Normative data for adults referred for specialist pain management in Australia

EPPOC INFORMATION SERIES NO.1 2018

Publication details

H Tardif, M Blanchard, J White & M Bryce, '*Normative data for adults referred for specialist pain management in Australia',* ePPOC Information Series No. 1, 2018. https://ahsri.uow.edu.au/eppoc/informationseries

ahsri
australian
health services
research institute

UNIVERSITY
OF WOLLONGONG
AUSTRALIA

ePPOC
electronic persistent pain
outcomes collaboration

Background

The electronic Persistent Pain Outcomes Collaboration (ePPOC) is an Australasian program which aims to improve services and outcomes for people experiencing chronic pain. It is an initiative of the Faculty of Pain Medicine, and was established in 2013 with funding from the NSW Ministry of Health.

The key functions of ePPOC are to:

- facilitate the collection of standardised data from pain management services
- analyse and report these data to participating pain services, stakeholders and the broader community
- use the data for benchmarking and quality improvement; and
- promote research into areas of importance in pain management.

Further detail regarding ePPOC and its establishment can be found in Tardif et al. (2017)[1] and on the ePPOC website at https://ahsri.uow.edu.au/eppoc

Aims

Nicholas and colleagues[2] have developed an extensive normative dataset for a range of assessment tools used in pain management services. The present paper aims to provide normative data for the measures used in the ePPOC minimum dataset for a large cohort of adults referred to pain management services throughout Australia.

This information will provide a description of the people seeking specialist pain management in Australia during the period 2014-17, and allow pain management services to compare scores for individuals seen at their service to these group values.

Methods

The analyses include information collected from individuals following referral to a pain management service. Only people referred to Australian services were included due to the widespread participation of these units over a number of years. New Zealand pain management services have joined the collaboration more recently, and a similar analysis will be conducted when sufficient data representing the range of services participating are available.

Results

Data collected from 37,465 adults referred to 43 specialist pain management services are included in this study. These services are located in Queensland, New South Wales, Victoria and Western Australia. The demographic characteristics and comorbidity profile of these patients at referral are shown in Table 1. Percentages are calculated as the proportion of stated responses.

[1] H Tardif, C Arnold, C Hayes & K Eagar, 'Establishment of the Australasian Electronic Persistent Pain Outcomes Collaboration', *Pain Medicine*, vol. 18, no. 6, 2017, p.1007-1018.

[2] MK Nicholas, A Asghari & FM Blyth, 'What do the numbers mean? Normative data in chronic pain measures', *Pain*, vol. 134, 2008, p. 158-73.

Table 1 – Characteristics of patients included in the analysis	
Gender, females, N (%)	21,733 (58.0)
Age in years, mean (SD)	52.7 (15.6)
- Male	51.7 (14.8)
- Female	53.3 (16.1)
Country of birth, N (%)	
- Australia	25,091 (67.0)
- Other	11,325 (33.0)
Aboriginal and/or Torres Strait Islander, N (%)	1,481 (4.0)
Work status, N (%)*	
- Unemployed due to pain	12,217 (32.7)
- Retired	8,852 (23.7)
- Full time/part time	8,496 (22.8)
- Other	12,073 (32.3)
Body Mass Index, mean (SD)	29.3 (7.5)
Episode related to a compensation claim, N (%)	6,469 (18.1)
Main pain site, N (%)	
- Back	12,956 (44.6)
- Arm/shoulder	3,173 (10.9)
- Abdomen	3,033 (10.4)
- Leg	2,688 (9.3)
- Neck	2,410 (8.3)
- Head	1,848 (6.4)
- Other	2,943 (10.1)
Patients experiencing pain more than 5 years, N (%)	16,082 (42.9)
Cause of pain (precipitating event), N (%)	
- Injury	13,239 (36.7)
- No obvious cause	6,309 (17.5)
- Medical condition other than cancer	3,893 (10.8)
- After surgery	3,722 (10.3)
- Motor vehicle accident	3,679 (10.2)
- Cancer	580 (1.6)
- Other	4,648 (12.9)
Comorbidities, N (%)*	
- Depression/Anxiety	16,070 (44.6)
- Osteoarthritis, degenerative arthritis	10,560 (29.3)
- High blood pressure	9,062 (25.1)
- Diabetes	4,517 (12.5)
- Heart disease	3,018 (8.4)
- Rheumatoid arthritis	2,636 (7.3)
- Ulcer or stomach disease	2,643 (7.3)
- Lung disease	1,949 (5.4)
- Stroke or neurological condition	1,916 (5.3)
- Anaemia or other blood disease	1,694 (4.7)
- Cancer	1,538 (4.3)
- Kidney disease	1,121 (3.1)
- Other medical problems	11,227 (31.1)
Average daily morphine equivalent, mean (SD)	71.6 mg (91.0 mg)
n=17,971	

*Note: will not add to 100% as multiple categories may be chosen

Pain management services participating in ePPOC collect a standard minimum dataset consisting of demographic and clinical data items, and standardised assessment tools. The assessment tools used in ePPOC are:

- Brief Pain Inventory[3]
- Depression, Anxiety and Stress Scale (DASS21)[4]
- Pain Catastrophising Scale[5]
- Pain Self-Efficacy Questionnaire[6]

Tables 2-5 show the mean, standard deviation and interquartile range for each of the assessment tools, measured at referral, for the total group of patients, males and females and by age group. Figures 1-10 provide a graphical representation of the mean scores for the total group, males and females and by age group.

Practice points

- Most pain services utilise patient-reported outcome measures to guide triage and treatment
- Normative data can assist clinicians to interpret patient-reported measures, providing a reference point to gauge symptom severity
- The information in the following tables can help to determine, for example, whether an individual's scores are typical, high or low compared to other patients referred for specialist pain management in Australia
- In the following tables:
    - the mean score shows the average score on each assessment tool for all patients at referral, by age group and for males and females
    - the interquartile range indicates where 50% of patient scores lie – a score above or below this range suggests that the patient is in the top 25% or bottom 25% of the population in terms of symptom severity on the measure.

[3] CS Cleeland & KM Ryan, 'Pain assessment: global use of the Brief Pain Inventory', *Annals of the Academy of Medicine Singapore*, vol.23, no.2, 1994, p.129-38.

[4] SH Lovibond & PF Lovibond, 'Manual for the Depression Anxiety Stress Scales'. Sydney Australia: Psychology Foundation Monograph; 1995.

[5] MJL Sullivan, SR Bishop & J Pivik. 'The Pain Catastrophizing Scale: Development and Validation', *Psychological Assessment*, vol.7, no.4, 1995, p.524-32.

[6] MK Nicholas, 'Self-efficacy and chronic pain', British Psychological Society; St. Andrews, Scotland; 1989

Table 2. Brief Pain Inventory – mean, standard deviation (SD) and interquartile range for all patients, males and females and by age group											
	Total	Sex		Age group							
		Male	Female	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Pain severity											
Mean (SD)	6.4 (1.8)	6.3 (1.8)	6.5 (1.8)	6.0 (1.7)	6.1 (1.7)	6.4 (1.7)	6.5 (1.8)	6.4 (1.8)	6.4 (1.9)	6.5 (2.0)	6.5 (2.0)
Interquartile range	5.3 – 7.8	5.0 – 7.5	5.3 – 7.8	4.8 – 7.3	5.0 – 7.3	5.3 – 7.5	5.3 – 7.8	5.3 – 7.8	5.0 – 7.8	5.3 – 8.0	5.0 – 8.0
Number	35680	15048	20632	967	3623	6340	8713	7886	4667	2699	785
Worst pain											
Mean	8.0 (1.7)	8.0 (1.7)	8.1 (1.7)	8.0 (1.5)	8.0 (1.6)	8.1 (1.6)	8.1 (1.6)	8.0 (1.7)	7.9 (1.8)	8.0 (1.9)	8.0 (1.8)
Interquartile range	7.0 – 9.0	7.0 – 9.0	7.0 – 9.0	7.0 – 9.0	7.0 – 9.0	7.0 – 9.0	7.0 – 9.0	7.0 – 9.0	7.0 – 9.0	7.0 -1.0	7.0 – 9.0
Number	36643	15372	21271	980	3667	6461	8939	8094	4848	2831	823
Least pain											
Mean	4.8 (2.5)	4.7 (2.5)	4.8 (2.5)	4.0 (2.4)	4.2 (2.3)	4.7 (2.4)	4.9 (2.4)	4.9 (2.5)	4.9 (2.6)	5.2 (2.8)	5.1 (2.9)
Interquartile range	3.0 – 7.0	3.0 – 6.0	3.0 – 7.0	2.0 – 6.0	3.0 – 6.0	3.0 – 6.0	3.0 – 7.0	3.0 – 7.0	3.0 – 7.0	3.0 – 7.0	3.0 – 8.0
Number	36294	15269	21025	978	3649	6418	8861	8030	4777	2777	804
Average pain											
Mean	6.4 (1.9)	6.3 (1.9)	6.5 (1.9)	6.0 (1.8)	6.1 (1.8)	6.4 (1.8)	6.5 (1.8)	6.4 (1.9)	6.5 (2.0)	6.7 (2.1)	6.7 (2.0)
Interquartile range	5.0 – 8.0	5.0 – 8.0	5.0 – 8.0	5.0 – 7.0	5.0 – 7.0	5.0 – 8.0	5.0 – 8.0	5.0 – 8.0	5.0 – 8.0	5.0 – 8.0	5.0 – 8.0
Number	36389	15289	21100	979	3660	6435	8881	8028	4799	2788	819
Pain now											
Mean	6.3 (2.3)	6.1 (2.3)	6.4 (2.3)	5.9 (2.3)	6.1 (2.2)	6.4 (2.2)	6.4 (2.2)	6.4 (2.3)	6.2 (2.5)	6.2 (2.7)	6.0 (2.8)
Interquartile range	5.0 – 8.0	5.0 – 8.0	5.0 – 8.0	4.0 – 8.0	5.0 – 8.0	5.0 – 8.0	5.0 – 8.0	5.0 – 8.0	5.0 – 8.0	5.0 – 8.0	4.0 – 8.0
Number	36382	15285	21097	971	3654	6414	8867	8034	4806	2817	819
Pain Interference											
Mean	7.0 (2.0)	7.0 (2.0)	7.0 (2.0)	6.7 (2.1)	7.1 (2.0)	7.3 (2.0)	7.3 (1.9)	7.1 (2.0)	6.7 (2.1)	6.5 (2.2)	6.5 (2.2)
Interquartile range	5.9 – 8.6	5.9 – 8.6	5.9 – 8.6	5.4 – 8.3	5.9 – 8.6	6.1 – 8.7	6.1 – 8.7	6.0 – 8.6	5.3 – 8.3	5.1 – 8.3	5.1 – 8.1
Number	36677	15390	21287	981	3669	6452	8940	8098	4858	2847	832

Figure 1 - Pain Severity

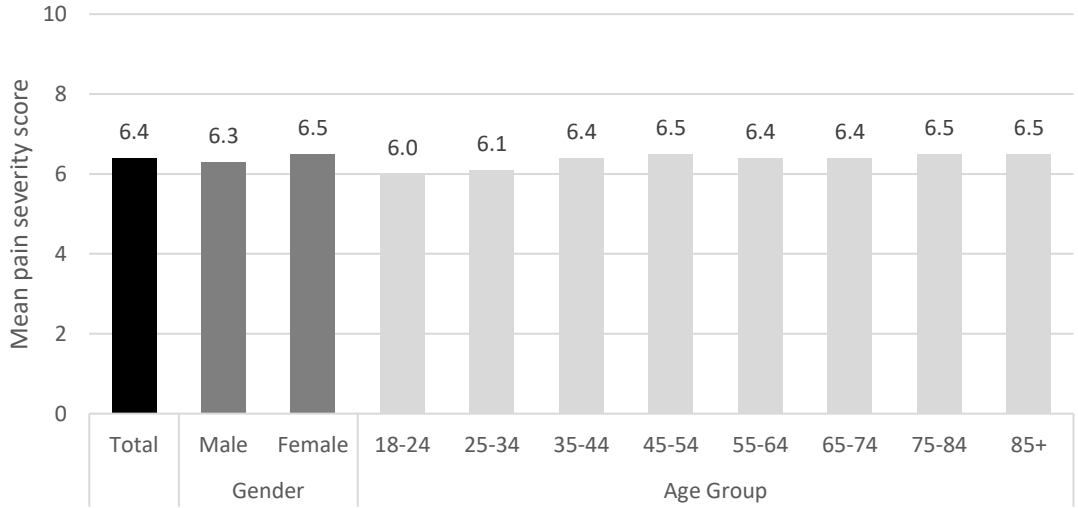


Figure 2 - Pain Interference

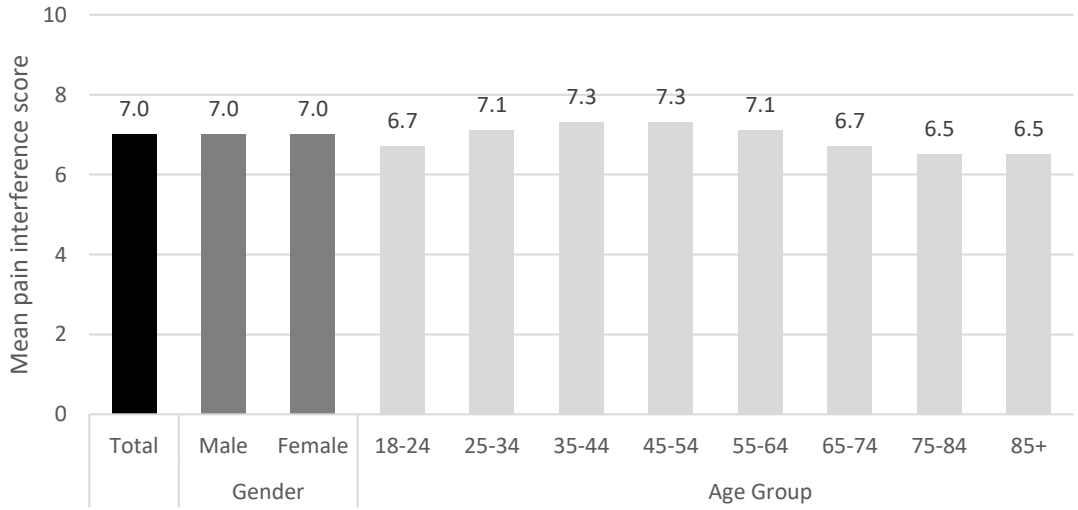


Table 3. Depression, Anxiety and Stress Scale – mean, standard deviation (SD) and interquartile range for all patients, males and females and by age group											
	Total	Sex		Age group							
		Male	Female	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Depression											
Mean (SD)	20.6 (12.9)	21.7 (12.7)	19.7 (12.9)	20.0 (12.8)	20.3 (12.7)	21.5 (12.8)	22.2 (12.8)	21.1 (12.9)	18.4 (12.8)	16.9 (12.5)	16.8 (12.4)
Interquartile range	10.0 – 32.0	10.0 – 32.0	8.0 – 30.0	8.0 – 32.0	10.0 – 31.2	10.0 – 32.0	12.0 – 34.0	10.0 – 32.0	8.0 – 28.0	6.0 – 26.0	6.0 – 28.0
Number	35529	14928	20601	965	3604	6293	8692	7865	4656	2674	780
Anxiety											
Mean	14.3 (11.0)	14.3 (11.0)	14.4 (11.1)	14.7 (11.0)	14.1 (10.7)	15.0 (11.3)	15.3 (11.3)	14.7 (11.1)	12.8 (10.5)	12.4 (10.2)	12.0 (9.8)
Interquartile range	6.0 – 22.0	6.0 – 22.0	6.0 – 22.0	6.0 – 22.0	4.7 – 22.0	6.0 – 24.0	6.0 – 24.0	6.0 – 22.0	4.0 – 20.0	4.0 – 18.0	4.0 – 18.0
Number	35368	14843	20525	965	3594	6271	8676	7828	4610	2648	776
Stress											
Mean	21.3 (11.6)	22.2 (11.3)	20.7 (11.7)	21.8 (11.2)	22.4 (10.9)	22.9 (11.1)	22.6 (11.3)	21.3 (11.6)	18.8 (11.9)	17.4 (11.9)	16.0 (11.8)
Interquartile range	12.0 – 30.0	14.0 – 30.3	12.0 – 30.0	14.0 – 30.0	14.0 – 30.0	14.0 – 32.0	14.0 – 32.0	12.0 – 30.0	8.0 – 28.0	8.0 – 26.0	6.0 – 24.0
Number	35345	14850	20495	966	3600	6251	8645	7817	4636	2655	775

Table 4. Pain Self-Efficacy Questionnaire – mean, standard deviation (SD) and interquartile range for all patients, males and females and by age group											
	Total	Sex		Age group							
		Male	Female	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Mean (SD)	20.7 (13.3)	20.1 (13.3)	21.1 (13.4)	21.5 (12.5)	20.4 (12.7)	18.8 (12.5)	19.0 (12.8)	20.8 (13.4)	23.8 (14.0)	24.2 (14.7)	22.4 (14.3)
Interquartile range	10.0 – 29.0	10.0 – 28.0	10.0 – 30.0	12.0 – 29.0	11.0 – 28.0	9.0 – 27.0	9.0 – 27.0	10.0 – 29.0	13.0 – 34.0	13.0 – 35.0	10.5 – 32.0
Number	35914	15062	20852	973	3625	6349	8797	7959	4682	2741	788

Figure 3 - Depression

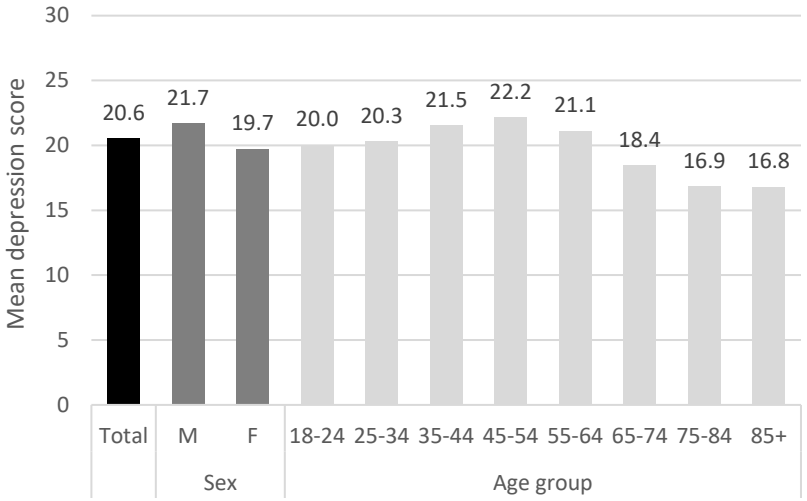


Figure 4 - Anxiety

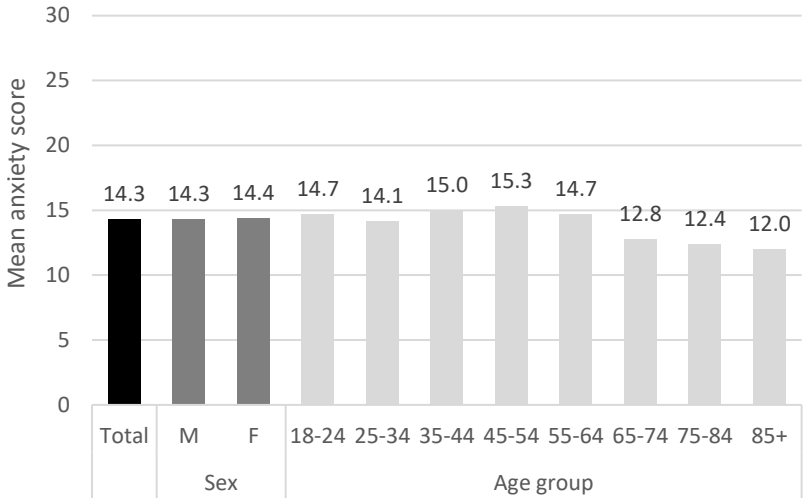


Figure 5 - Stress

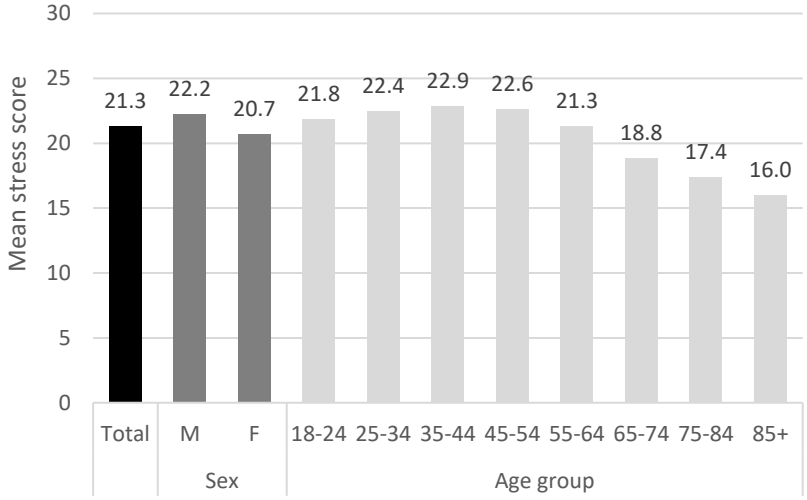


Figure 6 - Pain Self-efficacy

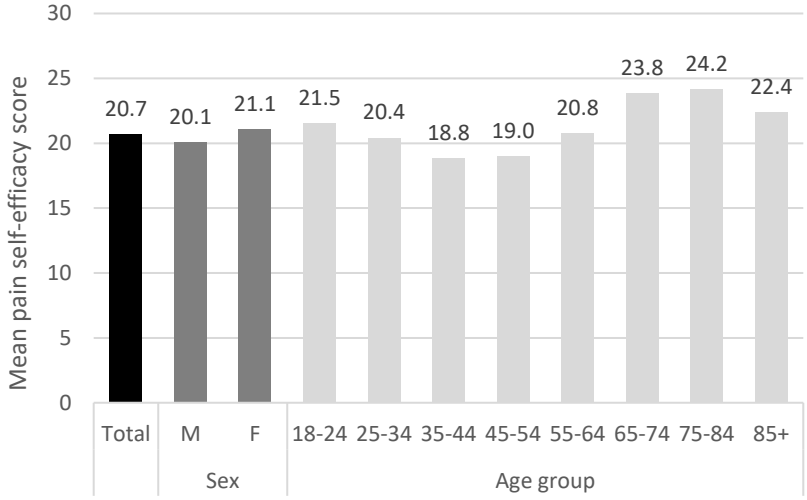


Table 5. Pain Catastrophising Scale – mean, standard deviation (SD) and interquartile range for all patients, males and females and by age group											
	Total	Sex		Age group							
		Male	Female	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Rumination											
Mean (SD)	9.9 (4.9)	10.4 (4.8)	9.6 (5.0)	10.1 (4.7)	9.9 (4.7)	10.0 (4.8)	10.1 (4.9)	10.0 (4.9)	9.6 (5.1)	9.8 (5.2)	9.5 (5.1)
Interquartile range	6.0 – 14.0	7.0 – 15.0	6.0 – 14.0	7.0 – 14.0	6.0 – 14.0	6.0 – 14.0	6.0 – 14.0	6.0 – 14.0	5.0 – 14.0	6.0 – 15.0	5.0 – 14.0
Number	34718	14628	20090	952	3522	6170	8497	7652	4538	2625	762
Magnification											
Mean	6.0 (3.6)	6.2 (3.6)	5.8 (3.6)	6.2 (3.4)	6.0 (3.5)	6.1 (3.5)	6.2 (3.6)	6.1 (3.6)	5.6 (3.7)	5.5 (3.8)	5.0 (3.7)
Interquartile range	3.0 – 9.0	3.0 – 9.0	3.0 – 9.0	3.0 – 9.0	3.0 – 9.0	3.0 – 9.0	3.0 – 9.0	3.0 – 9.0	2.0 – 9.0	2.0 – 9.0	2.0 – 8.0
Number	34684	14598	20086	944	3532	6154	8505	7662	4538	2600	749
Helplessness											
Mean	14.1 (6.5)	14.2 (6.5)	14.0 (6.6)	14.6 (6.2)	14.3 (6.1)	14.5 (6.2)	14.5 (6.4)	14.0 (6.5)	13.2 (7.0)	13.1 (7.2)	12.8 (7.2)
Interquartile range	9.0 – 19.0	9.0 – 19.0	9.0 – 19.0	10.0 – 20.0	10.0 – 19.0	10.0 – 20.0	10.0 – 20.0	9.0 – 19.0	7.0 – 19.0	7.0 – 19.0	7.0 – 19.0
Number	34224	14382	19842	949	3514	6094	8408	7552	4428	2545	734
Total											
Mean	30.0 (14.0)	30.8 (13.7)	29.4 (14.1)	30.9 (13.1)	30.1 (13.1)	30.6 (13.4)	30.8 (13.8)	30.1 (14.0)	28.4 (14.7)	28.3 (15.2)	27.4 (14.9)
Interquartile range	19.0 – 42.0	20.0 – 42.0	18.0 – 41.0	22.0 – 41.0	20.0 – 41.0	20.0 – 42.0	20.0 – 42.0	19.0 – 42.0	16.0 – 41.0	16.0 – 41.2	14.1 – 40.0
Number	35005	14732	20273	958	3554	6196	8590	7732	4587	2627	761

Figure 7 - Pain Catastrophising

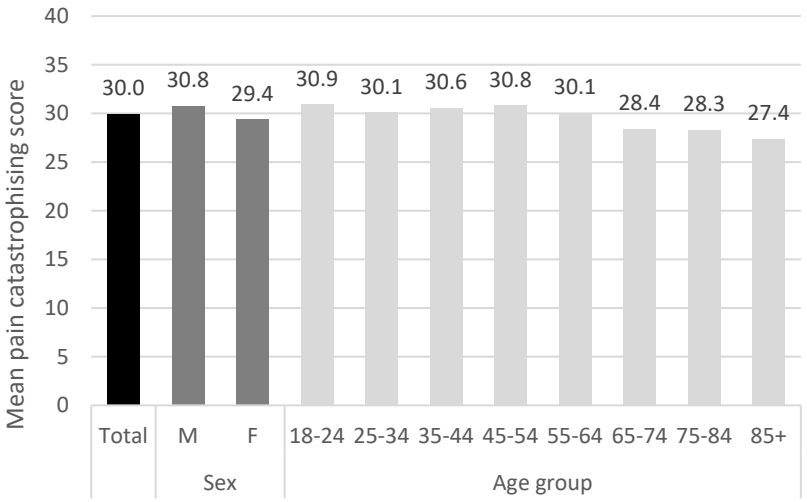


Figure 8 - Rumination

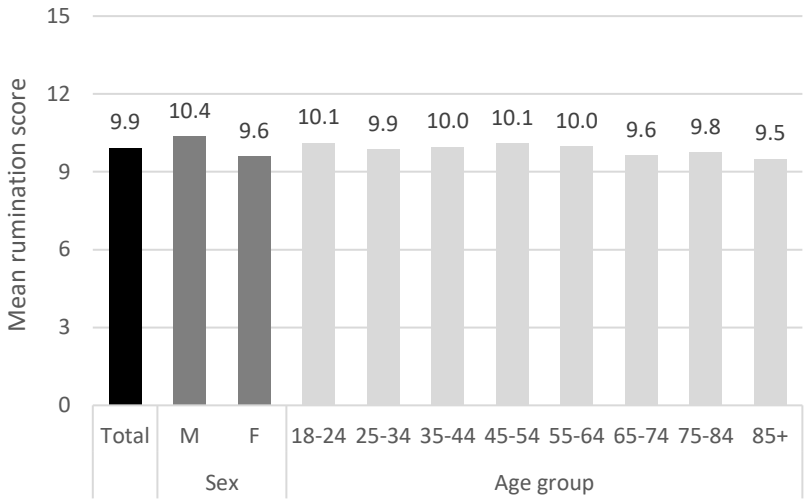


Figure 9 - Magnification

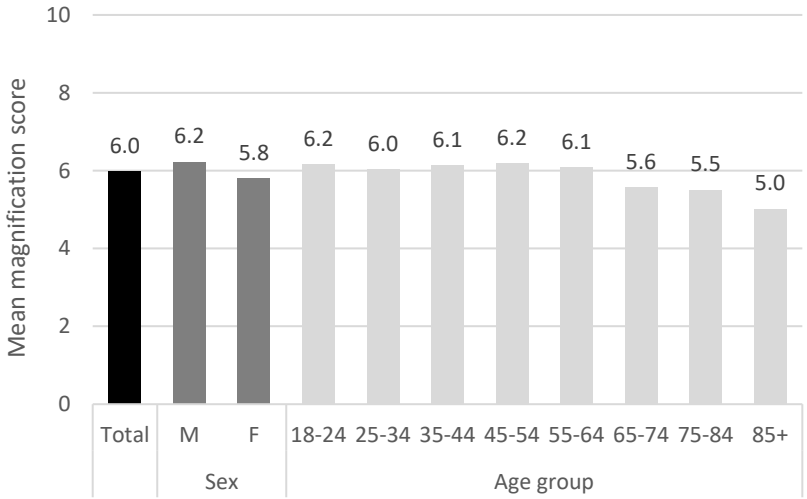
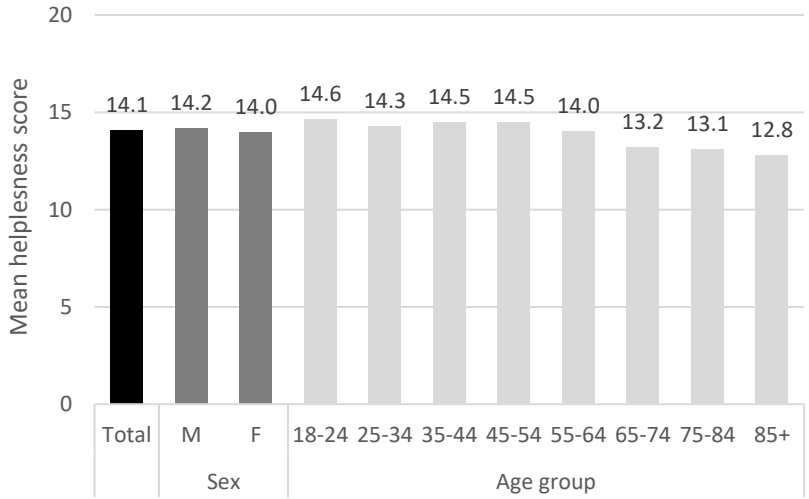


Figure 10 - Helplessness



Series List

No.1 2018: *Normative data for patients referred for specialist pain management in Australia*