe and effective prescribing of opioid medications for the treatment of pain, as well as the treatment of substance use disorders, particularly opioid use disorders, with medication-assisted treatments.

Educational Objectives

- At the conclusion of this activity participants will be able to:
  - Describe how Functional Pain Scale (FPS) can help develop & achieve patient-professional shared goals
    - Pain reduction, functional improvement,
    - Avoidance of harm and enhanced coping
  - Identify potential challenges to using the FPS
  - Suggest ways to enhance the validity, reliability and pragmatic use of the FPS
Background and Significance

- Inadequate assessment contributes to poor pain control
  - Under-treatment, overtreatment or failure to treat
- Focusing only on intensity is inadequate
  - Initial evaluation should include medical & biopsychosocial factors underlying pain and treatment-specific risks
- Monitoring is needed for early & late treatment effects
  - Pain treatment evaluation should include functioning


Current Joint Commission Pain Standard (excerpt)

- Pain assessment & management, including safe opioid prescribing, is an organizational priority
  - ... consistent with the patient’s age, condition & ability to understand
  - Discuss how treatment progress is evaluated (e.g. pain relief, biopsychosocial functioning ... reduced risk of adverse effects)
- The hospital assesses & manages the patient’s pain & minimizes risks associated with treatment
  - Screen for pain on admission; Assess when present
  - Treatments include drug, nondrug & multimodal methods
  - Involve patients in treatment planning with realistic, measurable goals that are understood by the patient
    - Progress toward pain management goals include functional ability

FPS Prior Validation

- Development and Psychometrics (0-5 scale)
  - Validity, reliability & responsiveness established (100 elders)
    - Geriatric inpatient, outpatient & hospice settings
    - Test Retest and interrater reliability excellent (n = 0.97)
    - Numeric Rating Scale not reliable in population studied (r = 0.18)
    - Concurrent Validity with PPI (r = 0.90) and NRS (r = 0.85)
    - FPS more responsive to change than VAS, PPI, MPS-SF, & PPI

| VAS = Visual Analog Scale;                     | PPI = Present Pain Intensity;                  |
| MPS-SF = McGill Pain Scale - Short Form;      | NRS = 0-10 Scale                               |

Purpose

• Ensure the FPS is evidence-based for inpatient use
• Primary Aim:
  ▪ Psychometric test of FPS in hospitalized pain patients
    – Test-retest reliability
    – Validity compared to other standard pain measures
• Secondary Aim:
  ▪ Evaluate utility, ease of use by nurses
  ▪ Identify advantages/disadvantages of FPS as validated

Methods - MGH

• A prospective IRB-approved pilot study
• 93 hospitalized adults with chronic pain.
• Data were collected from validated pain scales:
  ▪ Functional (FPS), Numeric (NRS), Biopsychosocial measure (PEG), and Quality of Pain Care (APS-POQ-r)
  ▪ Test-retest reliability & construct validity
  ▪ Descriptive statistics examined, reported where applicable

Reliability:

Consistency or repeatability of measures

• **Test-retest** Measures stability.
  - Are pain scores at start & end of a 15 minutes interview stable?
• **Inter-rater**: Extent to which 2 raters agree, how consistent are different raters in obtaining the same score?
  - MGH 2 data collectors
    ➢ 90% agreement on 10 patients

FPS = Functional Pain Scale
NRS = Numeric Rating Scale
PEG = Pain, Enjoyment of Life, General Activity
APS-POQ-r = American Pain Society Patient Outcomes Questionnaire – revised
**MGH-RN Pain Tools Use**

(Med-Surg Unit Audit)

- First-line tool is 0-10 NRS (~7,000/day)
- Among second-line tools: (~2,500/day)
  - 48% used the Functional Pain Scale
  - 32% used Simple Descriptive
  - 14% used Faces Pain Scale – revised
  - 5% PAINAD (Advanced Dementia)
  - 1% Nociception Coma Scale - revised
    - (comatose or MCS)

**Study Subjects @ MGH** (N=93)

- Subject mean age was 50.6 (range 21-81)
- Half were female; & 73% were Caucasian
- Education
  - 35% High School; 28% some college; 37% college degree
- 46% were hospitalized for pain control
- Pain intensity was moderately severe NRS = 6.6 (SD 2.4)
- Mean FPS scores = 5.7 (SD 1.8)
- Intolerable & interferes with activities that required exertion

**Test-Retest Reliability**

- Numeric Rating Scale
  - Excellent ($r = .91; p < .01$)
- Functional Pain Scale (FPS)
  - Good ($r = .84; p < .01$)

Correlation interpretation (Pearson $r$)

<table>
<thead>
<tr>
<th>$r$</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8</td>
<td>Very Strong</td>
</tr>
<tr>
<td>0.6 – 0.79</td>
<td>Strong</td>
</tr>
<tr>
<td>0.4 – 0.59</td>
<td>Moderate</td>
</tr>
<tr>
<td>0.2 – 0.39</td>
<td>Weak</td>
</tr>
</tbody>
</table>
Convergent Validity of the Functional Pain Scale

- Correlations between FPS scores and...
  - Pain intensity
    - NRS – FPS \( r = .75 \) (p<.01) - strong correlation (Pearson r)
    - PEG – FPS \( r = .34 \) (p<.01) - weak correlation (Spearman’s rho)
  - NRS & PEG Pain item \( r = .64 \); p < .01
  - Functional Status (FPS to items on APS-POQ-r)
    - In-bed activities \( r = .30 \) (p<.003) - weak correlation (Spearman’s rho)
    - Out of bed activities \( r = .52 \) (p<.001) - moderate correlation (Spearman’s rho)

Discriminant Validity of FPS to affective dimension of chronic pain

- Weak correlations between FPS and …
  - Pain-related anxiety: \( r = .27 \) (p<.01)
  - Pain-related depression: \( r = .23 \) (p<.02)
  - Pain-related fear: \( r = .26 \) (p<.02)
  - Pain-related helplessness: \( r = .34 \) (p<.01)
  - FPS item #2 (Tolerability)
    - Not correlated with fear, or depression
    - Weakly correlated to:
      - Anxiety \( r = .22 \) (p<.01)
      - Helplessness \( r = .29 \) (p<.01)

Secondary Analysis of APS-POQ-r items

- Non-drug methods
  - 26% never encouraged to use (46% sometimes encouraged)
  - 28% often encouraged to use
  - 82% used at least 1 non-drug method
- Participation in treatment planning
  - 26% did not participate in treatment planning
  - 40% participated to varying degrees in treatment planning
  - 34% participated in treatment planning as much as desired
- Satisfaction with Pain Relief (Median Satisfaction = 6/10)
  - 0 = Extremely dissatisfied (15%)
  - 10 = Extremely satisfied with relief (23%)
Challenges & Opportunities

- Challenges encountered with PEG and APS-POQ-r
  - Past week or 24 hours versus right now
- Challenges encountered with clinical application
  - Training nurses in its use
  - Clinical utility / unfamiliarity
  - Documenting discrepancies between FPS and NRS
- Tool wording as originally validated

Original Functional Pain Scale Scoring

0 = no pain
2 = Tolerable: Does not prevent from doing usual activities
4 = Tolerable: Able to do some but not all usual activities
6 = Intolerable: Interferes with most “active” but not passive activities
8 = Intolerable: Interferes with all “active” and most passive activities
10 = Intolerable: Can’t do any activity (even speak) because of pain

Active Activities = walking, activities of daily living
Passive Activities = a reading, watching TV and talking on phone

Suggested Refined FPS Scoring for Hospitals*

0 = No pain
2 = Tolerable: Able to perform all permitted activities
4 = Tolerable: Able to perform most permitted activities
5 = Tolerable: Pain that becomes intolerable with movement and limits the ability to perform prescribed physical activities (e.g. walk out of room or do physical therapy)
6 = Intolerable: Unable to perform prescribed activities requiring physical exertion. Passive activities (such as reading, watching TV, talking) unaffected by pain
8 = Intolerable: Unable to perform prescribed activities requiring physical exertion, and passive activities are limited by pain
10 = Intolerable: Unable to do anything or even speak because of pain & exhibits constant pain behaviors (grimacing, moaning, etc.)

* Permitted or Prescribed activities rather than “usual” activities
General FPS Conclusions at MGH

- Good reliability and validity as a pain intensity measure
- Strongly correlates with pain intensity
- Moderately correlates with functional interference
- Weakly correlates to emotions commonly linked to chronic pain
- Many nurses like & use the FPS tool
  - 60% indicated it guides discussions about goal-directed therapy
  - 40% not as easy or accurate as NPS
- Scoring between 4-6 difficult to quantify
  - Suggest re-wording including from “usual” to “permitted / prescribed” activities ... and add a score of “5”

Further Study Needed

- Different populations of hospitalized patients
  - Nature & severity of illness / injury
  - Comorbidities, including SUD
  - Acute (e.g. post-operative) pain
  - Patients who are frail or disabled at baseline
- Comparisons to other standard measures of functioning
  - Standardized objective clinical measures (e.g. TUG; JH-HLM)
  - Independence in ADL, progress toward healing/rehabilitative goals
- Can it improve patient experience with pain relief?
  - Engagement/participation in treatment planning
  - Satisfaction with relief and care provided

Collaborative Research

- Plans to streamline processes failed
  - IRB approval
  - Data sharing agreements
- Variation in sites
- Variation in familiarity with instruments
- Variation in research experience among clinical nurses
Initial exposure to FPS

- Challenges with new tool
  - Desire to equate FPS scale to NRS scale
  - Confusion about how a functional scale will guide pain management
  - Differences in presentation to patients

Methods - AAH

- IRB approved prospective study
- Data collection ended August 31, 2017
- Adult patients with pain on Medical/surgical units were enrolled (EPIC pain report used to identify patients)
- Functional (FPS), Numeric (NRS), Biopsychosocial (PEG), and Quality of Pain Care (APS-POQ-r) scales
- Descriptive statistics, concurrent and discriminant validity, patient and nurse preferences were examined
Demographics (N=51)

- Sample was 63% female, 37% male
- Age ranged 20 – 88
- 45% attended college or earned degree
- 37% admitted for pain management
- 90% Caucasian
- 49% chronic pain, 51% acute on chronic
- Means reflected moderate pain intensity (NRS 4.8; PEG 7.2)
- Mean FPS 4.0 (able to do some but not all usual activities)

Correlations with FPS

<table>
<thead>
<tr>
<th></th>
<th>N = 51</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Numeric Rating Scale</td>
<td>$r_s = 0.45$</td>
<td>$p = .001$</td>
<td></td>
</tr>
<tr>
<td>PEG</td>
<td>$r_s = 0.28$</td>
<td>$p = .05$</td>
<td></td>
</tr>
<tr>
<td>Anxiety*</td>
<td>$r_s = 0.01$</td>
<td>$p = .90$</td>
<td></td>
</tr>
<tr>
<td>Depressed mood*</td>
<td>$r_s = 0.09$</td>
<td>$p = .44$</td>
<td></td>
</tr>
<tr>
<td>Helpless*</td>
<td>$r_s = 0.21$</td>
<td>$p = .07$</td>
<td></td>
</tr>
</tbody>
</table>

NRS = Numeric Rating Scale
FPS = Functional Pain Scale
PEG = Pain, Enjoyment, General Activities Scale
*Correlations between FPS and select items from APS-POQ-R

FPS and APS-POQ-R
Passive and Active

No association between FPS scores and:
- in bed (passive) activities $r_s = 0.05$, $p=0.63$
- out of bed (active) activities $r_s = 0.10$, $p=0.39$
Participation and Satisfaction

- 64% reported participation in pain management decisions 8 or above (48% at 100% participation)
- 67% reported satisfaction with pain management at 8 or above (27% at 100% satisfied)

Preferences

- Response to patient preference of NRS or FPS (92%/n=47)
- 60% of respondents preferred the FPS
- 19% preferred the NRS
- 21% had no preference – either assessment instrument was acceptable

FPS use with Acute Pain

- Acute pain patients were omitted from sample (n=22)
- Demographics of acute pain patients
  - Age range 20-76 years, average 54 years
  - 50 % attended college or earned degree
  - 68 % admitted with pain as primary diagnosis
  - 95 % Caucasian
  - Variety of conditions causing pain
  - Mean NRS T1 = 4, range 0 – 8, mean NRS T2 = 5, range 0-8
Patient vs RN FPS Ratings

<table>
<thead>
<tr>
<th>Time</th>
<th>Sample size</th>
<th>Intolerable by patient</th>
<th>Intolerable by RN</th>
<th>Same rating Patient &amp; RN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td>N = 22</td>
<td>6</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Time 2</td>
<td>N = 18</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

Patient Scale Preference for Acute Pain Patients

- Response rate = 50% (n=11)
- Preferred FPS = 45%
- Preferred NRS = 18%
- No preference = 36%

Discussion: Implications for Research and Practice

- Concurrent use of FPS and Numeric Rating
  - Advantages; disadvantages
  - Resolving discrepancies
- Clinical challenges to overcome for pragmatic FPS use?
  - Education & structural support needed
  - Process & outcome monitoring
- Patient preference and expectations
  - Assessment tool selection
  - Mutual goal setting & treatment plan refinement
- Can the FPS frame goal-directed conversations?
- Research needed to enhance its validity & reliability?
Thank you Collaborators

• Deb Gentile, PhD, RN-BC; Senior Research Scientist
  • Aurora Health Care Co-Investigators:
    − Cindy Anderson, BSN, RN, CAPA; Christian Cottingham, BSN, RN; Kirsten MacGraith, BSN, RN, CPHN; Nicole Mincyczynski, RN
  • Marian Wilson, PhD, MPH, RN-BC | Assistant Professor
    • Washington State University College of Nursing
  • Massachusetts General Hospital
    • Maggie Florence RN; Research Assistant
    • Elaine Mandell RN & Jack Miles RN; study staff

References


Complete reference list available upon request

PCSS Mentoring Program

• PCSS Mentor Program is designed to offer general information to clinicians about evidence-based clinical practices in prescribing medications for opioid addiction.
  • PCSS Mentors are a national network of providers with expertise in addictions, pain, evidence-based treatment including medication-assisted treatment.
  • 3-tiered approach allows every mentor/mentee relationship to be unique and catered to the specific needs of the mentee.
  • No cost.

For more information visit: pcssnow.org/mentoring
Education. Train. Mentor

PCSS is a collaborative effort led by the American Academy of Addiction Psychiatry (AAAP) in partnership with:

- American Academy of Family Physicians
- American Psychiatric Association
- American Academy of Neurology
- Addiction Technology Transfer Center
- American Society of Addiction Medicine
- American Academy of Pain Medicine
- Association for Medical Education and Research in Substance Abuse
- American Academy of Pediatrics
- Center for Primary Care Addiction
- American College of Emergency Physicians
- American Psychiatric Nurses Association
- American College of Physicians
- National Association of Community Health Centers
- American Dental Association
- National Association of Drug Court Professionals
- American Medical Association
- Treatment Improvement Partnership
- American Osteopathic Academy of Addiction Medicine

Funding for this initiative was made possible (in part) by grant nos. 5U79TI026556-02 and 3U79TI026556-02S1 from SAMHSA. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.