

**Assessment of Pre-surgical
Psychological Screening in Patients
Undergoing Spine Surgery:
Implementation and Clinical Impact**

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Background

- Approximately 45 million Americans age 65+ suffer from depression or anxiety disorders
- Several studies suggest that, if overlooked these psychological conditions may lead to back problems and poor health outcomes (1)
- The North American Spine Society (NASS) recommends pre-surgical screening for patients undergoing back surgery to insure accurate diagnosis, procedural effectiveness, and follow-up services

1. Cassano, P. and M. Fava, *Depression and public health: An overview*. J Psychosom Res, 2002. 53(4): p. 849-57.

Background (continued)

- It is unclear how widespread such screening is implemented
- Until more information is known, it will be difficult to improve preoperative care for back patients with psychological conditions

Purpose

- Our long term goal is to improve the quality of preoperational care and the outcomes for spine surgery patients

Specific Aims

- To determine prevalence of use of pre-operative psychological screening and its surgical outcomes
- To identify factors associated with implementation of pre-surgical psychological screening
- To identify barriers of the use of pre-surgical screening

Methods

- Sent out an online survey to spine surgeons around the country
- 110 spine surgeons responded to our survey out of 340 surgeons (approximately 32.4% responded)
- Survey asks:
 - Years of practice and experience
 - Specialty training
 - Number of surgeons in practice
 - Type of practice (Private versus university affiliated)
 - Attitudes and behavior towards pre-psychological screening
- We expect 10% of the surveyed surgeons to regularly employ pre-surgical psychological screening

Demographics

Gender	Frequency	Percent
Female	8	7.27
Male	102	92.73
Race	Frequency	Percent
American Indian/Native Alaskan	5	4.55
Asian	8	7.27
Black/African American	6	5.45
Native Hawaiian/Pacific Islander	2	1.82
White/Caucasian	89	80.91
Hispanic	Frequency	Percent
No	96	88.07
Yes	13	11.93

Frequency Missing= 1

Years since Residency	Frequency	Percent
Less than 5	16	15.24
5-9	15	14.29
10-14	35	33.33
15-24	28	26.67
Greater than 25	11	10.48

Total: 105, Frequency Missing= 5

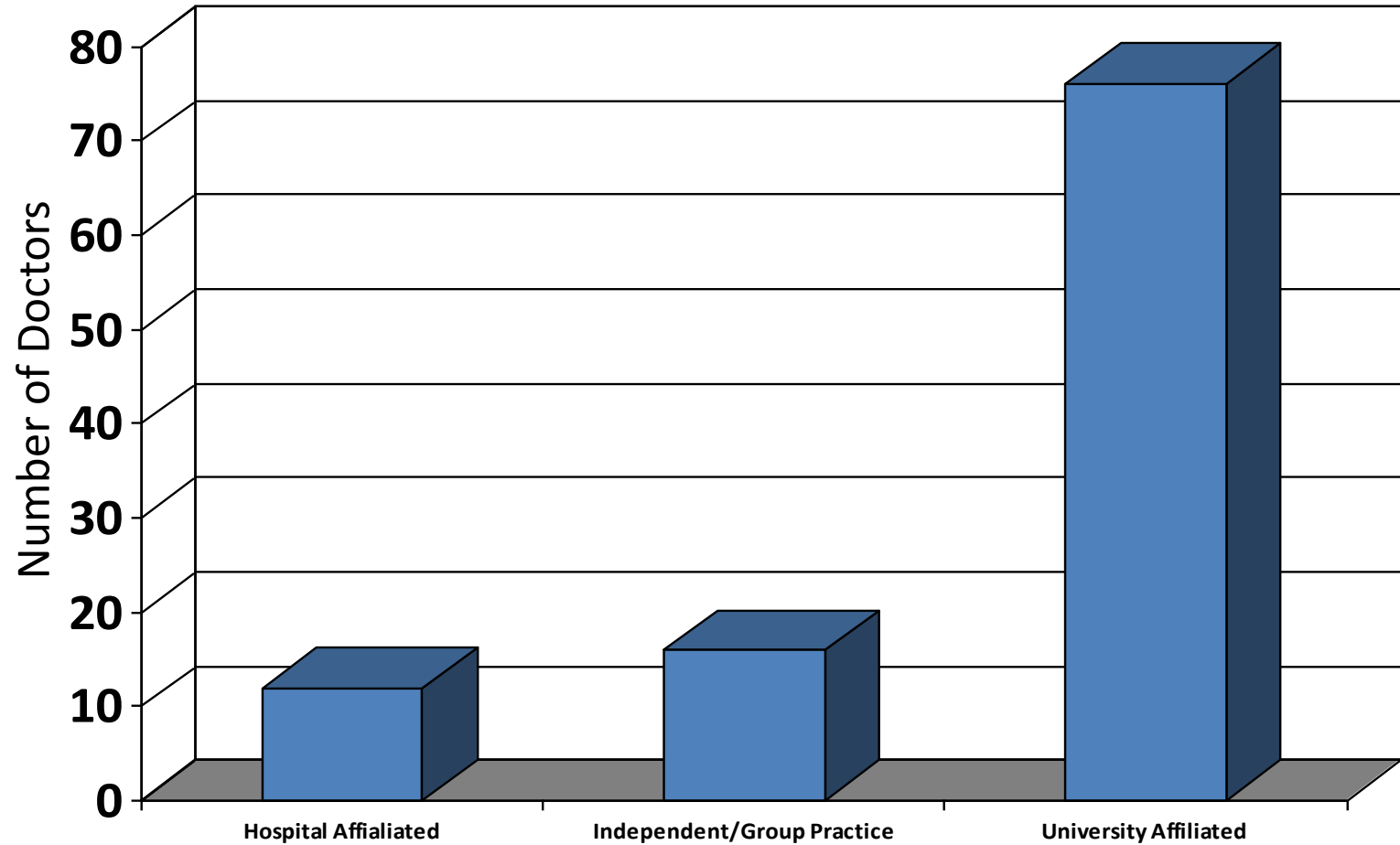
Years in Practice	Frequency	Percent
Less than 5	18	17.31
5-9	20	19.23
10-14	28	26.92
15-24	27	25.96
Greater than 25	11	10.58

Total: 104, Frequency Missing= 6

Years since Fellowship	Frequency	Percent
Less than 5	20	19.05
5-9	23	21.90
10-14	23	21.90
15-24	24	22.86
Greater than 25	10	9.52
No Fellowship	5	4.76

Total:101, Frequency Missing= 5

Type of Practice



Frequency Missing= 6

Surgeons in Practice	Frequency	Percent
≤5	28	38.89
6 to 10	27	37.50
11 to 20	4	5.56
20+	13	18.06

Total: 72, Frequency Missing= 38

Integrated Rehab Service	Frequency	Percent
Don't Know/Refuse to Answer	1	0.96
No	24	23.08
Yes	79	75.96

Total: 104, Frequency Missing= 6

Rehab Psychologist	Frequency	Percent
Don't Know/Refuse to Answer	17	17.00
No	45	45.00
Yes	38	38.00

Total: 100, Frequency Missing= 10

Pre-surgical Psychological Screening	Frequency	Percent
No	63	60.58
Yes	41	39.42

Total: 104, Frequency Missing= 6

Screen Fear of Movement	Frequency	Percent
Don't Know/Refuse to Answer	9	21.95
No	13	31.71
Yes	19	46.34

Total: 41, Frequency Missing= 69

Screen Depression	Frequency
Yes	41

Frequency Missing= 69

Screen Subset Patients	Frequency	Percent
Don't Know/Refuse to Answer	6	5.94
No	60	56.41
Yes	35	34.65

Total: 101, Frequency Missing= 9

Screen Anxiety	Frequency	Percent
No	6	14.63
Yes	35	85.37

Total: 41, Frequency Missing= 69

Screen Subset Patients Description

Screen Subset Patients Description	Frequency	Percent
Patients who have evidence of psychological disorder from H&P	4	11.11
Low Back Pain w/o radiculopathy/claudication	4	11.11
Mechanical back pain w/o radiculopathy /claudication, and work injury patients	3	8.33
Ones that demonstrate psychological distress during history interview	3	8.33
Psychiatric diagnoses, social status changes, family stressors	3	8.33
N/A	3	8.33

Screen Subset Patients Description (Continued)

Screen Subset Patients Description	Frequency	Percent
Ones who show evidence of depression, anxiety, or any psychological distress from H&P	2	5.56
Patient's on any non-over the counter pain medication, a diagnosis of fibromyalgia or chronic pain syndrome, any psychological diagnoses, multiple spine operations	2	5.56
Multiple failed Surgery; Chronic Pain with minimal evidence on exam or radiographic studies	2	5.56
All sf 36 mood questions in msk questionnaire	2	5.56
Elective joint replacement patients with emotional and/or drug problems	2	5.56

Screen Subset Patients Description (Continued)

Screen Subset Patients Description	Frequency	Percent
Findings of inappropriate illness behaviors, chronic pain medication usage, known psychiatric diagnoses	1	2.78
I only treat children and those presenting with possible eating disorders or obvious behavioral issues	1	2.78
Patients with low back pain or neck pain	1	2.78
Pts identified by surgeon or nurse as having significant depression, anxiety, or other mental health disorder	1	2.78
Scheuermann's Kyphosis correction	1	2.78
Spine stimulators and morphine pumps for benign pain	1	2.78

Total: 36, Frequency Missing= 74

Pre-surgical Psychological Referr	Frequency	Percent
No	92	89.32
Yes	11	10.68

Total: 103, Frequency Missing= 7

Pre-surgical Psychological Refer0	Frequency	Percent
Don't know/Refuse to answer	6	5.83
No	42	40.78
Yes	55	53.40

Total: 103, Frequency Missing= 7

Pre-surgical Psychological Refer

Presurgical Psychological Refer	Frequency	Percent
Obvious Psychopathology	5	9.26
Patients with evidence of psychological disorder from H&P	4	7.41
Those with clearly defined depression or somatization on standardized DRAM testing	4	7.41
Low back pain due to degenerative disease, being considered for lumbar fusion/total disc arthroplasty	4	7.41
Low back w/o radiculopathy/claudication	4	7.41
Patients whose behavior has caused their condition/Patients who answer yes to having a history of depression or other psychological problems	4	7.41
See prior	4	7.41
See prior screen box	3	5.56
Ones that have evidence of depression or significant anxiety	3	5.56

Pre-surgical Psychological Refer (Continued)

Presurgical Psychological Refer	Frequency	Percent
Depression detected by screening	2	3.70
Ones that show evidence of psychological distress during pre-surgical screening	2	3.70
Patient's with known psychological co-morbidities, high narcotics usage, multiple prior surgeries, long duration of symptoms, pain avoidance behavior	2	3.70
Patients with substance abuse or medication dependence problems/Those with apparently significant depression	2	3.70
Poorly controlled psych problems +/- drug addicts	2	3.70
Those that score high on DRAM in DS and DD categories	2	3.70
Those with vegetative signs of depression/refer to psych if have no coping mechanisms and generally won't do elective procedures	2	3.70

Pre-surgical Psychological Refer (Continued)

Presurgical Psychological Refer	Frequency	Percent
Elective spine cases	1	1.85
Patients identified by surgeon or nurse on interview. We obtain MCS on all from SF-36, but do not routinely use for clinical care-research only	1	1.85
Scheuermann's	1	1.85
Spinal stimulator and morphine pump patients	1	1.85
Worker's comp with perceived psychological issues or secondary gain issues	1	1.85

Total: 54, Frequency Missing= 56

sf36	Frequency	Percent
No	61	60.40
Yes, all cases	21	20.79
Yes, Research cases only	19	18.81

Total: 101, Frequency Missing= 9

Ndi	Frequency	Percent
No	53	53.00
Yes, all cases	32	32.00
Yes, Research cases only	15	15.00

Odi	Frequency	Percent
No	39	38.61
Yes, all cases	42	41.58
Yes, Research cases only	20	19.80

Total: 101, Frequency Missing= 9

Srs	Frequency	Percent
No	82	81.19
Yes, all cases	10	9.90
Yes, Research cases only	9	8.91

Total: 101, Frequency Missing= 9

Total: 100, Frequency Missing= 10

Painvas	Frequency	Percent
No	26	25.74
Yes, all cases	68	67.33
Yes, Research cases only	7	6.93

Total: 101, Frequency Missing= 9

Other	Frequency	Percent
Don't Know	10	19.23
No	39	69.23
Yes, all cases	5	9.62
Yes, Research cases only	1	1.92

Total: 52, Frequency Missing= 58

Mean Number of Annual Surgical Cases/ Procedures

Number of Doctors	Mean	Standard Deviation	Min	Max
73	195.96	78.61	40	300

Procedure	N	Mean	Standard Dev	Min	Max
Cervical	79	29.56	16.69	0.00	75.00
Thoracic	79	13.51	11.58	0.00	75.00
Lumbar	79	52.51	19.07	0.00	100.00
Deformity	79	13.32	14.15	0.00	80.00
Degeneration	79	56.87	24.53	0.00	88.00
Pediatric	73	11.19	22.58	0.00	100.00
Trauma	79	11.86	7.73	0.00	30.00
Tumor	77	6.34	4.49	0.00	20.00
Other	44	4.89	9.99	0.00	45.00

Surgeon Beliefs

- Used a scale from 0-10

Psych Affect Adherence Pt	Frequency	Percent
2	6	5.94
3	1	0.99
5	11	10.89
6	18	17.82
7	16	15.84
8	24	23.76
9	14	13.86
10	11	10.89

Average Confidence Rating: 7.109

Total: 101, Frequency Missing: 9

Psych Affect Followup	Frequency	Percent
0	6	5.94
1	11	10.89
2	1	0.99
3	1	0.99
4	3	2.97
5	11	10.89
6	18	17.82
7	26	25.74
8	10	9.90
9	6	5.94
10	8	7.92

Average Confidence Rating: 5.812

Total: 101, Frequency Missing: 9

Surgeon Beliefs Continued

- Used a scale from 0-10

Psych Affect Painrelief	Frequency	Percent
5	7	6.93
6	12	11.88
7	13	12.87
8	21	20.79
9	21	20.79
10	27	26.73

Average Confidence Rating: 8.168

Total: 101, Frequency Missing= 9

Psych Affect Rtw	Frequency	Percent
5	5	5.00
6	11	11.00
7	13	13.00
8	24	24.00
9	26	26.00
10	21	21.00

Average Confidence Rating: 8.180

Total: 100, Frequency Missing= 10

Statistical Analysis

- Tested association between use of pre-surgical psychological screening and other factors.

Pre-surgical Psychological Screening

Years Since Residency	No	Yes
0 to 14 years	45	20
15 years or greater	18	21

P= 0.024

Annual Number of Cases	No	Yes
40 to 200	22	10
Over 200	16	25

P=0.018, Missing= 31 (excluded)

Years in Practice	No	Yes
0 to 14 years	46	20
15 years or greater	17	21

P= 0.021

Type of Practice	No	Yes
University Affiliated	51	25
Non-University Affiliated	12	16

P= 0.041

Screen Fear of Movement

Years Since Residency	No	Yes
0 to 14 years	5	15
15 years or greater	17	4

P= 0.005

Years Since Fellowship	No	Yes
0 to 14 years	5	15
14 years or greater	13	4

P= 0.003, Excluded No Fellowship

Years in Practice	No	Yes
0 to 14 years	5	15
15 years or greater	17	4

P= 0.001

Integrated Rehab

Type of Practice	No	Yes
Hospital Affiliated	0	12
Non-Hospital Affiliated	25	65

P= 0.035

Number of Surgeons in Practice	No	Yes
3 to 20	8	51
25 to 80	8	5

P= 0.001, Missing= 32 (excluded)

Rehab Psychologist

Type of Practice	No	Yes
Independent	14	2
Non-Independent	48	36

P= 0.025

Type of Practice	No	Yes
Hospital Affiliated	2	10
Non-Hospital Affiliated	60	28

P= 0.001

Pre-surgical Psychological Refer0

Number of Surgeons in Practice	No	Yes
3 to 20	19	37
25 to 80	10	5

P=0.037, Missing= 32 (excluded)

Conclusion

- Of those who responded, approximately 39% reported using pre-surgical psychological screening, much higher than what we expected
- Surgeons were less likely to employ pre-surgical psychological screening if they:
 - had completed their residency 14 years or less ago
 - had fewer than 200 cases annually
 - have been in practice for 14 years or less
 - are university affiliated versus non-university affiliated (Independent or hospital)

Conclusion (continued)

- Amongst those who do pre-surgical psychological screening, surgeons were more likely to screen for fear of movement if the years since residency, years since fellowship, or years in practice were less than 14 years
- Percentage-wise, more reported having a rehab psychologist and integrated rehab if they were affiliated with a hospital
- Those who have fewer than 20 surgeons in their practice were far more likely to have integrated rehab and refer patients to screening

Limitations

- Did not test NASS members versus non-NASS members
- Majority of respondents were university affiliated (Not enough representation of independent or hospital affiliated)