Roland Morris change scores can be independent of changes in back pain

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Background & Aim

- People with back pain can have discordant Roland Morris Disability Questionnaire (RMDQ) scores and transition question (TQ) responses
- For example, some have shown improving RMDQ scores even though they say their back pain is worse using a TQ
- TQs are often used as anchors to estimate Minimally Important Change on the RMDQ, and the RMDQ is the most common primary outcome in clinical trials
- We wanted to explore the cause of the discordance and confirm it is appropriate to use the TQ to calculate RMDQ MIC
- In a series of in-depth interviews with people who completed these in a trial, we explored they think about when they complete a TQ and what they think about when they complete the RMDQ

Methods

- We purposively sampled people enrolled on an RCT of a physiotherapy decision support package, who had completed the RMDQ at baseline and three-month follow-up, and two TQs at the follow-up
- One TQ enquired about ability to perform daily tasks, the other about back pain
- We purposively sampled for participants with discordant scores, in either direction, people with concordant scores; and for age, gender and employment status
- Semi-structured in-depth interviews were conducted at peoples' homes or the University of Warwick. Copies of the participants' previous responses to instruments were made available
- We explored thought patterns associated with completing the TQ and RMDQ, and reasons for any discordance
- Interviews were recorded and transcribed verbatim. The Framework method was used to analyse emerging themes.
- We use the following notation to describe different discordance patterns in our results and in this poster:-

The first digit of a two-digit code describes discordance with LBP TQ and RMDQ and the second describes the discordance between daily tasks TQ and the RMDQ

+ = positive discordance: TQ more optimistic than RMDQ

- = negative discordance: TQ less optimistic than RMDQ

0 = concordance between TQ and RMDQ

e.g. ++ means both TQs were more optimistic than the RMDQ; and 0- means the LBP TQ was concordant with the RMDQ and the daily tasks TQ represents a less optimistic outcome than the RMDQ score

- See footnote to Table for details of cut-points used (and Ostelo et al)

Results

- We sampled 35 participants before approaching the natural limits of recruitment from the trial & data saturation (Table)
- 27 participants were female (mean age 56 (SD 12.4) years) and 8 were male (mean age 45 (SD 15.3) years). Most were British (29/35). 9 worked full-time, 6 worked part-time, 11 had retired, 6 were not working, and 3 did not provide their work status. Within the purposive sample, the mean RMDQ at baseline was 11.6 (SD=4.39) and the four-month follow-up was 9 (SD=5.89)
- All participants had responded to the RMDQ at baseline
- One participant with missing TQ data had not seen the page containing these questions
- 15 participants were discordant with the LBP TQ & 15 were discordant with the daily tasks TQ

1. Roland Morris Disability Questionnaire

- We identified two themes surrounding thought processes for the RMDQ - 1. Participants took a uniform approach, attending to each statement in turn. Statements were considered relatively objectively and did not lead to any length mental debate. Participants judged each statement in terms of whether they could, or could not, do the activity described – i.e. a binary opposition

"Do I change positions frequently? No. Walk more slowly? Don't think so. Handrail? No"
- (Participant 12, 64yo British Female, -0)

Table 1 Transition question responses

ID	Age	Ethnicity	Gender	Employment	Leg pain	RMDQ baseline	RMDQ follow-up	RMDQ change	TQ LBP	TQ daily tasks	Discordance
1	63	British	Female	Retired	No	15	12	-3	4	4	--
2	70	British	Female	Retired	Yes	11	13	2	3	3	++
3	57	British	Female	Full Time	No	17	16	-1	3	3	00
4	61	British	Female	Part Time	No	14	2	-12	3	3	--
5	45	British	Female	Full Time	Yes	10	4	-6	3	3	00
6	47	British	Female	Part Time	No	11	7	-4	3	4	0-
7	23	Indian	Female	Full Time	Yes	11	12	1	4	4	00
8	74	British	Female	Retired	No	12	11	-1	3	3	00
9	49	ND	Female	Full Time	No	18	8	-10	3	2	-0
10	57	British	Female	Part Time	Yes	12	10	-2	3	3	00
11	58	British	Female	Unassigned	No	12	10	-2	3	3	00
12	64	British	Female	Unassigned	Yes	18	6	-12	3	2	-0
13	58	British	Male	Not working	No	19	19	0	ND	ND	ND
14	54	British	Male	Full Time	No	14	11	-3	3	3	00
15	55	British	Male	Retired	Yes	14	0	-14	2	2	00
16	67	British	Female	Retired	No	8	7	-1	3	3	00
17	57	British	Female	Full Time	Yes	7	16	9	7	7	00
18	56	British	Female	Part Time	No	11	4	-7	2	2	00
19	73	British	Female	Retired	No	10	10	0	4	4	00
20	64	British	Female	Retired	Yes	15	16	1	4	4	++
21	65	British	Female	Retired	Yes	4	2	-2	4	4	--
22	34	British	Female	Not working	No	4	0	-4	2	2	00
23	37	Asian	Male	Not working	Yes	17	17	0	6	5	--
24	65	Cypriot	Male	Retired	No	14	11	-3	3	3	00
25	42	British	Male	Full Time	No	2	0	-2	2	7	+-
26	20	British	Male	Not working	No	14	19	5	7	6	00
27	48	British	Female	Not working	No	7	8	1	3	3	++
28	40	British	Female	Full Time	No	7	0	-7	2	2	00
29	48	British	Female	Part Time	No	12	10	-2	4	4	--
30	59	British	Female	Not working	Yes	19	20	1	4	4	++
31	74	British	Female	Retired	No	12	14	2	4	4	++
32	45	African	Female	Unassigned	Yes	12	10	-2	3	3	00
33	63	British	Female	Retired	No	6	4	-2	3	4	00
34	64	British	Female	Retired	No	11	9	-2	5	5	--
35	31	Mixed	Male	Full Time	No	7	6	-1	2	4	00

Discordance rule details
No change – within 1 points of 0; Slightly = < 5 points in correct direction (i.e > 0); Much >= 5 points in correct direction; Character 1 = LBP, Character 2 = tasks; - = TQ less optimistic than RMDQ change score; + = TQ more optimistic than RMDQ change score; ND = No Data/datum
TQ anchors
1=Completely better; 2=Much better; 3=Slightly better; 4=No change, 5=Slightly worse, 6=Much worse; 7=Vastly worse

- 2. The second theme relating to the RMDQ was that several participants commented that the wording asks about one's ability 'today' and so did not provide then the opportunity to supply relevant information about the past

"... because that's the thing, it isn't always just that day, is it? It depends on what's made it worse today than last week sort of thing."] - (Participant 21, 65yo British Female, --)
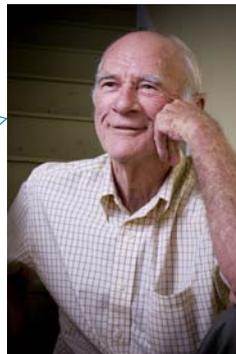
"It does say today, doesn't it? I was taking it more as a general. I mean, today is underlined as well. There are things ... like this one, I could say I've done this more as a general one and that one more as how I was on that day."
- (Participant 24, 65yo Cypriot Male, 00)

2. Health transition questions

- 5 distinct thought pathways emerged as themes in the data that related to decision-making surrounding participants' responses to TQs depending on what they thought about, and in what order (Figure)

1. Participants who thought about pain and then function

- In this theme a set of 12 participants were predominantly negatively discordant (8/12) with the RMDQ on either LBP or daily task variants of the TQ

" ... because if the pain is there you can't do things, can you?" -
(Participant 19, 73yo British Female, 00)

"...the level of pain, the intensity, is what determines everything else in your life; whether it's getting out of a chair, whether you need help getting dressed. I mean, there were occasions when I did need help to get dressed and so, therefore, if you say what is it that makes you feel better, it is in some way either lessening or losing the pain, because obviously that makes life easy then." –
(participant 1, 61yo, British F, --)

2. Participants who thought first about function

- There was no notable discordance in this pathway – most (6/8) had concordant responses

"I could actually fit more into the day ... Housework was easier ... The washing up would normally take you five minutes, but it took, say, half an hour, so it was the time thing of getting things done, you could do more. Basic things like shopping was easier." –
(Participant 18, 56 yo British Female, 00)

3. Participants who considered multiple factors (inclusive thinking)

- For the 7 participants in this category, thinking was principally a global appraisal that incorporated multiple factors and interactions between those factors

"At the end of the day, I have to accept that I'm older now and there's general wear and tear in my body; to me there's no doubt about that. So I don't think I'm ever going to get back to how I was ten years ago, and I think this is something I'm going to have to live with, you know? So is my ability slightly better?" –
(Participant 2, 70yo British Female, ++)

4. Participants who thought about only their pain

- For the 5 participants in this pathway, the decision-making process was more clear-cut and without lengthy mental debate. 2 had discordant responses

"My pain. Has anything changed? No, it's still the same. My pain is still the same. It's simple!" –
Participant 7, 23 yo Indian Female, 00)

"Yeah , well, no, just the pain, when I'm just having it bad ... Yeah, this is just about the pain. If I was to say with the mental stuff and not being able to do anything, then it would be that one that's really worse." - (Participant 26, 20yo British Male, 00)

5. Participants who thought about pain and then fear

- 2 participants notably thought first about pain and then an associated fear

"You'd be walking along normally, normally, normally, and then suddenly, quiet unpredictably, get this really sharp pain as though something is going to break! ... Yeah, because what(this) was worrying me, frightening me and sent me to the doctor ... was, oh, I'm doing some damage by walking; if I carry on with this, I'm not going to be able to walk!" – (Patient 12, 64 yo British Female, -0)
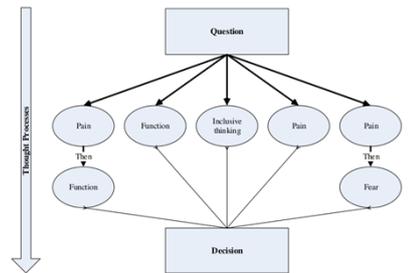

Figure – the five emergent thought pathways

The predominant association with discordance was in those in the most dominant pathway – thinking about pain before function. In those who thought about pain only, most were not discordant, with TQ responses largely matching RMDQ responses. In the inclusive thinking category, there was some suggestion that those who were positively discordant had exceeded their global expectations.

Discussion

- Some people do not think about their back pain when they complete the most commonly used primary outcome in back pain trials
- It is possible for people to say their back pain has improved or deteriorated whilst having a contradictory RMDQ change score: as for some the assessments are in different domains
- In particular, ability to perform daily tasks (the domain of the RMDQ) can be independent of change in back pain
- TQ wording did not appear to matter
- Finding is problematic because:
1. some people do not attend to thinking about their back pain when completing the RMDQ and so the RMDQ may be unsuitable for use as a primary outcome measure in back pain trials if the objective is to determine change in back pain
2. TQs should not be used to anchor RMDQ MIC because of domain mismatch
- In considering new outcome measures more preliminary thought may need to be given to what we are seeking to do by intervening