



Mending More Than Bones: Mental Health in Orthopedic Infectious Disease Patients

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Introduction	Methods	Results
- The prevalence of anxiety and depression in the general population ranges from 8-21% - Bone and joint infections can require extended antimicrobial therapy and multiple surgical procedures - These infections are associated with significant pain and functional impairment	- Patients in a combined orthopedic and infectious disease clinic were asked to complete an online survey before or after each scheduled visit. - The survey entailed the following components: - Pre-survey questionnaire - Hospital Anxiety and Depression Scale (HADS) - The Medical Outcomes Study Social Support Survey (SF-20) 8-item financial well-being scale. - Clinical variables were extracted from medical records - Group differences in continuous variables were assessed with Welch's t-tests and categorical variables with Fisher's exact tests - p<0.05 was considered significant - Patients were supplied handouts about emergency contacts and mental health assistance post survey	- Total patients: 77 18 (23%) screened positive for anxiety and 22 (29%) screened positive for depression - No differences were seen based on gender, age or financial status - No differences were seen based on presence of hardware, number of surgeries and duration since last surgery - Greater psychotropic medication use was noted in the mild, moderate and severe anxiety groups - Those who met criteria for depression were noted to have a significantly higher rate of prior anxiety, prior depression diagnosis - Infections involving the spine were associated with mild, moderate and severe depression, though absolute total of spinal infections evaluated was relatively small - Elevated anxiety was associated with lower physical and role functioning, lower health perception and lower mental health scores - Elevated depression was associated with lower physical, role and social functioning and lower mental health scores
Aim		
The aim of this prospective study was to compare the anxiety and depression status in patients with orthopedic infections by multiple characteristics including: - Comorbidities - Quality of life - Medical management - Surgical management		
HADS score, N = 77	N (%)	
Anxiety		
Normal	59 (77)	
Mild	13 (17)	
Moderate to Severe	5 (6)	
Depression		
Normal	55 (71)	
Mild	15 (20)	
Moderate to Severe	7 (9)	

	Anxiety			Depression		
SF-20 Domains	Normal mean ± SD (n=*)	Mild, moderate to severe mean ± SD (n=*)	p-value (Welch)	Normal mean ± SD (n=*)	Mild, moderate to severe mean ± SD (n=*)	p-value (Welch)
Physical functioning	31.6 ± 27.5	13.4 ± 17.2	P=0.002	32.9 ± 27.8	13.6 ± 16.8	P<0.001
Role functioning	29.2 ± 37.8	11.1 ± 21.4	P=0.013	29.1 ± 39.0	14.8 ± 21.4	P=0.043
Social functioning	50.8 ± 37.6	41.1 ± 34.6	P=0.314	57.5 ± 36.7	26.4 ± 27.2	P<0.001
Mental Health	79.5 ± 13.7	54.7 ± 22.0	P<0.001	80.7 ± 14.3	56.2 ± 18.4	P<0.001
Health perception	52.7 ± 23.0	33.5 ± 25.3	P=0.008	50.8 ± 24.7	41.5 ± 24.2	P=0.137
Pain	51.2 ± 26.3	61.1 ± 17.5	P=0.071	52.0 ± 26.3	57.3 ± 20.7	P=0.357

Conclusion
- In our clinic cohort, the prevalence of anxiety and depression based on the HADS screen exceeded general population estimates - Our study shows that positive anxiety and depression screens were associated with worse SF-20 outcomes - These findings support routine mental health screening and referral as part of bone and joint care

	Anxiety			Depression		
SF-20 Domains	Normal mean ± SD (n=*)	Mild, moderate to severe mean ± SD (n=*)	p-value	Normal mean ± SD (n=*)	Mild, moderate to severe mean ± SD (n=*)	p-value
Gender			P=0.103			P=0.611
Female	22	11		25	8	
Male	37	7		30	14	
Age	69.1 ± 11.5	69.4 ± 12.2	P=0.908	68.4 ± 12.1	71.1 ± 9.9	P=0.305
Charlson Comorbidity Index	3.5 ± 1.8	3.3 ± 1.9	P=0.709	3.4 ± 1.8	3.7 ± 1.9	P=0.495
Financial Screen	7.2 ± 2.4	6.6 ± 2.5	P=0.423	7.3 ± 2.4	6.5 ± 2.5	P=0.221
Discharge Location			P=1.000			P=0.794
Facility	20 (33.9)	6 (33.3)		18 (32.7)	8 (36.4)	
Home	39 (66.1)	12 (66.7)		37 (67.3)	14 (63.6)	
Underlying psychiatric disorder						
Anxiety	5 (8.5)	2 (11.1)	P=0.663	2 (3.6)	5 (22.7)	P=0.018
Depression	10 (16.9)	7 (38.9)	P=0.100	7 (12.7)	10 (45.5)	P=0.005
Others	2 (3.4)	3 (16.7)	P=0.080	4 (7.3)	1 (4.5)	P=1.000
Current psychotropic medication use	12 (20.3)	10 (55.6)	P=0.007	13 (23.6)	9 (40.9)	P=0.165
Substance use	17 (28.8)	4 (22.2)	P=0.765	17 (30.9)	4 (18.2)	P=0.396
Marijuana use	7 (11.9)	2 (11.1)	P=1.000	7 (12.7)	2 (9.1)	P=1.000
Duration of symptoms			P=0.141			P=0.571
0-3 months	29 (49.2)	6 (33.3)		23 (41.8)	12 (54.5)	
3-6 months	9 (15.3)	1 (5.6)		8 (14.5)	2 (9.1)	
6 months or greater	21 (35.6)	11 (61.1)		24 (43.6)	8 (36.4)	
Location of infection						
Head and neck	3 (5.1)	1 (5.6)	P=1.000	3 (5.5)	1 (4.5)	P=1.000
Joints	40 (67.8)	13 (72.2)	P=0.780	39 (70.9)	14 (63.6)	P=0.591
Spine	6 (10.2)	2 (11.1)	P=1.000	3 (5.5)	5 (22.7)	P=0.039
Diabetic foot	3 (5.1)	0 (0.0)	P=1.000	2 (3.6)	1 (4.5)	P=1.000
Others	10 (16.9)	2 (11.1)	P=0.721	10 (18.2)	2 (9.1)	P=0.491
Hardware present	42 (71.2)	14 (77.8)	P=0.765	38 (69.1)	18 (81.8)	P=0.396
Number of surgeries for infection at time of clinic visit			P=0.695			P=0.879
0	10 (16.9)	3 (16.7)		10 (18.2)	3 (13.6)	
1-2	38 (64.4)	10 (55.6)		34 (61.8)	14 (63.6)	
Greater or equal to 3	11 (18.6)	5 (27.8)		11 (20.0)	5 (22.7)	
Duration since last surgery			P=0.466			P=0.654
0-3 months	23 (39.0)	8 (44.4)		21 (38.2)	10 (45.5)	
3-6 months	6 (10.2)	4 (22.2)		6 (10.9)	4 (18.2)	
6 months or greater	20 (33.9)	4 (22.2)		19 (34.5)	5 (22.7)	
No surgery	10 (16.9)	2 (11.1)		9 (16.4)	3 (13.6)	
Antibiotics administration at clinic visit			P=0.244			P=0.598
Intravenous	3 (5.1)	3 (16.7)		4 (7.3)	2 (9.1)	
Oral	34 (57.6)	8 (44.4)		32 (58.2)	10 (45.5)	
None	22 (37.3)	7 (38.9)		19 (34.5)	10 (45.5)	

