

**Supplementary Material S2.** Detailed information regarding model fit and selection in latent class analysis.

Latent class models with increasing numbers of classes were fit from a 1-class model to a 5-class model. Model fit was assessed using the exact test due to small expected numbers. Model selection was based on minimising the Bayesian Information Criteria (BIC) and Akaike's Information Criteria (AIC), increasing the entropy and ease of interpretation (i.e. the classes make sense from a rational perspective).

To test the assumption of conditional independence we examined the associations between domains within classes using Fisher's exact test. We adjusted for multiple comparisons (30 domain pairs compared) using the Bonferroni correction and considered p-values <0.002 to be statistically significant.

Both the AIC and BIC decreased from the 2-class model to the 3-class model indicating better fit (Table X). The AIC of the 4-class model decreased compared to the 3-class model, however, the BIC increased and entropy decreased. Previous literature suggests the BIC is a more robust indicator of class structure (1). The 4-class model also differentiated individuals in the low need class into two groups where some had need in the sexual domain. This domain, however, is limited to three items and was therefore felt to be unreliable in differentiating individuals alone and the existence of need only in the sexual domain seemed unlikely. Therefore, as the 3-class model had a lower BIC, higher entropy and was more coherent, the 3-class model was selected.

Table x shows the probability of dichotomised domain score given class membership. Values close to zero or one indicate good differentiation, while values close to 0.5 suggest class membership does not determine the response for that domain and the response can be random. The 3-class model showed good differentiation in most domains particularly in the high and low need classes.

## References

1. Nylund, Karen L.; Asparouhov, T.; Muthen BO. Deciding On the Number of Classes In Latent Class Analysis and Growth Mixture Deciding on the Number of Classes in Latent Class Analysis and Growth Mixture Modeling : A Monte Carlo Simulation Study. 2015;(February):37–41.

**Table 1.** Latent class model selection criteria.

| Classes | Exact Test | AIC      | BIC      | Entropy |
|---------|------------|----------|----------|---------|
| 1       | 0.0        | 1939.083 | 1957.878 | 3.043   |
| 2       | 0.00703    | 1508.148 | 1549.496 | 2.356   |
| 3       | 0.97187    | 1481.616 | 1545.517 | 2.290   |
| 4       | 1.0        | 1478.886 | 1565.341 | 2.259   |
| 5       | 1.0        | 1486.841 | 1595.849 | 2.254   |

AIC, Akaike's Information Criteria; BIC, Bayesian Information Criteria

**Table 2.** Domain response probabilities given class membership.

| Domain                                 | Class | Probability of domain score $\leq 2$ | Probability of domain score $> 2$ |
|--|-------|--------------------------------------|-----------------------------------|
| <b>Psychological</b>                   | 1     | 1.0000                               | 0.0000                            |
|  | 2     | 0.1534                               | 0.8466                            |
|  | 3     | 0.0202                               | 0.9798                            |
| <b>Health System &amp; Information</b> | 1     | 0.9502                               | 0.0498                            |
|  | 2     | 0.5505                               | 0.4495                            |
|  | 3     | 0.0000                               | 1.0000                            |
| <b>Physical and daily living</b>       | 1     | 0.9931                               | 0.0069                            |
|  | 2     | 0.4390                               | 0.5610                            |
|  | 3     | 0.3901                               | 0.6099                            |
| <b>Patient care and support</b>        | 1     | 0.9923                               | 0.0077                            |
|  | 2     | 0.8791                               | 0.1209                            |
|  | 3     | 0.1960                               | 0.8040                            |
| <b>Sexuality</b>                       | 1     | 0.8719                               | 0.1281                            |
|  | 2     | 0.5232                               | 0.4768                            |
|  | 3     | 0.1318                               | 0.8682                            |