PAPER 2. PSYCHOMETRICS OF THE PAIN, ANXIETY AND LOW MOOD ITEMS

MiCare Webinar

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ASCOT

adult social care outcomes toolkit

NHS National Institute for Health Research

School for Social Care Research

AIMS

- To evaluate the **feasibility** and **psychometrics** of the **three new items** – pain, anxiety, low mood
  - Feasibility
  - Psychometric properties
    - Construct validity
    - Internal reliability
    - Structural validity

METHODS – care home recruitment

Recruitment and sampling

- Initial scoping questionnaire
- 112 care homes said they could be contacted for future research
  - Care homes removed
- 88 care homes left to be invited to take part

Recruitment method

- Initiation letters with information sheet sent out
- Followed up by telephone calls
- Face-to-face meetings to provide all documents
- In totally, 20 care homes agreed to take part

METHODS – resident recruitment

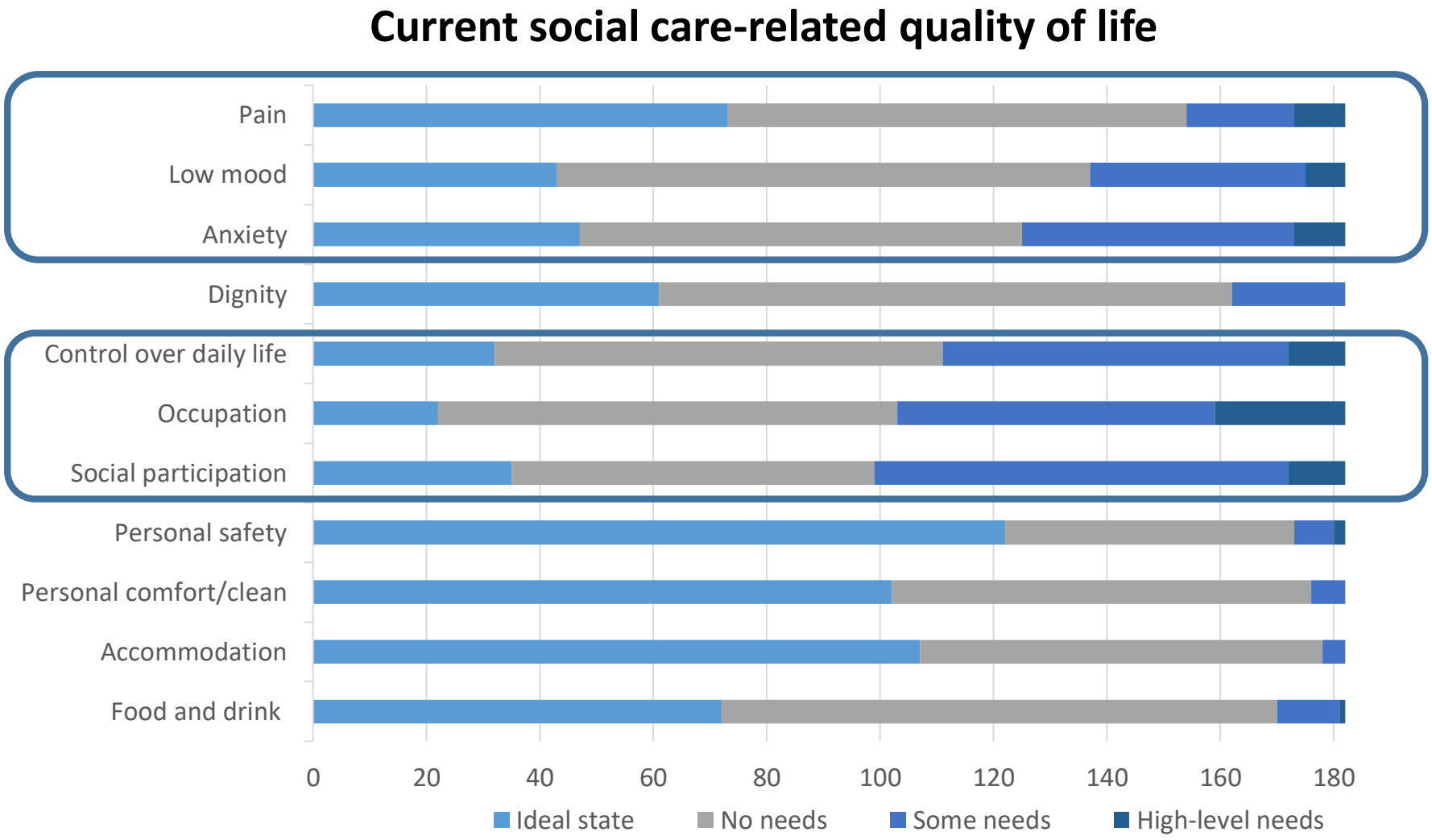
Resident recruitment

- Care home managers were asked to oversee this
  - Seen as knowing the residents best
  - Residents more comfortable saying no
  - Can contact family easily if they want to discuss
- Numbers
  - If <40, invite all
  - If >40, invite 20 random from alphabetical list (select every *n*th resident starting from a random member provided by research team)
- All invited, with or without capacity
  - Personal consultee used for those lacking capacity
  - Ongoing assessment by researchers too

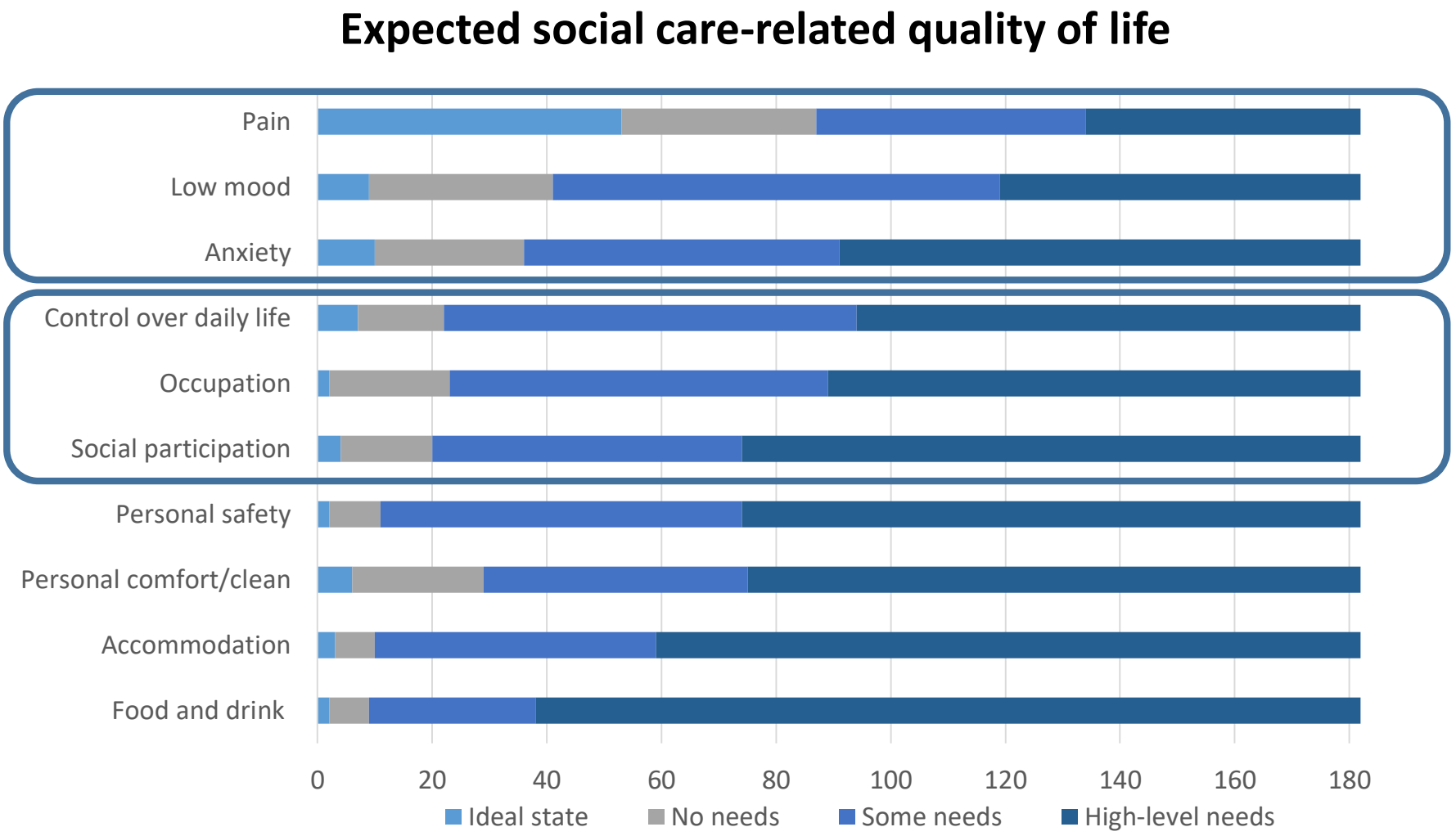
METHODS - analysis

- To evaluate the feasibility and psychometric properties of the three new items – pain, anxiety, low mood
  - **Feasibility**
    - Missing data overall
    - Missing data by source (resident, staff, family)
  - **Construct validity.** The extent to which an instrument (measure) or item (question) measures what it is supposed to measure.
    - Hypothesis testing
  - **Internal consistency**
    - Cronbach's alpha
  - **Structural validity**
    - Classical test theory: exploratory factor analysis (EFA)
    - Item response theory: Rasch analysis

RESULTS: RATINGS



RESULTS: RATINGS



RESULTS: FEASIBILITY

- No missing data overall (*n*=182 ratings)
  - **Observational ratings:** No missing data
  - **Staff ratings:** Very limited missing data
  - **Resident ratings:**
    - 39-43% missing data, except ASCOT Dignity (57%)
  - **Family ratings:**
    - 87-88% missing data, except ASCOT Dignity (91%)

Key points:

1. Overall rating based on observational and staff ratings, with qualitative/quantitative data from residents (where available). Family ratings are missing in most cases (≥87%).
2. Missing data for new items is similar to ASCOT items.
3. Association between staff rating and overall rating is stronger for three new items, than for the ASCOT items (= greater reliance on staff report?)

RESULTS: CONSTRUCT VALIDITY

Construct validity by hypothesis testing: Good evidence of construct validity of new items.

Variables	Expected associations with new items	Finding
ADL count	No significant association with *current QoL*. A significant small-moderate positive relationship with *expected QoL*.	Yes Yes
EQ-5D-5L anxiety & depression items	A strong positive association with Anxiety and Low mood.	Yes
InterRAI pain items	A moderate-strong positive association with Pain.	Yes
EQ-5D-5L pain item	A strong positive association with Pain.	Yes
GAD-2	A strong positive association with Anxiety. A weak-moderate positive relationship with Low mood. A weak positive relationship with the Pain.	Yes Yes Yes
interRAI depression scale	A significant moderate positive association with Low mood. A significant weak positive relationship with Pain.	Yes Yes

RESULTS: STRUCTURAL VALIDITY

Exploratory Factor Analysis

	Factor 1 Loadings	Factor 2 Loadings	Uniqueness †
Food and drink	.37		**0.84**
Accommodation	.49		**0.72**
Personal comfort and cleanliness	.62		0.53
Social participation	.61		**0.61**
Occupation	.79		0.41
Control over daily life	.78		0.42
Personal safety	.34	.40	**0.60**
Dignity	.53		**0.73**
New item: Anxiety		.75	0.43
New item: Low mood		.74	0.45
New item: Pain		.45	**0.83**
Eigenvalue	3.46	.98	
% of total variance	79.8%	22.6%	

Only factor loadings ≥0.3 are shown.

† Items with uniqueness >0.60 are shown in **bold text**.

RESULTS: STRUCTURAL VALIDITY

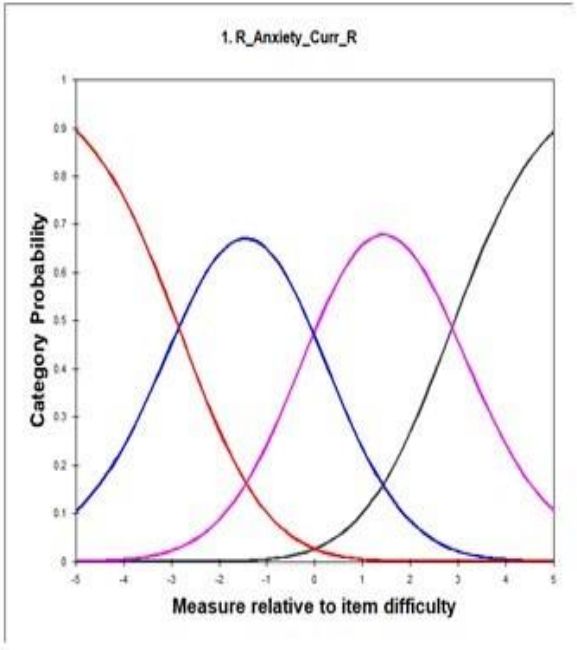
Rasch Analysis: Item INFIT statistics

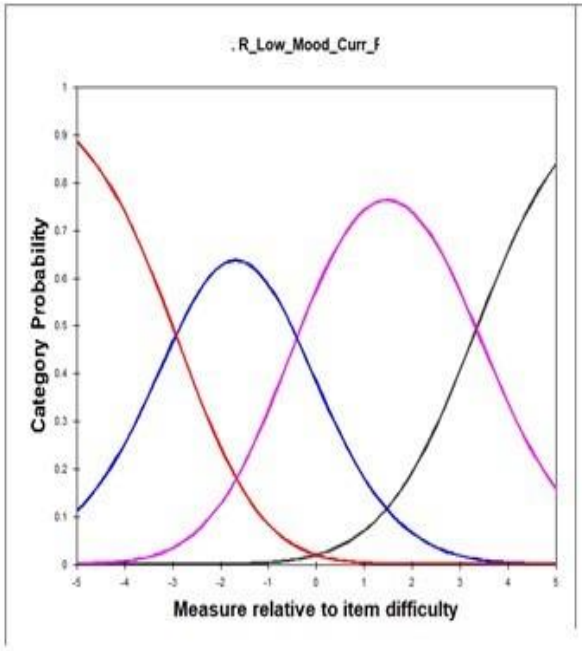
	INFIT Mean Square (MNSQ)	INFIT z-standardised probability
Pain	1.3	**2.3**
Anxiety	.83	-1.7
Low Mood	.86	-1.3

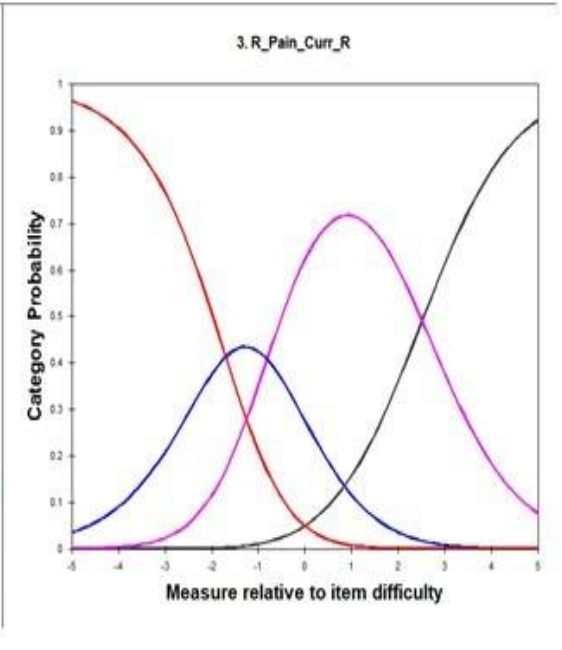
The z-standardised probability statistics were within the acceptable range of ±2.0 for all items, except for the new item for *Pain*.

RESULTS: STRUCTURAL VALIDITY

Rasch Analysis: Category response curves (CRCs)







CONCLUSIONS

- Evidence of **feasibility** of the mixed-methods approach
- Good evidence of the **construct validity** of the new items
- **Structural validity:** The eight ASCOT-CH4 items form a measurement scale, but the new items do not. *Pain* did not fit well onto a measurement scale alongside *Low mood* and *Anxiety.*
  - The new items are indicators that relate to pain and anxiety/low mood.
  - These items may be added flexibly alongside ASCOT-CH4 (a measure of *social care-related QoL*), with *Low mood* and *Anxiety* combined together and *Pain* standalone.

DISCLAIMER

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