Taking the *Pain* out of Yellow Flag Screening:

A Practical Approach to Identifying Pain-Related Psychological Distress in Clinical Care

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Duke Clinical Research Institute

Duke University

Duke Clinical Research Institute | MUSCULOSKELETAL

Disclosures

- Research funding from Focus on Therapeutic Outcomes (FOTO) and the Academy of Orthopaedic Physical Therapy
- Duke University shares joint ownership and copyright of the SPARE tools
- Editorial responsibilities for *JOSPT*

Objectives

1. Describe the **relationship** between pain-related psychological distress and clinical outcomes for patients with musculoskeletal pain
2. Explain **which psychological factors are important** to consider in patients with musculoskeletal pain
3. Identify **options for efficient assessment** of pain-related psychological distress (i.e., yellow flag screening) in clinical practice
4. Describe **how to interpret** screening tool scores for clinical decision-making
5. Discuss the use of screening tools **to monitor changes** in psychological distress


Think Different.
Steve Jobs
quotefancy

Yellow Flag:

Psychosocial prognostic factors for the development of disability following the onset of musculoskeletal pain

Importance of Yellow Flags

» Yellow flags can be precursors of delayed recovery or indicate the need for psychologically informed interventions.

- **Pain Intensity**
- **Region-specific Disability**
- **Physical Health Status**
- **Mental Health Status**
- **Surgery**

The Journal of Pain
Available online 13 June 2019
In Press, Corrected Proof

Original Reports

Predicting Opioid Use, Increased Health Care Utilization and High Costs for Musculoskeletal Pain: What Factors Mediate Pain Intensity and Disability?

Trevor A. Lentz *, Daniel I. Rhon *, †, ‡, Steven Z. George *, §

Clin Orthop Relat Res (2010)
DOI 10.1007/s11999-009-096

CLINICAL RESEAR

Preoperative P
after Knee Art

Daniel L. Riddle PT, PhD, FAPTA, James B. Wade PhD,
William A. Jiranek MD, Xiangrong Kong PhD

PAIN

Variability in negative emotions among individuals with chronic low back pain: relationships with pain and function

James I. Gerhart[a,*], John W. Burns[a], Stephen Bruehl[b], David A. Smith[c], Kristina M. Post[d], Laura S. Porter[e], Erik Schuster[a], Asokumar Buvanendran[f], Anne Marie Fras[g], Francis J. Keefe[e]

George and Beneciuk *BMC Musculoskeletal Disorders*
DOI 10.1186/s12891-015-0509-2

BMC Musculoskeletal Disorders

Psychology
Research Report

OPEN

PAIN REPORTS

Catastrophizing and pain-related fear predict failure to maintain treatment gains following participation in a pain rehabilitation program

Emily Moo

RESEARCH ARTICLE Open Access

Psychological predictors of recovery from low back pain: a prospective study

Steven Z George[1,2,3*] and Jason M Beneciuk[1,2]

Contents lists available at ScienceDirect

The Journal of Arthroplasty

CrossMark

THE SPINE JOURNAL

The Spine Journal 14 (2014) 2639–2657

Clinical Study

EJP
European Journal of Pain

ORIGINAL ARTICLE

Pain expectations in neuropathic pain: Is it best to be optimistic?

G.P. Bostick[1], S.J. Kamper[2], T.M. Haanstra[3], B.D. Dick[4], L.W. Stitt[5], P. Morley-Forster[6], A.J. Clark[7], M.E. Lynch[7, 8], A. Gordon[9], H. Nathan[10], C. Smyth[10], M.A. Ware[11], C. Toth[12], D.E. Moulin[13]

ıg—a prognostic factor for outcome in patients with low back pain: a systematic review

MD[a,b,*], Rebekka Eugster, MD[a], Ulrike Held, PhD[a], Johann Steurer, MD[a], Reto Kofmehl, BSc[a], Sherri Weiser, PhD[b]

ine, Horten Centre for Patient-Oriented Research and Knowledge Transfer, University of Zurich, Pestalozzistrasse 24, 8032 Zurich, Switzerland
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Received 9 June 2013; revised 11 February 2014; accepted 1 March 2014

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TREATMENT
ADVOCACY

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Trevor A. Lentz,* Daniel I. Rhon,*,†,‡ and Steven Z. George*,§

*Department of Orthopaedic Surgery Duke University, Duke Clinical Research Institute, Duke University, Durham, North Carolina, †Brooke Army Medical Center, San Antonio, Texas, ‡Physical Performance Service Line, G3/5/7, Army Office of the Surgeon General, Falls Church, Virginia, §Department of Orthopeadic Surgery, Duke University, Durham, North Carolina

"Characteristics of the pain experience like elevated catastrophizing …may drive use of higher cost services."

Understanding Importance → ***Delivering Interventions***

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1. How do we screen for yellow flags?

2. How do we interpret screening results?

3. How/when do we intervene?

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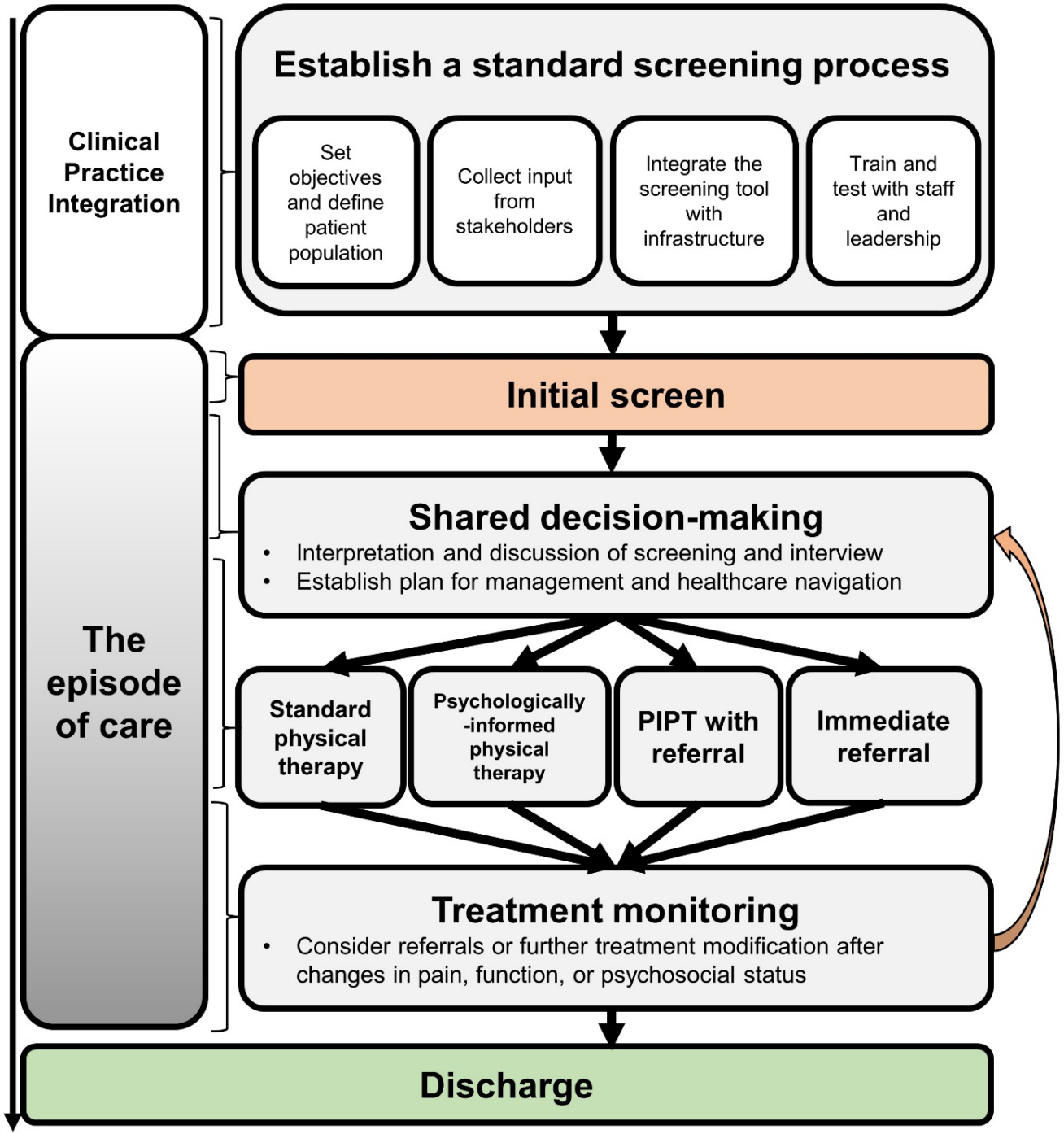
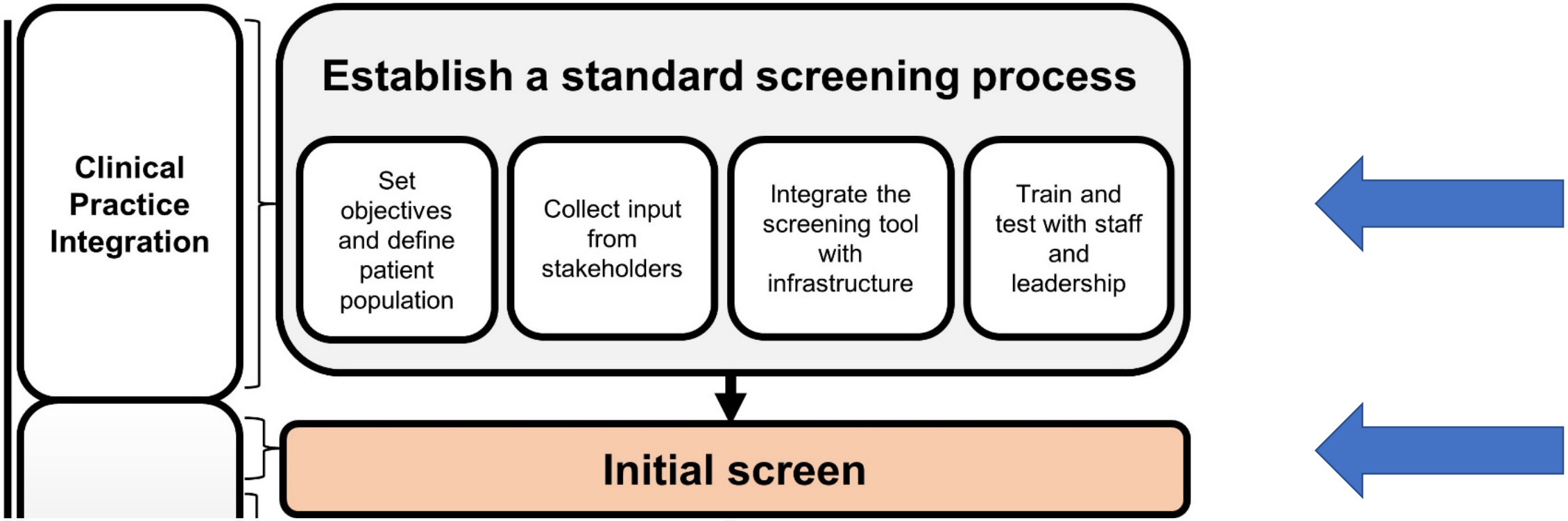


Stearns Z, et al. *JOSPT*, 2021

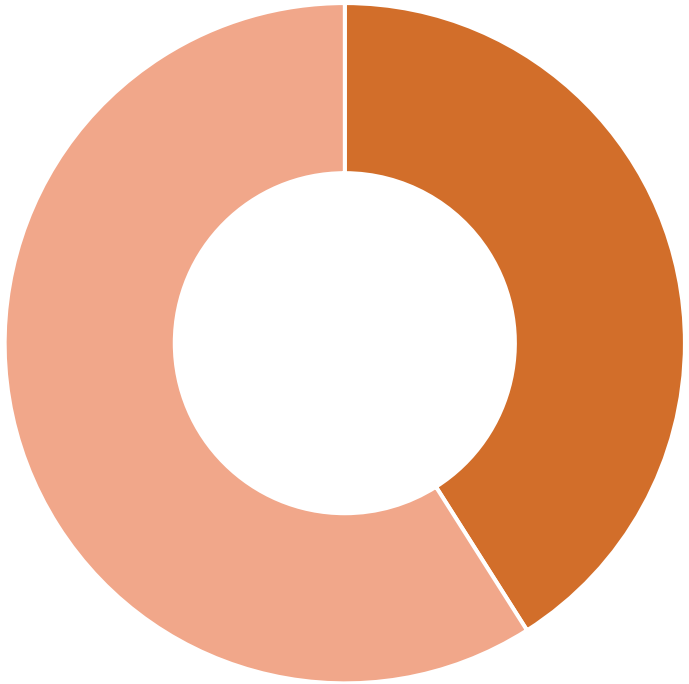


Stearns Z, et al. *JOSPT*, 2021

Original Research

Physical Therapists' Ability to Identify Psychological Factors and Their Self-Reported Competence to Manage Chronic Low Back Pain

Emanuel Brunner, Wim Dankaerts, André Meichtry, Kieran O'Sullivan, Michel Probst



41%

Correct allocation of SBT risk group

Brunner E. et al. *Phys Ther*, 2018

"Therapist ratings did not strongly correlate with FABQ or TSK-11 scores"

Calley DQ, et al. *JOSPT*, 2010

Negative Mood
- Depression
- Anxiety
- Anger

Negative Coping
- Fear Avoidance Beliefs
- Pain Catastrophizing
- Kinesiophobia
- Pain Anxiety

Positive Affect
- Pain Self-Efficacy
- Activity Self-Efficacy
- Chronic Pain Acceptance

OSPRO Yellow Flag Assessment Tool


[RESEARCH REPORT]

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GIORGIO ZEPPIERI, JR., PT, MPT, SCS[2] • YUNFENG DAI, MS[4] • SAMUEL S. WU, PhD[4] • STEVEN Z. GEORGE, PT, PhD[3]

Development of a Yellow Flag Assessment Tool for Orthopaedic Physical Therapists: Results From the Optimal Screening for Prediction of Referral and Outcome (OSPRO) Cohort

Lentz TA, et al. *JOSPT*, 2016

Negative Mood

- Depression - PHQ-9
- State-Trait Anxiety - STAI
- State-Trait Anger - STAXI

Fear Avoidance

- Fear Avoidance Beliefs - FABQ - Work and Physical Activity
- Pain Catastrophizing – PCS
- Kinesiophobia - TSK-11
- Pain Anxiety - PASS-20

Positive Affect/Coping

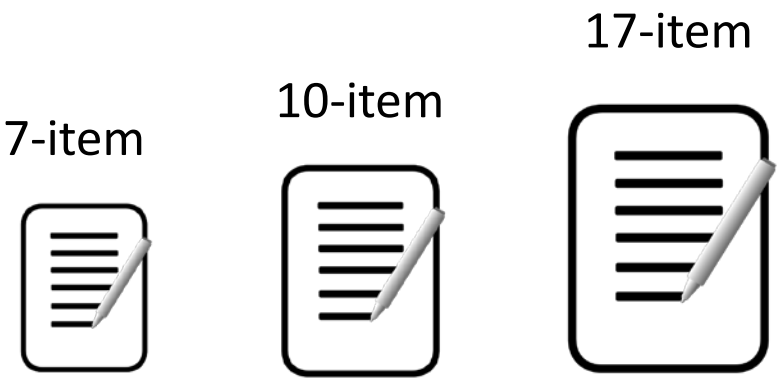
- Pain Self-Efficacy - PSEQ
- Self-Efficacy for Rehabilitation – SER
- Chronic Pain Acceptance - CPAQ

Used in 2 ways:

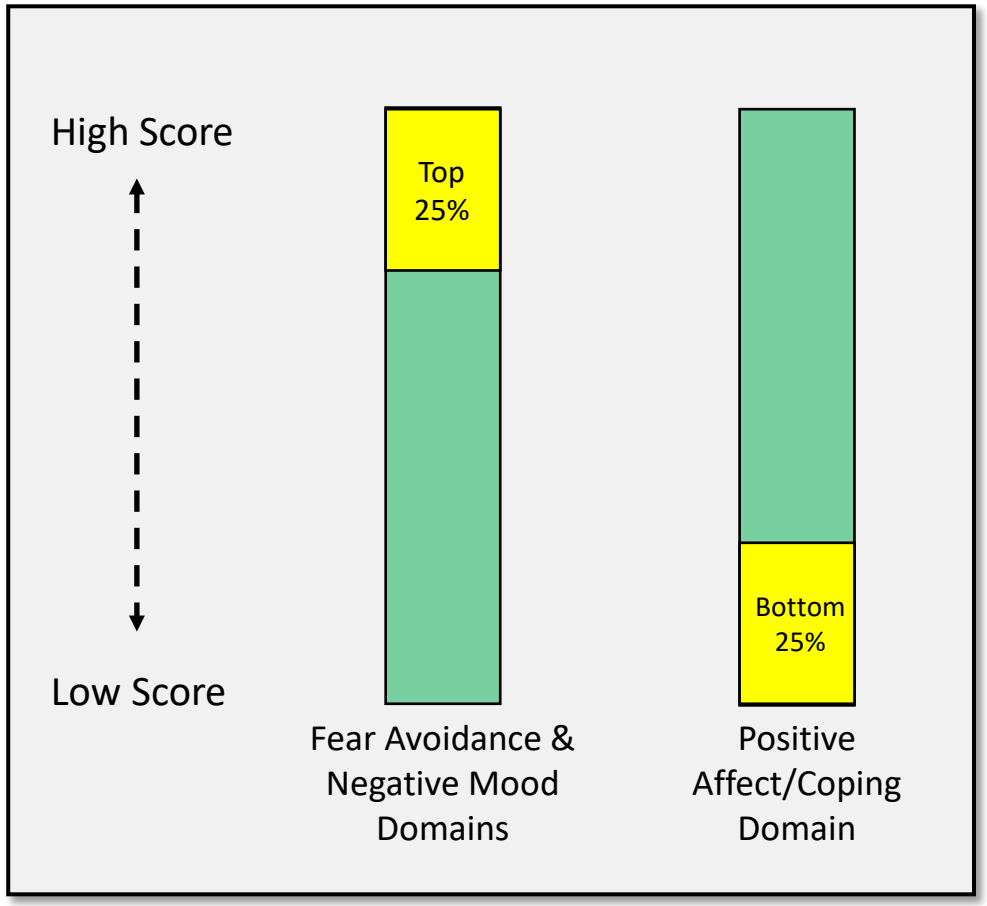
1. Determine full-length questionnaire score estimates
2. Identify “yellow flags”

Estimates Full-Length Questionnaire Scores

OSPRO Yellow Flag Assessment Tool



1. Modified Fear Avoidance Beliefs Questionnaire (FABQ)
2. Pain Catastrophizing Scale (PCS)
3. Tampa Scale of Kinesiophobia (TSK-11)
4. Pain Anxiety Symptoms Scale (PASS-20)
5. Patient Health Questionnaire (PHQ-9)
6. State-Trait Anxiety Inventory (STAI)
7. State-Trait Anger Expression Inventory (STAXI)
8. Pain Self-Efficacy Questionnaire (PSEQ)
9. Self-Efficacy for Rehabilitation Outcome Scale (SER)
10. Modified Chronic Pain Acceptance Questionnaire (CPAQ)



Yellow Flag Indicators

Presence or absence of "yellow flag"

- *11 yellow flag indicators*

Greater accuracy with longer versions

- *17-item – 85%*
- *10-item – 79%*
- *7-item – 75%*

OSPRO-YF ASSESSMENT TOOL

Negative Mood Domain

Over the last 2 weeks, how often have you been bothered by any of the following problems?

	Not at All	Several Days	More Than Half the Days	Nearly Every Day
1. Poor appetite or overeating*†	0	1	2	3

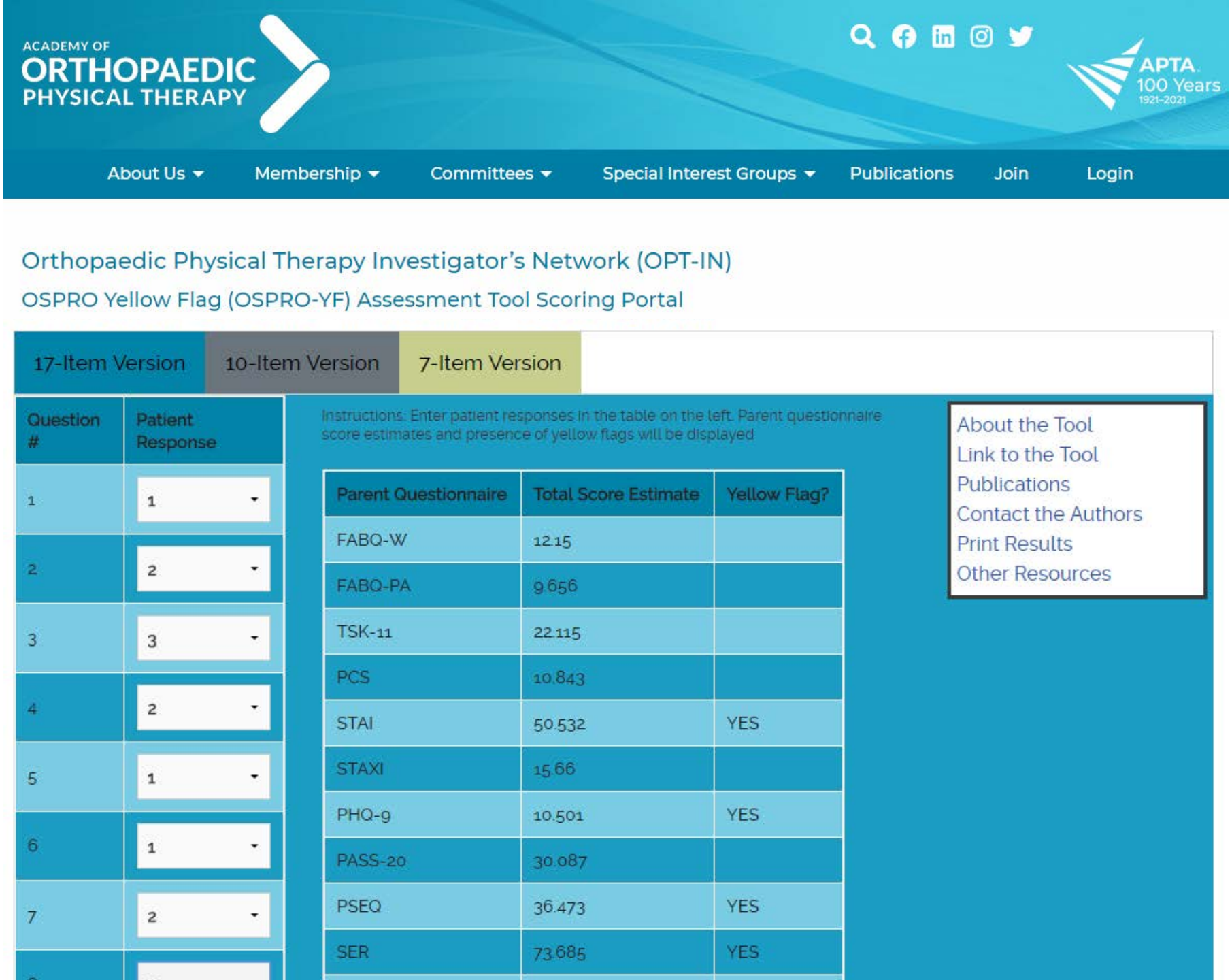
Read each statement and circle the appropriate number to the right of the statement to indicate how you generally feel.

	Almost Never	Sometimes	Often	Almost Always
2. I am content	1	2	3	4
3. Some unimportant thoughts run through my mind and bother me*	1	2	3	4
4. I am a hotheaded person*†	1	2	3	4
5. When I get mad, I say nasty things	1	2	3	4
6. It makes me furious when I am criticized in front of others	1	2	3	4

Fear-Avoidance Domain

Circle the number next to each question that best corresponds to how you feel.

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
7. I wouldn't have this much pain if there weren't something potentially dangerous going on in my body*†	1	2	3	4



www.orthopt.org/yf/

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Interpreting Scores


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Positive Affect/Coping

- Pain Self-Efficacy - PSEQ
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- Chronic Pain Acceptance - CPAQ

Score interpretation:

1. Individual score estimates
2. Total number of yellow flags
3. Number of yellow flags within a domain

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OSPRO-YF Phenotypes Among Adults with Hip or Knee OA (n=1,239)

Questionnaire	High Distress n=646 (52.0%)	Low Distress n=322 (26.0%)	Low Self-Efficacy and Acceptance n=187 (15.1%)	Negative Pain Coping n=84 (6.9%)
PHQ-9	58.8%	16.6%	37.0%	29.9%
STAI	69.2%	14.7%	27.5%	35.7%
STAXI	50.0%	20.1%	22.2%	30.5%
FABQ-PA	64.8%	24.1%	45.8%	33.2%
FABQ-W	67.4%	15.0%	32.7%	35.6%
PCS	88.5%	8.7%	4.2%	80.7%
TSK	97.4%	13.4%	26.2%	82.4%
PASS	97.6%	0.3%	8.3%	95.5%
PSEQ	100.0%	0.1%	99.9%	2.0%
SER	81.9%	21.6%	85.6%	9.3%
CPAQ	96.7%	5.6%	91.5%	18.0%

Lentz TA, et al. *CORR*, 2020

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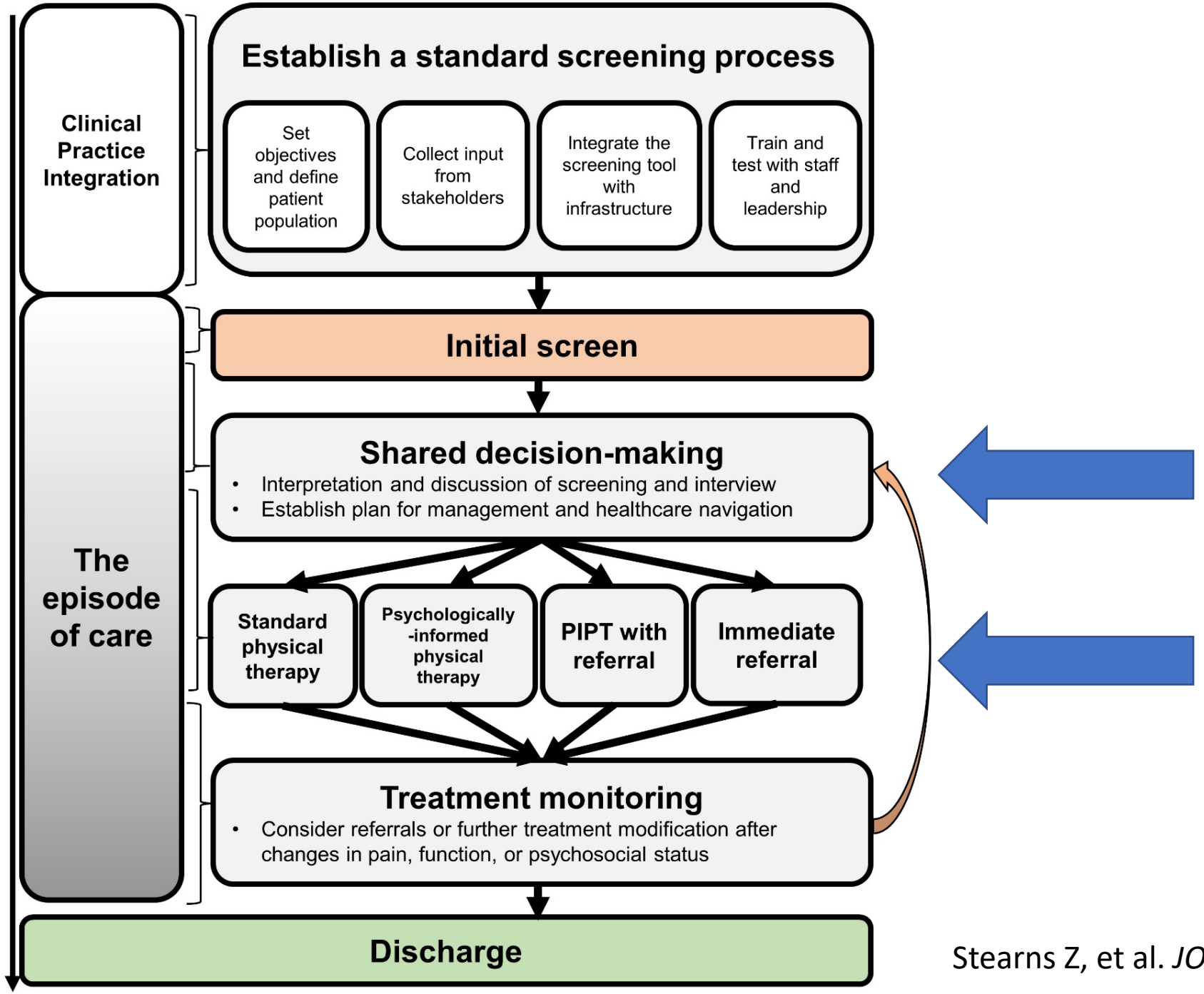
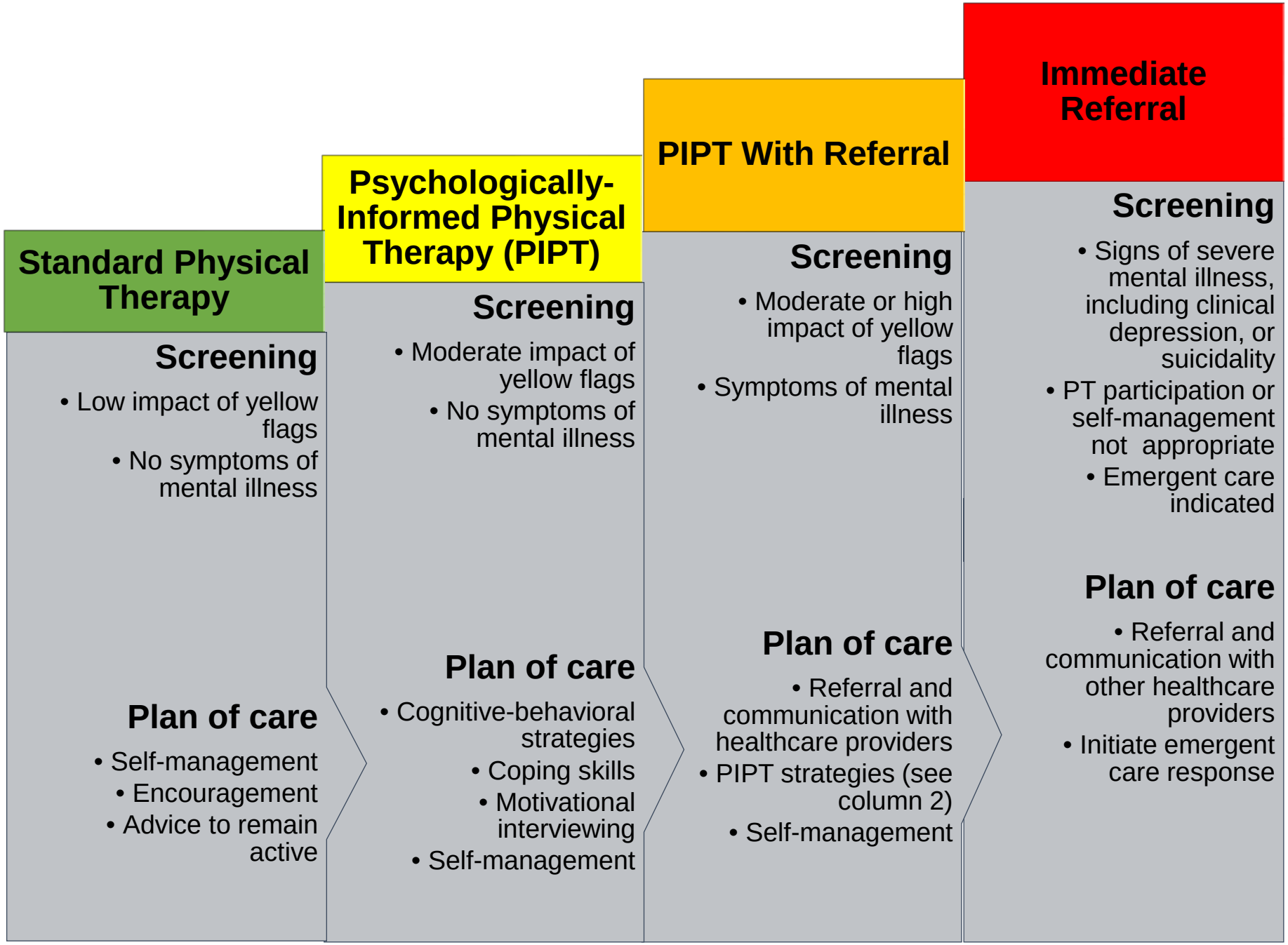
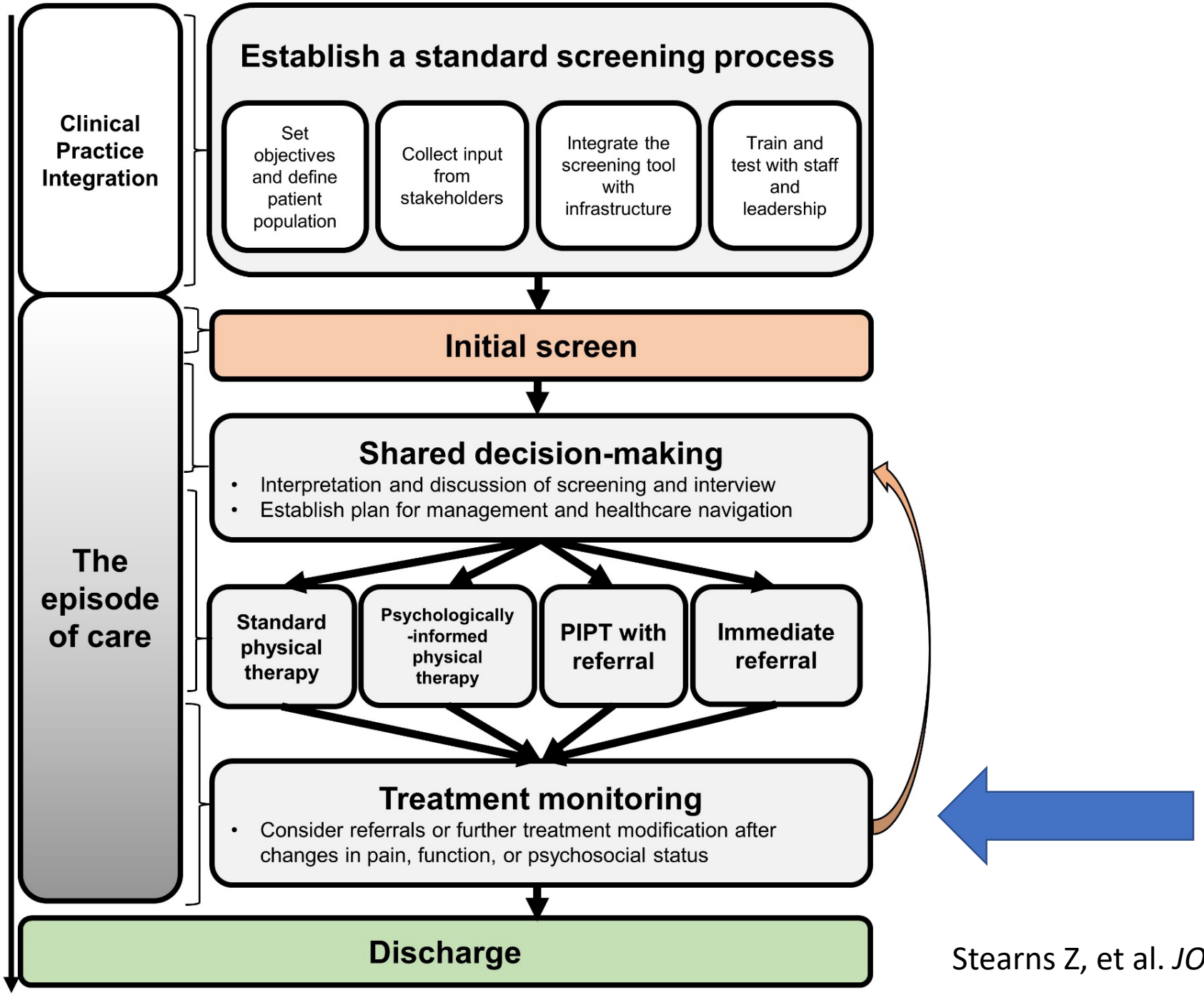


Stearns Z, et al. *JOSPT*, 2021

Discussing options

Discussing Targeting Treatment	*After a positive screen of fear avoidance domain factors:* "I hear your concern about movement and physical activities. With gradual changes to movement, we can work together to test how some movements feel. As we both find the best way to increase your motion and activity, we can increase the odds of improving and maintaining your function." *After a positive screen for low positive affect/coping:* "I can see that it has been challenging to cope with pain, which makes it hard to engage in activities that are meaningful to you. We can try to find strategies that are meant to build skills in coping with pain so that you can meet your goals."
Discussing Referral Options	"Pain affects so many areas of your life that it helps to have the best team of providers who can help in the areas in which you want assistance." "I look forward to working with you to help you to achieve your goals. Other providers can increase the likelihood that you will meet your goals that are not specific to your pain or physical functioning." "What are your thoughts about seeing a provider who specializes in how you think about and cope with your pain, in addition to participating in physical therapy?"


Standard Physical Therapy
Screening
• Low impact of yellow flags
• No symptoms of mental illness
Plan of care
• Self-management
• Encouragement
• Advice to remain active
Psychologically-Informed Physical Therapy (PIPT)
Screening
• Moderate impact of yellow flags
• No symptoms of mental illness
Plan of care
• Cognitive-behavioral strategies
• Coping skills
• Motivational interviewing
• Self-management
PIPT With Referral
Screening
• Moderate or high impact of yellow flags
• Symptoms of mental illness
Plan of care
• Referral and communication with healthcare providers
• PIPT strategies (see column 2)
• Self-management
Immediate Referral
Screening
• Signs of severe mental illness, including clinical depression, or suicidality
• PT participation or self-management not appropriate
• Emergent care indicated
Plan of care
• Referral and communication with other healthcare providers
• Initiate emergent care response



Stearns Z, et al. *JOSPT*, 2021


Future

Interpreting Scores

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Positive Affect/Coping

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- Chronic Pain Acceptance - CPAQ

SPARE Tools

Screening for Pain vulnerability And Resilience (SPARE) Tools

- Brief assessment tools designed to assess for pain related vulnerability and resilience across 3 domains: negative mood, fear avoidance, and negative coping.

- Developed from same dataset as the OSPRO yellow flag assessment tool, but not designed as its replacement.

SPARE Tools Development

Negative Mood

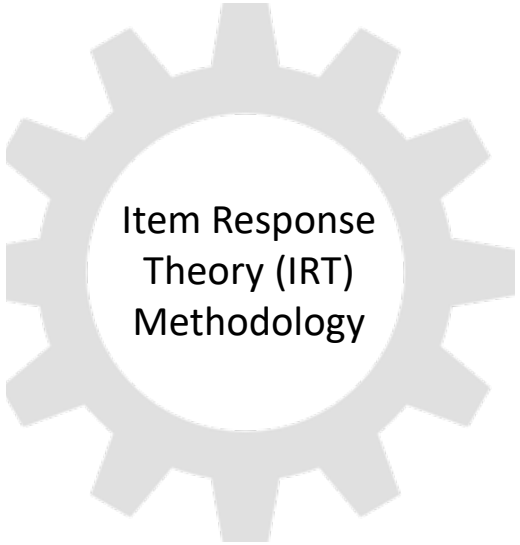
39 Questions from
PHQ-9, STAI, STAXI

Fear Avoidance

55 Questions from
FABQ, TSK-11, PCS, PASS

Positive Affect/Coping

42 Questions from
PSEQ, SER, CPAQ



SPARE - Negative Mood

4-item & 10-item short forms
Computer Adaptive Test (CAT)

SPARE - Fear Avoidance

4-item & 8-item short forms
Computer Adaptive Test (CAT)

SPARE - Negative Coping

4-item & 8-item short forms
Computer Adaptive Test (CAT)

SPARE Tools Scoring & Interpretation

<u>Uses T-scoring:</u>

- Continuous, where 50 is the mean and the SD is 10
- Higher scores means more of the concept being measured
- Patients with a score of one standard deviation above the mean, i.e., **scores of 60 or above, should be flagged for having high levels of the construct**.

OSPRO-YF versus SPARE

Use the OSPRO-YF when:

- When performance on individual questionnaires/constructs is warranted
- Clinician prefers use of a specific legacy psychological measure (e.g., TSK, FABQ)
- Overall measures of psychological distress (composite) desired

Use the SPARE tools when:

- CAT capabilities are available and preferred
- Desire ease of matching psychologically-informed treatments to specific domains
- Less concerned/interested in composite overall distress or specific constructs/legacy measures
- Want more efficient/accurate monitoring of treatment response


Think Different.
Steve Jobs
quotefancy

Questions?

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Access OSPRO calculator here!