

A Brief Measure of Fear of Pain: Assessing the Factor Structure and Psychometric Properties of the Short Form Fear of Pain Questionnaire



Cameron L. Randall¹, Dayton Waddell¹, Daniel W. McNeil^{1,2}, Laura Quentin¹,
Richard J. Crout², Robert J. Weyant³, and Mary L. Marazita³

¹Department of Psychology, Eberly College of Arts and Sciences, West Virginia University

²School of Dentistry, West Virginia University

³School of Dental Medicine, University of Pittsburgh



INTRODUCTION

- Emotions, particularly fear, play an important role in the experience of both acute and chronic pain (Geisser et al., 1994; McCracken et al., 1992; Romano & Turner, 1985).
- Fear of pain** impacts pain-related disability, pain intensity, and pain behavior (e.g., avoidance, complaining, help seeking), among other aspects of the pain experience, across medical and general populations (e.g., Crombez et al., 1999; George et al., 2006; McCracken et al., 1996; Parr et al., 2012; van Wijk & Joosraten, 2009).
- The 30-item Fear of Pain Questionnaire-III (FPQ-III; McNeil & Rainwater, 1998) was designed to assess fear of pain and has been utilized widely in experimental and clinical research in the areas of psychology, medicine, and dentistry.
 - The measure contains 3 subscales: Fear of Severe Pain, Fear of Medical/Dental Pain, and Fear of Minor Pain.
- The instrument has well-evidenced reliability and validity (Luszczyska & Cieślak, 2005; McNeil & Rainwater, 1998 ; Osman et al., 2001; Roelofs et al., 2005).
- Given the need for shorter and more efficient screening and assessment tools, a short-form version of the FPQ-III, known as the SF-FPQ, was developed using both undergraduate and chronic pain samples (McNeil et al., 2013). The SF-FPQ maintained the three-factor structure of the original FPQ-III.
- Though certainly promising as a screening instrument, especially in medical and dental settings, and as a brief research tool, there is limited literature addressing the psychometric properties of the SF-FPQ.
- This study aimed to replicate the factor structure of the SF-FPQ and to examine psychometric properties of the instrument using a large community sample.*

PARTICIPANTS

- Participants were members of families taking part in the Center for Oral Health Research in Appalachia (COHRA) study on determinants of oral diseases in families.
 - N = 1164 (740 female)
 - Ages 18 – 81 years ($M = 34.3$, $SD = 9.4$)

METHOD

- Measures
 - Fear of Pain Questionnaire-Short Form (McNeil et al., 2013; see Figure 1) – 9-item, self-report measure of pain-related fear; established norms for clinical and non-clinical samples; well-evidenced reliability and validity
 - Total score range: 9-45; Subscale score range: 3-15

Short Form of the FEAR OF PAIN QUESTIONNAIRE

Name: _____ Date: _____

INSTRUCTIONS: The items listed below describe painful experiences. Please look at each item and think about how **FEARFUL** you are of experiencing the **PAIN** associated with each item. If you have never experienced the **PAIN** of a particular item, please answer on the basis of how **FEARFUL** you expect you would be if you had such an experience. Circle one number for each item below to rate your **FEAR OF PAIN** in relation to each event.

I FEAR the PAIN associated with:

	Not At All	A Little	A Fair Amount	Very Much	Extreme
1. Breaking your arm.	1	2	3	4	5
2. Having a foot doctor remove a wart from your foot with a sharp instrument.	1	2	3	4	5
3. Getting a paper-cut on your finger.	1	2	3	4	5
4. Receiving an injection in your mouth.	1	2	3	4	5
5. Getting strong soap in both your eyes while bathing or showering.	1	2	3	4	5
6. Having someone slam a heavy car door on your hand.	1	2	3	4	5
7. Gulping a hot drink before it's cooled.	1	2	3	4	5
8. Receiving an injection in your hip/buttocks.	1	2	3	4	5
9. Falling down a flight of concrete stairs.	1	2	3	4	5

Figure 1. Short Form Fear of Pain Questionnaire

Procedure

- Participants completed the study questionnaire as part of a larger, comprehensive protocol involving interviews, oral health assessment, microbiological assessment, and DNA collection.
- Factor structure of the SF-FPQ was assessed using a Principal Components Analysis. Reliability also was measured. All statistical analyses were completed with SPSS 21 (IBM, 2012).

RESULTS

- A Principal Components Analysis (with Varimax rotation) confirms the original three-factor structure of the SF-FPQ (using an Eigenvalue cutoff of 0.90). After rotation, 71.4% of total variance is accounted for by the solution. See Table 1.

Table 1. Results of Principal Components Analysis

Factor	Subscale Name	Variance Accounted For (%)	Items
1	Fear of Severe Pain	50.2	1, 6, 9
2	Fear of Medical/Dental Pain	11.1	2, 4, 8
3	Fear of Minor Pain	10.1	3, 5, 7

- High internal consistency was observed for total SF-FPQ score ($M = 23.6$, $SD = 8.2$, Cronbach's $\alpha = .88$). See Table 2 for reliability estimates for each subscale.

Table 2. Means & Reliability Statistics for Subscales of the SF-FPQ

Subscale	M score (Range: 3-15)	SD	Cronbach's α
Fear of Severe Pain	9.9	3.7	.84
Fear of Medical/Dental Pain	6.1	2.6	.70
Fear of Minor Pain	7.7	3.3	.77

DISCUSSION

- As was observed in the original chronic pain sample, Minor, Severe, and Medical/Dental Pain subscales emerged in the SF-FPQ for this Appalachian community sample. High internal consistency was observed for total and subscale SF-FPQ scores.
- These results provide additional support for the use of the SF-FPQ as a psychometrically sound measure of fear of pain.
- Evidence from this study confirms that the SF-FPQ is a reliable and valid measure of fear of pain, and may have particular utility in multidisciplinary research and clinical contexts as a result of its brevity.

SUPPORT AND CONTACT INFORMATION

Daniel W. McNeil, Ph.D.
53 Campus Drive, Box 6040
Morgantown, WV 26505-6040
dmcneil@wvu.edu

GRANT # R01-DE014889 (PIs: Marazita [Lead; University of Pittsburgh], McNeil [WVU], Foxman [University of Michigan]).

