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Profile of adult patients referred for specialist pain management in New Zealand, ePPOC Information Series No. 1

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Abstract

The present paper aims to provide a profile of a large cohort of adult patients referred for specialist pain management in New Zealand using the measures in the ePPOC minimum dataset.

This information will provide a description of the people seeking specialist pain management in New Zealand during the period 2015-2020, and can allow pain management services to compare scores for individuals seen at their service to these group values.

Publication Details

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EPPOC INFORMATION SERIES NO.1 2021

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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

The present paper aims to provide a profile of a large cohort of adult patients referred for specialist pain management in New Zealand using the measures in the ePPOC minimum dataset.

This information will provide a description of the people seeking specialist pain management in New Zealand during the period 2015-2020, and can 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 New Zealand pain services were included to enable the development of a profile of adult patients specific to New Zealand. It presents data gathered at referral to pain services including demographic information, comorbidities, pain duration, main pain site, medication and scores on standard assessment tools used in the ePPOC questionnaires.

Results

Data collected from 24,811 adults referred to 22 specialist pain management services are included in this report. 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.

The average age of the cohort is 45 years and includes a slightly higher proportion of women (53.26%). The most common self-reported region where the main pain was experienced is the back, followed by abdomen. With regards to ethnicity, 74.8% of patients identify as being New Zealand European, with Māori the next largest group at 13.4%. Approximately one quarter of the cohort report working full time at referral while 41.7% were unable to work due to their pain.

The average BMI of the cohort falls into the 'obese' category. Almost one in four patients experienced their pain for more than 5 years. Of note is the high proportion of clients (79.9%) who received compensation for their episode of

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.

care and report injury as the cause of their pain (68.2%) — this is consistent with the Accident Compensation Corporation actively supporting clients to receive pain management and encouraging provider services to participate in ePPOC for ongoing quality improvement in clinical care.

Over one quarter of the cohort report experiencing a mental health condition (including conditions such as depression, anxiety and post-traumatic stress disorder) and the average oral morphine equivalent daily dose was 38.7mg.

Table 1 – Characteristics of patients included in the analysis	
Gender, females, N (%)	13186 (53.3)
Age in years, mean (SD)	45.1 (13.9)
- Male	45.3 (13.4)
- Female	44.8 (14.3)
Country of birth, N (%)	
- New Zealand	18854 (78.1)
- Other	5283 (21.9)
Ethnicity, N (%)*	
- New Zealand European	18548 (74.8)
- Maori	3334 (13.4)
- Indian	965 (3.9)
- Samoan	344 (1.4)
- Chinese	194 (0.8)
- Cook Island Maori	179 (0.7)
- Tongan	129 (0.5)
- Niuean	46 (0.2)
- Other ethnicity	2668 (10.8)
Work status, N (%)*	
- Not working due to pain	9469 (41.7)
- Working full-time	5631 (24.8)
- Working part-time	3682 (16.2)
- Not working due to a condition other than pain	2016 (8.9)
- Not working by choice/seeking employment	1929 (8.5)
Body Mass Index, mean (SD)	30.3 (14.9)
Episode related to a compensation claim, N (%)	18758 (79.9)
Main pain site, N (%)	
- Back	7758 (35.0)
- Abdomen	2233 (10.1)
- Leg	2000 (9.0)
- Neck	1148 (5.2)
- Arm/shoulder	1080 (4.9)
- Head	800 (3.6)
- Other	7130 (32.2)
Cause of pain (precipitating event), N (%)	
- Injury	16353 (68.2)
- Motor vehicle accident	2042 (8.5)
- After surgery	1821 (7.6)
- No obvious cause	1235 (5.2)
- Medical condition other than cancer	1151 (4.8)
- Cancer	108 (0.5)
- Other	1265 (5.3)
Patients experiencing pain more than 5 years, N (%)	5478 (22.9)
Comorbidities, N (%)*	
- Mental Health condition	6421 (25.9)

- Arthritis	3232 (13.0)
Heart and circulation problems	3087 (12.4)
- Digestive problems	3085 (12.4)
- Respiratory problems	3008 (12.1)
- High blood pressure	1997 (8.1)
- Diabetes	1197 (4.8)
- Neurological problems	918 (3.7)
- Liver, kidney and pancreas	669 (2.7)
- Cancer	403 (1.6)
- Other medical problems	2890 (11.7)
Average daily morphine equivalent, mean (SD)	38.7 mg (64.6 mg)
n= 4047	

*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 Inventory²
- Depression, Anxiety and Stress Scale (DASS21)³
- Pain Catastrophising Scale⁴
- Pain Self-Efficacy Questionnaire⁵

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.

Average scores on many of the assessment tools varied among males and females and by age group. Women reported greater pain severity compared to men and also that severity increased with age up to age 84. Males reported greater pain catastrophising (including the 3 subcategories of rumination, magnification and helplessness) than females. Apart from anxiety, the mean scores for males were consistently higher than females for depression and stress. On average, males also had more impaired self-efficacy than females.

Summary

Most pain services utilise patient-reported outcome measures to guide triage and treatment. Profile data may 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 New Zealand.

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.

² 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.

³ SH Lovibond & PF Lovibond, 'Manual for the Depression Anxiety Stress Scales'. Sydney Australia: Psychology Foundation Monograph; 1995.

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

⁵ 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)	5.7 (1.7)	5.6 (1.7)	5.8 (1.7)	5.4 (1.6)	5.6 (1.7)	5.7 (1.7)	5.9 (1.7)	5.8 (1.7)	5.9 (1.9)	6.3 (1.9)	5.7 (1.7)
Interquartile range	4.5 - 7.0	4.5 - 6.8	4.0 - 7.0	4.3 - 6.5	4.5 - 6.8	4.5 - 6.8	4.8 - 7.0	4.5 - 7.0	4.5 - 7.3	5.0 - 7.8	4.8 - 7.0
Number	24101	11259	12789	1854	4467	5203	6201	4697	1241	388	50
Worst pain											
Mean	7.7 (1.7)	7.6 (1.7)	7.8 (1.6)	7.6 (1.6)	7.7 (1.7)	7.7 (1.7)	7.8 (1.6)	7.7 (1.7)	7.7 (1.8)	7.8 (1.7)	7.5 (1.4)
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 - 9.0	7.0 - 8.0
Number	24499	11435	13011	1882	4509	5273	6299	4797	1288	398	53
Least pain											
Mean	3.9 (2.3)	3.9 (2.3)	4.0 (2.3)	3.3 (2.1)	3.6 (2.2)	3.9 (2.3)	4.1 (2.3)	4.1 (2.3)	4.3 (2.5)	4.7 (2.7)	4.1 (2.4)
Interquartile range	2.0 - 5.0	2.0 - 5.0	2.0 - 5.0	2.0 - 5.0	2.0 - 5.0	2.0 - 5.0	2.0 - 6.0	2.0 - 6.0	2.0 - 6.0	3.0 - 7.0	2.0 - 6.0
Number	24414	11403	12958	1879	4501	5263	6277	4770	1279	394	51
Average pain											
Mean	5.7 (1.8)	5.6 (1.8)	5.8 (1.8)	5.3 (1.7)	5.5 (1.7)	5.7 (1.8)	5.8 (1.8)	5.8 (1.8)	6.0 (1.9)	6.6 (1.9)	5.7 (2.0)
Interquartile range	5.0 - 7.0	4.0 - 7.0	5.0 - 7.0	4.0 - 6.0	4.0 - 7.0	5.0 - 7.0	5.0 - 7.0	5.0 - 7.0	5.0 - 7.0	5.0 - 8.0	5.0 - 7.0
Number	24373	11386	12934	1872	4494	5262	6266	4759	1272	397	51
Pain now											
Mean	5.6 (2.3)	5.4 (2.3)	5.7 (2.3)	5.3 (2.2)	5.4 (2.2)	5.6 (2.2)	5.7 (2.3)	5.6 (2.3)	5.7 (2.5)	6.1 (2.6)	5.3 (2.6)
Interquartile range	4.0 - 7.0	4.0 - 7.0	4.0 - 7.0	4.0 - 7.0	4.0 - 7.0	4.0 - 7.0	4.0 - 7.0	4.0 - 7.0	4.0 - 8.0	4.0 - 8.0	3.5 - 7.0
Number	24368	11369	12946	1866	4491	5248	6255	4772	1285	399	52
Pain interference											
Mean	6.5 (2.0)	6.5 (2.0)	6.5 (2.0)	6.1 (2.0)	6.5 (2.0)	6.6 (2.0)	6.7 (1.9)	6.6 (1.9)	6.3 (2.1)	6.5 (2.1)	5.6 (2.0)
Interquartile range	5.3 - 8.0	5.3 - 8.0	5.3 - 8.0	4.7 - 7.6	5.1 - 8.0	5.3 - 8.1	5.4 - 8.1	5.3 - 8.0	5.0 - 7.7	5.1 - 8.0	4.7 - 7.3
Number	24561	11453	13055	1883	4514	5284	6309	4813	1305	399	54

Figure 1 - Pain severity

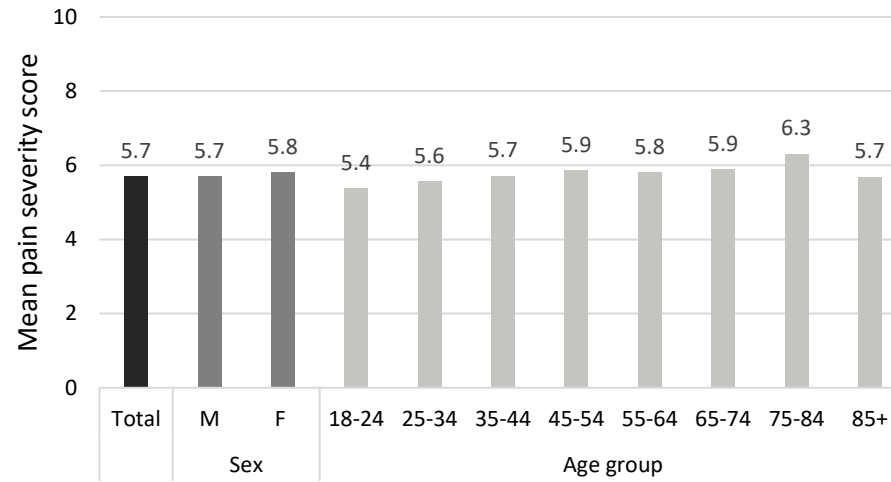


Figure 2 - Pain interference

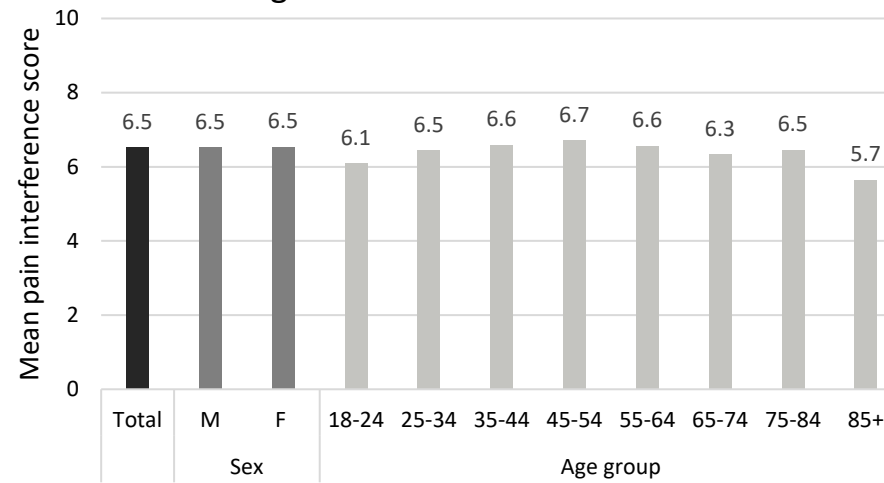


Table 3. Depression, Anxiety and Stress Scale – mean, standard deviation (SD) and interquartile range for all patients, males and females and by age group

	Total	Sex		Age group							
		Male	Female	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Depression											
Mean (SD)	15.6 (11.7)	16.3 (11.7)	14.9 (11.7)	16.2 (11.9)	15.6 (11.5)	15.2 (11.6)	15.8 (11.8)	15.7 (11.8)	14.5 (11.9)	15.8 (11.7)	12.7 (10.4)
Interquartile range	6.0 - 24.0	6.0 - 24.0	4.7 - 24.0	6.0 - 26.0	6.0 - 24.0	6.0 - 24.0	6.0 - 24.0	6.0 - 24.0	4.0 - 22.0	6.0 - 24.0	4.0 - 18.0
Number	24300	11304	12943	1879	4476	5236	6257	4744	1273	388	47
Anxiety											
Mean	10.8 (9.7)	10.7 (9.6)	10.9 (9.7)	12.0 (9.8)	11.2 (9.6)	10.5 (9.6)	10.8 (9.8)	10.7 (9.7)	9.6 (9.3)	10.7 (9.1)	9.49 (8.1)
Interquartile range	2.0 - 16.0	2.0 - 16.0	2.3 - 16.0	4.2 - 18.0	4.0 - 18.0	2.0 - 16.0	2.0 - 16.0	2.0 - 16.0	2.0 - 14.0	4.0 - 16.0	4.0 - 14.0
Number	24260	11283	12924	1876	4470	5232	6238	4737	1275	384	48
Stress											
Mean	18.6 (10.8)	19.3 (10.7)	17.9 (10.8)	19.3 (10.6)	19.4 (10.5)	18.8 (10.7)	18.8 (10.8)	18.0 (11.0)	15.9 (11.3)	15.9 (10.9)	12.1 (9.5)
Interquartile range	10.0 - 26.0	12.0 - 28.0	10.0 - 26.0	12.0 - 26.0	12.0 - 28.0	10.0 - 26.0	10.0 - 26.0	10.0 - 26.0	6.0 - 24.0	8.0 - 24.0	6.0 - 18.0
Number	24271	11294	12924	1875	4467	5225	6253	4748	1272	382	49

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)	23.6 (12.3)	22.9 (12.2)	24.1 (12.5)	24.8 (11.9)	23.5 (11.8)	23.0 (12.1)	22.9 (12.3)	23.9 (12.7)	25.8 (13.7)	23.7 (13.8)	24.9 (13.2)
Interquartile range	14.0 - 31.0	14.0 - 30.0	15.0 - 32.0	16.0 - 33.0	15.0 - 30.0	14.0 - 31.0	14.0 - 31.0	5.0 - 32.0	5.0 - 35.0	3.0 - 33.0	5.0 - 31.0
Number	24388	11358	12977	1881	4482	5256	6279	4766	1290	387	47

Figure 3 - Depression

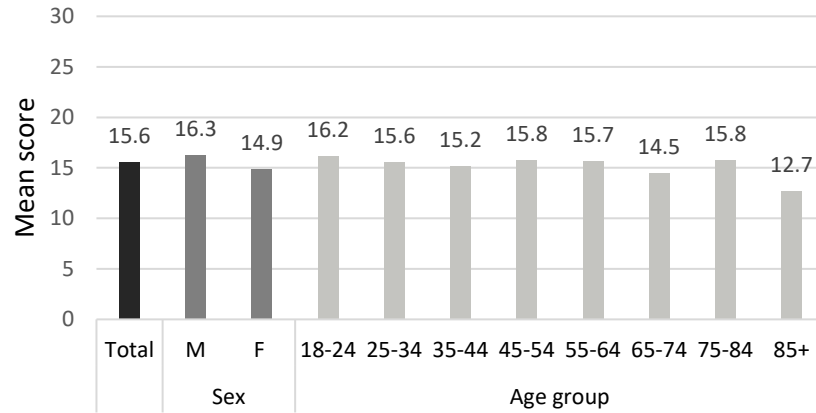


Figure 4 - Anxiety

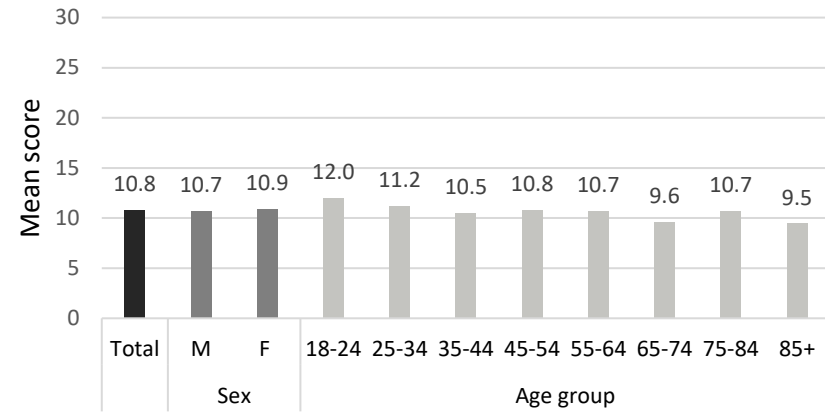


Figure 5 - Stress

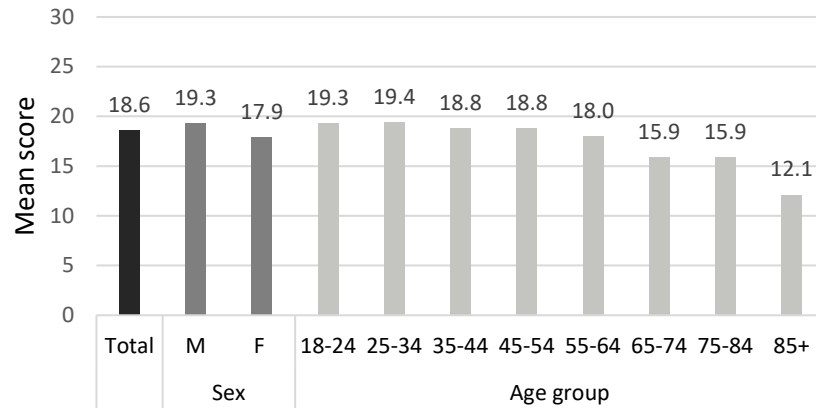


Figure 6 - Pain self-efficacy

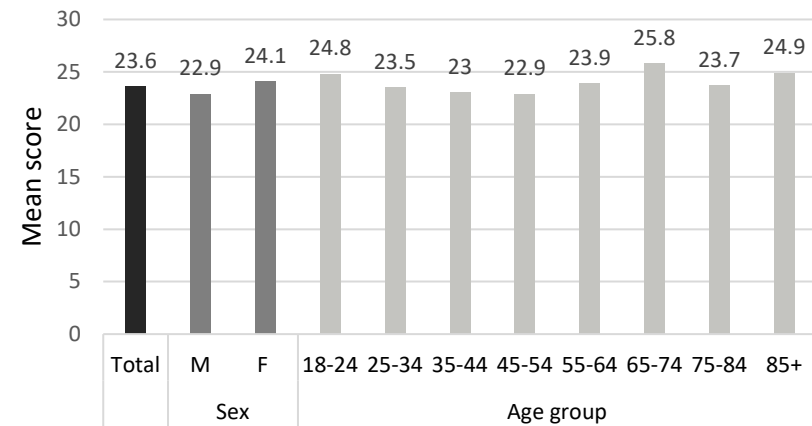


Table 5. Pain Catastrophising Scale – mean, standard deviation (SD) and interquartile range for all patients, males and females and by age group

	Total	Sex		Age group							
		Male	Female	18-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Rumination											
Mean (SD)	8.0 (4.8)	8.4 (4.8)	7.6 (4.8)	8.3 (4.6)	8.1 (4.6)	7.8 (4.8)	7.9 (4.9)	7.9 (4.9)	8.1 (5.2)	9.1 (5.0)	9.9 (5.3)
Interquartile range	4.0 - 12.0	5.0 - 12.0	4.0 - 11.0	5.0 - 12.0	4.0 - 12.0	4.0 - 12.0	4.0 - 12.0	4.0 - 12.0	4.0 - 13.0	5.0 - 13.0	5.0 - 15.0
Number	23951	11162	12739	1866	4415	5169	6158	4664	1243	387	49
Magnification											
Mean	4.6 (3.3)	4.8 (3.3)	4.4 (3.3)	5.1 (3.2)	4.9 (3.3)	4.6 (3.3)	4.6 (3.4)	4.4 (3.4)	4.3 (3.5)	4.7 (3.4)	4.6 (3.4)
Interquartile range	2.0 - 7.0	2.0 - 7.0	2.0 - 7.0	2.0 - 7.0	2.0 - 7.0	2.0 - 7.0	2.0 - 7.0	2.0 - 7.0	1.0 - 7.0	2.0 - 7.0	2.0 - 8.0
Number	24031	11190	12789	1861	4452	5205	6164	4659	1257	383	50
Helplessness											
Mean	11.0 (6.2)	11.1 (6.1)	10.9 (6.3)	11.7 (6.1)	11.2 (5.9)	10.9 (.1)	10.9 (6.3)	10.7 (6.3)	10.9 (6.7)	12.1 (6.5)	11.8 (6.6)
Interquartile range	6.0 - 16.0	6.0 - 16.0	6.0 - 16.0	7.0 - 16.0	7.0 - 16.0	6.0 - 15.0	6.0 - 16.0	5.0 - 15.0	5.0 - 16.0	7.0 - 17.5	7.0 - 17.0
Number	23782	11099	12631	1848	4392	5152	6118	4614	1235	376	47
Total											
Mean	23.6 (13.2)	24.3 (13.1)	22.9 (13.3)	25.2 (12.7)	24.2 (12.5)	23.2 (12.9)	23.3 (13.4)	22.9 (13.5)	23.3 (14.3)	25.9 (13.8)	26.0 (14.2)
Interquartile range	13.0 - 33.6	14.0 - 34.0	14.0 - 33.0	15.0 - 35.0	14.0 - 33.0	13.0 - 33.0	13.0 - 34.0	12.0 - 33.0	11.0 - 34.0	14.0 - 37.0	15.0 - 39.5
Number	24186	11276	12859	1873	4468	5222	6215	4709	1260	391	48

Figure 7 - Pain catastrophising

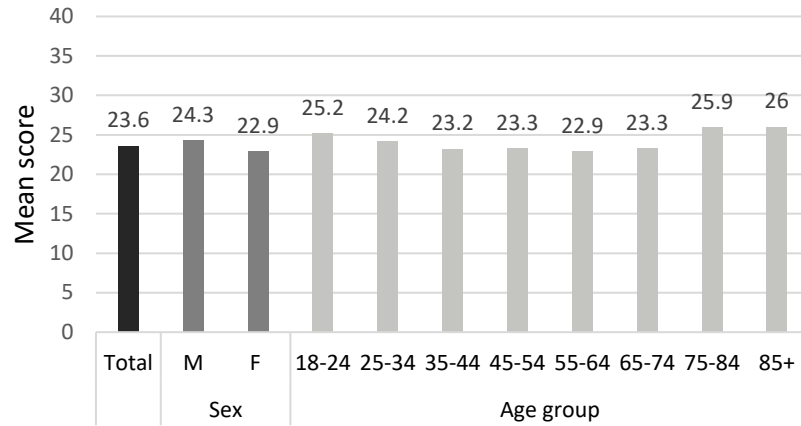


Figure 8 - Rumination

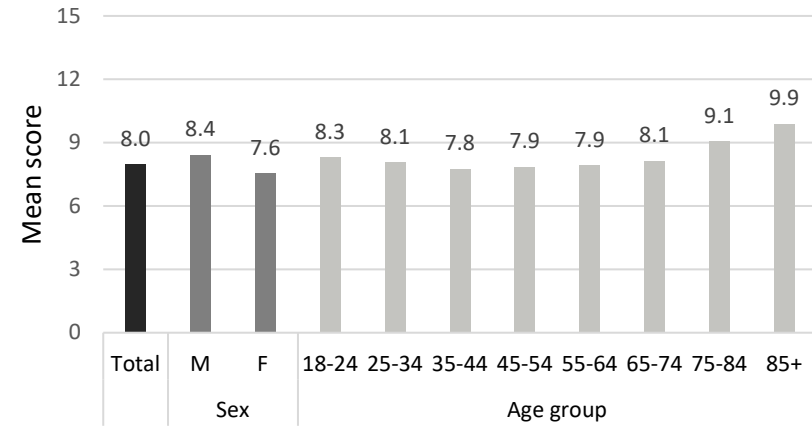


Figure 9 - Magnification

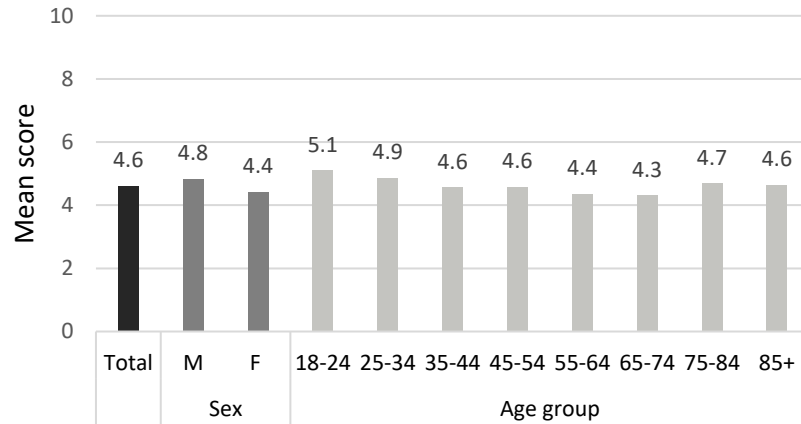
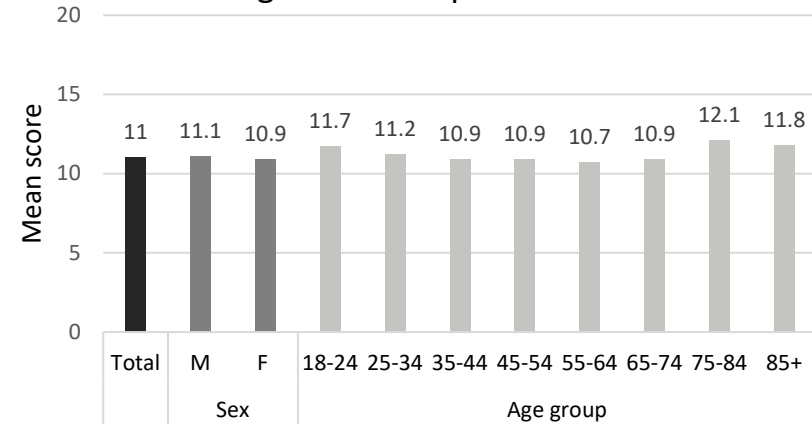


Figure 10 - Helplessness



Series List

2018

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

No.2 2018: *Normative data for children and adolescents referred for specialist pain management in Australia*

No.3 2018: *Carer-proxy and child self-reported ratings of pain and quality of life*

2019

No. 1 2019: *Socioeconomic disadvantage and referral to pain management services in Australasia*

No. 2 2019: *Proximity to specialist pain management services in Australia*

2021

No.1 2021: *Profile of adult patients referred for specialist pain management in New Zealand*