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The Mating Psychology of Incels (Involuntary Celibates): Misfortunes, Misperceptions, and Misrepresentations

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ABSTRACT

Mating represents a suite of fundamental adaptive problems for humans. Yet a community of men, called incels (involuntary celibates), forge their identity around their perceived inability to solve these problems. Many incels engage in misogynistic online hostility, and there are concerns about violence stemming from the community. Despite significant media speculation about the potential mating psychology of incels, this has yet to be formally investigated in the scientific literature. In the first formal investigation of incel mating psychology, we compared a sample ($n = 151$) of self-identified male incels with non-incel single males ($n = 149$). Findings revealed that incels have a lower sense of self-perceived mate-value and a greater external locus of control regarding their singlehood. Contrary to mainstream media narratives, incels also reported lower minimum standards for mate preferences than non-incels. Incels (and non-incel single men) significantly overestimated the importance of physical attractiveness and financial prospects to women, and underestimated the importance of intelligence, kindness, and humor. Furthermore, incels underestimated women's overall minimum mate preference standards. Our findings suggest that incels should be targeted for interventions to challenge cognitive distortions around female mate preferences. Implications for incels' mental health and misogynistic attitudes are discussed, as well as directions for future research.

"Women seem wicked when you're unwanted."

- Jim Morrison (The Doors)

Introduction



Finding and retaining a mate represent persistent adaptive problems for humans and form the basis of two of the seven most fundamental of humanity's social motives (Neel et al., 2016). Modern humans descend from an unbroken evolutionary chain of ancestors who successfully solved these problems. Achieving mating goals is so important to humans that it impacts physical and mental health, financial success, and even functions as a social signal of status (Antonovics & Town, 2004; Braithwaite et al., 2010; Robles et al., 2014; Winegard et al., 2017). Indicative of how preoccupied humans are with attracting mates is the fact that billion-dollar industries are built around it in the form of dating apps (Curry, 2021). Humans have evolved a suite of psychological mechanisms to address those adaptive mating challenges, such as forming mate preferences, assessing ones' own mate value, ascertaining what members of the opposite sex value in a mate, and deciding on which targets to concentrate finite mating efforts relative to ones' own mate value. It seems somewhat paradoxical, therefore, that there is a growing community of men who strongly identify with their perceived inability to solve these adaptive problems – incels (involuntary celibates).

Incels


Incels are a primarily online sub-culture community of men who forge a sense of identity around their perceived inability to form sexual or romantic relationships. The incel community operates almost exclusively online, providing an outlet to express misogynistic-hostility, frustration and blame toward society for a perceived failure to include them (Speckhard et al., 2021). Reports now number incel membership in the United States from around 40,000 (Beauchamp, 2019) to hundreds of thousands (Kutchinsky, 2019), and at the time of writing there are ~20,000 active users from around the world in the main forum Incels.is.

There is some debate about the definition of, and criteria for, inceldom. Incels were originally defined in the literature as all adults who fail to find a sexual partner for six months or more, despite their desire to do so (Donnelly et al., 2001). However, we suggest that any definition based on a metric of time is too broad and does not reflect the incel social identity (Costello, 2023). Due to the subjective nature of involuntary celibacy (i.e., it is impossible to prove that an individual objectively *can't* form sexual or romantic relationships), the identity requires an individual to embrace it and integrate it into their sense of self (Rousis et al., 2023).

Incels have significantly poorer mental health compared to similar samples of single men, putting them at increased risk of self-harm (Costello et al., 2022; Moskalenko et al., 2022; Sparks et al., 2022, 2023; Speckhard & Ellenberg, 2022). Incels' mating

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difficulties and poor mental health may influence one another in a bidirectional fashion consistent with reciprocal causation (Whisman et al., 2021).

Many incels engage in misogynistic online hostility (Jaki et al., 2019), and a small proportion of incels have committed acts of violence (Costello & Buss, 2023). An estimated 59 people have been killed by incels worldwide (Hoffman et al., 2020). Unwanted celibacy is a subjective psychological experience characteristic of, but not exclusive to, incels, and is associated with misogynistic attitudes among men (Grunau et al., 2022). Similarly to their poor mental health, incel misogyny may also be influenced bidirectionally by lack of mating success. People rarely seek relationships with those who hold hostile attitudes about them.

Despite the incel community being focused almost entirely on their perceived difficulties in mating, and the significant media speculation about the potential sexual and mating psychology of incels (Bates, 2020; Srinivasan, 2021), incel mating psychology has yet to be formally investigated in the scientific literature. In fact, there exists a relative dearth of primary data collected from self-identified incels in general, likely due to incels being a hard-to-reach group who are suspicious of the motives of academic researchers (Costello et al., 2022). Our research constitutes the first formal investigation of incel mating psychology. We make predictions about incels' perceived reasons for their singlehood, self-perceived mate value, minimum standards for mate preferences, and perceptions of female mate preferences (i.e., cross-sex mind reading ability).

Given that research shows that unwanted celibacy is associated with misogynistic attitudes among men (Grunau et al., 2022), elucidating incels' mating psychology is an important first step toward designing interventions to improve incels' mating acumen. In doing so, these interventions could potentially improve incels' wellbeing, and reduce their harmful misogynistic attitudes.

Prior Research on Sexlessness and Singlehood

Although incel research is in its infancy, some information can be inferred about incels from the literature on sexlessness and singlehood. Particularly relevant are the findings that romantic loneliness is associated with lower wellbeing and negative emotions (Gómez-López et al., 2019). This effect is higher among individuals who perceive themselves to be involuntarily single (Adamczyk, 2016).

The topics of both voluntary and involuntary singlehood (a circumstance that is distinct from the aforementioned social identity of incel) have also been studied from an evolutionary perspective. In a Greek sample ($n = 1,682$), approximately half of the participants were involuntarily single (Apostolou et al., 2019). In further research, participants who scored low in flirting capacity (i.e., the capacity to perceive signals of interest and mating effort), were more likely to be involuntarily single (Apostolou et al., 2019).

In cross-cultural data from 14 countries, 25% of participants showed *poor mating performance*, with 13% being involuntarily single (Apostolou, Sullman, et al., 2023). Given the predominantly online nature of the incel community, of note is an analysis of the internet site Reddit, finding that the most

frequent reasons that men indicated for being single included poor flirting skills, low self-confidence, poor looks, shyness, low effort, and bad experience from previous relationships (Apostolou, 2019).

Furthermore, people who indicated poor mating performance and involuntary singlehood experienced more negative emotions such as sadness and loneliness, and fewer positive emotions such as happiness (Apostolou et al., 2019). These findings dovetail with several studies finding extremely poor mental wellbeing among incels (Costello et al., 2022; Moskalenko et al., 2022; Sparks et al., 2022, 2023; Speckhard & Ellenberg, 2022).

Prior Incel Research

Empirical data on incels is scant, with virtually no scholarly literature before 2014 (Stijelja & Mishara, 2022). However, comprehensive literature reviews on what sparse literature exists provide us with some understanding of the general outlook of incels (Sparks et al., 2022). Incels purport that genetic factors, evolved mate preferences, and inequitable social structures restrict their access to sexual relationships with women (Brooks et al., 2022). They believe that most women are attracted to a small number of men (who they refer to as Chads), who monopolize sexual encounters, while the “*genetically inferior*” incels are excluded from the gene pool (Baselice, 2023; Blake & Brooks, 2022; Lindner, 2023).

Incels have a significant tendency for victimhood (Costello et al., 2022). The tendency for interpersonal victimhood describes an ongoing feeling that the self is a victim, which becomes central to one's identity (Gabay et al., 2020). One dimension of the incel tendency for interpersonal victimhood is the need for recognition (i.e., a preoccupation with having the legitimacy of grievances acknowledged). Those with a perpetual victimhood mind-set also tend to have an external locus of control regarding their life. Incels take an external locus of control to the extreme in perceptions of the way they relate to women (Brzuszkiewicz, 2020). Indicative of this mind-set is the fact that ~95% of incels subscribe to a worldview known as the black-pill (Speckhard et al., 2021). Taking the black-pill is a derivative of the concept of taking the red-pill, from the movie *The Matrix*, which denotes a willingness to “see the world as it really is,” as opposed to the “blissful ignorance” of taking the blue-pill (Wachowski & Wachowski, 1999). The black-pill describes a particularly bleak “truth” to swallow; the belief that sexual attraction is mostly fixed and there is nothing that incels can do to improve their romantic prospects (Glance et al., 2021).

Incels also share several characteristics with adult virgins, including a significant fear of having irretrievably “missed out” on meaningful life experiences (Stijelja & Mishara, 2022). In recent years, research on incels has grown, examining a range of topics, including textual analysis of misogyny (Jaki et al., 2019), and experiences using dating apps (Sparks et al., 2022). However, the bulk of prior incel research employed secondary analysis, which is informative but limited because many incels use bravado and exaggeration in order to engage in what they describe as “trolling” (Daly & Nichols, 2023). Many incels perceive that society hates them (Daly & Reed, 2022), and may

subsequently prefer and seek evaluations that confirm this negative self-view (Rousis et al., 2023). Incels' tendency to engineering criticism, which then verifies perceived victimization by society at large, is consistent with self-verification theory (Bosson & Swann, 1999; Costello, 2020; Swann et al., 1990).

More recently, larger primary quantitative studies have started to emerge, focusing on incel experiences, grievances, ideology, and prevalence of mental health diagnoses (e.g., Costello et al., 2022; Moskalenko et al., 2022; Speckhard et al., 2021). At the same time, qualitative interviews have found that incels perceive themselves as marginalized or treated as "subhumans" due to their appearance, and as a result, experience negative emotions related to their inceldom. This in turn affects their misogynistic online hostility (Daly & Reed, 2022).

Although larger empirical studies have started to emerge, incel research is still in its infancy (there are currently only 4 studies with sample sizes exceeding 150) and stands to benefit from more primary data. In particular, there is need for data on incels' mating psychology. As such, we introduce the following predictions.

Prediction 1: Incels will endorse more internal and external reasons for being single than non-incel single men

In the singlehood literature, some of the most popular reasons for being single fall within an internal locus of control (e.g., "poor flirting skills"; Apostolou, Birkás, et al., 2021). Alternatively, some of the other reasons people mention can be classified as being within an external locus of control (e.g., "online dating has made it too hard on the mating-market"). Incel online rhetoric is simultaneously characterized by their blaming external forces such as feminism (Lindsay, 2022) and dating apps (Sparks et al., 2022) for their lack of romantic prospects, as much as their expressions of self-loathing (Labaf, 2019). With respect to romantic rejection specifically, incels appear to engage in more self-critical rumination (Sparks et al., 2023).

Thus, altogether, incels can be expected to endorse more external *and* internal reasons for their being single than non-incel single men. This study constitutes the first research to explicitly include primary responses from incels regarding their perceived reasons for singlehood. The specific endorsement of incels' perceived reasons for being single provides detail to the complexion of their beliefs. This detail can inform potential future intervention design.

Prediction 2: Incels will score lower in self-perceived mate value than non-incels

It is not clear whether incels' online expressions of self-degradation are performative, or reflective of sincerely held perceptions of mate-value. Some research has even found that incels report higher self-esteem and a *higher* sense of self perceived mate value than other men (Rousis et al., 2023). However, apart from these findings, incels generally report low levels of wellbeing (Costello et al., 2022; Moskalenko et al., 2022; Speckhard & Ellenberg, 2022) and self-esteem (Sparks et al., 2022). Because self-perceived mate value is negatively correlated with depressive symptoms (Kirsner et al., 2003) and some research shows that self-esteem can be taken as a direct proxy for mate value (Brase & Dillon, 2022), it stands to reason that incels will generally score low on both.

Additionally, men are most inclined toward misogyny when they doubt their appeal to female partners. While men high in self-perceived mate-value endorse hostile and benevolent sexism linearly across the attitude range, low mate-value men exhibit curvilinear sexism, with benevolence decreasing as hostility increases. If low mate-value men doubt their abilities to protect and provide (needed for benevolent sexism), they may not embrace the benevolent sexism that can offset hostility and facilitate romantic attraction (Bosson et al., 2021; Gul & Kupfer, 2019). Much of incels' online rhetoric can be considered misogynistic (Jaki et al., 2019) and we know that unwanted celibacy is a predictor of misogyny in men (Grunau et al., 2022). The misogyny that pervades the incel community may be indicative of a low sense of self perceived mate value that exists within individual incels. As such, we expect to replicate findings that incels have a lower sense of self perceived mate value (Sparks et al., 2023).

Prediction 3: Incels will report lower minimum mate-preferences than non-incels

A significant narrative in the mainstream media suggests that incels are not interested in less attractive women, and rather feel aggrieved that their sense-of-entitlement to attractive women is thwarted (Srinivasan, 2021). However, individuals evaluate several variables when integrating their mate-preferences, including market constraints such as rival competition and likelihood of securing mutual attraction. From an evolutionary psychology perspective, it would not make sense for low mate-value males to concentrate their mating efforts on competing with high-value males for high-value mates. Male ancestors who invested their time and energy fruitlessly pursuing such mates would have had less reproductive success (Conroy-Beam, 2021). Instead, it is more likely that our evolved psychological mechanisms are attuned to adaptive-self-assessment (Buss, 2009). Those who see themselves as less attractive might even be willing to reject more attractive partners as a protective strategy, and there is evidence for associations between romantic rejection and flexibility of mate-preference standards (Charlot et al., 2019; Harper et al., 2021). Thus, rather than being picky for one or two mate qualities, we expected the mate preferences of incel men to be calibrated to their personal condition, translating to lower minimum mate preferences overall. Some previous research has also found that incels adopt more liberal dating app strategies, such as swiping right on more prospective female partners (Sparks et al., 2023). This is indicative that incels do not have overly high standards. As such, we made the prediction that incels would report *lower* minimum standards for mate preferences than non-incel single men.

Prediction 4: Incels will overestimate women's minimum standards for mate-preferences. They will also overemphasize the importance of physical attractiveness and financial prospects and under emphasize the importance of kindness, intelligence, and humor

Mating intelligence is a constellation of mental adaptations that generate adaptive strategies in human mating (Geher et al., 2016). Incels, who by definition fail to achieve their mating goals, can be assumed to adopt some ineffective mating strategies. One component of mating intelligence is

that of cross-sex mindreading, or theory of mind applied to the mating domain (Geher et al., 2016). This includes the ability to accurately ascertain what traits members of the opposite sex value in a potential mate. This is a potential area where incels err.

Incels' online rhetoric is characterized by hyperbolic caricatures of hypergamy: the tendency for women to mate upwards in status-hierarchies (Neyt et al., 2019) and they often bemoan what they perceive as women's "overly high standards" (Chang, 2022). Furthermore, popular in incel parlance is the idea of *Looks, Money, Status (LMS)* as the generally accepted theory of how female sexuality operates. LMS is so central to the incel worldview that it even warrants an entire section of the incel wiki site (Incel Wiki, 2023). LMS denies personality and intelligence as significant factors, despite the robust evidence for the importance of these traits that is consistently found in the evolutionary psychology literature (Buss, 1989; Walter et al., 2020).

Incels appear to be more focused on sex than forming relationships, as indicated by their higher sociosexual desire (Costello et al., 2022) and preoccupation with physical attractiveness (Ünes, 2020). Incels lionize "Chad" as the fictional caricature of what they consider to be the prototypical attractive man who monopolizes female sexual attention. Chad is depicted as being extremely physically attractive, but often lacking in other qualities such as intelligence, loyalty, or humor, which incels perceive doesn't matter to women and that "Chad always wins" because of his physical attractiveness (Furl, 2022).

Incels sometimes selectively co-opt findings from evolutionary psychology to advance the idea that women prioritize looks over all other factors. Incels also score highly on the Belief in Female Sexual Deceptiveness scale (Rogers et al., 2015; Sparks et al., 2023), which includes items such as "women marry wealthy husbands, but cheat with younger, better-looking men." This is known in the evolutionary psychology literature as the *Dual Mating (or Good Genes) Hypothesis* (Gangestad & Haselton, 2015). However, evidence from evolutionary psychology now appears to favor the *Mate Switching Hypothesis* (i.e., women typically leave their mate in order to form a relationship with a new one) rather than the dual mating hypothesis (Buss & Schmitt, 2019; Buss et al., 2017).

Together, this research suggests that incels will err in their cross-sex mind reading by assuming that women will be pickier than they are, and are particularly picky for short-term traits (e.g., physical attractiveness) compared to long-term ones (e.g., kindness).

Method

Participants

Participants were recruited using social media snowball-sampling on the social media sites Twitter and Facebook. Additionally, the lead author appeared on the popular *Incel* podcast in order to advertise the study. The study was also picked up by the moderator of the popular incel forum Incels.

co and shared with users of the forum. The study was advertised as "Exploring attitudes and behaviours around sexuality, well-being and identity." No compensation was offered for participation.

In total, 783 people responded to the survey, with varying degrees of completion. Because the incel community is almost exclusively male and single, and our study focused on incel vs non-incel group differences in mating psychology, only biological males who also reported being single and completed the incel identification item were kept for analyses. Participants who were biologically female, did not self-identify as incels, and reported being heterosexual were kept as a reference point for Prediction 4. The final sample consisted of 409 participants, of which 319 were male ($M_{age} = 29$, $SD_{age} = 8.03$) and 90 were female ($M_{age} = 31.50$, $SD_{age} = 9.29$). 151 male participants identified as incel (involuntary celibate) ($M_{age} = 27.94$, $SD_{age} = 7.26$) and 149 indicated that they were single but did not identify as incel ($M_{age} = 27.38$, $SD_{age} = 6.38$). Regarding ethnicity, 69.68% of participants identified as White/Caucasian. The majority of participants lived in the US (37.16%) or the UK and Ireland (26.65%). Regarding the ethnicities for male incel participants, 63.58% were White and 36.42% were BIPOC (Black, Indigenous or a Person of Color). Regarding the ethnicities of male participants who were single but did not identify as incel, 92.62% indicated that they were White and 7.38% indicated that they were BIPOC. Of the female participants, 86.66% were White and 13.34% indicated that they were BIPOC.

Measures

Reasons for Being Single

A checklist of reasons for being single was adapted from Apostolou (2019). Participants could select multiple answers for why they were single. Participants' reasons were not ranked. Participants simply ticked which options they felt applied to them rather than indicating the extent to which they felt that reason contributed to their singlehood. Of these, 9 items corresponded to external reasons (e.g., "Online dating makes it too difficult on the mating market"; $\alpha = 0.7$) and 28 items corresponded to internal reasons (e.g., "I fear rejection," "I am too overweight"; $\alpha = 0.9$).

Mate Value Scale

The Mate Value Scale (Edlund & Sagarin, 2014) is a four-item scale assessing participants' opinions of their general attractiveness as mates (e.g., "Overall how good of a catch are you?"). It uses a 1–7 Likert scale, ranging from 1 = *extremely undesirable* to 7 = *extremely desirable* and, based on current data, the scale showed excellent reliability ($\alpha = .93$).

Minimum Standards in mate preferences

Adapted from the mate preferences questionnaire in Buss (1989), participants indicated the minimum score from 0 to 10 that a person would need to meet across 15 traits for them to consider this person as a potential long-term romantic partner. Some sample traits included facial attractiveness, sense of humor, and intelligence. Minimum standards were

used to avoid the ceiling effects associated with asking participants about ideal standards. We also averaged scores across all 15 traits to obtain a composite score. Participants also repeated the exercise from the perspective of a woman, a form of “minimum mate preference” mind-reading.

Other Measures

A single yes-no choice item (“do you identify as incel (involuntarily celibate)?”) assessed whether participants self-identified as incel. Participants were also asked various demographic questions, including age, sexual orientation, education, and employment status.

Procedure

Participants gave full informed consent prior to participating in the study. Demographic information was asked first, followed by reasons for being single, the mate value scale, minimum standards in mate preferences, and perceptions of women’s minimum standards in mate preferences. Finally, participants were given a full debrief. The study took approximately 25 minutes to complete and was approved by Brunel University ethics committee.

Results

Sensitivity Analysis

Sensitivity analysis revealed that an independent samples t-test with 114 incels and 144 non-incels would be sensitive to effects of Cohen’s $d = 0.41$ with 90% power ($\alpha = .05$, two-tailed). This means the study would not be able to reliably detect effects smaller than Cohen’s $d = 0.41$.

Reasons for Being Single

We added how many items participants selected for external reasons for being single and how many they selected for internal reasons (see Table S1). Two t-tests were conducted to compare incels and non-incel single men on external and

internal reasons for being single. The results showed that the incels had a significantly higher number of external reasons ($M = 2.26$, $SD = 1.77$) than non-incel single men ($M = 1.29$, $SD = 1.41$), $t(258.32) = 5.28$, $p < .001$, $d = .60$, finding support for Prediction 1 (See Table S1).

Additionally, a second t-test was conducted to compare incels and non-incel on internal reasons for being single. The results showed that incels ($M = 8.37$, $SD = 4.32$) had a significantly higher number of internal reasons than did non-incel single men ($M = 6.32$, $SD = 4.50$), $t(317) = 4.11$, $p < .001$, $d = .46$ (See Table S1).

Self-Perceived Mate Value

In line with Prediction 2, incels had a significantly lower sense of self-perceived mate value than non-incel single men. Incels ($M = 3.02$, $SD = 1.25$, $n = 113$) had a lower self-perceived mate value than non-incel single men did ($M = 3.69$, $SD = 1.49$, $n = 149$), $t(254.21) = -4.06$, $p < .001$, $d = -.50$ (See Table S1).

Minimum Standards in Mate Preferences

Finding support for Prediction 3, incels showed lower minimum mate preferences than single men who did not identify as incel for 12 of 15 traits and the composite (see Table 1 and Figure 1). Only differences in Kind and understanding, Loyal and dependable, and Good cook/homemaker were non-significant. The effect size across the composite score was $d = -.71$. Holm-Bonferroni corrections were used to account for the multitude of comparisons.

Perceptions of Women’s Minimum Standards in Mate Preferences

To test if incels exaggerate estimations of women’s minimum preferences we computed the mean scores for heterosexual women’s minimum mate preferences across all 15 traits and a mean total and then computed difference scores

Table 1. Incel and non-incel differences in minimum mate preferences.

Trait	Incel men ($n = 116$)	Non-incel men ($n = 149$)	Δ	t	df	p_{adj}	$d(CI)$
	$M (SD)$	$M (SD)$					
Total	4.66 (1.62)	5.71 (1.36)	-1.05	-5.73	263	<.001	-0.71 (-0.96, -0.46)
Facial attractiveness	5.00 (2.05)	6.15 (1.62)	-1.15	-4.98	216.09	<.001	-0.63 (-0.88, -0.38)
Body attractiveness	4.96 (2.02)	5.79 (1.65)	-0.83	-3.67	263	0.002	-0.46 (-0.7, -0.21)
Fashion sense	2.69 (2.16)	3.78 (2.30)	-1.09	-3.93	263	0.001	-0.49 (-0.73, -0.24)
Good job/financial prospects	2.84 (2.52)	4.21 (2.54)	-1.37	-4.36	263	<.001	-0.54 (-0.79, -0.29)
Kind and understanding	7.13 (2.22)	7.64 (1.72)	-0.51	-2.04	212.33	0.13	-0.26 (-0.5, -0.02)
Loyal and dependable	7.59 (2.39)	7.96 (1.62)	-0.37	-1.41	192.94	0.32	-0.19 (-0.43, 0.06)
Emotional stability and maturity	6.16 (2.55)	7.19 (1.92)	-1.03	-3.63	207.93	0.002	-0.46 (-0.71, -0.22)
Sociability	3.65 (2.62)	4.97 (2.20)	-1.32	-4.38	223.62	<.001	-0.55 (-0.8, -0.3)
Exciting personality	3.82 (2.52)	5.33 (2.30)	-1.51	-5.1	263	<.001	-0.63 (-0.88, -0.38)
Sense of humor	5.02 (2.81)	6.46 (2.12)	-1.44	-4.56	207.76	<.001	-0.59 (-0.83, -0.34)
Intelligence	5.65 (2.58)	6.97 (1.59)	-1.32	-4.84	180.64	<.001	-0.63 (-0.88, -0.38)
Attractive political beliefs	4.34 (2.63)	5.30 (2.58)	-0.96	-3.05	263	0.01	-0.37 (-0.61, -0.12)
Similar interests	4.61 (2.53)	5.76 (2.20)	-1.15	-3.88	228.42	0.001	-0.49 (-0.73, -0.24)
Sexually skillful	2.92 (2.65)	4.18 (2.82)	-1.26	-3.7	263	0.002	-0.46 (-0.7, -0.21)
Good cook/homemaker	3.58 (2.74)	4.01 (2.68)	-0.43	-1.3	263	0.32	-0.16 (-0.4, 0.08)

Holm-Bonferroni corrections were applied to account for the number of comparisons. Δ = Difference between incel and non-incel men. CI = Bootstrapped 95% confidence intervals for effect size. Degrees of freedom are adjusted in light of significant Levene’s tests.

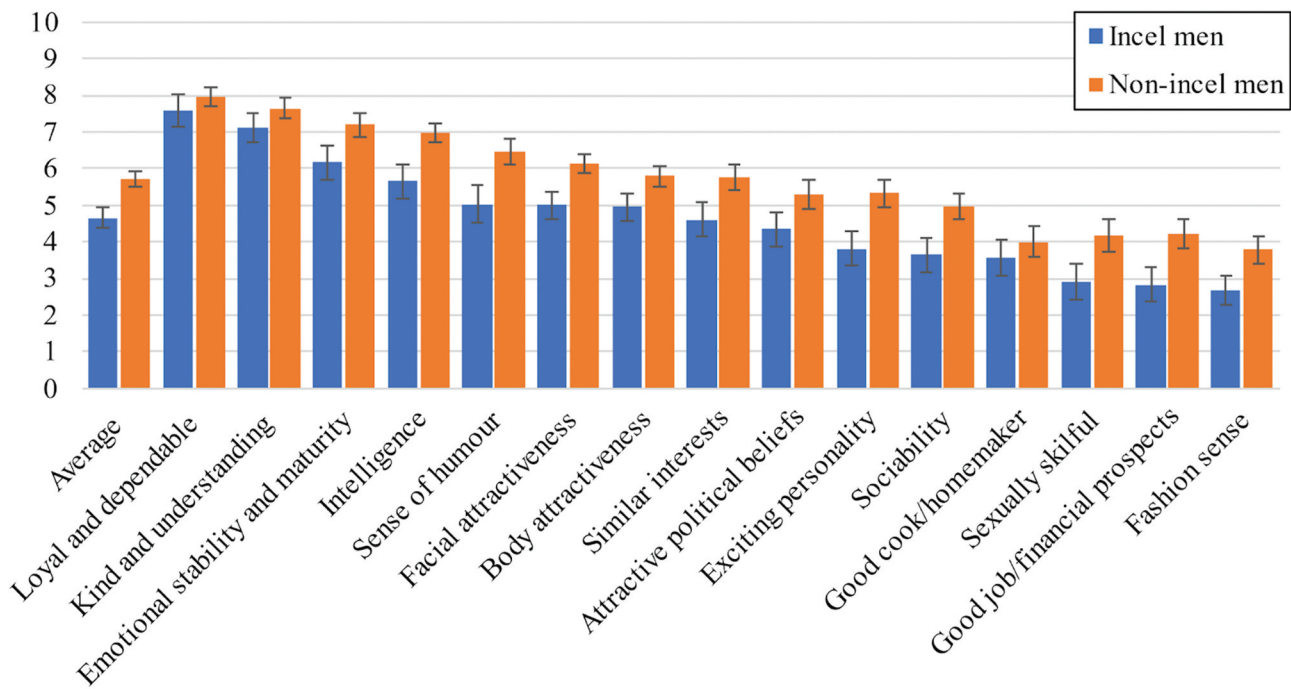


Figure 1. The minimum mate preferences for incel and non-incel single men. Error bars represent 95% confidence intervals.

for all single male participants. A positive score meant a participant overestimated women's minimum threshold on that trait (i.e., the participant believed the average woman to be *more* selective), whereas a negative score meant a participant underestimated women's minimum (i.e., the participant believed the average woman to be *less* selective on that trait). Figure 2 and Table 2 compared incel and non-incel men's perceptions of female mate preferences. In line with our prediction, incels did overestimate the value

women place on physical attractiveness and financial resources, although so did non-incel single men. Observing the 95% confidence intervals in Figure 2 we can see that all traits are significantly different from 0 in the predicted directions. The only traits that were not significantly different from zero were ones we did not make predictions about: sexually skillful, sociability, and exciting personality. Incels (and non incel single men) accurately ascertained the importance of those traits to women.

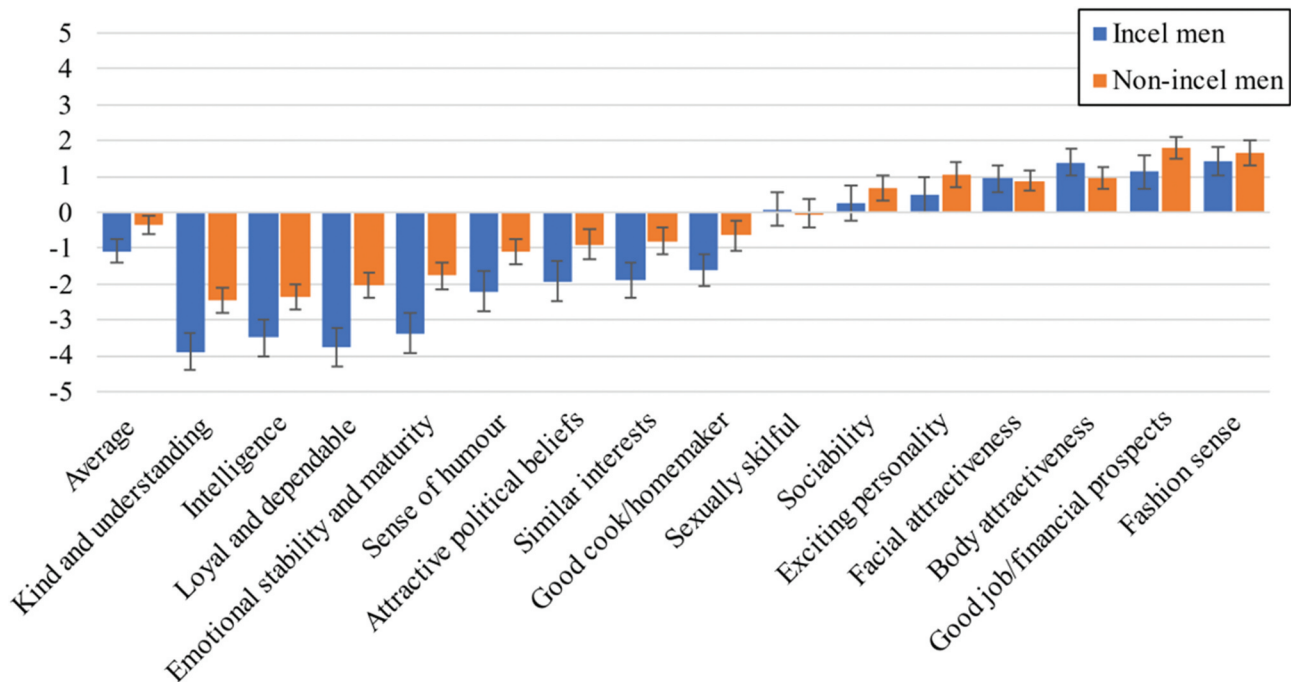


Figure 2. Men's (mis)Perception of Female Mate Preferences. Positive scores indicate over-perceiving true importance, whereas negative scores indicate under-perception. Error bars represent 95% confidence intervals. Confidence intervals which do not contain 0 indicate statistically significant biases.

Table 2. Incel and non-incel differences in perceptions of women's minimum mate preferences.

Trait	Incel men (<i>n</i> = 116)	Non-incel men (<i>n</i> = 149)	Δ	<i>t</i>	<i>df</i>	<i>p_{adj}</i>	<i>d</i> (CI)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)					
Total	4.66 (1.62)	5.71 (1.36)	−1.05	−5.73	263	<.001	−0.71 (−0.96, −0.46)
Facial attractiveness	5.00 (2.05)	6.15 (1.62)	−1.15	−4.98	216.09	<.001	−0.63 (−0.88, −0.38)
Body attractiveness	4.96 (2.02)	5.79 (1.65)	−0.83	−3.67	263	0.002	−0.46 (−0.7, −0.21)
Fashion sense	2.69 (2.16)	3.78 (2.30)	−1.09	−3.93	263	0.001	−0.49 (−0.73, −0.24)
Good job/financial prospects	2.84 (2.52)	4.21 (2.54)	−1.37	−4.36	263	<.001	−0.54 (−0.79, −0.29)
Kind and understanding	7.13 (2.22)	7.64 (1.72)	−0.51	−2.04	212.33	0.13	−0.26 (−0.5, −0.02)
Loyal and dependable	7.59 (2.39)	7.96 (1.62)	−0.37	−1.41	192.94	0.32	−0.19 (−0.43, 0.06)
Emotional stability and maturity	6.16 (2.55)	7.19 (1.92)	−1.03	−3.63	207.93	0.002	−0.46 (−0.71, −0.22)
Sociability	3.65 (2.62)	4.97 (2.20)	−1.32	−4.38	223.62	<.001	−0.55 (−0.8, −0.3)
Exciting personality	3.82 (2.52)	5.33 (2.30)	−1.51	−5.1	263	<.001	−0.63 (−0.88, −0.38)
Sense of humor	5.02 (2.81)	6.46 (2.12)	−1.44	−4.56	207.76	<.001	−0.59 (−0.83, −0.34)
Intelligence	5.65 (2.58)	6.97 (1.59)	−1.32	−4.84	180.64	<.001	−0.63 (−0.88, −0.38)
Attractive political beliefs	4.34 (2.63)	5.30 (2.58)	−0.96	−3.05	263	0.01	−0.37 (−0.61, −0.12)
Similar interests	4.61 (2.53)	5.76 (2.20)	−1.15	−3.88	228.42	0.001	−0.49 (−0.73, −0.24)
Sexually skillful	2.92 (2.65)	4.18 (2.82)	−1.26	−3.7	263	0.002	−0.46 (−0.7, −0.21)
Good cook/homemaker	3.58 (2.74)	4.01 (2.68)	−0.43	−1.3	263	0.32	−0.16 (−0.4, 0.08)

Holm-Bonferroni corrections were applied to account for the number of comparisons. Δ = Difference between incel and non-incel men. CI = Bootstrapped 95% confidence intervals for effect size. Degrees of freedom are adjusted in light of significant Levene's tests.

Incels, compared to non-incel single men, particularly underestimated women's minimum preferences for loyalty and dependability, kindness, and emotional maturity and stability, providing partial support for Prediction 4. However, contrary to our prediction that incels would overestimate women's overall minimum mate preferences, we found that both incels and non-incels underestimated women's overall minimum mate preferences. This effect was largely driven by the stark underestimating of women's preferences for loyalty and dependability, kindness, and emotional maturity. Holm-Bonferroni corrections were used to account for the multitude of comparisons.

Discussion

In this first examination of incel mating psychology using primary data, we found incels to have lower self-perceived mate value and to endorse both more internal and external reasons for their singlehood than non-incels. While a popular narrative is that incels cannot find mates because they hold unrealistically high standards (Srinivasan, 2021), our findings suggest that incels possess *lower* minimum mate preference standards than non-incels do when considering someone as a potential partner – a medium to large effect size.

One observation of interest was that, when ordering incels' preferences in descending order (see Table 1), the traits they valued most followed almost the same order as that of non-incel single men. Both groups shared the same order when it came to the first four traits: *loyalty and dependability, kindness and understanding, emotional stability and maturity, and intelligence*. Incel mate preferences appear to be different in terms of level, but not pattern.

We predicted that incels would be more inaccurate than non-incels at estimating women's minimum mate preferences. Specifically, we predicted that incels would overestimate the value women place on physical attractiveness and financial resources, while underestimating the importance women place on long term mating qualities like kindness. While incels did make mistakes in their assessment of the value women

place on these traits, they did not do so significantly more than non-incel single men. That is, both incels and non-incel single men alike significantly overestimated the importance women place on traits such as physical attractiveness and underestimate the importance women place on traits such as kindness (see Figure 2).

The Importance of Improving Incels Mating Prospects

Blake and Brooks (2022) made a compelling case for why society should not ignore its incel problem, outlining that there is robust evidence for what is referred to in the evolutionary psychology literature as the *Young Male Syndrome* (Wilson & Daly, 1985). The Young Male Syndrome refers to the tendency for surplus populations of unpartnered young men to disproportionately harm society and themselves, due to increased status seeking and risk taking in pursuit of mates (Edlund et al., 2013; Guttentag & Secord, 1983; Krahn et al., 1986). There is also accumulating evidence from criminology for the sexual frustration theory of aggression, violence, and crime (Lankford, 2021). Research also shows that unwanted celibacy is associated with misogynistic attitudes among men (Grunau et al., 2022). These lines of evidence should give us cause for concern about the problems incels face and represent in society and highlight the importance of planning appropriate interventions.

Incel Mating Intelligence

There is reason to believe that some incels are motivated to engage with the mating market, e.g., in one study roughly half of incel participants reported they were actively seeking a relationship (Costello et al., 2022). In the current study, we also found that incels did not report having disproportionately high minimum mate-preferences and endorsed "lack of flirting skills" as the most popular reason for being single (see Table S2). These findings, coupled with incels' cognitive distortions around female mate-preferences, suggest that potential

interventions to improve incel mating intelligence (Geher et al., 2016) should be investigated.

Research has also shown that male mate value is dependent on much more malleable traits, such as status and financial resources, than female mate value, which is more contingent on physical attractiveness and youth (Ben Hamida et al., 1998). As such, incels' mate value could potentially be improved upon. There is some evidence that interventions designed to improve social confidence had real impacts on men's prospects in speed-dating scenarios (Li et al., 2020). Such interventions could be appropriate for incels.

Correcting cognitive distortions (Gilbert, 1998) around female mate-preferences could be an avenue of exploration to improve incels' mating performance and any subsequent mental health issues (Apostolou, 2019). Research shows that unwanted celibacy is associated with misogynistic attitudes among men (Grunau et al., 2022). Thus, designing interventions to help incels achieve their mating goals could have the potential added benefit of reducing harmful instances of misogyny. Incel misogyny likely has a bidirectional relationship with their mating prospects. Interventions that prioritize reducing incel misogyny prior to, or alongside, improving their mating intelligence, could have more efficacy. Importantly, such interventions might also reduce the potentiality for harm toward women.

One component of mating intelligence is that of cross-sex mindreading, which can be described as theory of mind applied in the mating domain. Mating intelligence includes the ability to accurately ascertain what traits members of the opposite sex value in a potential mate (Geher et al., 2016). We hypothesized that this is an area where incels mating intelligence errs. Consistent with our predictions, incels overestimated women's preferences for physical attractiveness. However, they did not do so significantly more than non-incel single men (i.e., both incels and non-incel single men alike overestimated the importance of physical attractiveness to women). Additionally, both groups overestimated the importance of financial prospects to women.

It is important to note the potential impact of social desirability bias (Edwards, 1957) in female participants' answers regarding their mate preferences. Female participants may not wish to indicate the true extent of their preference for financial prospects in a mate. Furthermore, there is sometimes a disparity between participants' stated and revealed preferences (Eastwick & Finkel, 2008). Relatedly, there is robust evidence that women do indeed value financial resources in a mate (Hopcroft, 2021; Parker et al., 2022; Walter et al., 2020). Using cross-cultural behavioral data from 1.8 million online daters from 24 countries, Jonason and Thomas (2022) found that resource-acquisition ability (as indicated by education and income) improved the attention received for men by almost 2.5 times that of women. For incels, who are highly likely to be NEET (not in education employment or training; Costello et al., 2022), improving financial prospects could indeed be an avenue for improving mating opportunities.

Another significant finding in our study is that incels particularly underestimated women's minimum preferences for loyalty and dependability, kindness, and emotional maturity

and stability, which there is robust evidence for in the evolutionary psychology mate preference literature (Buss, 1989; Walter et al., 2020). Interventions which help incels to overcome their belief in female sexual deceptiveness (Sparks et al., 2022), and acknowledge the importance of these traits, could help with their mating prospects. Such interventions could also reduce the misogyny that pervades the incel community.

One component of incels' mating intelligence that should not be overlooked are the high rates of autism spectrum disorder that exist within the incel community. The median estimated global prevalence of autism spectrum disorder is 0.62% (Elsabbagh et al., 2012), yet Speckhard and Ellenberg (2022) found that 18.38% of incels in their sample reported having such a diagnosis, with a further 24.6% reporting the "presence of symptoms of autism spectrum disorder." Many people with autism spectrum disorder have a poorer theory of mind – they struggle to infer the emotions and desires of others (Baron-Cohen, 1990). The failures of cross-sex mind reading we found within incel participants may be an artifact of the high levels of autism spectrum disorder that exist within the incel community. Future research should empirically investigate the rates of autism spectrum disorder in the incel community, using established measures, and any subsequent impact on their mating prospects.

Alternatives to the Mating-Market for Incels

At least some of the grief and poor mental health of the incel community, it appears, may stem from their not accurately perceiving women's mate preferences, especially under-perceiving women's desires for men who are intelligent, kind, funny, loyal, and dependable. To the degree that incel individuals can improve on these attributes, they might achieve better mating success and thereby improve their mental well-being (Kavanagh et al., 2010; Schmitt & Jonason, 2019). But what if they cannot improve their intelligence or their humor ability?

For some members of the incel community, a better pathway to improved well-being may lie in coming to accept their ideals of romantic success are unlikely to be achieved and, instead, to try and experience gratitude for the many other aspects of their life that could already provide meaning and value – sources such as friends, family, and work success (Kenrick et al., 2010; Rotkirch et al., 2014). Sometimes called "wanting what you already have," evolutionary psychologists have suggested that cultivating gratitude can increase well-being in several ways (Geher & Wedberg, 2019; Miller, 1995). First, gratitude induces a positive mind-set, helping you feel more optimistic and hopeful about the future (Emmons et al., 2019). Second, when you focus mainly on what you do not possess or what you want but cannot have, it can create stress and anxiety. When you focus on what you already have and appreciate it, however, gratitude helps to reduce stress and promotes relaxation (Wright, 2017). Third, expressing gratitude and appreciation toward others can strengthen already-existing relationships, increase feelings of social support, and foster more positive interactions with new people (McCullough et al., 2008). Future research should

investigate how incels can cultivate meaning outside of mating.

In some sense, the values and structures of the incel community may be constraining their members' ability for gratitude to only themselves within their group. Not unlike many other socio-political and religious groups, this can *fuse* members' identities and emotional health to the ingroup community and stem the development of other sources of social support. Identity fusion, that is, a visceral sense of oneness with a group, has been found to predict extreme beliefs/behaviors (e.g., extreme attitudes in gaming; Kowert et al., 2022). Incels display higher levels of identity fusion than other groups, and this predicted endorsement of violence and online harassment toward women (Rousis et al., 2023). Moreover, the particularly negative attitudes toward members working on building romantic relationships may reduce the capacity of incels to learn more accurate information about what potential mates want in relationship partners (Costello, 2023; Hinds, 2022). These misperceptions, then, remain unadjusted by experience and keep incels stuck in their mental tire tracks. Future research should investigate what impact (if any) disengaging with the community has on incels mating psychology, misogynistic attitudes, and wellbeing.

Hope, Cope, or Rope: Incels' Problematic Responses to Celibacy

An area of particular concern is how those incels who do not wish to engage with the mating market respond to their celibate situation. Three rhyming domains describe the variety of incel responses to their celibacy: *hope*, *cope*, and *rope* (Sparks et al., 2022). Rope refers to suicide, a theme which pervades incel forums (Daly & Laskovtsov, 2021). In terms of coping strategies, incels appear to engage in either solitary (watching TV, lifting weights) or potentially more problematic practices (e.g., using drugs, excessive pornography use). Healthier coping mechanisms (e.g., positive reframing, seeking emotional support) were more commonly practiced among non-incel men, while incels reported higher levels of problematic strategies such as behavioral disengagement and self-blame (Sparks et al., 2022).

Relatedly, Sparks et al. (2022) suggested that the term *incel* has resulted in an overemphasis on the sexual exclusion and frustration aspects of incel identity. They identified instead a more general social isolation as a key facet of incelhood, finding that incels reported more feelings of loneliness and less social support outlets than non-incel men. The high levels of loneliness among incels suggest that they may be missing a key buffer in sheltering them from the adverse effects of romantic rejection (Costello et al., 2022; Sparks et al., 2022). Cultivating friendships more broadly could be an avenue to improving incels' wellbeing, and, potentially indirectly, their mating prospects.

Limitations

One limitation of the study is that we relied upon incel self-identification rather than "incel-typical" behavior and cognition, leaving the possibility that some participants with incel-

tendencies identified as non-incels. Future research should focus on developing and psychometrically validating a "level of incelhood" scale, so that studies need not rely on subjective self-identification. Taking into account the ever-evolving use of labels and descriptive terms within the incel community, such a scale could enhance longevity by focusing on the underlying cognitions and emotions behind incelhood, such as the feelings of dysphoria associated with their unwanted singlehood.

In this study we provided evidence that incels do not have particularly high or unrealistic long-term mating standards. However, there is still some ambiguity in relation to short-term standards. It could be argued that many incels' focus on sex and short-term mating could stem from bitterness about being excluded from the short-term mating market (where they perceive that so called "Chads and Stacy's" reign at their exclusion). It may be that incels have lower minimum mate-value standards for long-term partners, but that this is not what they want. Indeed, there is some evidence that incels are more unrestricted than non incel single men in sociosexual desire (Costello et al., 2022). It remains to be demonstrated whether incels' frustration in the mating market stems from high standards for casual sexual encounters that they are nonetheless excluded from due to their lower mate-value. The question of whether incels are equally or more resentful about feeling excluded from the short-term or long-term mating market is an empirical one. Although this was beyond the scope of our study, we call on future work to test this.

Throughout this work we refer to findings that unwanted celibacy is associated with misogynistic attitudes in men (incels and non incels alike; Grunau et al., 2022). We also discuss the likely bidirectional relationship between incel misogyny and their lack of mating success, suggesting that interventions should focus on minimizing the incel belief in female sexual deceptiveness and correcting cognitive distortions incels hold about women. However, the next step for examining this bidirectional relationship is to consider how incel extreme attitudes and cross-sex mind reading co-develop over time as part of a longitudinal study.

Conclusion

The recurring problems of finding and retaining a mate represent fundamental adaptive problems for humans. Yet there is a growing community of men, incels (involuntary celibates), who strongly identify with their perceived inability to solve these problems. This study is the first formal investigation of incel mating psychology, exploring incels' perceived reasons for their singlehood, self-perceived mate value, minimum standards for mate preferences, and perceptions of female mate preferences.

We found that incels are characterized by low levels of self-perceived mate-value and a greater external locus of control regarding their perceived reasons for being single. Although incels did not appear to have disproportionately high minimum mate-preferences in relation to their mate-value, many incels appeared to have some cognitive distortions around their perceptions of women's mate-preferences. Most notably,

incels underestimate the importance of intelligence, kindness and understanding, humor, and loyalty and dependability.

Previous research suggests that incels represent a hard-to-reach and at-risk group, suitable for targeted mental health interventions (Costello et al., 2022). Given the findings that a significant portion of the incel community express interest in participating in the mating market, we suggest that such interventions could include challenging some of the cognitive distortions that incels hold around female mate preferences in order to help improve their mating intelligence.

Unwanted celibacy is associated with misogynistic attitudes among men, and surplus populations of unpartnered young men disproportionately harm society and themselves. Thus, designing interventions to help incels achieve their mating goals would have the added benefit of reducing harmful instances of misogyny and societal harm.

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Data Availability Statement

Code: https://github.com/vrolo001/psych_of_incels.

Ethical Approval and Consent to Participate

Ethical approval for this study was approved by the Brunel University London Ethics Approval Board.

References

- Adamczyk, K. (2016). Voluntary and involuntary singlehood and young adults' mental health: An investigation of mediating role of romantic loneliness. *Current Psychology*, 36(4), 888–904. <https://doi.org/10.1007/s12144-016-9478-3>
- Antonovics, K., & Town, R. (2004). Are all the good men married? Uncovering the sources of the marital wage premium. *American Economic Review*, 94(2), 317–321. <https://doi.org/10.1257/0002828041301876>
- Apostolou, M. (2019). Why men stay single? Evidence from Reddit. *Evolutionary Psychological Science*, 5(1), 87–97. <https://doi.org/10.1007/s40806-018-0163-7>
- Apostolou, M., Birkás, B., da Silva, C. S. A., Esposito, G., Hsu, R. M. C. S., Jonason, P. K., Karamanidis, K. O. J., Ohtsubo, Y., Putz, Á., Sznycer, D., Thomas, A. G., Valentova, J. V., Varella, M. A. C., Kleisner, K., Flegr, J., & Wang, Y. (2021). Reasons of singles for being single: Evidence from Brazil, China, Czech Republic, Greece, Hungary, India, Japan and the UK. *Cross-Cultural Research*, 55(4), 319–350. <https://doi.org/10.1177/10693971211021816>
- Apostolou, M., Matogian, I., Koskeridou, G., Shialos, M., & Georgiadou, P. (2019). The price of singlehood: Assessing the impact of involuntary singlehood on emotions and life satisfaction. *Evolutionary Psychological Science*, 5, 416–425. <https://doi.org/10.1007/s40806-019-00199-9>
- Apostolou, M., Papadopoulou, I., Christofi, M., & Vrontis, D. (2019). Mating performance: Assessing flirting skills, mate signal-detection ability, and shyness effects. *Evolutionary Psychology*, 17(3), 1474704919872416. <https://doi.org/10.1177/1474704919872416>
- Apostolou, M., Papadopoulou, I., & Georgiadou, P. (2019). Are people single by choice? Involuntary singlehood in an evolutionary perspective. *Evolutionary Psychological Science*, 5, 98–103.
- Apostolou, M., Shialos, M., & Georgiadou, P. (2019). The emotional cost of poor mating performance. *Personality and Individual Differences*, 138, 188–192. <https://doi.org/10.1016/j.paid.2018.10.003>
- Apostolou, M., Sullman, M., Birkás, B., Blachnio, A., Bushina, E., Calvo, F., Font Mayolas, S., Hill, T., Lajunen, T. J., Lisun, Y., Manrique-Millones, D., Manrique-Pino, O., Meskó, N., Nechtelberger, M., Ohtsubo, Y., Ollhoff, C. K., Przepiórka, A., Putz, Á., Tagliabue, M., ... Costello, W. (2023). Mating performance and singlehood across 14 nations. *Evolutionary Psychology*, 21(1), 14747049221150169. <https://doi.org/10.1177/14747049221150169>
- Baron-Cohen, S. (1990). Autism: A specific cognitive disorder of 'mind-blindness'. *International Review of Psychiatry*, 2(1), 81–90. <https://doi.org/10.3109/09540269009028274>
- Baselice, K. A. (2023). Analyzing incels through the lens of evolutionary psychology. *Culture and Evolution*. <https://doi.org/10.1556/2055.2022.00016>
- Bates, L. (2020). *The men who hate women: From incels to pickup artists, the truth about extreme misogyny and how it affects us all*. Simon and Schuster. <https://www.simonandschuster.co.uk/books/Men-Who-Hate-Women/Laura-Bates/9781398504653>
- Beauchamp, Z. (2019). *Our incel problem*. Vox. Retrieved March 29, 2023, from. <https://www.vox.com/the-highlight/2019/4/16/18287446/incel-definition-reddit>
- Ben Hamida, S., Mineka, S., & Bailey, J. M. (1998). Sex differences in perceived controllability of mate value: An evolutionary perspective. *Journal of Personality and Social Psychology*, 75(4), 953. <https://doi.org/10.1037/0022-3514.75.4.953>
- Blake, K. R., & Brooks, R. C. (2022). Societies should not ignore their incel problem. *Trends in Cognitive Sciences*. <https://doi.org/10.1016/j.tics.2022.11.007>
- Bosson, J. K., Rousis, G. J., & Felig, R. N. (2021). Curvilinear sexism and its links to men's perceived mate value. *Personality and Social Psychology Bulletin*, 48(4), 516–533. <https://doi.org/10.1177/01461672211009726>
- Bosson, J. K., & Swann, W. B., Jr. (1999). Self-liking, self-competence, and the quest for self-verification. *Personality and Social Psychology Bulletin*, 25(10), 1230–1241. <https://doi.org/10.1177/0146167299258005>
- Braithwaite, S. R., Delevi, R., & Fincham, F. D. (2010). Romantic relationships and the physical and mental health of college students. *Personal Relationships*, 17(1), 1–12. <https://doi.org/10.1111/j.1475-6811.2010.01248.x>
- Brase, G. L., & Dillon, M. H. (2022). Digging deeper into the relationship between self-esteem and mate value. *Personality and Individual Differences*, 185, 111219. <https://doi.org/10.1016/j.paid.2021.111219>
- Brooks, R. C., Russo-Batterham, D., & Blake, K. R. (2022). Incel activity on social media linked to local mating ecology. *Psychological Science*, 32(2), 249–258. <https://doi.org/10.1177/09567976211036065>
- Brzuszkiewicz, S. (2020). *Incel radical milieu and external locus of control*. International Centre for Counter-Terrorism (ICCT). <https://doi.org/10.19165/2020.5.21>
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, 12(1), 1–14. <https://doi.org/10.1017/S0140525X00023992>
- Buss, D. M. (2009). How can evolutionary psychology successfully explain personality and individual differences? *Perspectives on Psychological Science*, 4(4), 359–366. <https://doi.org/10.1111/j.1745-6924.2009.01138.x>

- Buss, D. M., Goetz, C., Duntley, J. D., Asao, K., & Conroy-Beam, D. (2017). The mate switching hypothesis. *Personality and Individual Differences*, 104, 143–149. <https://doi.org/10.1016/j.paid.2016.07.022>
- Buss, D. M., & Schmitt, D. P. (2019). Mate preferences and their behavioral manifestations. *Annual Review of Psychology*, 70(1), 77–110. <https://doi.org/10.1146/annurev-psych-010418-103408>
- Chang, W. (2022). The monstrous-feminine in the incel imagination: Investigating the representation of women as “femoids” on/r/Brincels. *Feminist Media Studies*, 22(2), 254–270. <https://doi.org/10.1080/14680777.2020.1804976>
- Charlot, N. H., Balzarini, R. N., & Campbell, L. J. (2019). The association between romantic rejection and change in ideal standards, ideal flexibility, and self-perceived mate value. *Social Psychology*, 51(1), 1–16. <https://doi.org/10.1027/1864-9335/a000380>
- Conroy-Beam, D. (2021). Couple simulation: A novel approach for evaluating models of human mate choice. *Personality and Social Psychology Review*, 25(3), 191–228. <https://doi.org/10.1177/1088868320971258>
- Costello, W. (2020, August 10). Step your dick up: Why incels deserve better advice. *Medium*. <https://williamcostello.medium.com/step-your-dick-up-why-incels-deserve-better-advice-307879d7c97b>
- Costello, W. (2023, May 23). The allure of inceldom: Why incels resist ascension. *Aporia Magazine*. Retrieved June 22, 2023, from <https://www.aporiamagazine.com/p/the-allure-of-inceldom-why-incels>
- Costello, W., & Buss, D. M. (2023). Why isn't there more incel violence? *Adaptive Human Behavior and Physiology*, 1–8. <https://doi.org/10.1007/s40750-023-00220-3>
- Costello, W., Rolon, V., Thomas, A. G., & Schmitt, D. (2022). Levels of well-being among men who are incel (involuntarily celibate). *Evolutionary Psychological Science*, 8(4), 375–390. <https://doi.org/10.1007/s40806-022-00336-x>
- Curry, D. (2021, 10 March). *Dating app revenue and usage statistics 2021*. Business of Apps. <https://www.businessofapps.com/data/dating-appmarket/>
- Daly, S. E., & Laskovtsov, A. (2021). “Goodbye, my friendcels”: An analysis of incel suicide posts. *Journal of Qualitative Criminal Justice & Criminology*, 11(1). <https://www.qualitativecriminology.com/pub/z1961qto/release/1>
- Daly, S. E., & Nichols, A. L. (2023). ‘Incels are shit-post kings’: Incels’ perceptions of online forum content. *Journal of Crime and Justice*, 1–23. <https://doi.org/10.1080/0735648X.2023.2169330>
- Daly, S. E., & Reed, S. M. (2022). “I think most of society hates us”: A qualitative thematic analysis of interviews with incels. *Sex Roles*, 86(1–2), 14–33. <https://doi.org/10.1007/s11199-021-01250-5>
- Donnelly, D., Burgess, E., Anderson, S., Davis, R., & Dillard, J. (2001). Involuntary celibacy: A life course analysis. *Journal of sex research*, 38(2), 159–169. <https://doi.org/10.1080/00224490109552083>
- Eastwick, P. W., & Finkel, E. J. (2008). Sex differences in mate preferences revisited: Do people know what they initially desire in a romantic partner? *Journal of Personality and Social Psychology*, 94(2), 245. <https://doi.org/10.1037/0022-3514.94.2.245>
- Edlund, L., Li, H., Li, H., & Zhang, J. (2013). Sex ratios and crime: Evidence from China. *The Review of Economics and Statistics*, 95(5), 1520–1534. https://doi.org/10.1162/REST_a_00356
- Edlund, J. E., & Sagarin, B. J. (2014). The Mate Value Scale. *Personality and Individual Differences*, 64, 72–77. <https://doi.org/10.1016/j.paid.2014.02.005>
- Edwards, A. L. (1957). *The social desirability variable in personality assessment and research*. Dryden Press.
- Elsabbagh, M., Divan, G., Koh, Y. J., Kim, Y. S., Kauchali, S., Marcín, C., Montiel-Nava, C., Patel, V., Paula, C. S., Wang, C., Yasamy, M. T., & Fombonne, E. (2012). Global prevalence of autism and other pervasive developmental disorders. *Autism Research*, 5(3), 160–179. <https://doi.org/10.1002/aur.239>
- Emmons, R. A., Froh, J., & Rose, R. (2019). Gratitude. In M. W. Gallagher & S. J. Lopez (Eds.), *Positive psychological assessment: A handbook of models and measures* (1st ed., pp. 317–332). American Psychological Association. <https://doi.org/10.1037/0000138-020>
- Furl, K. (2022). Denigrating women, venerating “Chad”: Ingroup and outgroup evaluations among male supremacists on Reddit. *Social Psychology Quarterly*, 85(3), 279–299. <https://doi.org/10.1177/01902752221090907>
- Gabay, R., Hameiri, B., Rubel-Lifschitz, T., & Nadler, A. (2020). The tendency for interpersonal victimhood: The personality construct and its consequences. *Personality and Individual Differences*, 165, 110134. <https://doi.org/10.1016/j.paid.2020.110134>
- Gangestad, S. W., & Haselton, M. G. (2015). Human estrus: Implications for relationship science. *Current Opinion in Psychology*, 1, 45–51. <https://doi.org/10.1016/j.copsyc.2014.12.007>
- Geher, G., Kaufman, S. B., Garcia, J. R., Kaufman, J. C., & Dawson, B. B. (2016). The validity and structure of mating intelligence. *Evolution, Mind and Behaviour*, 14(1), 1–22. <https://doi.org/10.1556/2050.2016.0001>
- Geher, G., & Wedberg, N. (2019). *Positive evolutionary psychology: Darwin’s guide to living a richer life*. Oxford University Press.
- Gilbert, P. (1998). The evolved basis and adaptive functions of cognitive distortions. *British Journal of Medical Psychology*, 71(4), 447–463. <https://doi.org/10.1111/j.2044-8341.1998.tb01002.x>
- Glance, A. M., Dover, T. L., & Zarkin, J. G. (2021). Taking the black pill: An empirical analysis of the “incel.” *Psychology of Men & Masculinities*, 22(2), 288–297. <https://doi.org/10.1037/men0000328>
- Gómez-López, M., Viejo, C., & Ortega-Ruiz, R. (2019). Well-being and romantic relationships: A systematic review in adolescence and emerging adulthood. *International Journal of Environmental Research and Public Health*, 16(13), 2415. <https://doi.org/10.3390/ijerph16132415>
- Grunau, K., Bieselt, H. E., Gul, P., & Kupfer, T. R. (2022). Unwanted celibacy is associated with misogynistic attitudes even after controlling for personality. *Personality and Individual Differences*, 199, 111860. <https://doi.org/10.1016/j.paid.2022.111860>
- Gul, P., & Kupfer, T. R. (2019). Benevolent sexism and mate preferences: Why do women prefer benevolent men despite recognizing that they can be undermining? *Personality and Social Psychology Bulletin*, 45(1), 146–161. <https://doi.org/10.1177/0146167218781000>
- Guttentag, M., & Secord, P. F. (1983). *Too many women? The sex ratio question*. SAGE Publications, Incorporated.
- Harper, K. T., Stanley, F., Sidari, M. J., Lee, A. J., & Zietsch, B. P. (2021). The role of accurate self-assessments in optimizing mate choice. *Personality and Social Psychology Bulletin*, 01461672221135955. <https://doi.org/10.1177/01461672221135955>
- Hinds, Z. (2022). *True or false incels: An analysis of the Incels.is forum* [Thesis]. University of Chicago. <https://doi.org/10.6082/uchicago.4217>
- Hoffman, B., Ware, J., & Shapiro, E. (2020). Assessing the threat of incel violence. *Studies in Conflict & Terrorism*, 43(7), 565–587. <https://doi.org/10.1080/1057610X.2020.1751459>
- Hopcroft, R. L. (2021). High income men have high value as long-term mates in the US: Personal income and the probability of marriage, divorce, and childbearing in the US. *Evolution and Human Behavior*, 42(5), 409–417. <https://doi.org/10.1016/j.evolhumbehav.2021.03.004>
- Incel Wiki. (2023). Retrieved April 3, 2023, from <https://incels.wiki/w/LMS>
- Jaki, S., De Smedt, T., Gwózdź, M., Panchal, R., Rossa, A., & De Pauw, G. (2019). Online hatred of women in the incels. Me forum: Linguistic analysis and automatic detection. *Journal of Language Aggression and Conflict*, 7(2), 240–268. <https://doi.org/10.1075/jlac.00026.jak>
- Jonason, P. K., & Thomas, A. G. (2022). Being more educated and earning more increases romantic interest: Data from 1.8 M online daters from 24 nations. *Human Nature*, 33(1), 1–17. <https://doi.org/10.1007/s12110-021-09420-w>
- Kates, N. (2021, August 16). What the media gets wrong about incels. *UnHerd*. <https://unherd.com/2021/08/what-the-media-gets-wrong-about-incels/>
- Kavanagh, P. S., Robins, S. C., & Ellis, B. J. (2010). The mating sociometer: A regulatory mechanism for mating aspirations. *Journal of Personality and Social Psychology*, 99(1), 120–132. <https://doi.org/10.1037/a0018188>
- Kenrick, D. T., Griskevicius, V., Neuberg, S. L., & Schaller, M. (2010). Renovating the pyramid of needs: Contemporary extensions built upon ancient foundations. *Perspectives on Psychological Science*, 5(3), 292–314. <https://doi.org/10.1177/1745691610369469>

- Kirsner, B. R., Figueredo, A. J., & Jacobs, W. J. (2003). Self, friends, and lovers: Structural relations among Beck Depression Inventory scores and perceived mate values. *Journal of Affective Disorders*, 75(2), 131–148. [https://doi.org/10.1016/S0165-0327\(02\)00048-4](https://doi.org/10.1016/S0165-0327(02)00048-4)
- Kowert, R., Martel, A., & Swann, W. B. (2022). Not just a game: Identity fusion and extremism in gaming cultures. *Frontiers in Communication*, 226. <https://doi.org/10.3389/fcomm.2022.1007128>
- Krahn, H., Hatnagel, T. F., & Gartrell, J. W. (1986). Income inequality and homicide rates: Cross-national data and criminological theories. *Criminology*, 24(2), 269–294. <https://doi.org/10.1111/j.1745-9125.1986.tb01496.x>
- Kutchinsky, S. (2019). *I used to be an incel*. BBC. <https://www.bbc.co.uk/bbcthree/article/45bdcd7a-1cb1-4ad1-a3e0-ebc2a05243ac>
- Labba, F. (2019). United by rage, self-loathing, and male supremacy: The rise of the incel community. *INvoke*, 5. <https://doi.org/10.29173/invoke48979>
- Lankford, A. (2021). A sexual frustration theory of aggression, violence, and crime. *Journal of Criminal Justice*, 77, 101865. <https://doi.org/10.1016/j.jcrimjus.2021.101865>
- Lindner, M. (2023). The sense in senseless violence: Male reproductive strategy and the modern sexual marketplace as contributors to violent extremism. *Adaptive Human Behavior and Physiology*. <https://doi.org/10.1007/s40750-023-00219-w>
- Lindsay, A. (2022). Swallowing the black pill: Involuntary celibates' (incels) anti-feminism within digital society. *International Journal for Crime, Justice and Social Democracy*, 11(1), 210–224. <https://doi.org/10.5204/ijcsd.2138>
- Li, N. P., Yong, J. C., Tsai, M. H., Lai, M. H., Lim, A. J., & Ackerman, J. M. (2020). Confidence is sexy and it can be trained: Examining male social confidence in initial, opposite-sex interactions. *Journal of Personality*, 88(6), 1235–1251. <https://doi.org/10.1111/jopy.12568>
- McCullough, M. E., Kimeldorf, M. B., & Cohen, A. D. (2008). An adaptation for altruism: The social causes, social effects, and social evolution of gratitude. *Current Directions in Psychological Science*, 17(4), 281–285. <https://doi.org/10.1111/j.1467-8721.2008.00590.x>
- Miller, T. (1995). *How to want what you have: Discovering the magic and grandeur of ordinary existence*. H. Holt.
- Moskalenko, S., González, J. F. G., Kates, N., & Morton, J. (2022). Incel ideology, radicalization and mental health: A survey study. *The Journal of Intelligence, Conflict, and Warfare*, 4(3), 1–29. <https://doi.org/10.21810/jicw.v4i3.3817>
- Neel, R., Kenrick, D. T., White, A. E., & Neuberg, S. L. (2016). Individual differences in fundamental social motives. *Journal of Personality and Social Psychology*, 110(6), 887–907. <https://doi.org/10.1037/pspp0000068>
- Neyt, B., Vandenbulcke, S., & Baert, S. (2019). Are men intimidated by highly educated women? Undercover on Tinder. *Economics of Education Review*, 73, 101914. <https://doi.org/10.1016/j.econedurev.2019.101914>
- Parker, G., Durante, K. M., Hill, S. E., & Haselton, M. G. (2022). Why women choose divorce: An evolutionary perspective. *Current Opinion in Psychology*, 43, 300–306. <https://doi.org/10.1016/j.copsyc.2021.07.020>
- Ribeiro, M. H., Blackburn, J., Bradlyn, B., De Cristofaro, E., Stringhini, G., Long, S., Greenberg, S., & Zannettou, S. (2021). The evolution of the manosphere across the web. In *Proceedings of the international AAAI conference on web and social media* (Vol. 15, pp. 196–207). <https://doi.org/10.1609/icwsm.v15i1.18053>
- Robles, T. F., Slatcher, R. B., Trombello, J. M., & McGinn, M. M. (2014). Marital quality and health: A meta-analytic review. *Psychological Bulletin*, 140(1), 140. <https://doi.org/10.1037/a0031859>
- Rogers, D. L., Cervantes, E., & Espinosa, J. C. (2015). Development and validation of the belief in Female Sexual Deceptiveness Scale. *Journal of Interpersonal Violence*, 30(5), 744–761. <https://doi.org/10.1177/0886260514536282>
- Rotkirch, A., Lyons, M., David-Barrett, T., & Jokela, M. (2014). Gratitude for help among adult friends and siblings. *Evolutionary Psychology*, 12(4), 147470491401200401. <https://doi.org/10.1177/147470491401200401>
- Rousis, J., Martel, A. F., Bosson, J. K., & Swann, W. B. (2023). Behind the blackpill: Self-verification and identity fusion predict endorsement of violence against women among self-identified Incels. *Personality and Social Psychology Bulletin*, 014616722311664. <https://doi.org/10.1177/01461672231166481>
- Schmitt, D. P., & Jonason, P. K. (2019). Self-esteem as an adaptive sociometer of mating success: Evaluating evidence of sex-specific psychological design across 10 world regions. *Personality and Individual Differences*, 143, 13–20. <https://doi.org/10.1016/j.paid.2019.02.011>
- Sparks, B., Zidenberg, A. M., & Olver, M. E. (2022). Involuntary celibacy: a review of incel ideology and experiences with dating, rejection, and associated mental health and emotional sequelae. *Current psychiatry reports*, 24(12), 731–740.
- Sparks, B., Zidenberg, A. M., & Olver, M. E. (2022b). *An exploratory study of incels' dating app experiences, mental health, and relational well-being*. <https://doi.org/10.13140/RG.2.2.29838.23362>
- Sparks, B., Zidenberg, A. M., & Olver, M. E. (2023). One is the loneliest number: Involuntary celibacy (incel), mental health, and loneliness. *Current Psychology*, 1–15. <https://doi.org/10.1007/s12144-023-04275-z>
- Speckhard, A., & Ellenberg, M. (2022). Self-reported psychiatric disorder and perceived psychological symptom rates among involuntary celibates (incels) and their perceptions of mental health treatment. *Behavioral Sciences of Terrorism and Political Aggression*, 1–18. <https://doi.org/10.1080/19434472.2022.2029933>
- Speckhard, A., Ellenberg, M., Morton, J., & Ash, A. (2021). Involuntary celibates' experiences of and grievance over sexual exclusion and the potential threat of violence among those active in an online incel forum. *Journal of Strategic Security*, 14(2), 5. <https://doi.org/10.5038/1944-0472.14.2.1910>
- Srinivasan, A. (2021). *The right to sex*. Bloomsbury Publishing.
- Stijelja, S., & Mishara, B. L. (2022). Psychosocial characteristics of involuntary celibates (Incels): A review of empirical research and assessment of the potential implications of research on adult virginity and late sexual onset. *Sexuality & Culture*, 1–20. <https://doi.org/10.1007/s12119-022-10031-5>
- Swann, W. B., Hixon, J. G., Stein-Seroussi, A., & Gilbert, D. T. (1990). The fleeting gleam of praise: Cognitive processes underlying behavioral reactions to self-relevant feedback. *Journal of Personality and Social Psychology*, 59(1), 17. <https://doi.org/10.1037/0022-3514.59.1.17>
- Ünes, A. (2020). *Mating preferences of women as perceived by incels* [Bachelor's thesis]. University of Twente. <http://essay.utwente.nl/82750/>
- Wachowski, A., & Wachowski, L. (1999). *Matrix*. Warner Home Video.
- Walter, K. V., Conroy-Beam, D., Buss, D. M., Asao, K., Sorokowska, A., Sorokowski, P., Aavik, T., Akello, G., Alhabbah, M. M., Alm, C., Amjad, N., Anjum, A., Atama, C. S., Duyar, D. A., Ayebare, R., Batres, B., Bendixen, M., Bensafia, A., Bizumic, B., ... Zupančič, M. (2020). Sex differences in mate preferences across 45 countries: A large-scale replication. *Psychological Science*, 31(4), 408–423. <https://doi.org/10.1177/0956797620904154>
- Whisman, M. A., Sbarra, D. A., & Beach, S. R. (2021). Intimate relationships and depression: Searching for causation in the sea of association. *Annual Review of Clinical Psychology*, 17(1), 233–258. <https://doi.org/10.1146/annurev-clinpsy-081219-103323>
- Wilson, M., & Daly, M. (1985). Competitiveness, risk taking, and violence: The young male syndrome. *Ethology and Sociobiology*, 6(1), 59–73. [https://doi.org/10.1016/0162-3095\(85\)90041-X](https://doi.org/10.1016/0162-3095(85)90041-X)
- Winegard, B., Winegard, B., Reynolds, T., Geary, D. C., & Baumeister, R. F. (2017). One's better half: Romantic partners function as social signals. *Evolutionary Psychological Science*, 3(4), 294–305. <https://doi.org/10.1007/s40806-017-0095-7>
- Wright, R. (2017). *Why Buddhism is true: The science and philosophy of meditation and enlightenment*. Simon and Schuster.