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BMJ Open How do people perceive different advice for rotator cuff disease? A content analysis of qualitative data collected in a randomised experiment

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ABSTRACT

Objectives To explore how people perceive different advice for rotator cuff disease in terms of words/feelings evoked by the advice and treatment needs.

Setting We performed a content analysis of qualitative data collected in a randomised experiment.

Participants 2028 people with shoulder pain read a vignette describing someone with rotator cuff disease and were randomised to: *bursitis label plus guideline-based advice*, *bursitis label plus treatment recommendation*, *rotator cuff tear label plus guideline-based advice* and *rotator cuff tear label plus treatment recommendation*. *Guideline-based advice* included encouragement to stay active and positive prognostic information. *Treatment recommendation* emphasised that treatment is needed for recovery.

Primary and secondary outcomes Participants answered questions about: (1) words/feelings evoked by the advice; (2) treatments they feel are needed. Two researchers developed coding frameworks to analyse responses.

Results 1981 (97% of 2039 randomised) responses for each question were analysed. *Guideline-based advice* (vs *treatment recommendation*) more often elicited words/feelings of reassurance, having a minor issue, trust in expertise and feeling dismissed, and treatment needs of rest, activity modification, medication, wait and see, exercise and normal movements. *Treatment recommendation* (vs *guideline-based advice*) more often elicited words/feelings of needing treatment/investigation, psychological distress and having a serious issue, and treatment needs of injections, surgery, investigations, and to see a doctor.

Conclusions Words/feelings evoked by advice for rotator cuff disease and perceived treatment needs may explain why *guideline-based advice* reduces perceived need for unnecessary care compared to a *treatment recommendation*.

INTRODUCTION

Rotator cuff disease is an umbrella term that covers 85% of cases of shoulder pain.¹ The term includes conditions relating to the

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Our study used a large sample size and triple coding of all responses to ensure rigour.
- ⇒ The data in this study were collected from an online experiment, which used high-quality methods (eg, randomisation, allocation concealment).
- ⇒ Since data for this study were collected in an online experiment, people's feelings towards the advice and treatment needs may be different during a real-life clinical encounter.
- ⇒ We only evaluated two messages of advice in this study; other advice may have provoked different words or feelings and perceived treatment needs.
- ⇒ People's reactions to the advice may have changed if we gave them more time to reflect and employed a longer follow-up period.

rotator cuff (eg, tendinopathy, tears, calcific tendinitis) and surrounding structures (eg, subacromial bursitis).^{1 2} Currently, neither clinical features nor diagnostic imaging can be used to reliably identify the specific nociceptive cause of rotator cuff disease (eg, tendon, bursa).³⁻⁹ This likely explains why multiple diagnostic labels exist to indicate the same condition,¹⁰ such as *subacromial impingement syndrome*, *painful arc syndrome*, *rotator cuff related shoulder pain*, *rotator cuff tear* and *bursitis*.

Different labels for rotator cuff disease can influence people's management preferences,¹¹ as for other conditions,^{12 13} and we have explored this in two previous online randomised trials.^{11 14} Trial I included 1308 people with and without shoulder pain and found labelling rotator cuff disease as *bursitis* decreases perceived need for surgery and imaging compared with labelling it as a *rotator cuff tear*.¹¹ A content analysis of qualitative data collected in this study suggests that the label *rotator cuff tear* more often evokes feelings of

psychological distress, the perception that the condition is serious and has a poor prognosis and increases perceived need for diagnostic imaging and surgery, compared with other labels (eg, *bursitis*).¹⁵ These findings are important because surgery and diagnostic imaging are of limited value for most people with shoulder pain,^{8 16 17} yet their use is common and increasing in some countries.^{18–23}

Since labels are rarely given in isolation, we conducted trial 2 to examine the effects of diagnostic labels and advice, and interactions between labels and advice, on management preferences for rotator cuff disease (n=2039 people with shoulder pain).¹⁴ The effect of labels was similar to trial 1.¹¹ The new finding was that *guideline-based advice*, which provides encouragement to stay active and positive prognostic information for rotator cuff disease, decreases perceived need for surgery, imaging, an injection, a second opinion and to see a specialist, and perceived seriousness of the condition, compared with a *treatment recommendation*, which emphasises that treatment is needed for recovery from rotator cuff disease.¹⁴ Prior to this, advice was recommended in guidelines²⁴ but without direct evidence of its benefits for people with shoulder pain. The effect of advice in our study was around two to three times stronger than the effect of labels for most outcomes, and there was little to no evidence of an interaction for any outcome.

As part of trial 2,¹⁴ we collected qualitative data that may help explain why preferences differed based on the advice people received—the basis for this study. The aim of this study was to explore how people with non-traumatic shoulder pain in our online experiment perceive different advice for rotator cuff disease (*guideline-based advice vs treatment recommendation*) in terms of (1) words or feelings evoked by the advice and (2) treatments they feel are needed.

MATERIALS AND METHODS

Study design

We performed a content analysis of qualitative data collected in our online randomised experiment (trial 2).¹⁴ Online supplemental file 1 outlines the consent, screening and data collection procedures.

Participants and recruitment

Participants with non-traumatic shoulder pain were recruited through Qualtrics (market research company; www.qualtrics.com) between January and March 2022 from Australia, New Zealand, USA, United Kingdom and Canada. Qualtrics use existing, national panels of individuals who have previously agreed to complete online surveys ('market research panels'), and have partnered with over 20 panel providers globally to recruit research participants across various fields (eg, technology, travel, healthcare, consumer goods, financial services, retail). Qualtrics use random sampling and provide incentives for participants to complete surveys (eg, gift cards, airline miles, cash). Participation is voluntary and participants

must be at least 18 years and able to read and write in English. To avoid duplication and ensure valid responses, Qualtrics check IP addresses and use sophisticated digital fingerprinting technology. More details on Qualtrics' sampling and recruitment procedures can be found elsewhere.²⁵

Data collection

The survey began with three screening questions to identify participants who (a) self-identified as currently having shoulder pain, (b) rated their shoulder pain over the past week as ≥ 1 on a scale of 0–10 (0=no pain, 10=the worst pain) and (c) did not have a traumatic shoulder injury (online supplemental file 1). Since we found little-to-no difference in outcomes between those with and without shoulder pain in our previous labelling trial (trial 1),¹¹ we only recruited people with shoulder pain for this study. Eligible participants then provided data on demographics (eg, age, gender), healthcare use (eg, previous imaging, injections, surgery) and shoulder symptoms. Details on how these data were collected are reported in online supplemental file 1 and elsewhere.¹⁴

Participants read a vignette (box 1) describing a patient with rotator cuff disease (figure 1) and were randomised (1:1:1:1 ratio), through Qualtrics survey software, to be in one of four groups: *bursitis label plus guideline-based advice*, *bursitis label plus treatment recommendation*, *rotator cuff tear label plus guideline-based advice*, and *rotator cuff tear label plus treatment recommendation*.

Both disease labels were accompanied by a brief explanation:

- ▶ *'Rotator cuff tear*. A rotator cuff tear is a tear in one of the shoulder tendons'
- ▶ *'Bursitis*. Bursitis is inflammation of a fluid-filled sac called a bursa in the shoulder'.

The two types of advice were:

- ▶ *Guideline-based advice* included encouragement to stay active and positive prognostic information, emphasising spontaneous recovery: 'I am not worried that there is anything serious going on here because your pain is not related to a significant injury. I am also not worried that you have arthritis in your shoulder or a specific condition called frozen shoulder that causes severe pain and stiffness. Your pain should gradually improve over time by itself. It is recommended that you avoid activities that aggravate your pain but continue to use your arm so your shoulder does not stiffen up'.
- ▶ *Treatment recommendation* emphasised that treatment is needed for recovery: 'Most people with your symptoms respond to treatment within four to 6 weeks, especially if an injection is part of the treatment. Without proper treatment, your symptoms can persist for months or years and usually become worse over time'.

The disease labels and advice were delivered by an orthopaedic surgeon (IAH) via a prerecorded video (~30 s). Participants had access to the script and were able to

Box 1 Vignette.
You have shoulder pain

This next section describes a person with shoulder pain who goes to a healthcare provider.

We want you to put yourself into this scenario and do your best to imagine that you are the person having this shoulder pain.

After reading it, you will be asked a number of questions. Please do your best to answer them based on this imagined scenario.

Your shoulder pain

- ⇒ Imagine you are suffering from pain in your right shoulder
- ⇒ It started 6 months ago.
- ⇒ There was no specific incident/injury/trauma that caused your pain.
- ⇒ You think that the pain was triggered by reaching for a plate in a high cupboard, but you are not sure.
- ⇒ You have no pain or other unusual sensations past your shoulder (eg, pins and needles, numbness).
- ⇒ The pain is at the front, side and back of your right shoulder and right upper arm, as shown by the red circles on the picture of the body chart below (figure 1).
- ⇒ You find it hard to move your shoulder normally. In particular, you find it very hard to lift your right arm past horizontal ('eye level') and reach up to high cupboards.
- ⇒ You cannot lie on your right side in bed as this increases your pain.
- ⇒ You have used heat and over-the-counter pain relievers and have been avoiding using your right shoulder to reach for objects or carry heavy shopping.

You visit a healthcare provider (eg, general practitioner or physiotherapist)

Your healthcare provider asks you questions about your shoulder pain, and some health questions to rule out any worrying causes

Your healthcare provider does a detailed physical examination. It involves:

- ⇒ Looking at your shoulder.
- ⇒ Checking if *you* can move your shoulder in certain directions, and whether this causes pain.
- ⇒ Checking if *they* can move your shoulder in certain directions, and whether this causes pain.
- ⇒ Checking if movement of your shoulder against resistance causes pain.

After this, your healthcare provider tells you:

'You have a ("rotator cuff tear" or "bursitis")'

'(Message #1 or #2; script and video)''

rewatch the video as many times as they liked. Participants had to spend at least 90 s on the page with the script and video before proceeding to the next part of the survey. Our justification for choosing the labels and advice is described elsewhere.¹⁴

Outcome data were collected immediately after participants were randomised. In this paper, we focused on free-text responses to two questions:

1. When you hear the advice from the surgeon on the video, what words or feelings does this make you think of? Please list.
2. After hearing the advice from the surgeon on the video, what treatment(s) do you think a person who hears this advice needs? Please list.

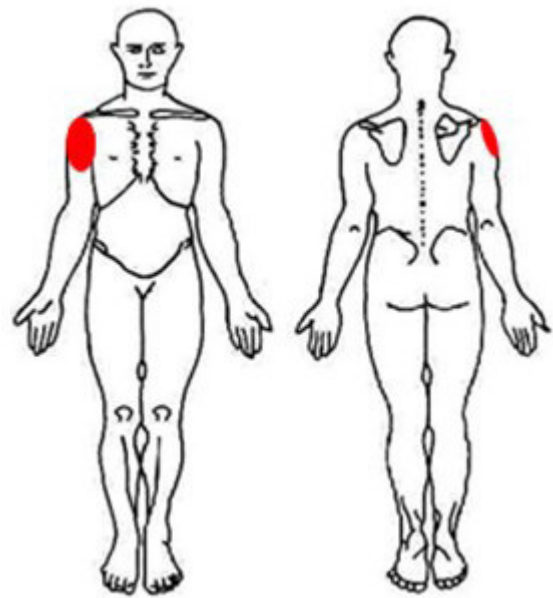


Figure 1 Body chart.

We did not ask any questions to explore perceptions about labels as this had already been done in our previous study (Trial 1).¹⁵

Data analysis

Responses to these questions were analysed using content analysis,²⁶ allowing us to report the frequency of themes expressed in response to both questions. The analysis involved several steps and represented the perspectives of two physiotherapists currently working in research (JRZ and ZAM), and who have experience in qualitative research and managing musculoskeletal conditions. Five Master of Public Health students assisted the researchers to code responses but were not involved in developing the framework. First, the two researchers (JRZ and ZAM) and a group of five Master of Public Health students (FA, YL, EW, JY and KZ) familiarised themselves with the responses and with the coding frameworks used in our previous content analysis exploring how people perceive different labels for rotator cuff disease (trial 1).¹⁵ Trial 1 asked participants almost identical free-text response questions (except focused on labels instead of advice) and provided a good starting point to develop new frameworks for this study. Second, using an inductive approach embedded in grounded theory, JRZ and ZAM independently developed draft frameworks (one for each question) and coded 100 responses from each group for both questions (~5% of all responses). They then compared, discussed and harmonised their frameworks into one per question. The frameworks were then applied to all responses by the Masters students, under the supervision of JRZ and ZAM. Any disagreements in coding were discussed and resolved by JRZ and ZAM. All codings were performed blind to group allocation. Each response was allocated as many codes as appropriate; six was the highest number of codes given to a single response. The frameworks are outlined in online

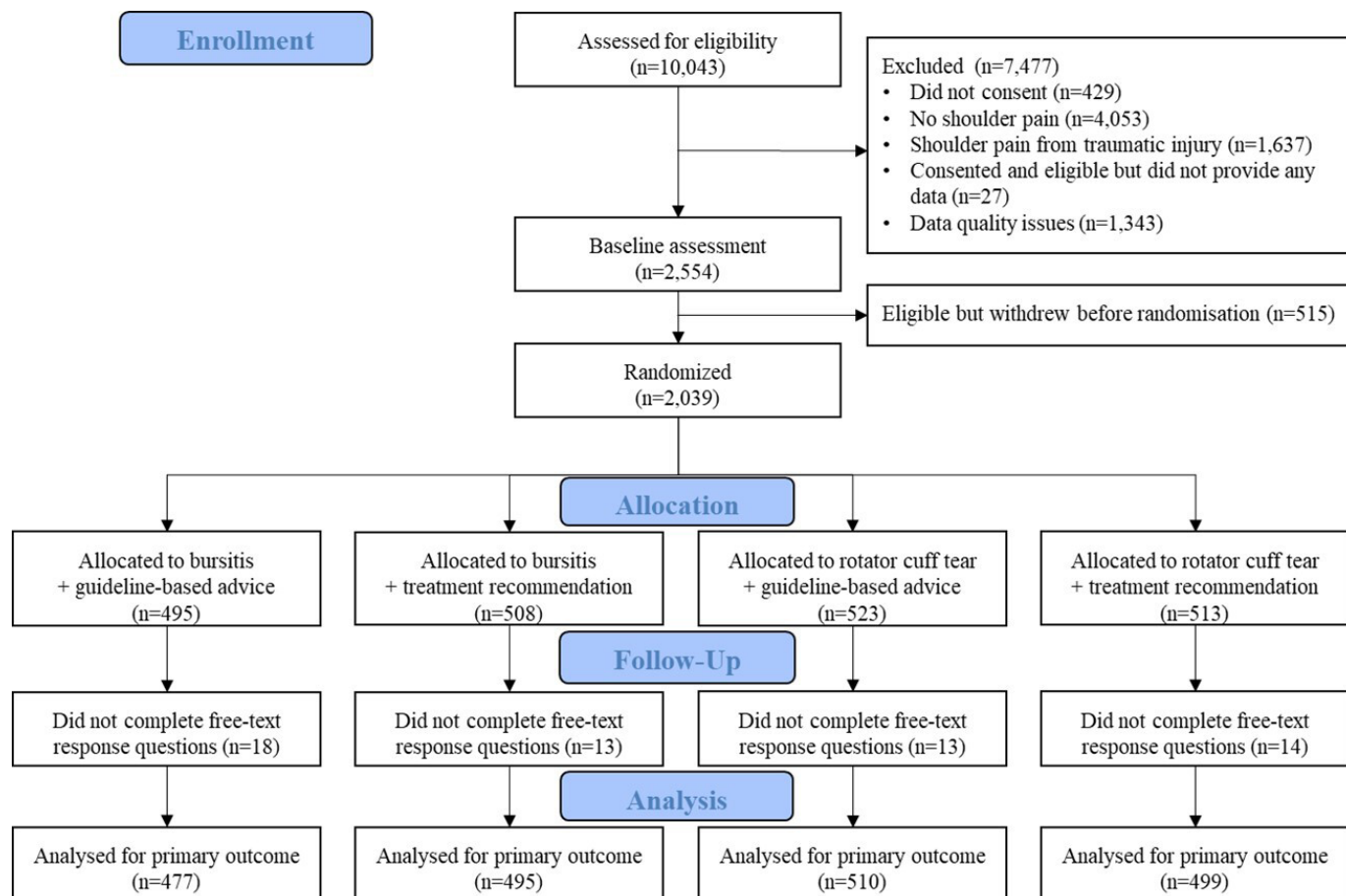


Figure 2 Flow diagram.

supplemental file 2. Frequency (%) of themes overall, and by advice and labels, was generated in Stata (V.16.1).

Patient or public involvement

The author team includes practising orthopaedic surgeons and physiotherapists. However, no patients or members of the public were involved in the design of this study or validation of the data.

RESULTS

Sample characteristics and level of agreement

In our online trial, 2039 eligible participants were randomised to one of four groups (figure 2). Fifty-eight participants (2.8%) did not respond to the free-text response questions, leaving 1981 (97.2%) responses to each question for this analysis. Participant characteristics were similar between the four groups (table 1).

When you hear the advice from the surgeon on the video, what words or feelings does this make you think of?

Our framework included 25 themes (table 2). Online supplemental file 3 provides examples of free-text responses by theme. Responses to *guideline-based advice* emphasising spontaneous recovery (vs a *treatment recommendation*) more often included themes of reassurance (33.4% vs 23.8%), having a minor issue (16.9% vs 5.1%),

trust in expertise (6.8% vs 4.3%), being negative about the advice (6.9% vs 5.0%), being unhappy/frustrated (5.4% vs 3.3%) and feeling dismissed (5.4% vs 1.1%). Responses to a *treatment recommendation* (vs *guideline-based advice* emphasising spontaneous recovery) more often included themes of needing treatment/investigation (24.1% vs 8.8%), psychological distress (18.2% vs 9.7%), attention to pain (10.1% vs 7.6%) and having a serious issue (6.2% vs 2.4%). Common themes across both groups included being positive about the advice, perceiving a good prognosis, uncertainty, perceiving activity restriction and wanting a second opinion (table 2). Online supplemental file 4 presents these themes by labels and advice.

After hearing the advice from the surgeon on the video, what treatment(s) do you think a person who hears this advice needs?

Our framework included 43 themes. *Guideline-based advice* emphasising spontaneous recovery (vs a *treatment recommendation*) more often elicited the need for rest (21.6% vs 6.6%), activity modification (17.3% vs 1.9%), medication (16.3% vs 7.4%), wait and see (14.1% vs 1.9%), exercise (10.7% vs 3.9%) and normal movements (7.3% vs 0.5%). A *treatment recommendation* (vs *guideline-based advice* emphasising spontaneous recovery) more often elicited the need for injections (47.9% vs 6.8%), surgery (10.1% vs 4.2%),

Table 1 Characteristics of participants

Demographics	Total sample (n=2039)	Bursitis+guideline- based advice (n=495)	Bursitis+treatment recommendation (n=508)	Rotator cuff tear+guideline- based advice (n=523)	Rotator cuff tear+treatment recommendation (n=513)
Age (years), mean (SD)*	45.1 (15.4)	45.4 (15.6)	45.8 (14.6)	43.6 (15.2)	45.7 (16.1)
Age (years), median (IQR)*	44.0 (33.0–58.0)	45.0 (33.0–58.0)	45.0 (34.0–58.0)	42.0 (31.0–56.0)	44.0 (33.0–59.0)
Female, n (%)	1213 (59.5%)	309 (62.4%)	308 (60.6%)	309 (59.1%)	287 (56.0%)
Country, n (%)					
Australia	411 (20.2%)	104 (21.0%)	110 (21.7%)	91 (17.4%)	106 (20.7%)
New Zealand	402 (19.7%)	100 (20.2%)	94 (18.5%)	104 (19.9%)	104 (20.3%)
USA	433 (21.2%)	103 (20.8%)	102 (20.1%)	117 (22.4%)	111 (21.6%)
United Kingdom	404 (19.8%)	90 (18.2%)	97 (19.1%)	114 (21.8%)	103 (20.1%)
Canada	389 (19.1%)	98 (19.8%)	105 (20.7%)	97 (18.6%)	89 (17.4%)
Education, n (%)					
High school (not completed)	169 (8.3%)	37 (7.5%)	48 (9.5%)	48 (9.2%)	36 (7.0%)
High school (completed)	692 (34.0%)	180 (36.4%)	171 (33.7%)	171 (32.7%)	170 (33.1%)
Non-university tertiary education	367 (18.0%)	93 (18.8%)	92 (18.1%)	89 (17.0%)	93 (18.1%)
University	811 (39.8%)	185 (37.4%)	197 (38.8%)	215 (41.1%)	214 (41.7%)
Employment, n (%)					
Employed	1231 (60.4%)	291 (58.8%)	304 (59.8%)	326 (62.3%)	310 (60.4%)
Unemployed	456 (22.4%)	99 (20.0%)	124 (24.4%)	125 (23.9%)	108 (21.1%)
Student	83 (4.1%)	31 (6.3%)	13 (2.6%)	17 (3.3%)	22 (4.3%)
Retired	268 (13.1%)	73 (14.8%)	67 (13.2%)	55 (10.5%)	73 (14.2%)
Other (not specified)	1 (0.1%)	1 (0.2%)	0 (0%)	0 (0%)	0 (0%)
Private health insurance, n (%)	806 (39.5%)	220 (44.4%)	174 (34.3%)	212 (40.5%)	200 (39.0%)
Healthcare use					
Previous shoulder pain treatment, n (%)	1229 (60.3%)	290 (58.6%)	307 (60.4%)	308 (58.9%)	324 (63.2%)
Previous shoulder surgery, n (%)	104 (5.1%)	19 (3.8%)	35 (6.9%)	22 (4.2%)	28 (5.5%)
Previous shoulder imaging, n (%)	843 (41.3%)	207 (41.8%)	194 (38.2%)	222 (42.5%)	220 (42.9%)
Previous shoulder injection, n (%)	444 (21.8%)	106 (21.4%)	114 (22.4%)	101 (19.3%)	123 (24.0%)
Previous sick leave for shoulder pain, n (%)	609 (29.9%)	146 (29.5%)	143 (28.2%)	160 (30.6%)	160 (31.2%)
Previous shoulder pain diagnosis, n (%)	596 (29.2%)	143 (28.9%)	142 (28.0%)	163 (31.2%)	148 (28.9%)

Continued



Table 1 Continued

Demographics	Total sample (n=2039)	Bursitis+guideline-based advice (n=495)	Bursitis+treatment recommendation (n=508)	Rotator cuff tear+guideline-based advice (n=523)	Rotator cuff tear+treatment recommendation (n=513)
Shoulder symptoms					
Shoulder pain over the last week (0–10, NRS), mean (SD)	5.1 (1.8)	5.1 (1.9)	5.1 (1.8)	5.1 (1.8)	5.0 (1.9)
Duration of shoulder pain					
Less than 1 week	201 (9.9%)	51 (10.3%)	54 (10.6%)	44 (8.4%)	52 (10.1%)
1 week to 3 months	565 (27.7%)	125 (25.3%)	152 (29.9%)	158 (30.2%)	130 (25.3%)
4 months to 12 months	361 (17.7%)	104 (21.0%)	82 (16.1%)	79 (15.1%)	96 (18.7%)
Longer than 12 months	912 (44.7%)	215 (43.4%)	220 (43.3%)	242 (46.3%)	235 (45.8%)
Total SPADI (0–100), mean (SD)	48.5 (21.7)	47.8 (21.7)	49.0 (21.3)	48.3 (21.8)	48.8 (22.0)
Pain subscore (0–100)	55.2 (21.0)	54.8 (20.7)	55.6 (20.4)	55.2 (21.1)	55.3 (21.6)
Disability subscore (0–100)	41.7 (24.6)	40.8 (24.8)	42.4 (24.5)	41.4 (24.5)	42.3 (24.6)

*Data on age were missing from one participant in the 'bursitis+guideline-based advice' group. n, number of participants; NRS, numeric rating scale; SPADI, Shoulder Pain and Disability Index.

investigations (8.6% vs 6.4%) and to see a doctor (7.5% vs 2.5%) or specialist (4.1% vs 1.5%). Common treatment themes across both groups included physiotherapy, second opinion, unsure and follow the advice provided online supplemental file 5. Online supplemental file 6 presents these themes by labels and advice.

DISCUSSION

Summary of key findings

People with shoulder pain who receive *guideline-based advice* emphasising spontaneous recovery more often express feelings of reassurance, having a minor issue and trusting the person providing the advice, compared with a *treatment recommendation* that stressed treatment is needed for recovery. However, those who receive *guideline-based advice* are slightly more likely to be negative about the advice, unhappy/frustrated and feel dismissed. Those who receive a *treatment recommendation* (vs *guideline-based advice*) more often express feelings of needing treatment/investigation, psychological distress, attention to pain and having a serious issue. In terms of treatment, people who receive *guideline-based advice* more often express the need for rest, activity modification, medication, wait and see, exercise and normal movements, whereas those who receive a *treatment recommendation* more often express the need for injections, surgery, investigations and to see a doctor or specialist. These findings help explain the quantitative findings¹⁴ and why *guideline-based advice* decreases patients' perceived need for medical care and increases reassurance compared with advice that *treatment is recommended*.

Strengths and weaknesses of this study

Key strengths of this study include recruitment of a large sample of people with lived experience of shoulder pain, participation was evenly distributed across five countries, triple coding all responses and resolving all disagreements by discussion, and that the online experiment which provided data for this study used high-quality methods (eg, randomisation, allocation concealment). Our sample appears representative of people with shoulder pain in primary care based on demographics, healthcare use and shoulder symptoms.^{27–31} The findings also suggest participants paid careful attention to the scenario. For example, nearly half of those who received a *treatment recommendation*, which highlighted the benefit of injections, wanted an injection.

The main weakness of this study is that it was an online experiment; hence, people's feelings towards the advice and perceived treatments needs might be different in a face-to-face clinical encounter. The online nature of the study also limited our ability to follow participants over-time (due to costs) and assess important patient outcomes and healthcare use. Other advice not investigated in this study may have provoked different feelings and perceived treatment needs, as could have giving participants more time to reflect on the advice or having a different type

Table 2 Themes for words or feelings by message of advice

Theme	Total sample (n=1981)	Guideline-based advice (n=987)	Treatment recommendation (n=994)
1	Reassurance (n=567, 28.6%)	Reassurance (n=330, 33.4%)	Treatment/investigation (n=240, 24.1%)
2	Treatment/investigation (n=327, 16.5%)	Minor issue (n=167, 16.9%)	Reassurance (n=237, 23.8%)
3	Positive about the advice (n=302, 15.2%)	Positive about the advice (n=146, 14.8%)	Psychological distress (n=181, 18.2%)
4	Psychological distress (n=277, 14.0%)	Good prognosis (n=105, 10.6%)	Positive about the advice (n=156, 15.7%)
5	Good prognosis (n=221, 11.2%)	Psychological distress (n=96, 9.7%)	Good prognosis (n=116, 11.7%)
6	Minor issue (n=218, 11.0%)	Treatment/investigation (n=87, 8.8%)	Attention to pain (n=100, 10.1%)
7	Attention to pain (n=175, 8.8%)	Attention to pain (n=75, 7.6%)	Serious issue (n=62, 6.2%)
8	Negative about the advice (n=118, 6.0%)	Negative about the advice (n=68, 6.9%)	Uncertainty (n=56, 5.6%)
9	Trust in expertise (n=110, 5.6%)	Trust in expertise (n=67, 6.8%)	Minor issue (n=51, 5.1%)
10	Uncertainty (n=108, 5.5%)	Irrelevant response (n=58, 5.9%)	Negative about the advice (n=50, 5.0%)
11	Activity restriction (n=95, 4.8%)	Activity restriction (n=55, 5.6%)	Second opinion (n=48, 4.8%)
12	Irrelevant response (n=95, 4.8%)	Feeling dismissed (n=53, 5.4%)	Trust in expertise (n=43, 4.3%)
13	Second opinion (n=88, 4.4%)	Unhappy/frustrated (n=53, 5.4%)	Activity restriction (n=40, 4.0%)
14	Serious issue (n=86, 4.3%)	Uncertainty (n=52, 5.3%)	Irrelevant response (n=37, 3.7%)
15	Unhappy/frustrated (n=86, 4.3%)	Second opinion (n=40, 4.1%)	Need more information or options (n=35, 3.5%)
16	Need more information or options (n=73, 3.7%)	Need more information or options (n=38, 3.9%)	Poor prognosis (n=35, 3.5%)
17	Tissue damage or dysfunction (n=66, 3.3%)	Tissue damage or dysfunction (n=36, 3.6%)	Unhappy/frustrated (n=33, 3.3%)
18	Feeling dismissed (n=64, 3.2%)	Serious issue (n=24, 2.4%)	Contrasting experience (n=31, 3.1%)
19	Poor prognosis (n=56, 2.8%)	Poor prognosis (n=21, 2.1%)	Tissue damage or dysfunction (n=30, 3.0%)
20	Contrasting experience (n=51, 2.6%)	Contrasting experience (n=20, 2.0%)	Negative about the injection (n=18, 1.8%)
21	Validated or cared for (n=27, 1.4%)	Validated or cared for (n=14, 1.4%)	Mechanism of injury (n=15, 1.5%)
22	Mechanism of injury (n=25, 1.3%)	Mechanism of injury (n=10, 1.0%)	Validated or cared for (n=13, 1.3%)
23	Negative about the injection (n=19, 1.0%)	Negative about the tone or presentation of the advice (n=5, 0.5%)	Feeling dismissed (n=11, 1.1%)
24	Ageing (n=11, 0.6%)	Ageing (n=3, 0.3%)	Ageing (n=8, 0.8%)
25	Negative about the tone or presentation of the advice (n=8, 0.4%)	Negative about an injection (n=1, 0.1%)	Negative about the tone or presentation of the advice (n=3, 0.3%)

0 – 4.9%	5 – 9.9%	10 – 14.9%	15 – 19.9%	20% +
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n, number of participants.

of health professional deliver the advice (eg, general practitioner, physiotherapist). Although we did not assess health literacy, it is possible that participants with low health literacy did not understand the advice or labels. Professional bias and beliefs may have influenced the coding since the two researchers who developed and applied the frameworks had a physiotherapy background.

Meaning of the study

The findings from this study highlight the potential value of *guideline-based advice* emphasising spontaneous recovery for rotator cuff disease and likely explain the why *guideline-based advice* decreases perceived need for surgery, imaging, an injection, a second opinion and to see a specialist and perceived seriousness of the condition, compared with advice that *treatment is recommended*.¹⁴ *Guideline-based advice* emphasising spontaneous recovery does present some challenges though. People who receive this advice are slightly more likely to feel negative about the advice, unhappy/frustrated and dismissed, compared with people who receive a *treatment recommendation*. *Guideline-based advice* was delivered by an orthopaedic surgeon who stated they were ‘not worried’ because the person’s shoulder pain is not serious, and that it should gradually improve over time by itself. People with long duration symptoms (eg, 45% had symptoms longer than 12 months) and those who had previous treatment (60%) may have reacted particularly negatively towards the advice as their condition had not resolved over time (or with treatment) and they were not given advice about what to do next. Similarly, people with severe shoulder pain may have felt that the surgeon was minimising or dismissing their problem. People receiving *guideline-based advice* were also encouraged to avoid activities that aggravated their pain and continue using their arm, so it did not stiffen up. This message might not have been acceptable to people who already tried modifying their activities or are unable to use their arm due to pain. The *treatment recommendation* was delivered by the same surgeon but stated most people respond to treatment in 4–6 weeks, especially if they receive an injection, and stressed prognosis is poor without treatment. Although this more often evoked feelings of psychological distress, the thought of pain and having a serious condition and the need for treatment/investigation, people may have felt validated. Care must, therefore, be taken to avoid minimising or dismissing rotator cuff disease when providing patients with encouragement to stay active and positive prognostic information.

Comparison to the existing literature

Although this is the first study to examine how people perceive different advice for rotator cuff disease, the findings are similar to two related studies from our group that explored how people perceive different labels for rotator cuff disease¹⁵ and non-specific low back pain.³² Labelling rotator cuff disease as a *rotator cuff tear* more often elicited words or feelings of psychological distress, uncertainty,

having a serious issue and perceiving a poor prognosis, and treatment needs of surgery, compared with labelling as *bursitis*.¹⁵ This likely explains why labelling as *bursitis* (vs *rotator cuff tear*) reduces perceived need for surgery.¹¹ Similarly, labelling non-specific low back pain as a *disc bulge*, *degeneration* or *arthritis* more often elicited feelings of perceiving a poor prognosis and having tissue damage compared with labelling as *lumbar sprain*, *non-specific low back pain* and an *episode of low back pain*,³² which likely explains why the latter group of labels reduce perceived need for unnecessary care (eg, surgery, imaging).¹³ Overall, these findings suggest the influence of advice and labels on treatment preferences for rotator cuff disease, and non-specific low back pain may be driven by similar feelings and perceived treatment needs.

There is some available data on the type of advice health professionals provide to people with rotator cuff disease. However, it does not give us much information about whether health professionals are providing *guideline-based advice*, highlighting the need for future research in this area. For example, data from a systematic review³³ suggest that 91% of physiotherapists provide information or advice (type unclear) for rotator cuff disease,³⁴ 74%–84% provide postural advice^{35 36} and 10% encourage rest or a reduction in activity.³⁵ Based on audit data, only 10% of patients with shoulder pain who visit a general practitioner in Australia receive advice, education or counselling, whereas 43% receive a referral for imaging.²⁸

Unanswered questions and future research

The findings of this, and our quantitative study,¹⁴ highlight the benefit of *guideline-based advice* emphasising spontaneous recovery for rotator cuff disease for reducing patients perceived need for potentially unnecessary care (eg, surgery, imaging) and providing reassurance. However, we do not know whether *guideline-based advice* improves patient outcomes (eg, pain, function, satisfaction, self-efficacy) or influences future healthcare use, nor whether the advice is more effective for certain populations with rotator cuff disease (eg, acute symptoms, no previous healthcare use). We also do not know whether *guideline-based advice* would have the same effect if the study was conducted in a clinical setting, or if it is better than other advice for rotator cuff disease. Future research is needed to fill these gaps and strengthen the evidence-base for advice for rotator cuff disease.

CONCLUSION

Guideline-based advice emphasising spontaneous recovery reassures some people that they have a minor issue that can be managed with rest, activity modification, medication, wait and see, exercise or normal movements. However, care needs to be taken when providing this advice to ensure patients do not feel their problem is being dismissed. A *treatment recommendation* stressing that treatment is needed for recovery more often elicits psychological distress, attention to pain and having a

serious condition, and the need for treatment/investigation including injections, surgery and seeing a doctor/specialist. These findings may explain why *guideline-based advice* reduces patients' perceived need for potentially unnecessary care (eg, surgery) compared with a *treatment recommendation*. Future research is needed to investigate the effect of advice on patient outcomes.

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