

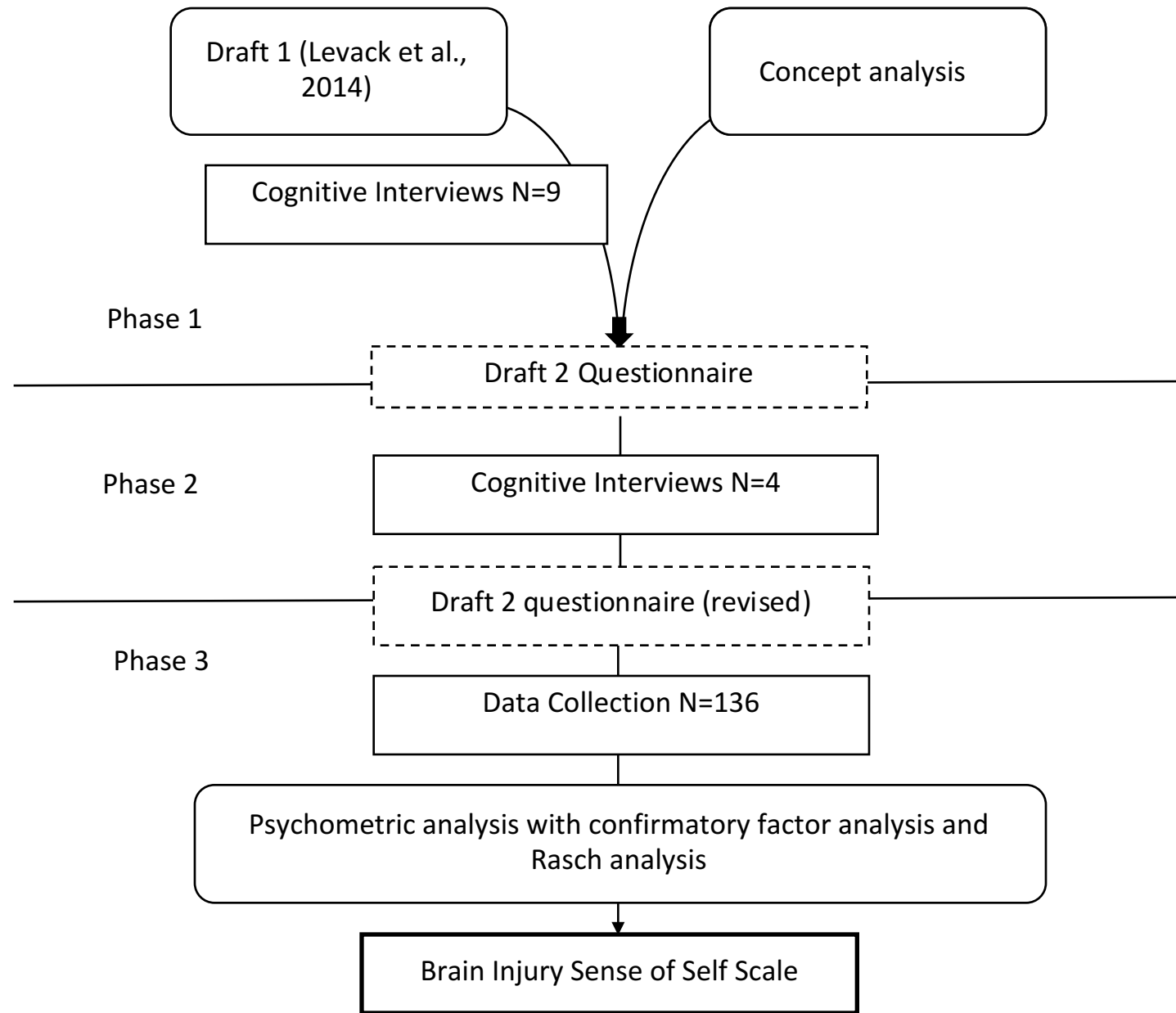
Psychometric analysis of BISOSS- brain injury sense of self scale

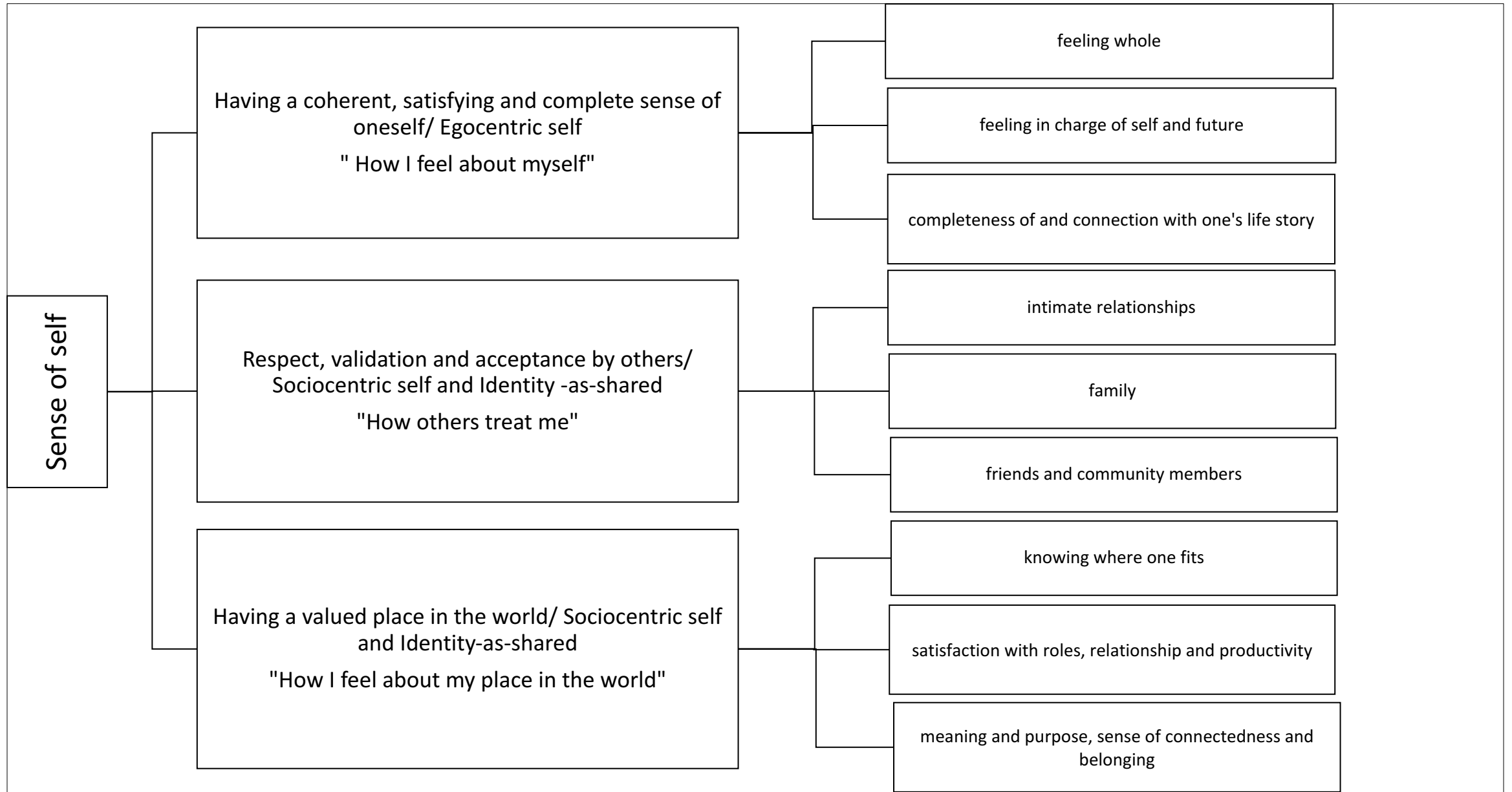
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Project submitted as part of thesis for PhD studies University of Otago,
NZ

Supervisors: Dr William Levack and Assoc Professor Will Taylor





Developing a measure of Sense of Self following TBI

How I feel about myself...				
I know what is important to me	Strongly agree	Agree	Disagree	Strongly disagree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a clear idea of who I am	Strongly agree	Agree	Disagree	Strongly disagree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel in control of my actions	Strongly agree	Agree	Disagree	Strongly disagree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I know where my life is going	Strongly agree	Agree	Disagree	Strongly disagree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How others treat me...**I feel valued by people who are important to me**

Strongly agree

Agree

Disagree

Strongly disagree

I feel understood by people who are important to me

Strongly agree

Agree

Disagree

Strongly disagree

I feel accepted by people who are important to me

Strongly agree

Agree

Disagree

Strongly disagree

My family have a good understanding of who I am

Strongly agree

Agree

Disagree

Strongly disagree

Methods

- Rasch analysis
 - Sample size approx 150
- Face to face interviews
- inclusion criteria
 - TBI at least 6 months ago and discharged from acute care
 - No upper limit on time since TBI
 - Sustained as an adult
 - Able to consent and participate in interview

Total number recruited (UK/NZ)	136 (102/34), 68.4% male
Marital Status	Committed relationship 39.3%
Ethnic Group	White (UK/ NZ/ European) 89.7%
Mean Age at interview (SD)	47.9 years (13.0)
Mean Age at TBI (SD)	36.8 years (15.1)
Mean Time since TBI (SD)	134 months (133)
Severity of TBI*	Mild 31 (23.5%)
	Moderate/severe 101 (74.3%)
	Not classifiable 4 (2.9%)
Glasgow Outcome Scale (GOSe)	Severe disability (3/4) =52
	Moderate disability (5/6) =71
	Good Recovery (7/8) =13

* Mayo classification

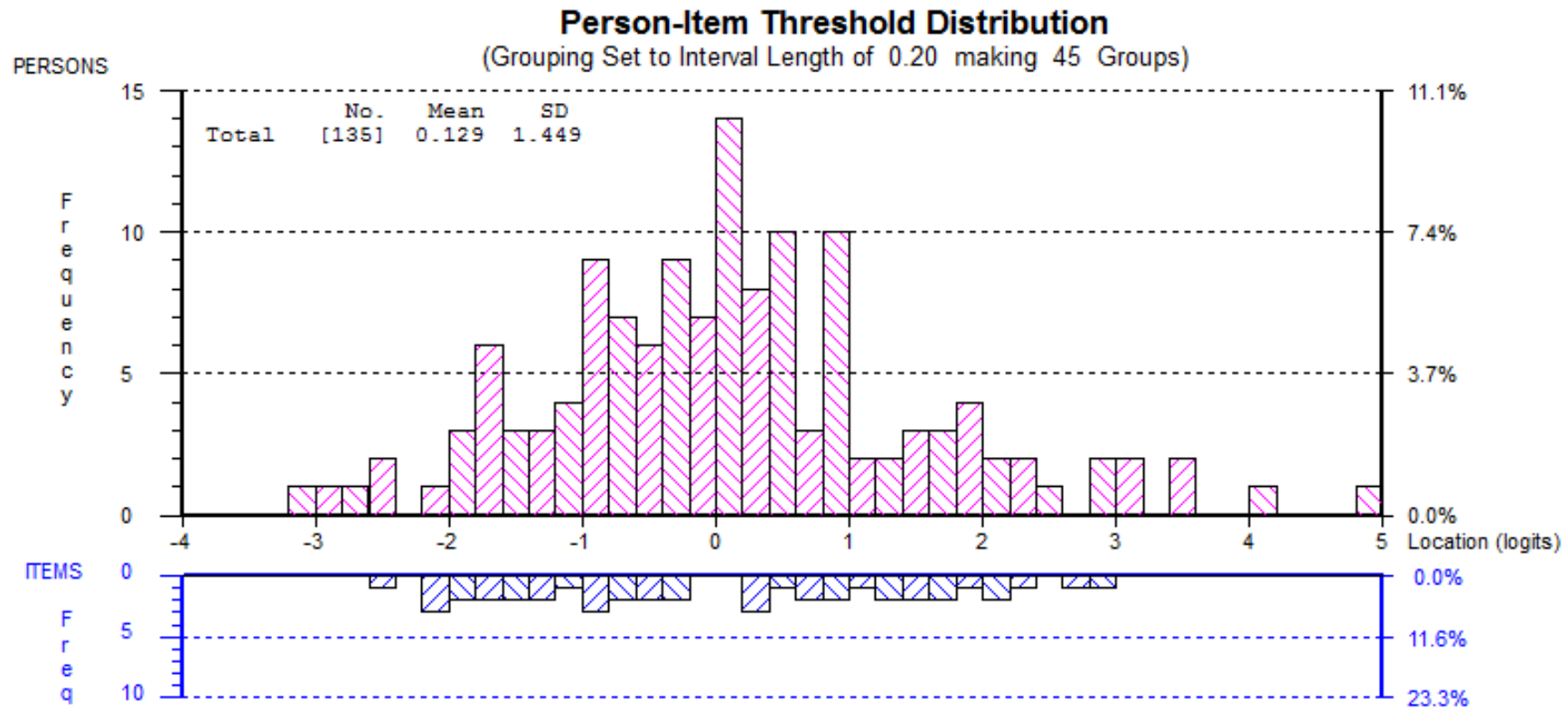
Results of initial Rasch analysis on 44 items of Draft 2r.

Analysis name	Item Location Mean (SD)	Person Location Mean (SD)	Item Fit Residual Mean (SD)	Person Fit Residual Mean (SD)	Chi-squared interaction p value	PSI	Uni-dimensionality No. significant t- tests (%)	Lower bound 95% CI
Initial	0 (0.634)	0.654 (1.227)	0.077 (1.641)	-0.480 (2.351)	0.002	0.960	30/136 (22.06)	0.184
Initial-r	0 (0.415)	0.237 (1.235)	0.102 (1.662)	-0.406 (2.359)	0.000	0.956	26/136 (19.12)	0.155

Fit statistics for Egocentric subscale

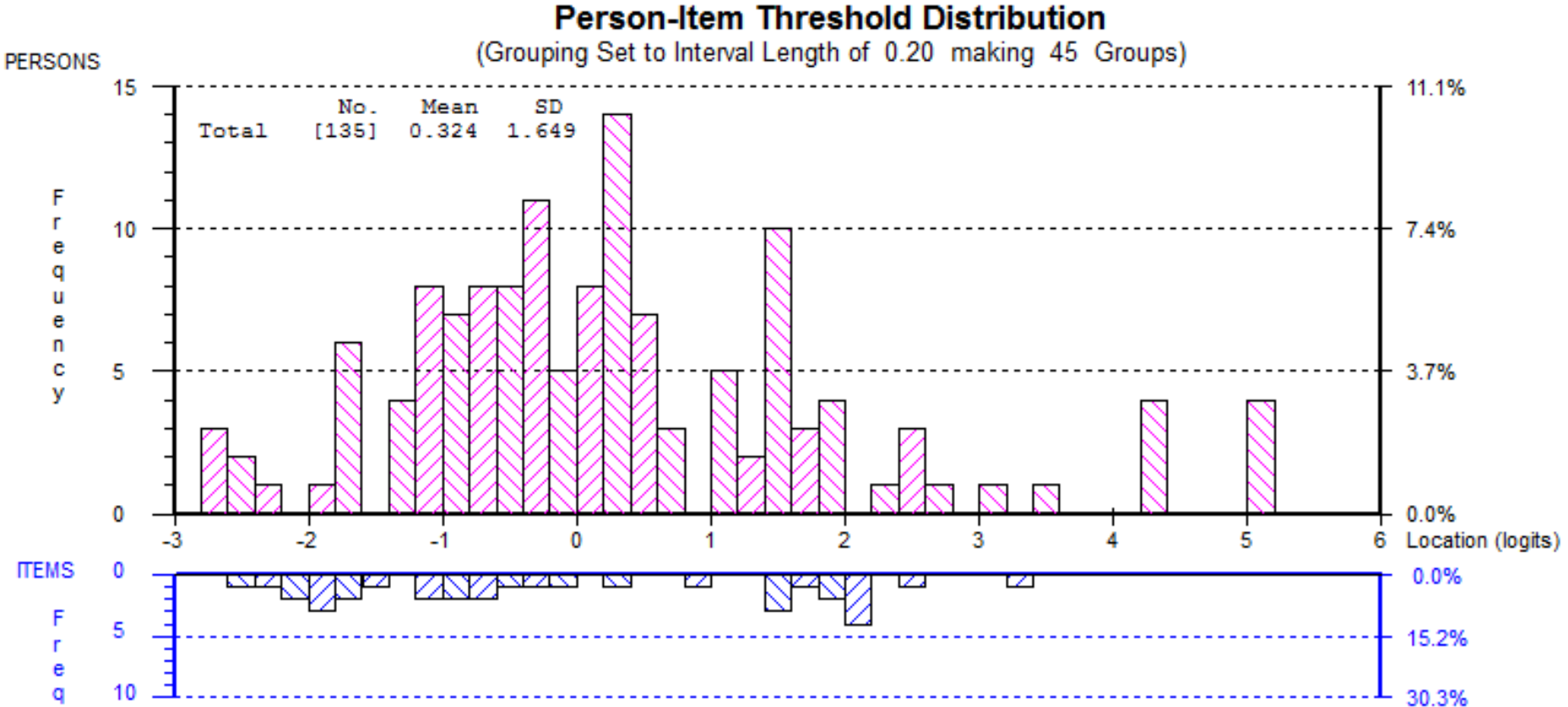
Analysis name	Item Location Mean (SD)	Person Location Mean (SD)	Item Fit Residual Mean (SD)	Person Fit Residual Mean (SD)	Chi-squared interaction p value	PSI	Uni-dimensionality No. significant t-tests (%)	Lower bound 95% CI
Initial-R*	0 (0.415)	0.237 (1.235)	0.102 (1.662)	-0.406 (2.359)	0.000	0.956	26/136 (19.12)	0.155
F1	0 (0.425)	0.031 (1.389)	0.151 (1.039)	-0.279 (1.463)	0.652	0.916	10/134 (7.46)	0.038
F1R*	0 (0.393)	0.093 (1.392)	0.166 (1.045)	-0.271 (1.458)	0.668	0.915	11/134 (8.21)	0.045

Person-item threshold distribution for Egocentric subscale (Factor 1).



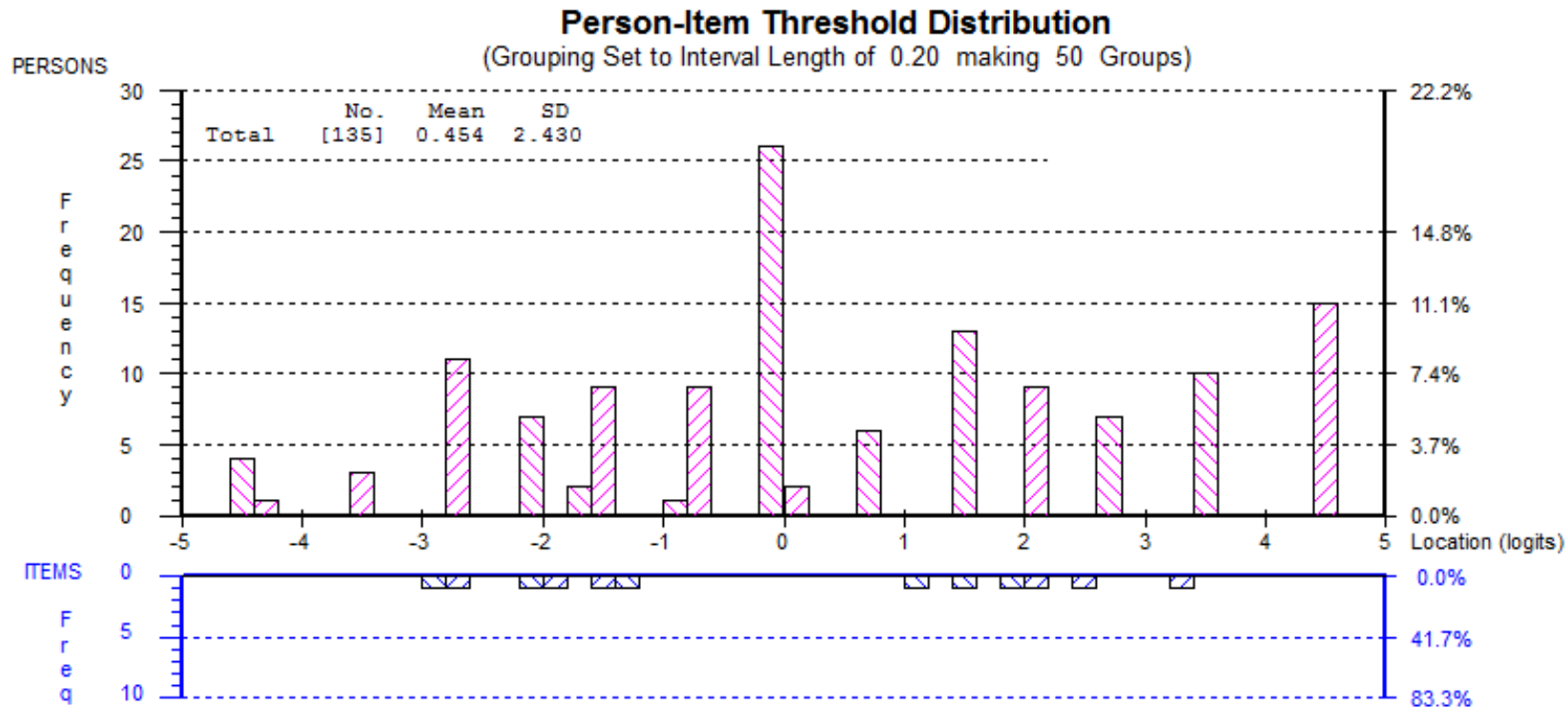
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F1	0 (0.425)	0.031 (1.389)	0.151 (1.039)	-0.279 (1.463)	0.652	0.92	10/134 (7.46)	0.038
BISOSS-E	0 (0.393)	0.093 (1.392)	0.166 (1.045)	-0.271 (1.458)	0.668	0.91	11/134 (8.21)	0.045
F2	0 (0.436)	0.200 (1.363)	-0.112 (1.386)	-0.452 (1.734)	0.000	0.91	19/132 (14.39)	0.107
BISOSS-S	0 (0.440)	0.179 (1.446)	-0.097 (1.193)	-0.516 (1.689)	0.282	0.89	9/135 (6.87)	0.030
F3	0 (0.676)	0.377 (1.888)	-0.341 (1.285)	-0.539 (1.457)	0.092	0.88	2/118 (1.69)	-
BISOSS-R	0 (0.573)	0.139 (1.920)	-0.233 (0.762)	-0.549 (1.294)	0.360	0.79	0	-

Person-item threshold map for Sociocentric subscale



Person-Item Threshold Distribution for Relational Scale:

The items cover a range from -3.0 to +3.0 logits but they are significantly clumped in the range -3 to -1 and +1 to +3 with no items available to discriminate in the -1 to +1 logits range of the scale.



Subscale 1: Egocentric Self TOTAL: 17 items

1. I have a clear idea of who I am
2. I feel in control of my actions
3. I feel like I know where my life is going
4. I feel like a whole complete person
5. There are bits of my life that don't hang together
6. I feel clear about what I am capable of
7. I am able to achieve goals I set for myself
8. I feel like I try to be someone I'm not
9. I live more in the past than the present
10. I feel the story of my life makes sense
11. I accept myself for who I am
12. I sometimes behave in a way that doesn't seem like me
13. I feel confused about who I am
14. I sometimes feel like I am living someone else's life
15. I am not who I want to be
16. I feel that people expect me to be someone I'm not
17. Other people see me in the same way I see myself

Subscale 2: Sociocentric Self: TOTAL:14 items

1. I know what is important to me
2. I have friends who accept me for who I am
3. I feel that other people think I'm useless
4. I feel that other people value my point of view
5. I feel like there is a place in the world for me
6. I know where I fit in the world
7. I am generally satisfied with my relationships with other people
8. I feel like a useful member of my community
9. I am able to do things for other people
10. I have a sense of belonging to a community
11. I feel there is purpose and meaning in my life
12. The things I do give meaning to my life
13. I am able to express myself in the things I do
14. Other people treat me as an equal

Subscale 3: Relational self: TOTAL: 6 items

1. I feel valued by people who are important to me
2. I feel understood by people who are important to me
3. I feel accepted by people who are important to me
4. My family accepts me for who I am
5. I feel like a valued member of my family
6. I feel respected by my family

Discussion

- BISOSS-E- individualistically orientated factor
- BISOSS-S- lacking items covering loneliness
- Strong correlation Pearson's $r=0.76$ between BISOSS-E and BISOSS-S

- BISOSS-R close, intimate relationships
 - Love rather than friendship
 - Additional items covering key elements of close friendship

- Cultural diversity

Future directions

- Clinical applications
- Future research:
 - Further construct validity testing
 - Test-retest and inter-rater reliability testing
 - Explore validity in different cultural groups
 - Longitudinal changes in strength of sense of self following injury
 - Correlation with rehabilitation outcomes and depression
 - Effect of different rehabilitation approaches on sense of self

Additional findings

- 40 % of the study population reported problems with their self-identity
- Successful application of measurement theory to complex psychological construct
- Importance of developing tools specifically for use in TBI or cognitively impaired populations.

Acknowledgements

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