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The Functional Pain Scale; changing the conversation about pain

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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 inadequate¹⁻²
 - Initial evaluation should include medical & biopsychosocial factors underlying pain and treatment-specific risks
- Monitoring is needed for early & late treatment effects¹⁻²
 - Pain treatment evaluation should include functioning³

1. U.S. Department of Health and Human Services (2019, May). Pain Management Best Practices Inter-Agency Task Force Report: Updates, Gaps, Inconsistencies, and Recommendations. Retrieved from U. S. Department of Health and Human Services website: <https://www.hhs.gov/ash/advisory-committees/pain/reports/index.html>
2. Pasero C, Quinlan-Colwell A, Rae D, et al. American Society for Pain Management Nursing Position Statement: Prescribing and Administering Opioid Doses Based Solely on Pain Intensity. *Pain Manag Nurs*. 2016 Jun;17(3):170-80.
3. Baker DW. History of The Joint Commission's Pain Standards: Lessons for today's prescription opioid epidemic. *JAMA*. 2017 Mar 21;317(11):1117-1118

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 ($r = 0.97$)
 - 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;

MPS-SF = McGill Pain Scale Short Form;

PPI = Present Pain Intensity;

NRS = 0-10 Scale

Gloth FM 3rd, et al. The Functional Pain Scale: reliability, validity, and responsiveness in an elderly population. *J Am Med Dir Assoc.* 2001;2(3):110-4.

Functional Pain Scale = FPS



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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

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

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

MGH-RN Pain Tools Use

(Med/Surg Unit Audit)

- First-line (adult) 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)

0.8 – 1	=	Very Strong
0.6 - 0.79	=	Strong
0.4 – 0.59	=	Moderate
0.2 – 0.39	=	Weak

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 ρ)
 - 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 ρ)
 - Out of bed activities $r=.52$ ($p<.001$) moderate correlation (Spearman's ρ)

Discriminant Validity of FPS to affective dimension of chronic

- 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 $r=.22$ ($p=.03$)
 - 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%)
 - Participation in treatment accounted for 49% of the variance in patient satisfaction

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 = 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.)

Arnstein P, Gentile D, Wilson M. Validating the Functional Pain Scale for Hospitalized Adults. *Pain Manag Nurs.* 2019 Oct. 20(5): 418-424.

* Permitted or Prescribed activities rather than “usual” activities



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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

Advocate Aurora Health

Parallel FPS Validation Study



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

	N = 51	
Numeric Rating Scale	$r_s = 0.45$	$p = .001$
PEG	$r_s = 0.28$	$p = .05$
Anxiety*	$r_s = 0.01$	$p = .90$
Depressed mood*	$r_s = 0.09$	$p = .44$
Helpless*	$r_s = 0.21$	$p = .07$

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

Time	Sample size	Intolerable by patient	Intolerable by RN	Same rating Patient & RN
Time 1	N = 22	6	3	13
Time 2	N = 18	6	6	6

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

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- 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

- Arnstein P, Gentile D, Wilson M. (2019) Validating the Functional Pain Scale for Hospitalized Adults. *Pain Manag Nurs.* 2019 Oct. 20(5): 418-424. PMID 31101560
- Gloth FM, Scheve AA, Stober CV, et al. (2001). The Functional Pain Scale: reliability, validity, and responsiveness in an elderly population. *J Am Med Dir Assoc.* 2(3):110-4. PMID:12812581
- Gloth FM. (2010). Assessment. In F.M. Gloth (ed.) *Handbook of Pain Relief in Older Adults: An Evidence-Based Approach.* pp: 15-25. Springer Science. doi 10.1007/978-1-60761-618-4_3
- Hjermstad MJ, Fayers PM, Haugen DF, et al. (2011). Studies comparing Numerical Rating Scales, Verbal Rating Scales, and Visual Analogue Scales for assessment of pain intensity in adults: a systematic literature review. *J Pain Symptom Manage.* 41(6):1073-93. PMID: 21621130
- Paice JA, & Cohen FL. (1997). Validity of a verbally administered numeric rating scale to measure cancer pain intensity. *Cancer Nurs.* 20(2):88-93. PMID:9145556
- Pasero C, Quinlan-Colwell A, Rae D, et al. (2016). American Society for Pain Management Nursing Position Statement: Prescribing and Administering Opioid Doses Based Solely on Pain Intensity. *Pain Manag Nurs.* 17(3):170-80. doi:10.1016/j.pmn.2016.08.002
- U.S. Department of Health and Human Services (2019, May). *Pain Management Best Practices Inter-Agency Task Force Report: Updates, Gaps, Inconsistencies, and Recommendations.* <https://www.hhs.gov/ash/advisory-committees/pain/reports/index.html>

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

PCSS Discussion Forum

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Ask a Colleague

A simple and direct way to receive an answer related to medication-assisted treatment. Designed to provide a prompt response to simple practice-related questions.

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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	American Society of Addiction Medicine
Addiction Technology Transfer Center	American Society of Pain Management Nursing
American Academy of Pain Medicine	Association for Medical Education and Research in Substance Abuse
American Academy of Pediatrics	International Nurses Society on Addictions
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
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American Osteopathic Academy of Addiction Medicine	



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