

Running Head: Incels' mental health

**The mental well-being of Involuntary Celibates**

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## Abstract

Incels (Involuntary celibates) are men who consider their lack of a sexual or romantic relationship key to their identity. We are continuing to learn about the low levels of wellbeing that exist amongst incels; the extent to which they differ in this respect from the general population and whether scales commonly used for psychological well-being can be used for this group. Using a sample of 72 incels and 72 controls from the 'open psychometrics' dataset, matched for age and nationality, we examined the structure of a commonly used measure for Depression, Anxiety and Stress (DASS) using Structural Equation Modelling and independent samples *t*-tests. We investigate if incels differ from a control group with regard to their mental health. Our analyses supported residual invariance, suggesting we could compare the groups. Incels were found to score higher on depression than controls, but the two groups did not significantly differ on reported anxiety and stress. We call for further work on incels, especially where clinically relevant measures are used.

*Keywords:* Involuntary celibates, mental health, Incel, measurement invariance

## 1. Introduction

Incels (involuntary celibates) are a subculture community of disenfranchised men who hold an adversarial and hopeless view of the world. Unable to secure sexual connections, incels consider themselves to be genetically inferior and excluded from mating due to women's preferences for those atop the sexual hierarchy (who they refer to as "chads"). Typically, incels' frustration is expressed online in the form of misogynistic and anti-feminist rhetoric alongside criticism of society for their exclusion (Speckhard et al., 2021).

Violent acts committed by small numbers of incels (Costello & Buss, 2023) have created interest in this group from researchers, the media and those involved in protecting public order (Baele et al., 2021). Much of the academic research has focused on understanding the incel rhetoric, with fewer studies investigating incels' experiences. Investigation of incels' experiences is important as it could provide some explanation for the rhetoric and, possibly, inform interventions focused on reducing violence and misogyny. Indeed, investigations have found experience of unwanted celibacy and low sense of one's mate value to be related to misogyny (Bosson et al., 2022; Costello et al., 2023; Grunau et al., 2022). These findings thus suggest the possibility that interventions designed to improve incels' mate value self-perceptions, and hence expectations of and willingness to pursue future romantic interactions, may prove effective in reducing misogynistic behaviours. Through comparison to a matched, general population group, we investigate the experience of mental health amongst incels.

Early research into incels' mental health investigated their posts on dedicated forums (e.g., Pelzer et al., 2021). Though forum posts provide a window to incels' experiences, there are shortcomings associated with this methodology. Online reports may not adequately represent lived experiences and assessment of forum posts is unlikely to provide a comprehensive assessment of members' perspectives since not all members are equally active on the forums (Baele et al., 2021). Consequently, there is a need for primary research (Costello et al., 2022). Primary data studies of incels, particularly those focusing on mental health, are few in number (e.g., Costello et al., 2022; Moskalenko et al., 2022) and, we argue that more accurate matching between incel and comparison samples is required than has been undertaken in most studies. Furthermore, we are not aware that any investigation has tested assumptions of measurement equivalency, which is required to ensure a valid comparison, prior to comparing incels to the general population (French & Finch, 2006).

### *1.1 Incels' mental health*

As might be expected given the associations between romantic isolation and perception of one's mate value with mental health (Raque-Bogdan et al., 2011), studies have indicated poor mental health amongst incels. Assessments of incels' forum posts imply that membership of the incel community might be associated with poor mental health (Preston et al., 2021). Themes of self-hatred and depression are pervasive across forum posts, often only surpassed by misogyny (Baele et al., 2021; Hoffman et al., 2020; Pelzer et al., 2021). Furthermore, indications of self-harm and suicidal ideation have often been observed on incel forums (Hoffman et al., 2020; Speckhard & Ellenberg, 2022).

Outside of forum research, non-psychometric, primary data studies find similar suggestion of poor mental health with estimates of 64-70% of incels experiencing symptoms of depression (Daly & Reed, 2022; Speckhard et al., 2021). Primary data studies, using psychometrically sound measures have similarly indicated poor incel mental health. Costello and colleagues (2022) found higher levels of depression (75.3% of incels were categorised as reporting moderately severe or severe depression) and anxiety (67.1% of incels fell into moderate or severe anxiety categories) amongst incels compared to non-incels. Similarly, Sparks and colleagues (2022) found incels to report higher levels of anxiety compared to non-incels. This echoes Moskalkenko et al.'s (2022) findings that incels are more likely to receive an anxiety and depression diagnosis compared to non-incels (37% diagnosis rate for both anxiety and depression amongst incels). Thus, despite the limitations we have outlined, there is a distinct indication of mental ill-health amongst incels.

In this study, we collect primary data to investigate the extent to which incels' mental health differs from the general population whilst addressing some of the limitations of previous research. Specifically, by using a one-to-one matching strategy to compile a comparison group (Rosenbaum & Rubin, 1983), we are able to account for nationality and

age, which would likely impact estimates. In a further refinement, we undertake invariance testing of our measure to assess equivalence of measurement and examine whether the incel and general population samples can be meaningfully compared (French & Finch, 2006).

Based on our literature review, we expect that:

1. *Incels will score higher than the general population in depression.*
2. *Incels will score higher than the general population in anxiety.*
3. *Incels will score higher than the general population in stress.*

## **2. Methods**

### *2.1 Participants*

We conducted a power analysis using the 'pwr' package in R (Champely et al., 2018), for independent samples *t*-tests. Alpha was set to .05 (two-tailed), power to .80, and the effect size to Cohen  $d = .5$ , representing a medium effect. The required minimum sample was  $n = 64$  per group. Final sample size was determined by the time window allocated to the first author (25th February to 7th June 2022). Our final sample consisted of 72 self-identified incels ( $M_{\text{age}} = 23.67$  years,  $SD_{\text{age}} = 5.88$  years) from 20 countries with the largest proportion (41.6%) from the USA and UK (8.3%), and 72 cases matched on gender (all participants were male), nationality and age (to the best degree possible; 65 cases within 2 years see, Table S1 for remaining cases) from [www.openpsychometrics.org](http://www.openpsychometrics.org) ( $M_{\text{age}} = 23.64$  years,  $SD_{\text{age}} = 5.88$  years).

### *2.2 Materials*

Alongside biographical questions (gender, incel status, age, country of residence), and personality measures, participants completed the Depression, Anxiety and Stress Scales (DASS; Lovibond & Lovibond, 1995). The DASS comprises 42 items assessing depression,

anxiety and stress, paired with a 4-point response scale ranging from 1 (did not apply to me at all) to 4 (applied to me very much, or most of the time). The DASS is reportedly a reliable measure of depression ( $\alpha = .91$ ), anxiety ( $\alpha = .81$ ) and stress ( $\alpha = .89$ ; all  $\alpha$  coefficients are from Lovibond and Lovibond, 1995). Within our samples observed reliabilities were very good (Incels: Depression:  $\alpha = .94$ , Anxiety:  $\alpha = .88$ , Stress:  $\alpha = .91$ ; Controls: Depression:  $\alpha = .95$ , Anxiety:  $\alpha = .82$ , Stress:  $\alpha = .87$ ).

### *2.3 Procedure*

Full ethical approval was obtained prior to commencing this study. Incel forums were identified by searching for groups tagged as “incel”, “blackpill”, “redpill” and “MGTOW” on Reddit, Facebook and Discord. One researcher joined the groups (see Table S2) and, after gaining permission from group administrators, shared an advert for the study and a link to a questionnaire with the above measures on Qualtrics.com.

### *2.4 Data analysis*

Analyses were conducted in R 4.2.1 with, amongst others, the lavaan package (Rosseel, 2012). Given that the scales have ordinal responses, a diagonally weighted least squares (WLSMV) estimator was used (Li, 2016). We conducted measurement invariance testing, in order to examine whether the same structure can be identified in both groups. Robust TLI, CFI and RMSEA change were evaluated, using .01 as a threshold (Cheung & Rensvold, 2002). Next, after establishing via measurement invariance testing that we can indeed compare the manifest scores, we used independent samples *t*-tests on the average scores of depression, stress and anxiety to compare incels to controls. The [Open Science Framework](#) contains the data, full survey, pre-registration of the design and additional analyses.

### 3. Results

Figure 1a-b shows the hypothesised three-factor structure for controls and incels. Across all items we found sizable loadings ( $>.7$ ), with some notable exceptions (e.g., item 8 for Anxiety for the control group).

Figure 1a here

Figure 1b here

Table 1 contains the fit statistics for the measurement invariance models. The data supported residual invariance. This implies that the means can be compared between the groups.

Table 1 here

Incels reported greater scores on depression than controls ( $M_{incel} = 2.941$ ,  $SD_{incel} = 0.804$ ,  $M_{control} = 2.528$ ,  $SD_{control} = 0.870$ ,  $t(141.11) = 2.963$ ,  $p = .004$ , Cohen  $d = .50$ ). The groups did not significantly differ on reported anxiety or stress (respectively:  $t(138.66) = 1.329$ ,  $p = .186$ ;  $t(138.83) = 0.852$ ,  $p = .396$ ). If anything, controls reported greater levels of anxiety and stress than incels (Anxiety:  $M_{incel} = 1.763$ ,  $SD_{incel} = 0.602$ ,  $M_{control} = 1.887$ ,  $SD_{control} = 0.515$ ; Stress:  $M_{incel} = 2.227$ ,  $SD_{incel} = 0.720$ ,  $M_{control} = 2.322$ ,  $SD_{control} = 0.618$ ).

### 4. Discussion and conclusion

We believe this brief study is amongst the first to examine the factor structure of the DASS and establish measurement invariance between incels and controls. The data supported residual invariance, implying that the means can be compared between incels and controls. Future work using the DASS is thus likely to recover its three factor structure in the incel population. Our findings also imply we can use the instrument to compare incels against other groups. Specifically, our results supported prediction 1, but not 2 or 3; incels scored

significantly higher on depression than controls. This finding aligns with previous studies (e.g., Daly & Reed, 2022) and the stereotypical view that incels experience depression. Incels did not significantly differ from controls in reported anxiety and stress.

A speculative explanation of these findings is that our incel participants may possess a cognitive style associated primarily with depression. Reduced imagery for positive events, specifically inability to imagine future mating success, seems a likely characteristic of those who subscribe to such forums, and is linked primarily to depression (Stöber, 2000). It is also possible that forum membership offers some protection against anxiety and stress but cannot counteract the depression associated with being unable to foresee a positive future. Indeed, acceptance of inceldom - as is suggested by forum membership - may bolster mental health whilst reaffirming the view that future mating success is improbable (Ford et al., 2018). Alternatively, the participants who self-selected in our study could differ from the wider incel community by scoring lower on anxiety and stress. Future research might investigate these and further explanations.

Our findings suggest that mental health interventions, primarily targeted at depression, could prove beneficial for incels. Given incels' reluctance to engage with mental health support (Speckhard et al., 2021), practitioners will need to develop outreach and intervention programmes that are palatable to incels; likely those that engage with and challenge, where appropriate, incels' depressive worldview (Costello et al., 2022).

There are multiple limitations to our study, for example, we relied on self-identification and have a modest sample size. Also, some DASS items loaded very poorly on their hypothesised factors. In future work it would be useful to further examine these specific items. Finally, our work is cross-sectional and we have not established test-retest reliability of the DASS or the stability of scores over time.



To our knowledge, our work is amongst the first to establish measurement invariance between incels and a general population group for a psychometric scale. We call for further work on incels and mental health. In particular, work with clinical measures and established measurement invariance. For now, we conclude that incels score higher than a control group on depression but do not significantly differ in anxiety or stress.

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*Table 1 : Summary of Measurement Invariance statistics (Robust statistics)*

	RMSEA	CFI	TLI	$\Delta$ RMSEA	$\Delta$ CFI	$\Delta$ TLI
Configural	0.032	0.943	0.94	-	-	-
Weak/metric	0.025	0.966	0.965	-0.007	0.023	0.025
Strong/scalar	0.025	0.964	0.963	0	-0.002	-0.002
Residual	0.025	0.964	0.964	0	0	0.001

Incels (N=72)

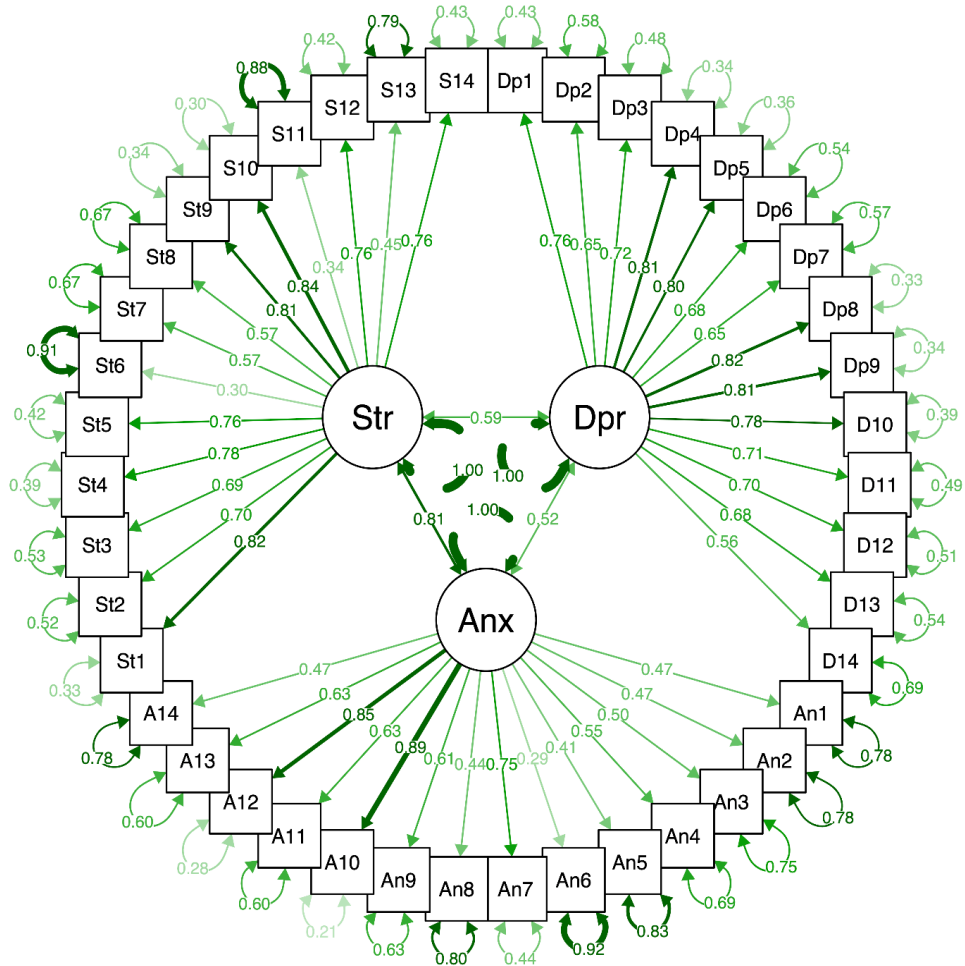


Figure 1a : Three-factor Structure - Incels

Control (N=72)

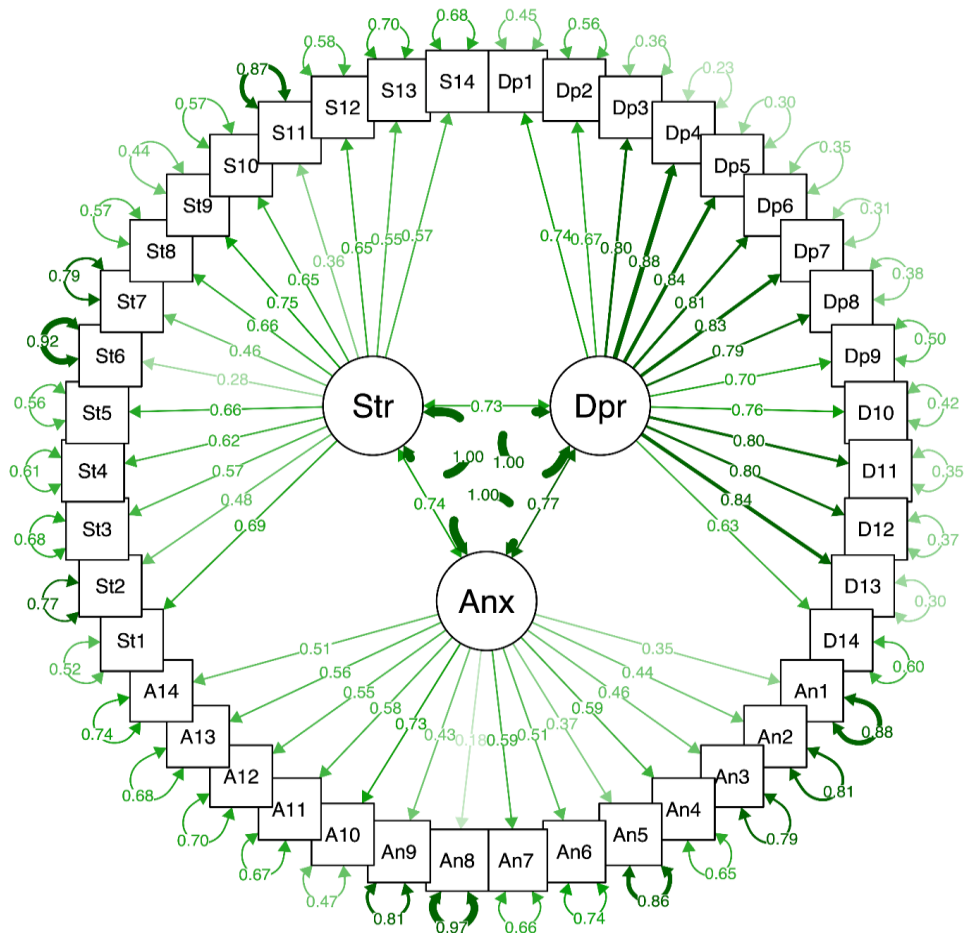


Figure 1b : Three-factor Structure – Controls