**Supplementary Material - Additional File 3**

COSMIN Risk of Bias

Boxes of the COSMIN Risk of Bias Checklist

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| **Category** | **Boxes of the COSMIN Risk of Bias Checklist** |
| Content Validity | Box 1. PROM development |
| Box 2. Content validity |
| Internal Structure | Box 3. Structural validity |
| Box 4. Internal consistency |
| Box 5. Cross-cultural validity |
| Remaining measurement properties | Box 6. Reliability |
| Box 7. Measurement error |
| Box 8. Criterion validity |
| Box 9. Hypothesis testing for construct validity |
| Box 10. Responsiveness |

Adapted with permission from Mokkink et al.[27]

Each risk of bias checklist box is to be completed for each study that assesses that measurement property. Box 1 is to be completed for original development studies, whereas box 2 is to be completed for any additional content validity studies, or studies developing an established measure in a different population. Box 8 will not be completed for any study in this systematic review, as no gold standard measure of apathy exists. For details of how risk of bias is assessed for each measurement property, see Mokkink et al [27].

Full guidelines followed for this review are found in the comprehensive COSMIN user manual version 1.0 dated February 2018 downloaded from: <https://www.cosmin.nl/wp-content/uploads/COSMIN-syst-review-for-PROMs-manual_version-1_feb-2018-1.pdf> and the content validity user manual version 1.0, downloaded from: <https://www.cosmin.nl/wp-content/uploads/COSMIN-methodology-for-content-validity-user-manual-v1.pdf>