

The Patient Health Questionnaire (PHQ9) and Generalised Anxiety Disorder Questionnaire (GAD7) in the Spinal Surgery Out Patient Setting: A Comparison to Visual Analogue Score, Oswestry Disability Index / Neck Disability Index and Disability Benefit

Mr F Brooks and Mr M J H McCarthy

Welsh Centre for Spinal Trauma and Surgery, University Hospitals Wales, Cardiff

Key Points

PHQ9 and GAD7 correlate well to VAS, NDI and ODI scores in spinal out patient clinic

Around one third of patients attending spinal clinic receive disability benefits

Patients on disability benefit report worse patient reported outcome measures



Introduction

Patient reported outcome measures (PROMs) and psychological aspects of spinal conditions play an important role in its management. Disability benefit in the social welfare system is being closely scrutinized. The PHQ9 and GAD7 are used widely in general practice to aid assessment of depression and anxiety / somatization. To date, their use in the spinal surgery out patient setting has not been assessed.

Patient Health Questionnaire (PHQ9)

The PHQ9 is a validated depression diagnostic and severity measure. It consists of 9 questions each having 4 answers scored 0 to 3 (total score 0-27). Depression severity is ranked 0-4 none, 5-9 mild, 10-14 moderate, 15-19 moderately severe and 20-27 severe.

Generalised Anxiety Disorder (GAD7)

The GAD7 is a valid and efficient tool for screening generalised anxiety disorder and assessing its severity. It consists of 7 questions each having 4 answers scored 0 to 3 (total score 0-21). Anxiety level is ranked 0-4 minimal, 5-9 mild, 10-14 moderate and 15-21 severe.

Table 1

Demographic Data	AI	Neck Disorders	Low Back Disorders	Chronic Degenerative Low Back Pain
Number	516	98	406	81
Age / years (95%CI)	54.0 (1.4)	55.8 (2.4)	53.5 (1.6)	48.5 (3.2)
Sex - Male	237	47	190	31
Sex - Female	279	51	216	50
Walking Distance / yards (95%CI)	563 (54)	956 (144)	472 (55)	440 (121)
Numbness / Weakness (%)	408 (79)	83 (85)	325 (80)	60 (74)
VAS spine (95%CI)	6.7 (0.2)	6.3 (0.5)	6.8 (0.3)	7.6 (0.5)
VAS limb (95%CI)	6.0 (0.3)	6.0 (0.6)	6.2 (0.3)	5.5 (0.6)
ODI / NDI (95%CI)	48.2 (1.7)	41.9 (4.2)	49.6 (1.9)	53.6 (4.6)
PHQ9 (95%CI)	12.0 (0.7)	10.7 (1.5)	12.3 (0.8)	14.2 (1.8)
GAD7 (95%CI)	8.7 (0.6)	8.0 (1.5)	8.8 (0.7)	10.3 (1.7)
Disability Benefit (%)	163 (31.6)	23 (23.5)	140 (34.4)	31 (38)
Injury Claim (%)	18 (3)	1(1)	17(4)	3 (4)

Table 2

Disability Benefits	AI	Neck Disorders	Low Back Disorders	Chronic Degenerative Low Back Pain
Age	p<0.002	p=0.3	p<0.003	p=0.9
Walking Distance	p<0.0001	p<0.0001	p<0.0001	p<0.0002
VAS spine	p<0.0001	p=0.5	p<0.0001	p=0.1
VAS limb	p<0.0007	p=0.3	p<0.002	p=0.01
NDI / ODI	p<0.0001	p<0.0001	p<0.0001	p<0.0001
PHQ9	p<0.0001	p<0.03	p<0.0001	p=0.0008
GAD7	p<0.0001	p=0.2	p<0.0001	p=0.006

Materials and Method

Over a one-year period the senior author consulted 516 new patients. Each patient completed a standard spinal assessment questionnaire consisting of several demographic / aetiological questions and PROMs (Visual Analogue Score for spine pain, Visual Analogue Score for limb pain, Oswestry Disability Index / Neck Disability Index, PHQ9 and GAD7). An analysis of these scores was performed. The subgroups analysed were neck disorders, low back disorders and chronic degenerative low back pain. The last group was defined following MRI confirmation of degenerative disc disease and / or degenerative facet arthrosis and the absence of deformity, tumour, infection, stenosis, neuronal compression and spondylololthesis. Clinical examination was negative for pain of sacroiliac joint origin.

Results

The main demographic data is shown in Table 1. The PHQ9 correlated strongly with the GAD7 ($r=0.83$, $p<0.0001$). The PHQ9 and GAD7 correlated strongly with the VAS and ODI / NDI scores in all of the subgroups ($r=0.25-0.65$). 163 patients (31.6%) were receiving disability benefit. Overall, patients receiving disability benefit had significantly worse PROMs compared to those without (Table 2). Disability benefit may not be directly related to the degree of neck and chronic degenerative low back pain as measured by the VAS. In the subgroup of 81 patients with chronic degenerative low back pain, on direct questioning specific concerns and worries about the pain were present in 21 patients (26%). These concerns were significantly associated with VAS spine, ODI and disability benefits but not the PHQ9 and GAD7.

Conclusion

The PHQ9 and GAD7 scores appear to correlate well with the standard spinal disability assessment PROMs (VAS and ODI / NDI). Patients receiving disability benefit appear to have worse PROMs including worse measures of depression and anxiety / somatization.

Further Work

Analysis of the test retest reliability for the PHQ9 and GAD7 in spinal conditions, correlation with spinal surgical intervention and outcomes, and comparison to other psychometric measures used to assess spinal conditions.

References

- Blair MJ, Wu, J, Damush TM, Sutherland JM and Kroenke K (2008). Association of Depression and Anxiety Alone and in Combination With Chronic Musculoskeletal Pain in Primary Care Patients. *Psychosomatic Medicine* 70:890-897.
- Kroenke K and Spitzer RL (2002). The PHQ9: A New Depression Diagnostic and Severity Measure. *Psychiatric Annals* 32: 1-7.
- Maniadakis N and Gray A (2000). The Economic Burden of Back Pain in the UK. *Pain* 84: 95-103.
- Pincus T, Burton K, Vogel S and Field AP (2002). A Systematic Review of Psychological Factors as Predictors of Chronicity / Disability in Prospective Cohorts of Low Back Pain. *Spine* 27: E109-120.
- Spitzer RL, Kroenke K, Williams JBW and Lowe B (2006). A Brief Measure for Assessing Generalised Anxiety Disorder: The GAD7. *Arch Int Med* 166: 1092-1097.

No conflicts of interest / No funding obtained