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Introduction

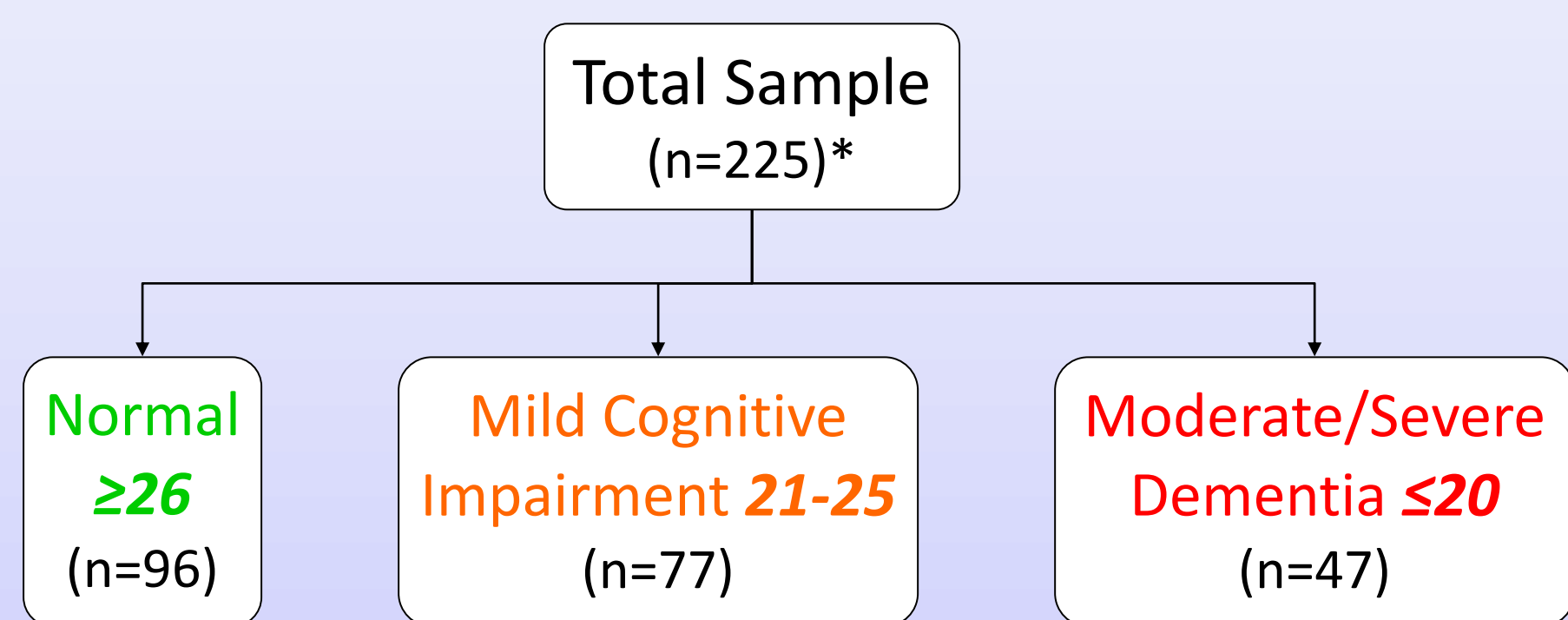
- 1 out of 3 older adults develop late-life depression¹, hence screening tools are essential for early detection and intervention.
- The GDS-15 is a widely used “yes/no” self-report screening tool to assess severity of depressive symptoms.²
- Since it is tailored to geriatric populations, poor cognitive ability (i.e. severity of dementia) may influence the validity of self-report responses.^{3,4,5}
- However, recent studies argue that the GDS-15 is suitable for patients with mild to moderate dementia.^{1,6,7}
- No studies have yet demonstrated whether older adults with low cognitive ability respond differently to the GDS-15 compared to older adults with high cognitive ability.

Purpose

- To determine whether response patterns to the GDS-15 differ between geriatric patients with low, medium or high cognitive ability.

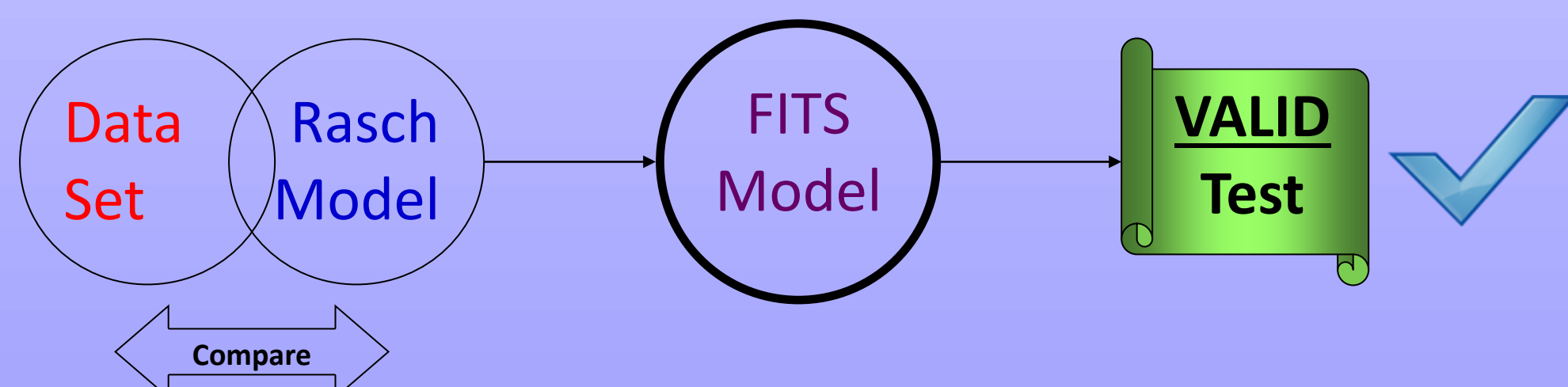
Methods

- Patient chart data (n=225) were collected from geriatric outpatient clinics at the MUHC
- Measures: Mini-Mental State Examination (MMSE) for cognitive ability and GDS-15
- Stratified into 3 groups based on total **MMSE** cut-off scores⁸:



*n=5 Missing MMSE score

- Rasch Analysis (RUMM2030 software) test unidimensionality of latent construct depression, where the probability of obtaining a specific score depends on the interaction between the person's level of depression and severity of the GDS item.



- Differential Item Functioning (DIF) Analysis compares the 3 cognitive groups for each GDS item to see whether there is a response pattern difference based on cognitive ability. (2-way ANOVA, sig. p<.001* Bonferroni corrected)

Results

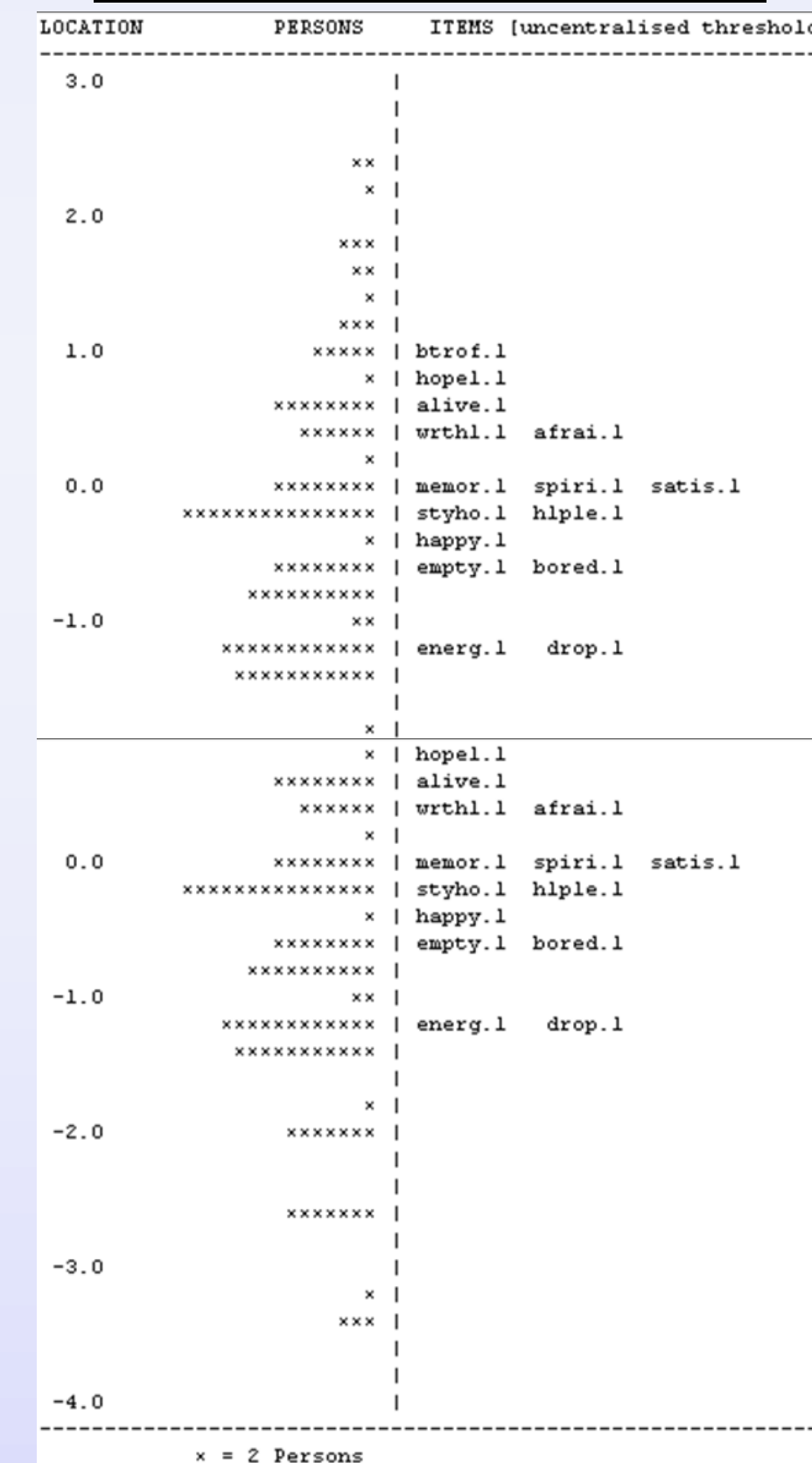
Sample Demographics

	n	% of sample
Sex	Male	72 32%
	Female	153 68%
Age (years)	≤80	98 44%
	≥81	127 56%
MMSE (total)	≤20	47 21%
	21-25	77 34%
	≥26	96 43%
	Missing	5 2%
	Site (hospital)	Royal Victoria
	Montreal General	139 62%
Test Language	English	139 62%
	French	62 28%
	Italian	20 9%
	Other	4 1%
	Education (years)	≤11
≥12		81 36%
Missing		41 18%

Rasch Summary

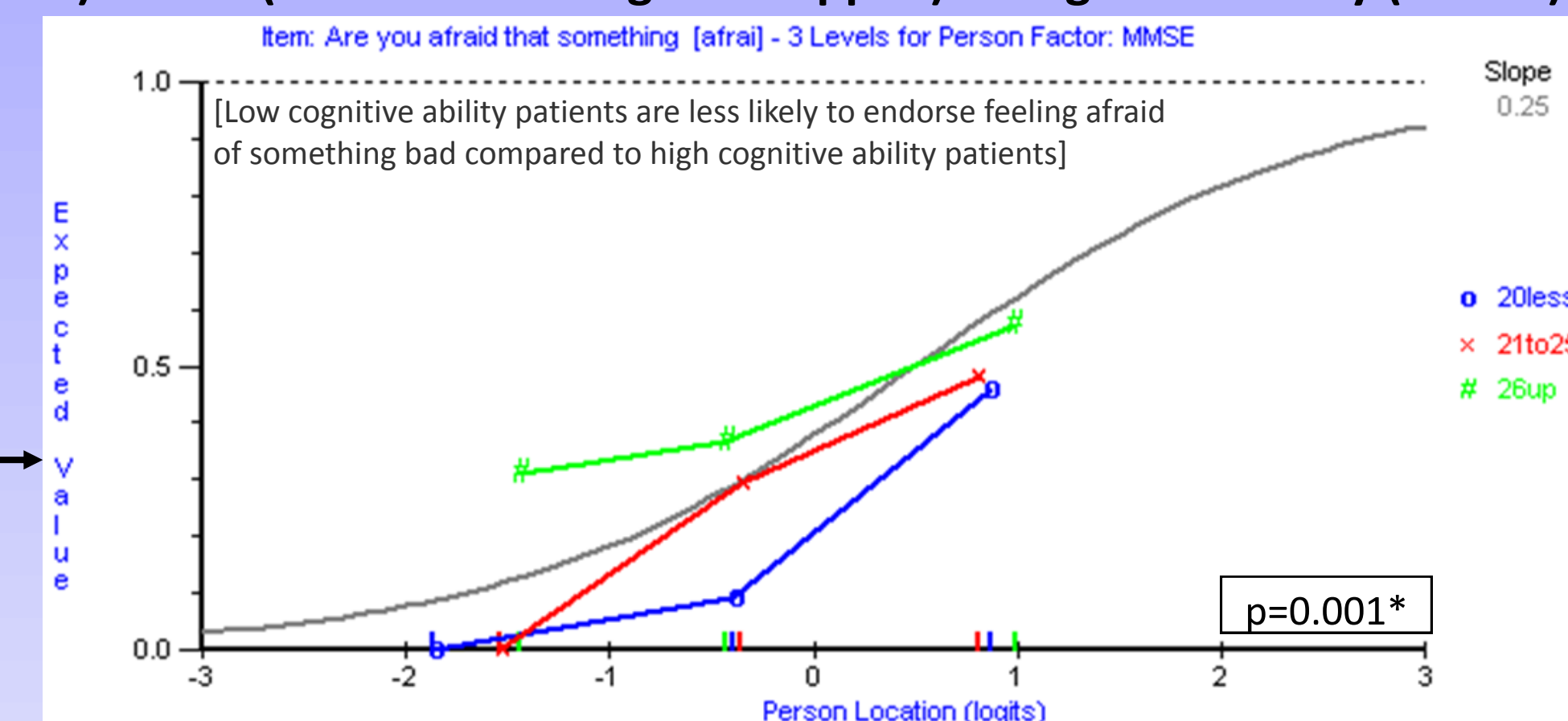
Fit Model?	No
Item-trait Interaction (x ² test)	86, p<0.001
Reliability (Person Separation Index)	0.70
Test-of-fit Power	Good
Misfit Items	1)Memory problem 2)Life is empty 3)Prefer stay home 4)Good spirits

Item Hierarchy Map

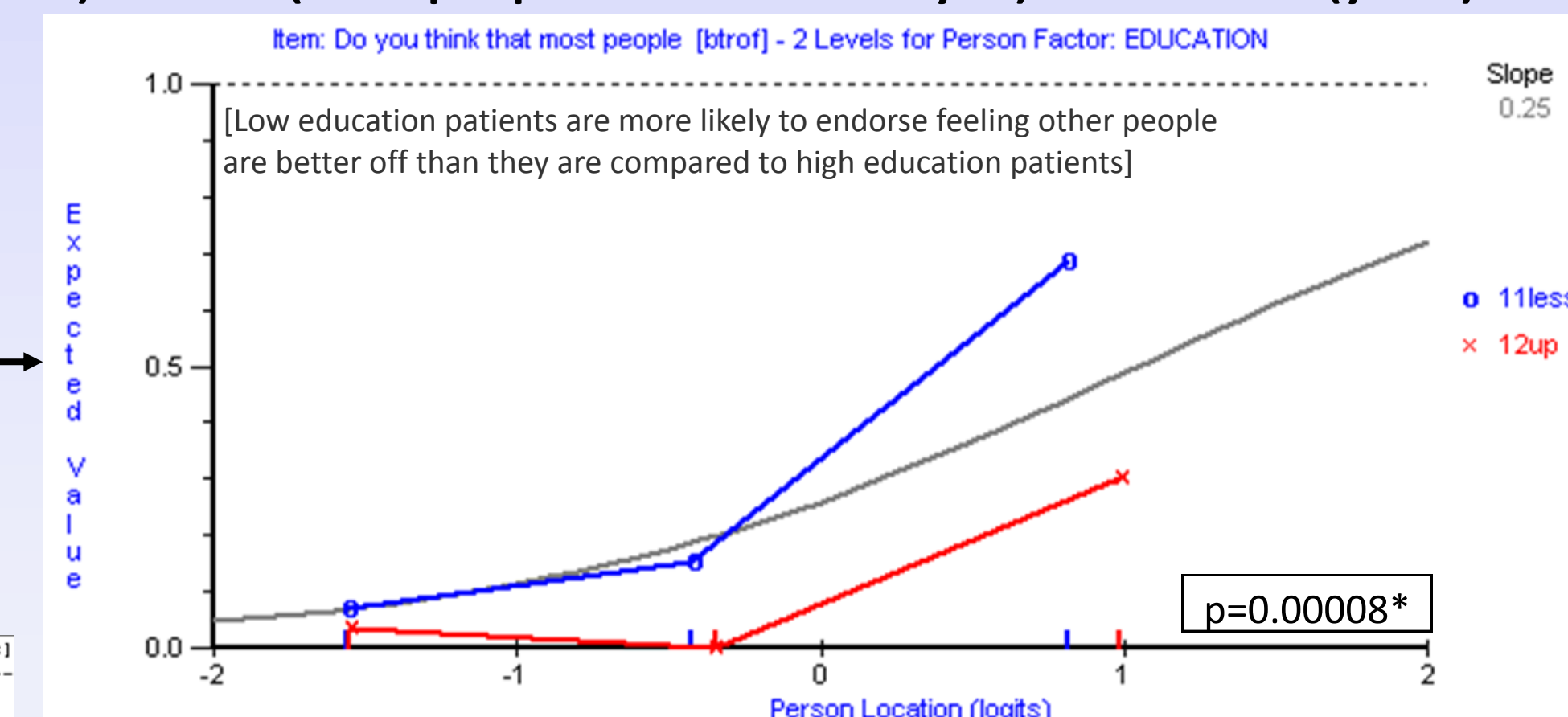


Differential Item Functioning (DIF) Graphs

1) Item 6 (afraid something bad happen) & Cognitive Ability (MMSE)



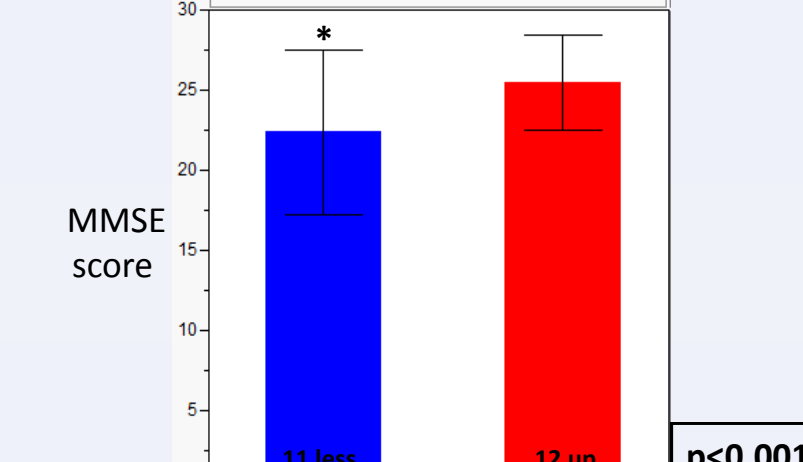
2) Item 15 (most people better off than you) & Education (years)



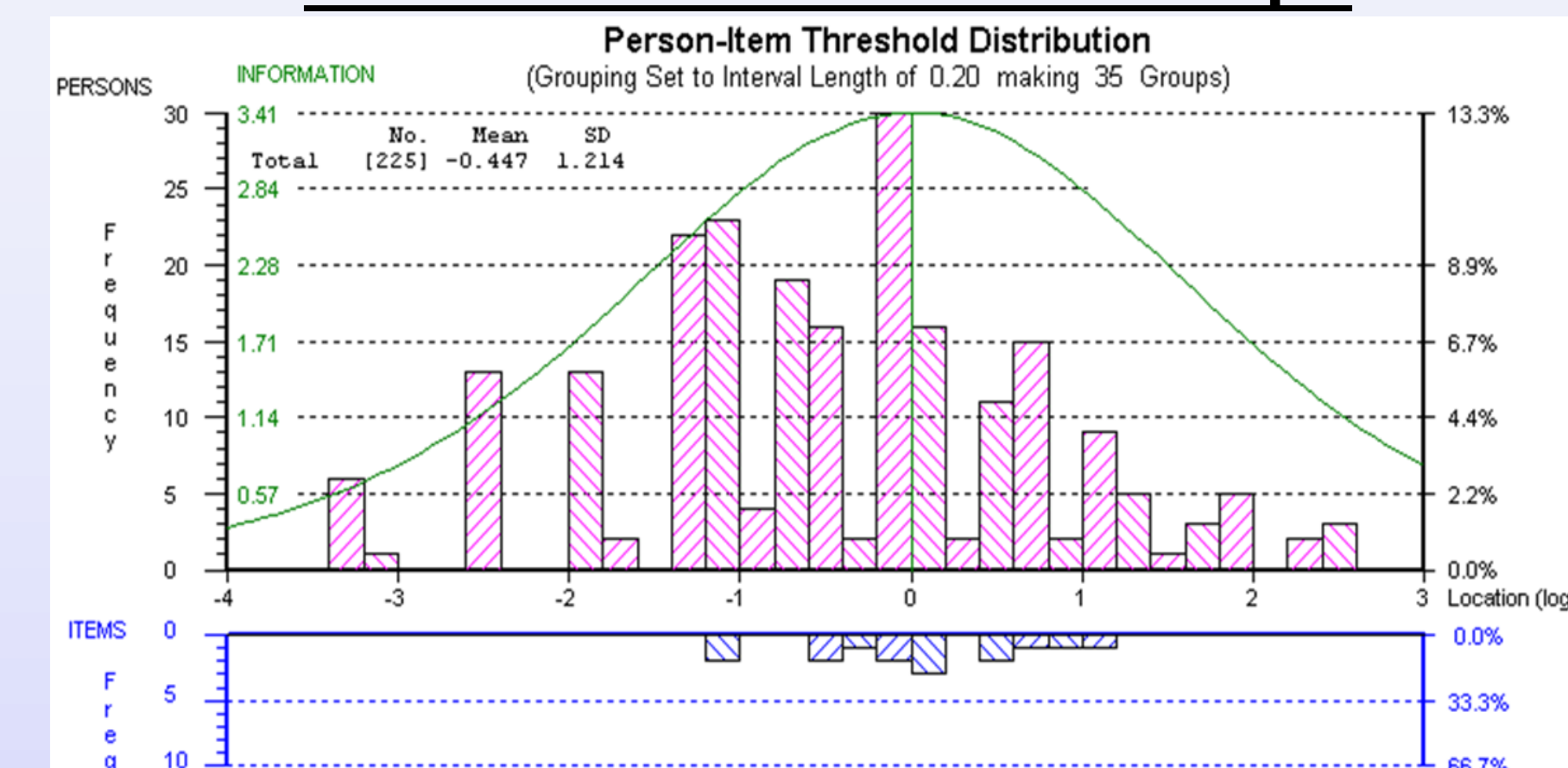
MMSE Score Statistics by Education

Education	11 less	12 up
n	103	81
Mean	22.4	25.4
SD (bars)	5.1	3.0
Range	9 to 30	18 to 30

Mean MMSE score by Education



Person-Item Distribution Graph



GDS-15 Items

- 1) Are you basically satisfied with your life?
- 2) Have you dropped many of your activities and interests?
- 3) Do you feel that your life is empty?
- 4) Do you often get bored?
- 5) Are you in good spirits most of the time?
- 6) Are you afraid that something bad is going to happen to you?
- 7) Do you feel happy most of the time?
- 8) Do you often feel helpless?
- 9) Do you prefer to stay at home, rather than going out and doing things?
- 10) Do you feel you have more problems with memory than most?
- 11) Do you think it is wonderful to be alive now?
- 12) Do you feel pretty worthless the way you are now?
- 13) Do you feel full of energy?
- 14) Do you feel that your situation is hopeless?
- 15) Do you think that most people are better off than you are?

References

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Discussion

- Our results align with previous Rasch GDS studies which found similar misfit items (memory problem, life is empty, prefer stay home).^{9,10,11}
- Item 6 (afraid something bad) showed DIF, misfit and did not contribute to the geriatric depression construct in the U.S. sample.¹⁰
- This suggests that older adults with high cognitive ability may interpret “something bad” differently compared to older adults with low cognitive ability.
- Hence, rewording this question more clearly and/or specifying “something bad” may increase future item response consistency.

Conclusion

- Response patterns to the GDS-15 do not differ based on cognitive ability among geriatric outpatients except for item 6.
- Fear about the future contributes less to severity of depressive symptoms in patients with lower cognitive ability.
- Further consideration of removing unstable item 6 might potentially improve GDS-15 validity among older adults with dementia.