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Feeling low and lonely: Personality traits, love styles, and social rejection

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ABSTRACT

To better understand how personality traits related to interpersonal functioning, we considered ($N = 308$) the possibility that personality leads to certain love styles which then lead to social rejection in the forms of low self-esteem and high loneliness. We focused here on the Five Factor model derived from the DSM (i.e., psychoticism, antagonism, disinhibited, negative affect, and detachment) to augment work on the traditional Big Five. All measured personality traits were connected to ludus, storge, pragma, and mania love styles. Moreover, each trait was associated with lower levels of self-esteem but higher levels of loneliness. We showed that these personality traits may be associated with problematic love styles which in turn lead to more social rejection. We interpret out results using sociometer theory.

1. Introduction

Humans are motivated to build and maintain positive and lasting interpersonal relationships. Most research in personality psychology has focused on traits like the Big Five (i.e., emotional stability, extraversion, agreeableness, conscientiousness, and openness) and other socially desirable personality traits like emotional intelligence (Van der Zee et al., 2002; Wan, 2000). Less research has focused on less desirable aspects of personality like the personality traits derived from the DSM and motives to engage in interpersonal relationships (Jonason et al., 2019, 2020) and even less has examined their social consequences (Ivzāns & Mihailova, 2017). Our study replicates and extends previous research on the relationships between the personality traits derived from the DSM and functioning in interpersonal relationships.

While most people are familiar with the Five Factor model of personality, they may be less aware of the Five Factor model of traits derived from the DSM (Krueger et al., 2012). *Disinhibited* people are impulsive, seeking immediate gratification. *Detached* people are often suspicious, anhedonic, avoidant of intimacy, and may be depressed. *Psychoticism* is correlated with abnormal behaviors, holding strange attitudes, and looking unkempt. People high on *negative affect* are characterized by emotional lability, anxiousness, and separation insecurity and can be afraid of rejection because of the feeling of not being able to take care of themselves. And last, *antagonism* is often correlated with manipulation, deceitfulness, and attention-seeking. In this study, we link these traits to individual differences in love styles, self-esteem, and loneliness.

Love comes in as many as six forms (Hendrick & Hendrick, 1986). *Erotic* love is akin to passionate love. *Ludic* love is a game-playing love style. *Storge* love is what people would call platonic love. *Pragmatic* love is for people who treat love in a logical way, creating "shopping lists" of desirable qualities. *Manic* love is a passive and dependent love style. And *agapic* love is a selfless, often religious form of love. We expect love styles to be downstream correlates of the personality traits derived from the DSM and together, they will influence people sense of social inclusion as captured in loneliness and self-esteem (Whisman et al., 2007). That is love styles are domain-specific manifestations of domain-general traits.

Satisfaction within social relationships is essential for mental and physical wellbeing. We consider two social consequences: loneliness and self-esteem. Both are subjective appraisals of people's sense of social inclusion (Baumeister & Leary, 1995; Hawkley & Cacioppo, 2010) and are stable traits that are related to problems with social functioning like building and maintain relationships (Mushtaq et al., 2014; Seemann, 2022). Together, these can be considered part of a sociometer model (Kavanagh et al., 2010; Leary, 2005) suggesting that people's sense of value as a friend or lover is (1) sensitive to cues to acceptance and rejection and (2) related to relationship outcomes such as satisfaction,

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Table 1
Descriptive statistics, sex differences, and correlations for personality traits derived from the DSM, loneliness, and self-esteem.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Disinhibition	–												
2. Detachment	0.57**	–											
3. Psychoticism	0.68**	0.61**	–										
4. Negative Affect	0.61**	0.50**	0.63**	–									
5. Antagonism	0.64**	0.56**	0.52**	0.51**	–								
6. Loneliness	0.67**	0.74**	0.68**	0.68**	0.60**	–							
7. Self-Esteem	−0.55**	−0.57**	−0.53**	−0.62**	−0.28**	−0.66**	–						
8. Eros	−0.09	−0.19**	−0.09	−0.09	−0.01	−0.25**	0.34**	–					
9. Ludus	0.58**	0.58**	0.53**	0.38**	0.70**	0.57**	−0.25**	−0.09	–				
10. Storge	0.28**	0.27**	0.34**	0.18**	0.34**	0.25**	0.06	0.21**	0.37**	–			
11. Pragma	0.21**	0.17**	0.23**	0.16**	0.39**	0.23**	0.10	0.22**	0.33**	0.49**	–		
12. Mania	0.56**	0.35**	0.49**	0.59**	0.48**	0.53**	−0.36**	0.12*	0.39**	0.26**	0.34**	–	
13. Agape	0.18**	<0.01	0.07	0.11*	0.12*	0.06	0.02	0.48**	0.01	0.27**	0.28**	0.39**	–
Cronbach's α	0.83	0.75	0.79	0.76	0.72	0.94	0.87	0.81	0.80	0.63	0.75	0.75	0.79
Overall: *M* (SD)	2.36 (0.90)	2.64 (0.83)	2.78 (0.90)	2.81 (0.88)	2.46 (0.80)	2.61 (0.83)	3.52 (0.77)	3.62 (0.73)	2.59 (0.81)	3.26 (0.65)	3.21 (0.76)	2.91 (0.77)	3.33 (0.72)
Men: *M* (SD)	2.57 (0.84)	2.66 (0.82)	2.87 (0.82)	2.75 (0.78)	2.63 (0.72)	2.65 (0.82)	3.54 (0.74)	3.61 (0.66)	2.77 (0.72)	3.34 (0.58)	3.29 (0.71)	2.95 (0.68)	3.45 (0.60)
Women: *M* (SD)	2.20 (0.91)	2.63 (0.84)	2.70 (0.95)	2.86 (0.95)	2.32 (0.83)	2.58 (0.84)	3.51 (0.79)	3.63 (0.77)	2.44 (0.85)	3.20 (0.69)	3.15 (0.79)	2.88 (0.84)	3.24 (0.79)
t-test	−3.72**	−0.28	−1.60	1.11	−3.34**	−0.75	−0.26	0.23	−3.66**	−1.90	−1.60	−0.80	−2.56*
Cohen's *d*	−0.43	−0.03	−0.18	0.13	−0.38	−0.09	−0.03	0.03	−0.42	−0.22	−0.18	−0.09	−0.29

* $p < .05$.
** $p < .01$.

Table 2
Correlations between personality traits derived from the DSM and love styles in men and women.

	Eros			Ludus			Storge			Pragma			Mania			Agape		
	Men	Women	z	Men	Women	z	Men	Women	z	Men	Women	z	Men	Women	z	Men	Women	z
Disinhibition	−0.30**	0.05	−3.10**	0.56**	0.57**	−0.13	0.21*	0.30**	−0.83	0.14	0.23**	−0.80	0.55**	0.58**	−0.38	0.04	0.22**	−1.58
Detachment	−0.17	−0.21**	0.36	0.69**	0.53**	2.22*	0.26**	0.28**	−0.19	0.24**	0.13	0.98	0.47**	0.28**	1.92*	0.10	−0.06	1.38
Psychoticism	−0.14	−0.05	−0.78	0.57**	0.50**	0.85	0.29**	0.36**	−0.68	0.23**	0.22**	0.09	0.52**	0.48**	0.46	0.12	0.03	0.78
Negative Affect	−0.28**	0.01	−2.57**	0.58**	0.31**	2.95**	0.21*	0.18*	0.27	0.21*	0.15	0.54	0.59**	0.60**	−0.13	<0.01	0.18	−1.55
Antagonism	−0.05	0.02	−0.60	0.73**	0.67**	1.02	0.21*	0.40**	−1.81*	0.23**	0.47**	−2.38**	0.52**	0.46**	0.68	0.06	0.11	−0.43

Note. *z* is Fisher's *z* to calculate differences between independent correlations (http://quantpsy.org/corrtest/corrtest.htm).
* $p < .05$.
** $p < .01$.

Table 3
Correlations between loneliness and self-esteem and personality traits derived from the DSM and love styles in men and women.

	Loneliness			Self-Esteem		
	Men	Women	z	Men	Women	z
Disinhibition	0.77**	0.61**	2.68**	−0.63**	−0.52**	−1.42
Detachment	0.76**	0.72**	0.76	−0.61**	−0.54**	−0.90
Psychoticism	0.74**	0.65**	1.51	−0.59**	−0.50**	−1.11
Negative Affect	0.77**	0.63**	2.40**	−0.58**	−0.65**	0.97
Antagonism	0.63**	0.58**	0.68	−0.33**	−0.26**	−0.66
Eros	−0.27**	−0.24**	−0.28	0.49**	0.25**	2.42**
Ludus	0.67**	0.51**	2.14*	−0.42**	−0.16*	−2.47**
Storge	0.22**	0.26**	−0.37	0.04	0.07	−0.26
Pragma	0.21*	0.23**	−0.18	−0.01	0.17*	−1.57
Mania	0.58**	0.50**	0.98	−0.37**	−0.36**	−0.10
Agape	0.08	0.04	0.35	0.10	−0.03	1.12

Note. *z* is Fisher's *z* to calculate differences between independent correlations (http://quantpsy.org/corrtest/corrtest.htm).
* $p < .05$.
** $p < .01$.

trust, and intimacy (Harris & Orth, 2020). This model suggests that loneliness and self-esteem should be downstream consequences of other interpersonal and intrapersonal processes including patterns in love styles and personality.

Prior research highlighted the importance of manic and ludic love styles in understanding the lifestyles of those with the personality traits derived from the DSM, but it was (1) composed solely of high school students which may not have developed much romantically (e.g., limited experience) or (2) focused on interests in casual or serious relationships and (3) failed to consider social consequences (Jonason et al., 2019, 2020). We highlight the process of how personality traits lead to interpersonal styles which lead to social consequences and replicate sex differences in personality traits and love styles like women should be more agreeable (i.e., low antagonism) and extraverted (i.e., low detachment) than men are (Weisberg et al., 2011) and men should be better characterized by a ludic love style than women are (Jonason & Kavanagh, 2010).

2. Method

2.1. Participants & procedure

Participants were 308 (83 % heterosexual; 50 % White/European) mTurk workers (US$1) from the US (135 men, 173 women), aged 18 to 74 years ($M = 33.53$, $SD = 11.15$) completed a survey about personality and mating preferences. Participants were informed of the nature of the study, provided click-to-continue consent, completed a series of questionnaires including attention checks and those who failed them were excluded from the sample, and upon completion, were thanked and debriefed. The necessary sample size was determined based on the average effect size in personality psychology ($r \approx 0.20$; Gignac & Szodorai, 2016) and guidelines ($N \approx 250$) for reducing estimation error in personality psychology (Schönbrodt & Perugini, 2013). This study was approved by the ethics committee at Putnam Valley High School (72021). Data for this study are available on the Open Science Framework (https://osf.io/8bxhv/).

2.2. Measures

We measured the Five Factor model of the DSM with the Personality Inventory for the 25-item (five per trait) DSM-5BF (Krueger et al., 2012) where participants reported how true (1 = *very false*; 5 = *very true*) each item was about them in terms of *antagonism* (e.g., "I use people to get what I want"), *psychoticism* (e.g., "My thoughts often don't make sense to others"), *detachment* (e.g., "I don't like to get too close to people"), *negative affectivity* (e.g., "I worry about almost everything"), and *disinhibition* (e.g., "People would describe me as reckless").

We measured social inclusion with the 20-item UCLA Loneliness Scale (Russell, 1996) and the 10-item Self Esteem Scale (Rosenberg, 1965). Participants rated their agreement (1 = *Strongly Disagree*; 5 = *Strongly Agree*) with items like "I lack companionship" (i.e., loneliness) and "I take a positive attitude toward myself" (e.g., self-esteem).

Love styles were assessed with the 42-item (7 per style) Love Styles scale (Hendrick & Hendrick, 1986) where participants imagine their ideal relationship and rated how much (1 = *not at all*; 5 = *very much*) they agreed with statements capturing *eros* (e.g., "My partner and I have the right physical 'chemistry'"), *ludus* (e.g., "I have sometimes had to keep my partner from finding out about other lovers"), *storge* (e.g., "Our friendship merged gradually into love over time"), *pragma* (e.g., "One consideration in choosing my partner was how they would reflect on my career"), *mania* (e.g., "I cannot relax if I suspect that my partner is with someone else"), and *agape* (e.g., "I would endure all things for the sake of my partner").

3. Results

Men were more disinhibited and antagonistic, and oriented toward ludic and agapic love than women (see Table 1). All traits (see Table 1) were connected to the ludus, storge, pragma, and mania love styles, but only people who were high in detachment were low in the eros love style. The agape love style was associated with being high in disinhibition, negative affect, and antagonism. Each trait was associated with low levels of self-esteem but high levels of loneliness. Given the substantial correlations between the traits and love styles, we attempted to understand the shared effect of each. Based on several multiple regressions the traits predicted 57 % of the variance in ludus love style, 53 % of the variance in eros love style, 51 % of the variance in agape love style, 43 % of the variance in mania love style, 16 % of the variance in storge love style, and 16 % of the variance in pragma love style; the traits predicted 71 % of the variance in loneliness and 54 % in self-esteem; and love styles predicted 51 % of the variance in loneliness and 32 % of the variance in self-esteem.

Of the correlations reported, 21 % differed in men and women (see Tables 2 and 3). The correlation between negative affect and the eros and ludus love styles differed in men and women. Personality traits derived from the DSM in men, were generally more strongly correlated with the eros, ludus, and mania love styles than in women. On the other hand, antagonism in women was more strongly correlated with the storge and pragma love styles than in men. Higher self-esteem was characteristic of men with a more eros love style but also less ludus love style than in women. The correlations between the eros love style and disinhibition as well as eros and negative affect were larger in men than in women. Negative affect and detachment correlated with the ludus love style were stronger in men than in women. Also, the correlation

Table 4
Testing the mediating effects of love styles on the relationship between personality traits derived from the DSM and loneliness (unstandardized coefficients; B [95 % CI]).

	Consequent						
Antecedent	Eros	Ludus	Storge	Pragma	Mania	Agape	Loneliness
Disinhibition	−0.07 [−0.16; 0.02]	0.53** [0.44; 0.61]	0.20** [0.14; 0.28]	0.18** [0.08; 0.27]	0.49** [0.40; 0.57]	0.14** [0.06; 0.23]	0.33** [0.24; 0.43]
Eros							0.02 [−0.37; −0.18]
Ludus							0.11** [0.05; 0.18]
Storge							0.01 [−0.01; 0.04]
Pragma							0.01 [−0.01; 0.02]
Mania							0.13** [0.07; 0.21]
Agape							<0.01 [−0.02; 0.01]
R^2	0.01	0.34**	0.08**	0.04**	0.32**	0.03**	0.57 **
Indirect effect	0.02 [−0.37; −0.18]	0.11** [0.05; 0.18]	0.01 [−0.01; 0.04]	0.01 [−0.01; 0.02]	0.13** [0.07; 0.21]	<0.01 [−0.02; 0.01]	–
Detachment	0.17** [−0.26; −0.07]	0.57** [0.48; 0.66]	0.21** [0.13; 0.30]	0.16** [0.06; 0.26]	0.33** [0.23; 0.42]	<0.01 [−0.09; 0.10]	0.52** [0.43; 0.60]
Eros							−0.22** [−0.31; −0.13]
Ludus							0.12** [0.03; 0.21]
Storge							0.01 [−0.09; 0.11]
Pragma							0.03 [−0.06; 0.12]
Mania							0.33** [0.24; 0.42]
Agape							0.02 [−0.07; 0.12]
R^2	0.04**	0.34**	0.08**	0.03**	0.12**	<0.01	0.67**
Indirect effect	0.04** [0.01; 0.07]	0.07** [0.01; 0.13]	<0.01 [−0.20; 0.25]	<0.01 [−0.01; 0.02]	0.11 [0.06; 0.16]	<0.01 [−0.01; 0.01]	–
Psychoticism	−0.07 [−0.16; 0.02]	0.48** [0.39; 0.57]	0.25** [0.17; 0.32]	0.19** [0.10; 0.28]	0.43** [0.34; 0.51]	0.06 [−0.03; 0.15]	0.39** [0.30; 0.47]
Eros							−0.29** [−0.38; −0.19]
Ludus							0.23** [0.14; 0.33]
Storge							−0.01 [−0.12; 0.10]
Pragma							0.02 [−0.07; 0.12]
Mania							0.26** [0.16; 0.36]
Agape							0.05 [−0.05; 0.16]
R^2	0.01	0.28**	0.12**	0.05**	0.24**	<0.01	0.61**
Indirect effect	0.02 [−0.01; 0.05]	0.11** [0.06; 0.17]	<0.01 [−0.03; 0.02]	<0.01 [−0.01; 0.02]	0.11** [0.06; 0.17]	<0.01 [<0.01; 0.01]	–
Negative affect	0.03 [−0.17; 0.02]	0.35** [0.26; 0.45]	0.14** [0.05; 0.22]	0.14** [0.04; 0.24]	0.52** [0.44; 0.60]	0.09* [<0.01; 0.18]	0.42** [0.33; 0.50]
Eros							−0.27** [−0.36; −0.18]
Ludus							0.30** [0.22; 0.39]
Storge							0.06 [−0.04; 0.17]
Pragma							0.03 [−0.07; 0.12]
Mania							0.16** [0.05; 0.26]
Agape							0.05 [−0.05; 0.15]
R^2	0.01	0.14**	0.03**	0.03**	0.35**	0.01*	0.62**
Indirect effect	0.02 [−0.01; 0.05]	0.11**[0.06; 0.16]	0.01 [−0.01; 0.03]	<0.01 [−0.01; 0.02]	0.08** [0.01; 0.15]	<0.01 [−0.01; 0.02]	–
Antagonism	−0.01 [−0.11; 0.09]	0.72** [0.64; 0.80]	0.28** [0.19; 0.36]	0.37** [0.27; 0.47]	0.47** [0.67; 0.56]	0.11* [0.01; 0.21]	0.29** [0.17; 0.42]
Eros							−0.33** [−0.43; −0.22]
Ludus							0.21** [0.09; 0.32]
Storge							0.08 [−0.04; 0.20]
Pragma							−0.05 [−0.15; 0.06]
Mania							0.36** [0.26; 0.47]
Agape							0.02 [−0.09; 0.13]
R^2	<0.01	0.50**	0.12**	0.15**	0.23**	0.01*	0.54**
Indirect effect	<0.01 [−0.03; 0.04]	0.15** [0.06; 0.24]	0.02 [−0.01; 0.06]	−0.02 [−0.06; 0.02]	0.17 [0.11; 0.24]	<0.01 [−0.01; 0.24]	–

* $p < .05$.
** $p < .01$.

between the mania love style and detachment was larger in men than in women. In women, the correlation between antagonism and the storge and pragma love styles were stronger than it was in men. The correlations of disinhibition, negative affect, and ludus love style with loneliness were larger in men than in women. The correlation between self-esteem and the eros as well as ludus love style was larger in men than in women. The ludus love style had stronger aversive social consequences in men than in women.

We tested the mediating role of love styles on the relationship between personality traits and loneliness and self-esteem (Tables 4 and 5 respectively). Because SEM analysis requires a relatively large sample size (Kyriazos, 2018) we conducted 10 independent, simple mediation analyses testing the mediating role of love styles for each of the personality traits separately and separately for loneliness and self-esteem using the ordinary least squares method with PROCESS 3.3 macro for IBM SPSS 25.0 (Hayes, 2017).

Table 5
Testing the mediating effects of love styles on the relationship between personality traits derived from the DSM and self-esteem (unstandardized coefficients; B [95 % CI]).

	Consequent						
Antecedent	Eros	Ludus	Storge	Pragma	Mania	Agape	Self-Esteem
Disinhibition	−0.07 [−0.16; 0.02]	0.53** [0.44; 0.61]	0.20** [0.14; 0.28]	0.18** [0.08; 0.27]	0.49** [0.40; 0.57]	0.14** [0.06; 0.23]	−0.43** [−0.53; −0.33]
Eros							0.29** [0.19; 0.40]
Ludus							0.05 [−0.05; 0.16]
Storge							0.12 [<0.01; 0.24]
Pragma							0.15** [0.05; 0.26]
Mania							−0.20** [−0.32; −0.09]
Agape							−0.01 [−0.13; 0.10]
R^2	0.01	0.34**	0.08**	0.04**	0.32**	0.03**	0.45**
Indirect effect	−0.02 [−0.05; 0.01]	0.03 [−0.04; 0.09]	0.02 [−0.01; 0.05]	0.03** [<0.01; 0.06]	−0.10** [−0.17; −0.04]	<0.01 [−0.02; 0.02]	–
Detachment	0.17** [−0.26; −0.07]	0.57** [0.48; 0.66]	0.21** [0.13; 0.30]	0.16** [0.06; 0.26]	0.33** [0.23; 0.42]	<0.01 [−0.09; 0.10]	−0.50** [−0.59; −0.40]
Eros							0.26** [0.16; 0.36]
Ludus							0.09 [−0.01; 0.20]
Storge							0.15* [0.04; 0.27]
Pragma							0.17** [0.07; 0.27]
Mania							−0.30** [−0.40; −0.20]
Agape							−0.06 [−0.17; 0.05]
R^2	0.04**	0.34**	0.08**	0.03**	0.12**	<0.01	0.50**
Indirect effect	−0.03** [−0.12; −0.01]	0.05 [−0.01; 0.12]	0.03* [<0.01; 0.07]	0.03* [0.01; 0.06]	−0.10** [−0.16; −0.05]	<0.01 [−0.01; 0.10]	–
Psychoticism	−0.07 [−0.16; 0.02]	0.48** [0.39; 0.57]	0.25** [0.17; 0.32]	0.19** [0.10; 0.28]	0.43** [0.34; 0.51]	0.06 [−0.03; 0.15]	−0.42** [−0.54; −0.30]
Eros							0.31** [0.18; 0.45]
Ludus							0.01 [−0.13; 0.14]
Storge							0.19** [0.02; 0.35]
Pragma							0.17** [0.04; 0.31]
Mania							−0.22** [−0.36; −0.07]
Agape							−0.10 [−0.25; 0.05]
R^2	0.01	0.28**	0.12**	0.05**	0.24**	<0.01	0.46**
Indirect effect	−0.02 [−0.06; 0.01]	<0.01 [−0.05; 0.05]	0.05* [0.01; 0.09]	0.03** [0.01; 0.07]	−0.09** [−0.15; −0.04]	−0.01 [−0.02; 0.01]	–
Negative affect	−0.07 [−0.17; 0.02]	0.35** [0.26; 0.45]	0.14** [0.05; 0.22]	0.14** [0.04; 0.24]	0.52** [0.44; 0.60]	0.09* [<0.01; 0.18]	−0.49** [−0.58; 0.40]
Eros							0.30** [0.20; 0.40]
Ludus							−0.07 [−0.16; 0.03]
Storge							0.11 [−0.01; 0.22]
Pragma							0.17** [0.07; 0.26]
Mania							−0.08 [−0.19; 0.03]
Agape							−0.09 [−0.20; 0.01]
R^2	0.01	0.14**	0.03**	0.03**	0.35**	0.01*	0.50**
Indirect effect	−0.02 [−0.06; 0.01]	−0.02 [−0.06; 0.01]	0.01 [<0.01; 0.04]	0.02* [<0.01; 0.05]	−0.04 [0.11; 0.03]	−0.01 [−0.03; 0.01]	–
Antagonism	−0.01 [−0.11; 0.09]	0.72** [0.64; 0.80]	0.28** [0.19; 0.36]	0.37** [0.27; 0.47]	0.47** [0.67; 0.56]	0.11* [0.01; 0.21]	−0.15* [−0.29; −0.02]
Eros							0.36** [0.24; 0.48]
Ludus							−0.06 [−0.19; 0.07]
Storge							0.08 [−0.05; 0.21]
Pragma							0.22** [0.11; 0.34]
Mania							−0.37** [−0.48; −0.25]
Agape							−0.06 [−0.19; 0.06]
R^2	<0.01	0.50**	0.12**	0.15**	0.23**	0.01*	0.33**
Indirect effect	<0.01 [−0.04; 0.03]	−0.04 [−0.16; 0.06]	0.02 [−0.02; 0.06]	0.08** [0.03; 0.14]	−0.17** [−0.25; −0.10]	−0.01 [−0.03; 0.01]	–

* $p < .05$.
** $p < .01$.

First, eros mediated the relationship between detachment and loneliness and detachment and self-esteem. Second, ludus mediated the relationship between disinhibition and loneliness, detachment and loneliness, psychoticism and loneliness, negative affect and loneliness and antagonism and loneliness. Third, storge mediated the relationship between detachment and self-esteem and psychoticism and self-esteem. Fourth, pragma mediated the relationship between disinhibition and self-esteem, detachment and self-esteem, psychoticism and self-esteem, negative affect and self-esteem and antagonism and self-esteem. Fifth, mania mediated the relationship between disinhibition and loneliness, disinhibition and self-esteem, detachment and loneliness, detachment and self-esteem, psychoticism and loneliness, psychoticism and self-esteem, negative affect and loneliness, antagonism and loneliness and antagonism and self-esteem.

4. Discussion

Personality traits are mostly about how people interact with others and the larger social world like at the workplace. However, most research on this process has focused on the traditional Big Five traits (Grant & Langan-Fox, 2006; Schutter et al., 2020). Here we focused on the Five Factor model derived from the DSM to (1) further understand how these traits relate to love styles and (2) how those traits and love styles come together to predict one's sense of social inclusion. Remarkably all personality traits were connected to love styles. For example, individuals high in detachment had less ludus love style, and people high in disinhibition, negative affect, and antagonism were characterized by a more agape love style. Consistent with the existing literature, our study confirmed eros love style correlated with detachment (Jonason et al., 2020), which means people who are high on extraversion can be characterized by a more passionate love style.

In addition, we found some evidence for moderation of these correlation and sex differences in the traits. The eros love style was correlated with disinhibition and negative affect and was higher in men than in women. This means that people who are high on traits like disinhibition and negative affect tend to have more erotic love style and it is more common for men than women. The ludus love style was correlated with detachment and negative affect and those correlations as well were higher in men than in women. According to the literature ludus love style can lead to more social rejection (Jonason et al., 2020), and this can influence lower self-esteem. People who are characterized by detachment and negative effect tend to have more game-playing love style. On the other hand, correlations of storge and pragma love styles with antagonism were higher for women than men. Women with more antagonistic personality will more often be characterized by pragmatic and ludic love styles than men. We also found correlations of disinhibition and loneliness and negative affect and loneliness which were stronger in men than in women. Loneliness correlated with ludus love style was also stronger in men than in women. Self-esteem was correlated with eros and ludus love styles and those correlations in both cases were stronger in men than in women. Interestingly, those with eros love style had higher self-esteem while those with ludus love style had lower self-esteem.

Importantly, we also revealed these personality traits were—perhaps as they should be—associated with limited social inclusion. That is people characterized by high rates of the personality traits derived from the DSM have social consequences in the form or being rejected or feeling like they are isolated from others. There are several mechanisms that may be responsible for this reality or perception like emotional and behavioral problems. Moreover, all personality traits were connected to less self-esteem and more loneliness. According to sociometer theory, some emotional and behavioral problems are related to self-esteem because they precipitate rejection and people sometimes resort to undesirable behaviors to feel good about themselves (Leary, 2005) which, in our case, may manifest with romantic relationships. Consistent with the existing literature, our study confirmed personality traits like the Big Five correlated with loneliness (Schutter et al., 2020) which means, people who are characterized by the traits derived from the DSM can be lonelier. Mediation analysis revealed effects of love styles on the relationships between personality traits derived from the DSM and loneliness and self-esteem. Ultimately, these people's "bad behavior" may create a negative feedback loop which perpetuates their loneliness and diminished self-esteem.

5. Limitations & conclusions

This study has several limitations, much of which are common to psychology research in general like the use of North Americans from mTurk, a modest sample size by modern standards, and the use of brief, unidimensional measures of personality, self-esteem, and loneliness. In addition, this was a cross-sectional study, so several alternative hypotheses are possible like (1) social rejection promotes the development of personality pathologies and maladaptive love styles or (2) maladaptive love styles lead to social rejection which then leads to personality pathologies. Both interpretations are reasonable, but we cannot differentiate them here because of the cross-sectional nature of the data. In the absence of experimental data (e.g., a bogus feedback study), we must leverage theory. For the skeptical reader, we suggest focusing on the correlational results instead of the mediation tests.

Despite these shortcomings, we have replicated and extended previous research on how the Five Factor traits from the DSM relate to aspects of relationship psychology (Jonason et al., 2019, 2020) in an adult sample and extended that to include the consideration of social rejection as an outcome. Being characterized by traits like antagonism may lead individuals to adopt love styles like game-playing (i.e., ludus) which may have consequences for their romantic success but also their sense of acceptance. We encourage future work looking at the interpersonal consequences of these traits to augment work on the traditional Big Five.

CRediT authorship contribution statement

MMM conducted the basic analyses and wrote the paper. SKC ran mediation analyses and wrote results about these part. AHL created the database. PKJ conceptualized, advised on the analyses, and provided feedback on the paper prior to submission.

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Data availability

Data for this study are available on the Open Science Framework (https://osf.io/8bxhv/).

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