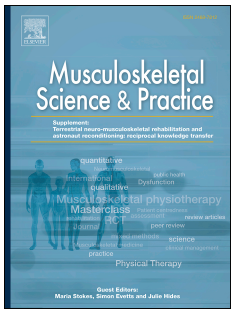

Self-reported management among people with rotator cuff related shoulder pain: an observational study

A. Smythe, S. Rathi, N. Pavlova, C. Littlewood, D. Connell, T. Haines, P. Malliaras

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Title: Self-reported management among people with rotator cuff related shoulder pain: an observational study

Smythe A1,6, Rathi S1, Pavlova N1, Littlewood C2, Connell D3,4, Haines T5, Malliaras P1

1 Physiotherapy Department, School of Primary and Allied Health Care, Faculty of Medicine Nursing and Health Science, Building B, Peninsula Campus, Monash University, Victoria, Australia, 3199,

2 Faculty of Health, Psychology and Social Care, Manchester Metropolitan University

Brooks Building, 53 Bonsall Street, M15 6GX

3 Imaging at Olympic Park, AAMI Park, Melbourne, Australia

4 Department of Medical Imaging and Radiation Sciences, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia

5 School of Primary and Allied Health Care, Faculty of Medicine Nursing and Health Science, Building G, Peninsula Campus, Monash University, Victoria, Australia, 3199,

6 Health Base, Somerville, Victoria 3911

Twitter handles:

@A_Game_Physio, @ChrisLittlew00d, @DrPeteMalliaras

Andrew Smythe (corresponding author)

Ph: +61 3 9904 4502

Email: andy.smythe@monash.edu

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Abstract

Background: Rotator cuff related shoulder pain is the most common cause of shoulder pain. Whilst guidelines recommend conservative management prior to imaging, injection or surgical management, recent findings suggest that patients experience management contrary to guideline recommendations.

Objectives: The aim of this study was to investigate self-reported management among people with rotator cuff related shoulder pain and their beliefs towards management (RCRSP).

Materials and methods: Cross-sectional survey of people with RCRSP recruited when referred for imaging (n=120). Electronic survey about demographic factors, management people had had (including imaging, injections, surgery, exercise, adjuncts), and beliefs about treatments. The frequency of various treatments was reported (separately for each cohort and traumatic onset) as well as the timing of interventions related to first-line care.

Results: Most people had tried exercise (99/120, 82.5%) but only one in five people reported exercise was helpful, and one in six reported it was unhelpful or made their symptoms worse. Approximately a third of the cohort reported not receiving activity modification advice (34.2%, 41/120), those that did received inconsistent information. People with both traumatic (imaging 31/43, 72.1%; injections 13/24, 52.2%, surgery 4/19, 21.1%) and atraumatic onset pain (imaging 43/77, 72.1%; injections 31/51, 60.7%, surgery 8/21, 38.1%) had similarly high rates of intervention prior to trialling conservative management. Patient beliefs in regards to management showed trends towards interventionalist care.

Conclusion: Patient reported management of RCRSP is often inconsistent with guideline recommended management.

Keywords: rotator cuff related shoulder pain, management, shoulder, rotator cuff tendinopathy, rotator cuff

Introduction

Shoulder pain is one of the most common musculoskeletal conditions with an estimated prevalence of 15-30% of the population at any one time [1, 2]. Shoulder pain is the third most common musculoskeletal reason that people consult their general practitioner in Australia, and rotator cuff related shoulder pain (RCRSP) is thought to be the most common presentation accounting for 70% of shoulder pain cases [3].

As an umbrella term, RCRSP encompasses several pathoanatomical terms that are difficult to differentially diagnose, including; subacromial pain syndrome, rotator cuff tendinopathy and symptomatic rotator cuff tears [4, 5]. Similar to other musculoskeletal conditions where definitive structural diagnosis is evasive, the term rotator cuff related shoulder pain (RCRSP), interchangeable with rotator cuff pain syndrome, is more appropriate [5]. As such RCRSP is a clinical presentation diagnosed from patient history and clinical examination, characterized by pain with active and resisted shoulder elevation, external rotation and maintained passive range of shoulder motion [4, 5].

People affected suffer functional limitations during activities of daily living (e.g. dressing, grooming, eating) and RCRSP can lead to substantial societal burden through utilization of healthcare resources and work absenteeism [6]. Recommended first-line treatment includes advice, activity modification and clinician guided exercise, for 6 – 12 weeks before considering imaging, injection or surgical opinion [7-9]. Imaging is not

required for the diagnosis of RCRSP unless red flag pathology is suspected or no improvement is seen with first-line management after several weeks [7, 8].

Recent surveys indicate that physiotherapists in Australia [10], the United Kingdom [11], Belgium and The Netherlands [12] deliver guideline based interventions for people with RCRSP. A recent Australia-wide survey [13] and a database study of RCRSP management [14] by general practitioners both demonstrate high rates of imaging referral prior to recommended non-invasive first-line care, and to a lesser extent injection and surgical referrals. It is important to understand treatment trends from the patient's perspective to determine whether they report receiving guideline recommended care (for example, trialing exercise prior to imaging) and understand their care experiences.

The aim of this study was to investigate self-reported management among people with RCRSP, their beliefs towards management, and the extent to which current management of RCRSP is consistent with guideline recommendations.

Methods

Study design

A cross-sectional survey exploring patient experience of RCRSP management and their beliefs.

Recruitment and sampling method

Participants were recruited from a radiology centre in Australia specialising in musculoskeletal imaging. Patients from the radiology centre who had imaging for shoulder pain between December 2018 to December 2019 and had consented to be contacted about research, were invited to complete the survey. Stage 1 screening: screening questions were included at the start of the survey, excluding those who had been diagnosed (by a health professional) with other shoulder conditions, including; adhesive capsulitis, dislocation, osteoarthritis and instability. Patients were also excluded if they had had shoulder pain for less than 6 weeks, they were under 18 years of age or their pain was not consistent with RCRSP, ie. their pain was: 1) not primarily in the antero-lateral aspect of the shoulder and upper arm; 2) brought on with cervical movement; 3) not made worse moving the arm overhead [4]. Stage 2 screening: the imaging reports were analysed to determine if they included rotator cuff tendon or subacromial bursal pathology as the primary findings. This enabled exclusion of participants with other primary pathologies (fracture, adhesive capsulitis, severe osteoarthritis) [5]. Despite RCRSP having a clinical (not imaging) diagnosis, this step ensured that obvious participant self-reporting inaccuracies (e.g. answering no to having trauma when they had a fracture reported on imaging) were identified. Participants were offered a $20 gift voucher to compensate them for their time.

<u>Response and participation rates</u>

The response rate was calculated (number of people consenting divided by the number of people invited). The completion rate was the number who completed the survey divided by the number consenting.

Survey instrument

The survey instrument (see Appendix 1) was constructed using Qualtrics software (Qualtrics, Provo, Utah) consisting of a maximum of 62 questions dependent upon patient answers. Questions about management for RCRSP and patient beliefs were developed by a subgroup of investigators based on clinical practice guidelines [4, 7-9], systematic reviews [15, 16], and qualitative studies among patients with this condition [17, 18]. The survey was subsequently pilot tested with a convenience sample of 5 physiotherapists and 2 patients not involved in the study, to test for clarity and potential online operational issues. Minor subsequent amendments were made following feedback from the pilot test.

The survey instrument collected data on participant characteristics including age, gender, co-morbidities, duration of shoulder pain (selected from dropdown menu; 6->52 weeks) and if they have had or were planning to have surgery for their shoulder pain. Participant intervention and management experience (imaging, injections, exercise, adjuncts and surgery) was explored with multiple choice and multiple answer questions. Where "other" was selected, participants were asked to provide a descriptive answer. Subsequent questions incorporated short answer questions exploring patient beliefs. We also asked about sources and preferred format of health information.

Determination of recommended care

To establish to what extent participant's management experiences were consistent with recommended management we compared their answers to a summation of relevant guidelines adapted from [4, 7-9]. A summary of recommendations about exercise, education, imaging, surgery and injections in these guidelines is shown in Appendix 2.

Statistical analysis

All survey data was exported from Qualtrics to SPSS version 25 (IBM Corp., Armonk, NY, USA) data analysis software. Descriptive data included; age, gender, duration of shoulder pain, residential location, co-morbidities and traumatic onset. The frequency of different management options (exercise, imaging, injections, surgery, education and adjunctive treatments) were reported. Patient beliefs related to indications and the appropriateness of imaging and surgery were reported. Data for treatments (except for education) were separated based on whether people did and did not report a traumatic onset as this may influence management (e.g. surgery, imaging). The duration of symptoms and age of people who did (or scheduled to) and did not have surgery was compared (Mann Whitney U [non-parametric distributions]).

Every open-ended question response was transcribed verbatim with identifying data removed. Microsoft Excel (Microsoft excel, 2016) was used to manage the survey data and compare responses. A qualitative content analysis approach was employed allowing for large amounts of data to be reduced to concepts that describe the research [19]. Units of meaning were identified by two researchers analysing each

response, manually developing initial codes. These codes were then deductively derived into categories informed by the open question's focus following collaborative meetings and discussion between the researchers. Additionally, a frequency count of the content was performed to aid interpretation. Any researcher perspective differences were negotiated, and if necessary, regrouped and recoded until consensus was reached. The final step examined relationships between categories to form themes.

Results

One hundred and twenty people with RCRSP were eligible and included in analysis. Sixty-four clinicians from all around Melbourne, Australia (including physiotherapists, osteopaths, chiropractors, sports doctors, surgeons) referred the 120 people included into the imaging center. Figure 1 shows the recruitment process. The response rate was 25.7% (898/3500) and the completion rate was 38.8% (348/898).

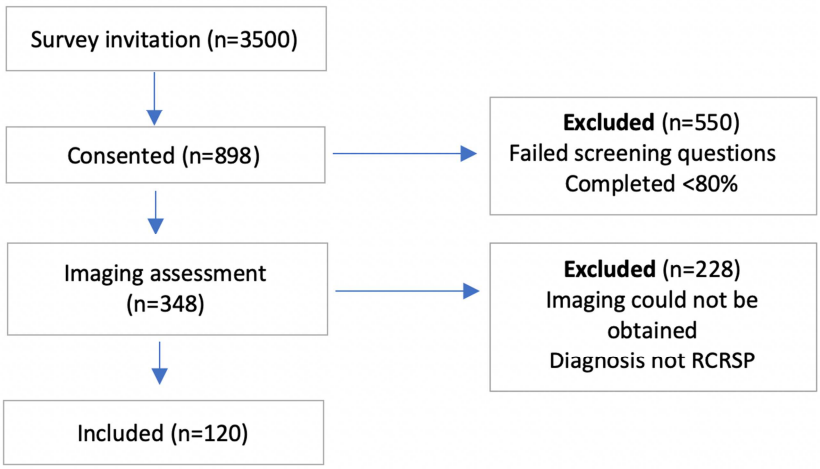


Figure 1. Recruitment process

Demographic data are shown for people with and without a traumatic onset (Table 1). Median duration of symptoms was higher among people with a traumatic onset. Most common co-morbidities were osteoarthritis and metabolic disease (hypertension and Hypercholesterolemia). The most common professions consulted included physiotherapists, general practitioners, sports physicians and orthopaedic surgeons.

Table 1. Respondent demographic and treatment information (¥mean and standard deviation, *median and Interquartile range, otherwise frequency and %)

	Trauma (n=43)	**No trauma (n=77)**
SPADI¥	na	na
*Age, yrs**	50 (38 to 63)	52 (41 to 59)
*Symptom duration, wks**	52 (24 to >52)	40 (22 to >52)
Location		
Major urban	30 (69.8)	64 (83.1)
Other urban	4 (9.3)	7 (9.1)
Rural	9 (20.9)	6 (7.8)
Gender		
Male	28 (65.1)	32 (41.6)
Female	15 (34.9)	44 (57.1)
Prefer not to state	0 (0.0)	1 (1.3)
Co-Morbidities		
Osteoarthritis	9 (20.9)	16 (20.8)
Rheumatoid arthritis	3 (7.0)	2 (2.6)
Psoriatic arthritis	1 (2.3)	0 (0.0)
Gout	4 (9.3)	3 (3.9)
Inflammatory bowel disease	3 (7.0)	1 (1.3)
Fibromyalgia	0 (0.0)	1 (1.3)
Hypertension	12 (27.9)	18 (23.4)
Hypercholesterolemia	10 (23.3)	10 (13.0)
Diabetes	1 (2.3)	3 (3.9)
Other	8 (18.6)	10 (13.0)
Treating/advising practitioners		
General practitioner	32 (74.4)	44 (57.1)
Physiotherapist	30 (69.8)	52 (67.5)
Osteopath	3 (7.0)	9 (11.7)
Chiropractor	2 (4.7)	3 (3.9)

Massage/Myotherapist	9 (20.9)	22 (28.6)
Exercise physiologist	2 (4.7)	6 (6.5)
Sports physician	19 (44.2)	35 (45.5)
Orthopaedic surgeon	24 (55.8)	29 (37.7)
Rheumatologist	1 (2.3)	2 (2.6)
Other medical professional	4 (9.3)	1 (1.3)

First-line management

Exercise and adjunctive therapy

Table 2 shows the frequency of exercise and adjunctive treatments. Between 86.0% (37/43, traumatic onset) and 80.5% (62/77, atraumatic onset) of people surveyed had tried exercise. Similar proportions of people tried loaded and unloaded shoulder exercise. Almost all participants reported trialing at least one adjunctive treatment. Medications specified mostly included various anti-inflammatories (steroidal and non-steroidal).

Table 2. Frequency and type of first-line treatment and interventional care

	Trauma (n=43)	**No trauma (n=77)**
	Frequency (%)	**Frequency (%)**
Exercise treatment	37 (86.0)	62 (80.5)
Type of exercise		
Without resistance	29 (67.4)	45 (58.4)
With resistance	28 (65.1)	47 (61.0)
Shoulder stretching	17 (39.5)	29 (37.7)
Other	8 (18.6)	7 (9.1)
Adjunctive treatment	43 (100.0)	74 (96.1)
Type of other treatment		
Massage/ manipulation	28 (65.1)	49 (63.6)
Taping	16 (37.2)	20 (26.0)
Acupuncture/ needling	14 (32.6)	22 (28.6)
Complete rest	28 (65.1)	35 (45.5)
Electrotherapy	8 (18.6)	9 (11.7)
Hot or cold therapy	10 (23.3)	17 (22.1)
Neck or back treatment	12 (27.9)	11 14.3)

Medication	16 (37.2)	32 (41.6)
Imaging	43 (100.0)	77 (100.0)
Type of imaging		
X-ray	24 (55.8)	36 (46.8)
Ultrasound	31 (72.1)	57 (74.0)
MRI	33 (76.7)	56 (72.7)
Injection	24 (55.8)	51 (66.2)
Type of injection		
Steroid	21 (48.8)	45 (58.4)
Platelet rich plasma	1 (2.3)	2 (2.6)
Hydrodilitation	9 (20.9)	12 (15.6)
Other	0 (0.0)	2 (2.6)

Shoulder rehabilitation exercise duration and reasons for stopping

Among the respondents who had tried exercise treatment (82.5%, 99/120), one in three people (30.3%, 30/99) had stopped exercises at the time of the survey. Participants who had stopped exercise had persevered for a median of 11 weeks (IQR: 6 to 16). Reasons for stopping exercise or not doing the prescribed amount (59 participants volunteered answers) included; worsening pain (35.6%, 21/59, 'my shoulder hurts too much to do the exercises' [P 106]); lack of improvement (28.8%, 17/59, 'it wasn't improving', [P 71]), lifestyle and personal barriers (20.3%, 12/59, 'forgetful, lazy and a lack of time', [P 96]), recovery of symptoms (13.6%, 8/59, 'I stopped when the pain went away' [P 48]), told to stop by a clinician (8.5%, 5/59, 'sports physician told me to stop as the tendon was damaged' [P 108]) and beliefs about the outcome (5.1%, 3/59, 'didn't think exercise would work' [P 28]).

<u>Education</u>

Two-thirds of people reported receiving activity modification advice (65.8%, 79/120) and three quarters reported receiving education regarding the cause and treatment for their shoulder pain (75.0%, 90/120). Activity modification advice commonly included avoiding overhead tasks (36.7%, 29/79, 'limiting using hands above my head' [P 59]), cessation of specific activity (21.5%, 17/79) including recreational activities ('told to stop playing golf' [P 3]) and work ('retire and stop working' [P 77]). Some people described advice to do more exercise (11.4%, 9/79, 'physio gave me exercise to strengthen my shoulder blade' [P 7]), make other activity or life modifications (15.2%, 12/79, 'modify my workplace setup' [P 103]), or to 'avoid painful movements' 15.2% (12/79). Regarding education about acceptable pain during exercise, similar proportions were told to avoid any pain (39.4%, 39/99) and that some pain during exercise was acceptable (46.5%, 46/99).

Common sources of health information were internet searches (52.5%, 63/120), consulting their general practitioner (91.7%, 110/120) or physiotherapist (49.2%, 59/120). Less common responses included consulting a surgeon (24.2%, 29/120) or family and friends (14.2%, 17/120). Some selected 'other' (10%, 12/120) which included information from sports physicians, pharmacists, and chiropractors. Preferred formats for accessing health information included verbal information (73.3%, 88/120), followed by online written (55%, 66/120), printed information (52.5%, 63/120), infographics (31.7%, 38/120) and online videos (31.7%, 38/120).

Interventional management

Imaging

Table 2 provides imaging data. Most common imaging modalities were ultrasound and MRI. Between 55.8% (43/77, atraumatic onset) to 72.1% (31/43, atraumatic onset) had imaging prior to any exercise (Figure 2).

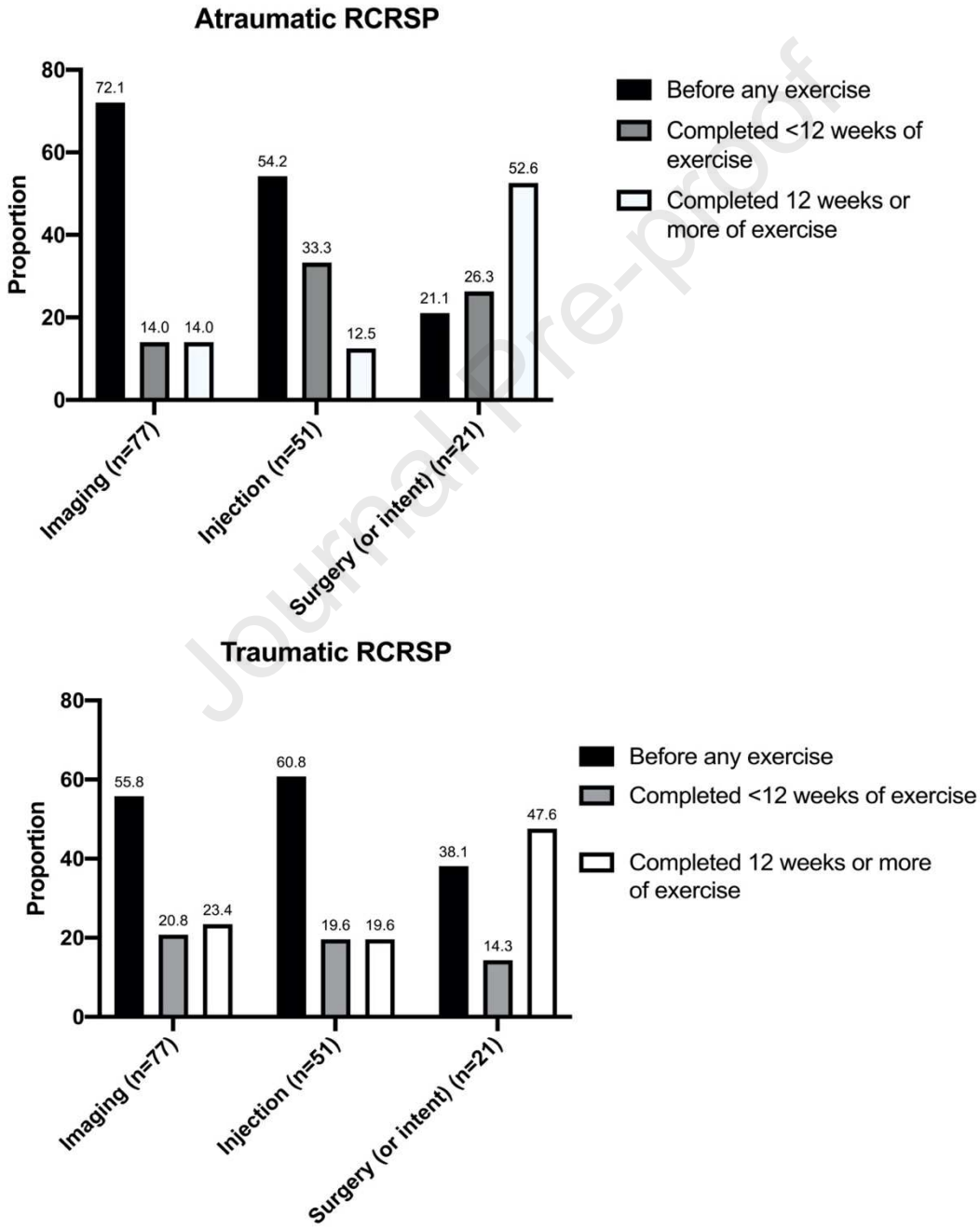


Figure 2. Timing of imaging, injections and surgery in relation to exercise for people who did and did not have a traumatic onset

Injection

Table 2 provides injection data for each cohort. Between 55.8% (traumatic onset) and 66.2% (atraumatic onset) of people had had an injection, most commonly steroid or hydrodilitation. More than half of respondents (54.2%, 13/24, atraumatic onset; 60.0%, 31/51, traumatic onset) had an injection prior to any exercise (Figure 2).

Surgery

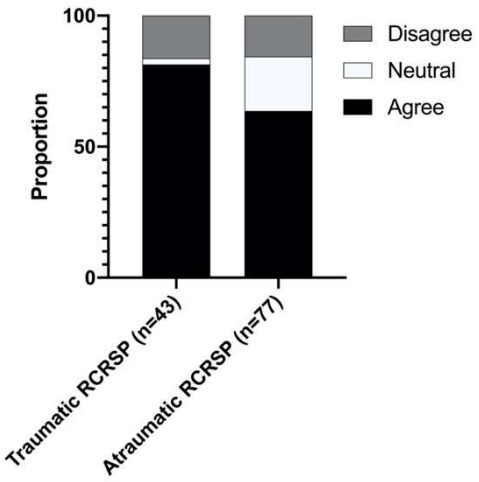
A third of respondents (33.3%, 40/120) had undergone or were scheduled to have surgery (subacromial decompression [SAD] or rotator cuff repairs +/- SAD). Age (Mann Whitney U=1463, p=0.447) and duration of symptoms (Mann Whitney U = 1289, p = 0.283) were not different between people in the imaging cohort who did or did not have surgery. Among people who already had surgery, the median duration since their operation was 15 weeks (IQR 7 to 39). More people reporting a traumatic onset had surgery (48.8% ,21/43) compared with people with an atraumatic onset (24.7%, 19/77). Between 21.1% (4/19, traumatic onset) and 38.1% (8/21, atraumatic onset) of people had surgery prior to any exercise treatment (Figure 2).

<u>Participant beliefs related to RCRSP</u>

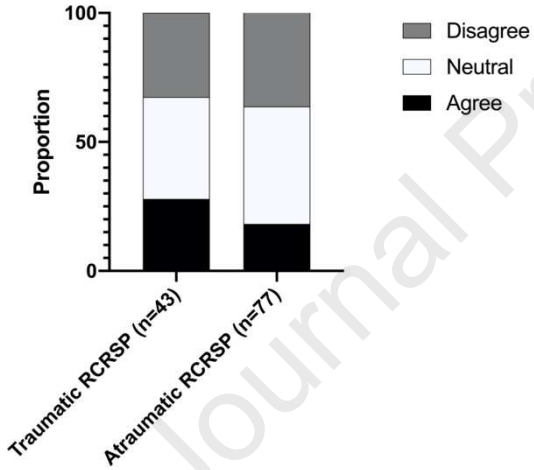
Responses to questions about imaging and treatment beliefs are shown in Figure 3. The cohorts were more likely to agree that imaging was necessary for diagnosis (63.6%

220 to 81.4% - highest in the traumatic cohort), surgery was the best treatment for
221 damaged tendons (16.4% to 27.9% - highest in the traumatic cohort), and agree to
222 surgery even if they had no symptoms (27.9% to 35.1% - highest in the traumatic
223 cohort).

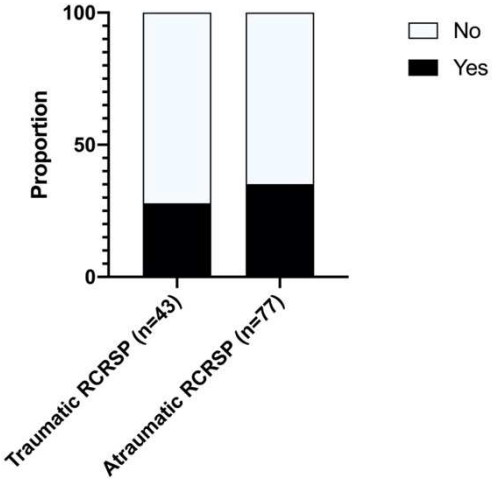
I would only feel confident about my diagnosis causing shoulder pain if I had a scan



If the tendons in the shoulder are damaged, then the best treatment for this is surgery



If a scan such as an ultrasound or an MRI reported abnormalities in the shoulder tissues, would you be willing to undergo surgery even if you had NO symptoms (pain, stiffness etc.)



224

Figure 3. Beliefs about imaging, treatment for damaged tendons and indication for surgery

Helpful treatments

Most of the cohort (94.2%, 113/120) responded to the open question about helpful treatments. Treatments that reduced pain were generally perceived as helpful. Many respondents reported injections were helpful (30.1%, 34/113, 'cortisone because it helped get rid of the pain' [P 60]), followed by exercise (20.4%, 23/113,'exercises were the best [P 51]) and adjunctive therapy (16.8%, 19/113, 'massage because I can feel the pain diminishing' [P 59]). Only 7.1% (8/113) of respondents felt no treatment they had received was helpful ('nothing has been helpful' [P 97]).

Unhelpful treatments

About two-thirds of participants (67.5%, 81/120) responded to the open question about unhelpful treatments. Many (42.0%, 34/81) reported they found no treatments unhelpful. Some reported injections (13.6%, 11/81, 'cortisone injection in the bursa didn't reduce the pain', [P 45]), exercise (12.3%, 10/81) or physiotherapy (11.1%, 9/81) to be unhelpful because of 'no improvement' (P 102) or 'more pain after the treatment' (P 100).

Harmful treatments

Only 14.2% (17/120) responded to the open question about harmful treatments. Respondents reported that exercise (52.9%, 9/17), physiotherapy (35.3%, 6/17),

adjunctive therapy (17.7%, 3/17) and osteopathy (5.9%, 1/17) were harmful. This negative experience was based on worsening pain and/or condition. For example, 'the exercises are aggravating my shoulder making it worse' (P 102) and 'I had reduced movement afterwards' (P 28).

Discussion

The aim of this study was to investigate self-reported management among people with rotator cuff related shoulder pain (RCRSP). We found that most people with RCRSP recruited had tried exercise to manage their shoulder pain but very few reported that exercise was beneficial, and some reported exercise was not helpful or harmful. Advice on activity modification, recommended as part of first line management, was reportedly not received by over a third of participants. There was also a substantial proportion of people who reported having imaging, injections and surgery prior to trying any exercise, even people who did not have a traumatic onset to their RCRSP, contrary to guideline recommended management.

First-line care

Guidelines recommend that people with RCRSP trial several weeks (6 to 12) of exercise and advice (including activity modification) prior to interventionalist care [7, 8, 20, 21]. Consistent with these recommendations, most people surveyed (82.5%) had tried exercise for their RCRSP. Those who had stopped at the time of the survey had persevered with exercise for a median of 11 weeks. However, only one in five people reported exercise was helpful, and one in six reported exercise was unhelpful or

harmful. Among the people who had stopped exercise, common reasons were lack of improvement or worsening pain. Recent evidence [22, 23] suggests that specific parameters (i.e. progressive and resisted exercise) may confer greater benefits for people with RCRSP but robust evidence is required to refute or confirm this.

Further, there is debate even among shoulder management 'experts' regarding the optimal exercise parameters for RCRSP [20, 21]. This debate includes whether exercise should be painful or painfree [20], and this was reflected in the advice about pain during exercise reported by people in our cohort. Variability in exercise approaches and ideology was also reflected in a recent survey of physiotherapist practice in Australia [10]. Clearly there is no accepted exercise approach for RCRSP and this may impact on exercise outcomes.

Contrary to guideline recommendations, a third of people reported that they did not receive advice about activity modification. People who did receive activity modification advice reported diverse recommendations that ranged from cessation of specific activities to (e.g. golf or work) to modification based on pain. Further, about 50% of people (see Table 2) were advised to 'completely rest' which is generally not recommended [7, 8, 20, 21]. A recent qualitative study among expert shoulder clinicians highlighted the importance of education (including activity modification) to facilitate exercise and self-management for people with RCRSP [24]. In contrast, people with RCRSP in this survey appeared to receive inconsistent messages about activity modification and advice that may not be recommended.

294

295 *Timing of interventions*

296 Guidelines for RCRSP recommend imaging if serious pathology is suspected, or after
297 failure of up to 12 weeks of first-line care that includes exercise [4, 7, 8]. Similarly,
298 interventions such as surgery but also injections are generally recommended only after
299 first-line care has failed [4, 7, 8]. Consistent with these recommendations, 72.1% of people
300 who had trauma had a scan prior to any exercise. However, when removing people
301 with a traumatic onset, 55.8% had imaging prior to exercise care. It is possible that in
302 some instances imaging was indicated by the clinical presentation (e.g. severe
303 unremitting severe pain). We did not assess disease severity because many were
304 surveyed months after they sought treatments. Alternatively, some of the imaging
305 observed in this study may not have been guideline recommended. Prior database and
306 National surveys in Australia have found that between 43.5% and 82% of general
307 practitioners recommend imaging for RCRSP when it is not recommended by
308 guidelines, often on first presentation [13, 14].

309

310 Some people also had injections (54.2% to 60.0%) prior to any exercise. This is not
311 surprising for steroid injection given some guidelines are unclear on their timing (e.g. [4])
312 whereas others recommend after failure of first-line care (e.g. [7]). This is different to
313 surgical management that is consistently recommended by guidelines only after failure
314 of first-line care for atraumatic RCRSP. In contrast to this recommendation, 38.1% of
315 people with an atraumatic onset had surgery prior to any exercise care. This is
316 potentially concerning given equivalent efficacy of exercise compared to surgery for

RCRSP [16], recent evidence that subacromial decompression (a common surgery for RCRSP) may be no better than placebo [25], and the risks involved with surgery [25]. Further, there has been doubling in population-adjusted rates of RCRSP related surgeries (subacromial decompression and rotator cuff repair) between 2001 and 2013 respectively in Western Australia [26], and there are similar trends of increasing surgical rates for RCRSP in the UK, US and Denmark [26].

Beliefs about imaging and surgery

A majority of people agreed that imaging was necessary for diagnosis (63.6% to 81.4%), that surgery was the best treatment for damaged tendons (16.4% to 27.9%), and would agree to surgery if tendons were damaged even if they had no symptoms (27.9% to 35.1%). Among people with musculoskeletal pain, greater disease severity is associated with greater fear-avoidance and catastrophizing beliefs [27] that may also be related to beliefs about imaging and surgery. Kromer et al. [28] reported a positive association between fear avoidance belief and disability severity among people with subacromial impingement (another term for RCRSP). An alternative explanation is that beliefs that these interventions are necessary may result in healthcare seeking behavior [29]. People with RCRSP believe that their pain has a biomedical cause, such as damage to the tissues [17, 18] and some have expressed this has motivated surgery [17, 30]. It is also possible that because our cohort was recruited from an imaging centre, they were more likely than other people with RCRSP to believe that imaging is necessary for diagnosis of this condition.

Strengths and limitations

This survey provides a novel patient perspective in relation to self-reported management and beliefs among people with RCRSP. There are several limitations that should be highlighted. First, our data may not be generalisable beyond people being referred to imaging at the imaging center in Melbourne. Although it is one of the largest specialist musculoskeletal imaging facilities in Australia and the 120 people surveyed from this centre were referred by 64 separate multidisciplinary clinicians, this data may be specific to this context. Second, some of the responses may be at risk of recall bias, but this is only likely when participants were asked to think about events in the past such as duration of symptoms. Third, given response rate was less than 25% this may introduce selection bias if respondents are different in some unknown way to the population. Fourth, we acknowledge that the addition of imaging to confirm the diagnosis is not necessary for RCRSP. This was added because of the potential limitations of our online screening for RCRSP and involved excluding cases of obvious participant self-reporting inaccuracies [5]. Fifth, although a very small proportion, we acknowledge that some people (7.5%, 9/120) in our cohort had rheumatoid or psoriatic arthritis which may present an indication for imaging prior to first-line care, and may explain some cases where exercise management was not effective.

Future directions

Future work should seek to confirm the findings from this survey, particularly the apparent poor response to exercise care and high rates of earlier than recommended interventions such as imaging, injections, and surgery. These interventions are costly,

and some may be avoided with recommended first-line care. Exploration of the reasons that drive poor response to exercise care and potential alternative treatments (including different exercise approaches) is also warranted.

Conclusion

In our cohort most people with RCRSP had tried exercise and there were heterogeneous opinions about efficacy . Some receive no activity modification advice and advice provided is inconsistent. Regardless of traumatic onset, some people have interventions such as imaging, injections, and surgery prior to trying exercise.

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Highlights:

- Patient opinions on exercise treatment are heterogenous
- Many patients have imaging, injection or surgery earlier than recommended
- Education received is inconsistent with recommended care
- Patient beliefs regarding intervention and diagnosis are varied