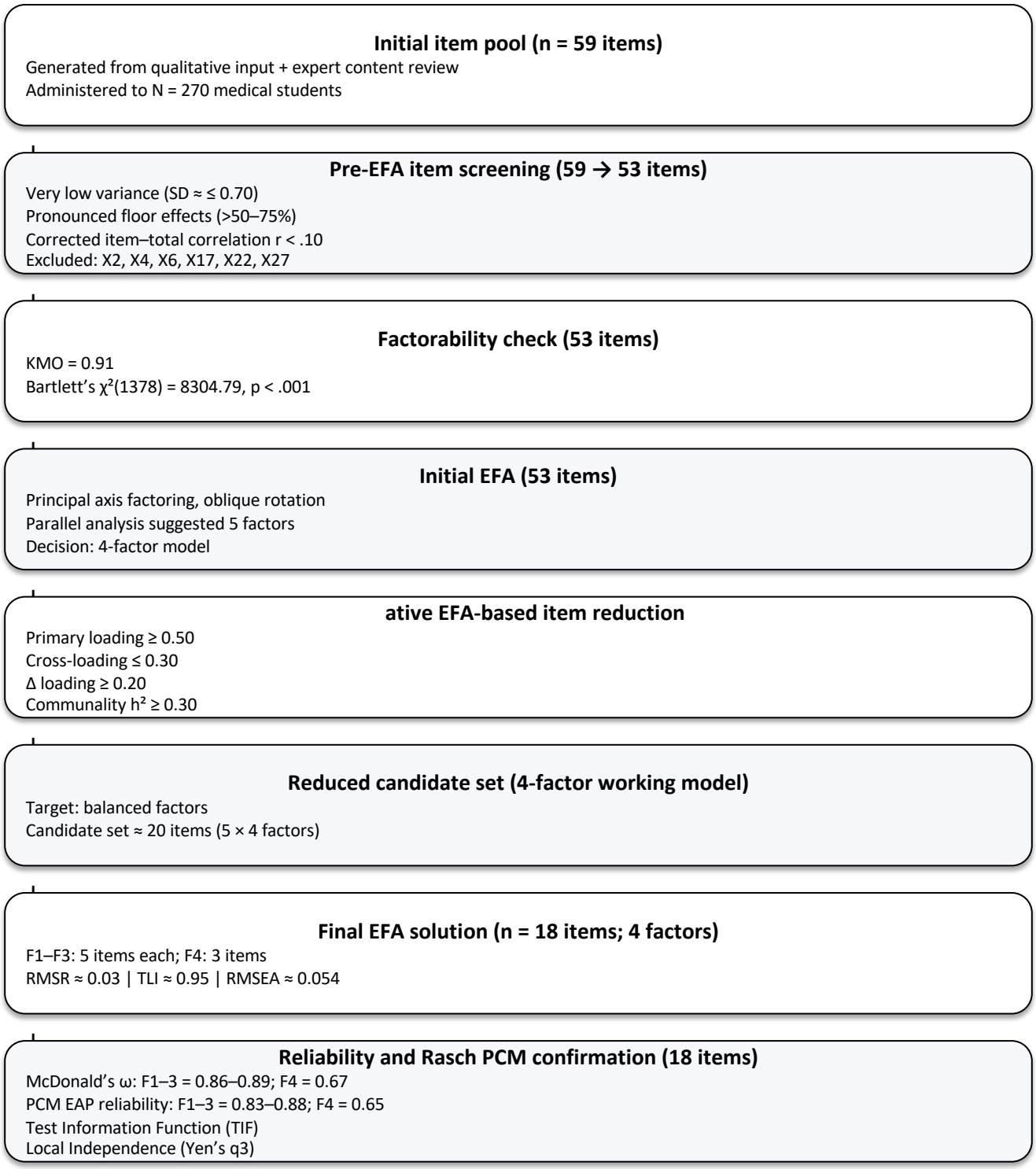
Initial item pool (n = 59 items)
Generated from qualitative input + expert content review
Administered to N = 270 medical students
Pre-EFA item screening (59 → 53 items)
Very low variance (SD ≈ ≤ 0.70)
Pronounced floor effects (>50–75%)
Corrected item–total correlation r < .10
Excluded: X2, X4, X6, X17, X22, X27
Factorability check (53 items)
KMO = 0.91
Bartlett's χ²(1378) = 8304.79, p < .001
Initial EFA (53 items)
Principal axis factoring, oblique rotation
Parallel analysis suggested 5 factors
Decision: 4-factor model
ative EFA-based item reduction
Primary loading ≥ 0.50
Cross-loading ≤ 0.30
Δ loading ≥ 0.20
Communality h² ≥ 0.30
Reduced candidate set (4-factor working model)
Target: balanced factors
Candidate set ≈ 20 items (5 × 4 factors)
Final EFA solution (n = 18 items; 4 factors)
F1–F3: 5 items each; F4: 3 items
RMSR ≈ 0.03 | TLI ≈ 0.95 | RMSEA ≈ 0.054
Reliability and Rasch PCM confirmation (18 items)
McDonald's ω: F1–3 = 0.86–0.89; F4 = 0.67
PCM EAP reliability: F1–3 = 0.83–0.88; F4 = 0.65
Test Information Function (TIF)
Local Independence (Yen's q3)