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Love addiction: Trait impulsivity, emotional dysregulation and attachment style

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Love addiction;
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Abstract
Background and Objectives: Growing attention has been given in the last few years to psychological predictors of love addiction (LA)[1] broadening the understanding of developing effective therapeutic measures. Emotional dysregulation, attachment style and trait impulsivity were examined in this study.
Methods: Participants (N = 249) completed a survey assessing the predictors of LA: impulsivity, emotional dysregulation, attachment styles and the Love Addiction Inventory Short Form[2] (LAI-SF).
Results: Regression analyses indicated that negative urgency (NU), anxious attachment, and emotional dysregulation (impulse) all significantly predicted LA ($p < 0.001$). Moreover, impulse moderated the relationship between LA and negative urgency (NU).[3]
Conclusions: Further qualitative research is suggested to provide a richer picture to the current findings and the use of neural correlates to ascertain the neuro-biological basis of LA. The present findings may inform treatment plans and suggests the use of psychotherapy to identify indicators of potential LA, manage emotions and to avoid addiction replacement.

Introduction

Love Addiction (LA) has been defined as a compulsive need to be in a romantic relationship that persists despite adverse consequences.[1] The consensus to include LA in the International Classification of Disease (ICD) and the Diagnostic Statistical Manual of Disease (DSM) remains elusive[2]. Clinicians continue to treat those with LA despite the absence of inclusion and support from the official bodies,[3,4] lack of inclusion in medical insurance and sufficient training for mental health practitioners.[5] Predictors have been researched for both substance and non-substance addictions however for LA, research is limited.[4,6,7] The aim of this study is therefore to shed light on the predictors of LA and explore the similarities with recognized behavioural and substance addictions such as alcohol, cocaine or gambling.

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[1] LA — Love addiction
[2] LAI-SF — Love Addiction Short Form
[3] NU - Negative Urgency

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Griffiths' addiction components model,[8] for both substance and non-substance addictions, defined addiction as fulfilling six criteria: salience, mood modification, tolerance, withdrawal, conflict and relapse. Remarkably, Sophia[3] in their research at the Impulse Control Disorder Outpatient Clinic, treated 64 individuals with LA over 2 years and proposed six criteria for the identification of LA which shares many parallels with Griffith's model of addiction.[8] Firstly, withdrawal - signs and symptoms shown when the partner is unavailable (physically or emotionally) or in threat of abandonment, insomnia, tachycardia, muscle tension, and alternate periods of lethargy and intense activity. Furthermore, it was found that much time is spent controlling the partner's activities and individual's thoughts and attitudes aim at maintaining the partner under control.[3] Individuals with LA find themselves caring or worrying for the partner more than intended. To maintain the pathological bond there are damages to personal, family and professional relationships. It is seen that the sufferer is often aware of the hurtful consequences of their behaviour however, they are unable to control their behaviour. The parallels seen in the models of addiction of both Sophia's team[3] and Griffiths[8] add further support to examining LA as an addiction.

Impulsivity is defined as a disposition toward hasty unplanned responses to internal or external stimuli without regard to the negative impact of these reactions to themselves or others[9] and shown to play a major role in both the development, maintenance, and relapse of addictive disorders.[8,10] The UPPS-P model of impulsivity[11] is a widely used and reliable measure of trait impulsivity within addiction studies.[12] The five dimensions of impulsivity are positive urgency (PU), negative urgency (NU), (lack of) perseverance, (lack of) premeditation, and sensation seeking. NU measures the tendency to experience strong impulses under conditions of negative affect, whilst PU measures the tendency to experience strong impulses under conditions of positive affect. These two dimensions are emotion based impulsivity traits. Premeditation (lack of) is defined as the failure to think or reflect on the consequences of an act prior to engaging in that act. (Lack of) perseverance can be described as a difficulty remaining focused on a task that may be arduous, tedious, or difficult. Sensation seeking is the openness to trying new experiences that may be safe or unsafe and a tendency to enjoy and pursue exciting activities.

Trait impulsivity and characteristics related to the romantic relationship were investigated using the Barratt Impulsivity Scale (BIS) finding that individuals with LA have significantly higher levels of impulsivity[3]. Furthermore, impulsivity dimensions in the UPPS-P have been shown to correlate with future aspects of addictive behavior in a meaningful manner,[13] with specifically NU showing strong associations with various addictive disorders over and above any other facets of the UPPS-P.[14] For example, NU was found to be linked to problematic alcohol and drug use,[15] disordered eating[16] and pathological gambling.[17] Settles[18] found NU to be a concurrent predictor of alcohol dependence symptoms. Comparably, research[19] found that NU and negative affect interacted in predicting addictive online sexual activities (OSA) in a convenience sample of men (N = 182; Mage = 29.17, SD = 9.34). To date, the UPPS-P model has not been used to explore the links between LA and specific trait impulsivity facets. The current study examined five facets of the scale as predictors of LA with a particular focus on NU contribution.

Several authors[20] have proposed to consider love addiction as an attachment disorder. Attachment theory denotes that the origins of the patterns of close interpersonal relationships occur directly because of a combination of the interaction of environmental (especially parental) and genetic factors in early development. Attachment patterns remain relatively stable into adulthood[21] and shapes one's future affective, intimate, and sexual relationships going forward. The patterns formed in childhood continue into adult life are named 'attachment style' and refer to the level of anxiety and avoidance in a relationship and one's response to these variables.[22] Attachment styles can be measured e.g., using the Adult Attachment scale,[23] where for instance, an avoidant attachment style has been linked to discomfort with close relationships and avoidance of commitment. Research[10] found that those demonstrating addictive cyber-sex had an avoidant attachment style and a depressive mood while anxious attachment was related to anxiety about rejection and abandonment. Of particular interest in this study is how one's attachment style predicts LA and whether these attachment styles influence the relationship between trait impulsivity and LA.

Emotional regulation (ER) is a multidimensional construct and has the goal of maintaining and/or modifying the current or expected affective state.[24] A mixed psychiatric sample was compared with those in the community and found significant association between impulsivity and alcohol misuse among those with disordered regulatory emotional responses, and that emotional dysregulation was a moderating factor in this relationship.[25] Predictors of gambling disorder, drug and alcohol use, video game addiction and Internet use were examined in a large sample of young people aged 13—21 years.[26] Findings showed that attachment predicted non-substance addictions and that ER was a predictor of all addictive behaviours, however, the LA was not examined in the study.[26] The aim of this study therefore is to ascertain the predictive role of ER, attachment, and trait impulsivity in LA.

Based on the above literature the following hypotheses were proposed:

H1: When controlling for all other facets of trait impulsivity, NU will uniquely predict LA over other impulsivity facets.

H2 Emotional dysregulation (ED) facets will significantly and positively predict LA.

H3: Anxious attachment will significantly and positively predict LA over close and depend attachment styles.

H4: Anxious attachment style will moderate the effect of NU on LA, strengthening this relationship.

H5: Emotional dysregulation will significantly moderate the effect of NU on LA, strengthening this relationship.

Method

Sample

A power analysis was performed using G*Power 3.1.9.7 software to determine the sample size required for the study. A

priori power analysis revealed that 74 participants would be sufficient to perform the required analysis based on 10 predictors (medium effect size f = 0.15, α = 0.05, 1- β error probability = 0.95). To account for missing data, a sample of 353 participants responded to an anonymous Qualtrics online survey link during a period of 16 weeks. A total of 104 participants were excluded due to missing age, gender information and missing more than half of the questionnaire data. The final sample consisted of 249 (71 % female) participants with the mean age *Mage*= 39.51 years and *SD* = 13.87. Participants were also asked to report their ethnicity, relationship status and education level. The frequencies of individuals that identified as White British/Caucasian were (73.9 %), Latino/ Hispanic/ Spanish origin (1.6 %), Black/ African American/ Black British (8.8 %), Asian/ Asian British (3.6 %), Middle Eastern/ Arab/ North African (0.8 %), Multi/Bi - Racial (3.2 %), Other (7.2 %), prefer not to say (0.4 %) and missing (0.4 %). Participants declared their relationship status with 76 not in a relationship (30.5 %) and 173 participants (69.5 %) in a relationship. Six participants did not finish their education (2.4 %), 16 completed GCSE's (6.4 %), 35 completed A levels/ US high school equivalent (14.1 %), 112 participants completed Bachelors (45 %), 67 participants completed a Masters (26.9 %) and 12 participants completed a PhD (4.8 %), and only 1 participant did not report their education level.

Procedure

The study was approved by the ethics committee at the University of West London prior to the data collection. The researcher recruited a convenience sample of participants through posting a link to an online survey across closed SLAA International WhatsApp groups of which the researcher is a recovered member of, consent was gained prior to questionnaires and demographic information responses were collected. Sex and Love Addicts Anonymous (SLAA) use the 12 Step program modelled on Alcoholic Anonymous (AA) to remain in recovery. The link was shared with connections, UWL students and on various forms of social media, Reddit and LinkedIn. No compensation was given. A debrief was provided at the end and resources for support were signposted.

Measures

The short-UPPS-P impulsive behaviour scale

The S-UPPS-P is a 20-item scale which is designed to assess impulsivity[11]. The inventory measures five distinct facets of impulsive behaviour; these are negative urgency, lack of perseverance, lack of premeditation, sensation seeking and positive urgency. The scale is described in section 1.4. Each item on the S-UPPS-P is scored using a 4-point Likert scale from 'Strongly Agree' to 'Strongly Disagree'. The internal consistency was assessed for each subscale in the current sample; the Cronbach's alphas were for negative urgency (α = 0.75), premeditation (α = 0.80), perseverance (α = 0.68), sensation seeking (α = 0. 66), and positive urgency (α = 0.76).

The revised adult attachment scale short-form (R-AAS-SF)

The Revised Adult Attachment Scale Short form (R-AAS-SF) is an 18-item scale designed to understand how adults feel in romantic relationships.[23] The inventory measures three types of attachment behaviour; close, anxiety and depend. Each item is scored using a 5-point Likert scale of 1−5, with 1 = 'not at all characteristic of me' and 5 = 'very characteristic of me'. The internal consistency was assessed for each subscale in the current sample, the Cronbach's alphas were Depend (α = −0.21), Close (α = −0.32), and Anxious (α = 0.90).

The love addiction inventory short form (LAI-SF)

The Love Addiction Inventory Short Form (LAI-SF) is a six-item scale used to assess LA[2] Items are scored on a 5-point Likert scale, from 1 (never) to 5 (very often). Higher scores indicate higher levels of love addiction symptoms. The inventory measures six facets of LA; salience, mood modification, tolerance, conflict, withdraw and relapse. The Italian (and English translation) in Costa[2] were shown in the paper demonstrating psychometrically robust self-report scale with high reliability scores. The short form was underpinned by a strong theoretical framework (the components model of addiction by Griffiths[8]) and its dimensions form the 6 items of the scale. Such dimensions have been widely used in a great number of scales assessing other behavioural addictions. The LAI-SF questionnaire was chosen due to its relatively strong reliability scores. This questionnaire also encourages the survey to be completed and avoids survey fatigue. Furthermore, the inclusion of the best scoring items in the LAI gave the authors further confidence for its use in the current study. The current study had a strong reliability score overall with Cronbach's alpha of α = 0.74 which further supported our confidence in its reliability. The LAI minimum score participants attained from the questionnaire was 6, showing low level or no LA and the maximum score of 30 indicated higher levels of LA. Based on previous research[2] a median split identified those above the median as high in LA and those below the median split are low in LA. Participants with low LA had a score of between 6 and 16 and high LA a score of between 17 and 30. This was used to examine the difference in the measures used between participants with high and low LA.

Difficulties in emotion regulation scale short form (DERS-SF)

The Difficulties in Emotion Regulation scale (DERS-SF) short form is an 18-item scale measuring emotional dysregulation.[27] It measures 6 sub facets of emotional regulation: strategies, impulse, non-acceptance, goals, awareness and lack of clarity. Each item is scored using a 5-point Likert scale of 1−5, ranging from 1 (Almost Never), 2 (Sometimes), 3 (About Half of the Time), 4 (Most of the Time), 5 (Almost Always). The internal consistency was assessed for each subscale in the current sample, the Cronbach's alpha were strategies (α = 0.75), goals (α = 0.88) and impulse (α = 0. 86), awareness (α = 0.81) and lack of clarity (α = 0.77)

Statistical analysis

The data was extracted from Qualtrics to the SPSS version 28.0 (SPSS Inc., Chicago, IL, USA) and prepared for data analysis. Descriptive statistics were conducted for all

variables. An independent samples *t*-test was then run to explore mean differences between high and low LA across all survey facets. A correlational analysis was run to test associations between all variables in the study. Hierarchical and multiple linear regression models were used to test H1, H2 and H3. Moderation analyses were performed using PROCESS Macro model 1 in SPSS version 28[28] to test H4 and H5. The odd ratio (OR) and 95 % confidence interval (CI) were calculated. The statistical significance was set at $p < 0.05$ for all tests.

Results

Independent samples *t*-test

A median split was performed to determine the high and low LA scores prior to the analysis. This was used as a grouping variable in the independent samples *t*-test conducted to examine the difference between participants with low (a score of between 6 and 16) and high LA (a score of between 17 and 30) on the measures used. The total LA mean was 16.74 and *SD* = 4.00. The results revealed that participants with high LA had greater difficulties in all aspects of the emotion regulation, also scored significantly higher on urgency facets of trait impulsivity and displayed significantly higher anxious attachment as compared to participants with low LA. Table 1 below presents the results of the independent samples *t*-test for the LAI-SF, S-UPPS-P, DERS-SF and R-AAS-SF.

Correlational analysis

A bivariate correlation analysis was conducted to test the associations between LA, trait impulsivity, attachment styles and emotion dysregulation (See Table 2). The results showed significant strong positive correlations for NU ($r = 0.59$, $p < 0.001$) and PU ($r = 0.52$, $p < 0.001$) with facets of Emotional dysregulation (ED) e.g., Impulse. A significant moderate positive correlation was found for NU with facets of ED e.g., strategies ($r = 0.46$, $p < 0.001$), goals ($r = 0.50$, $p < 0.001$), and clarity ($r = 0.30$, $p < 0.001$), indicating a potential risk for those with high NU also having difficulties in emotion regulation across all facets.

Inferential statistics

Both multiple linear and hierarchical regression analyses were performed to understand the predictive value of; urgency facets, emotional dysregulation facets, and attachment styles on total LA scores to test for H1, H2, and H3. Table 3 shows the results of two hierarchical regression

Table 1 Mean and standard deviation for High and Low love addiction scores on all variables.

Variable	High (*N* = 134) M (*SD*)	Low (*N* = 115) M (*SD*)	*t*	*Cohens d*
S-UPPS-P				
Negative Urgency	10.36 (3.15)	8.92 (2.43)	4.06**	−0.51
Positive Urgency	7.84 (2.76)	6.70 (2.04)	3.65**	−0.46
Lack of Perseverance	7.34 (2.04)	7.66 (2.11)	−1.23	−0.16
Sensation Seeking	10.54 (2.68)	9.65 (2.91)	2.50**	0.32
Lack of Premeditation	7.54 (2.42)	7.10 (2.26)	1.45	0.18
DERS-SF				
Strategies	6.9 (2.70)	5.79 (2.47)	3.37**	0.43
Non-Acceptance	7.29 (2.96)	6.54 (2.84)	2.04*	0.26
Impulse	5.43 (2.42)	4.43 (2.05)	3.53**	0.44
Goals	9.31 (3.12)	7.37 (2.96)	5.01**	0.64
Awareness	6.88 (2.80)	7.73 (3.18)	5.01*	−0.29
Clarity	6.19 (2.45)	5.64 (2.43)	1.77*	0.23
LAI-SF				
Salience	3.56 (0.90)	2.56 (0.80)	9.34**	1.78
Withdrawal	3.00 (0.81)	1.90 (0.73)	11.14**	1.42
Tolerance	3.48 (0.78)	2.43 (0.82)	10.27**	1.31
Mood modification	3.66 (0.78)	2.28 (0.85)	13.34**	1.70
Relapse	3.17 (1.04)	2.36 (0.91)	6.51**	0.90
Conflict	2.81 (0.95)	1.83 (0.86)	8.39**	1.07
R-AAS-SF				
Close	21.78 (5.06)	21.12 (5.17)	1.01	0.13
Depend	18.15 (5.51)	19.19 (5.41)	−1.50	−0.19
Anxious	17.69 (6.88)	14.70 (6.39)	3.53**	0.45

Note.
** = $p < 0.001$.
* = $p < 0.05$.
LAI-SF = Love Addiction Short Form, S-UPPS-*P* = Short (form) (Negative)Urgency, Premeditation, Perseverance, Sensation Seeking and Positive (Urgency), DERS-SF = Difficulties in Emotional Regulation Scale — Short Form and R-AAS-SF = Revised Adult Attachment Scale — Short Form.

Table 2 Bivariate correlations between facets of S-UPPS-P, DERS and love addiction scales.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1.PU	–											
2.NU	0.60**	–										
3. Lof Pe	0.04	0.04	–									
4. SS	0.28	0.04	0.05	–								
5. Lof Prem	0.37**	0.33**	0.34**	0.19**	-							
6. Strat	0.27**	0.46**	0.00	−0.02	0.04	–						
7. NA	0.20**	0.32**	−0.05	−0.02	0.05	0.59**	–					
8. Imp	0.52**	0.59**	0.14*	0.03	0.23**	0.56**	0.53**	-				
9. Gls	0.33**	0.50**	0.09	−0.02	0.15*	0.66**	0.41**	0.56**	-			
10.Awr	0.19**	0.20**	0.06	0.07	0.13*	0.12	0.17**	0.17**	−0.05	-		
11.Clar	0.26**	0.39**	0.16*	0.003	0.15*	0.40**	0.41**	0.48**	0.35**	0.43**	-	
12. LATotal	0.30**	0.34**	−0.042	0.16*	0.11	0.29**	0.24**	0.32**	0.32**	−0.03	0.23**	–

Note:.
** = $p < 0.001$.
* = $p < 0.05$.
PU= Positive Urgency, NU=Negative Urgency, L of Pe= Lack of Perseverance, SS = Sensation Seeking, Lof Prem= Lack of Premeditation, Strat = Strategies, NA = Non-Acceptance, Imp=Impulse, Gls =Goals, Awr= Awareness, Clar = Clarity, LATotal= Love Addiction Scale total scores.

Table 3 Hierarchical multiple regression of love addiction (total score) on age and facets of trait impulsivity.

Predictor	R^2	*F change*	*b*	*SE*	β	*t*	*df*
Step 1	0.05	12.8**		3.91			1, 246
Age			−0.06		−0.22**	−3.6	
Step 2	0.13	5.2**		3.8			4242
Positive urgency			0.40		0.25**	3.64	
Lack of perseverance			−0.17		−0.9	−1.4	
Sensation seeking			0.07		0.05	0.80	
Lack of premeditation			0.02		0.01	0.16	
Step 3	0.17	12.4**	0.1	3.7	0.26**	3.5	1241
Negative urgency							

Note:.
** = $p < 0.001$.
*= $p < 0.05$.

analyses examining the unique contribution of the negative urgency facet on LA (H1) controlling for age. A linear regression analysis was performed to understand the predictive value of sociodemographic variables, e.g., highest level of education, relationship status, ethnicity and gender on LA scores. Age was the sole significant contributor and therefore, it was included in the first steps all following regression analyses.

NU was a significant positive predictor of LA when controlling for other facets of impulsivity. PU was also found to be a significant predictor of LA scores. Following this, a moderation analysis was run to test H4 and H5.

A set of multiple linear regression analysis was conducted to test emotion dysregulation and attachment styles as predictors of LA total (H2, and H3), controlling for age, ethnicity, sex, education and relationship status. The emotion regulation facets were entered in the second step of the first multiple linear regression analysis. As the demographics were non-significant predictors of LA, they were not included in the following regression analyses. Age, however, was a significant negative predictor, (β = −0.23, $p < 0.001$), suggesting age has a particular impact on the outcome variable and was controlled for in subsequent regression analyses. The results showed that the Impulse facet was the only significant predictor (β = 0.16, $p < 0.05$) of the LA.

In the second hierarchical regression analysis, attachment facets (close, depend and anxious) were entered as predictors of the LA scores. The results showed that only anxious attachment was a significant predictor of total LA, (β = 0.29, $p < 0.001$), supporting H3.

Moderation analyses

Following regression analyses, moderation analyses were conducted using PROCESS macro (model 1) for SPSS by Hayes v4.28[28] to test H_4 and H_5. The first moderation analysis tested whether anxious attachment style moderated the effect of NU on LA, strengthening this relationship (H_4). The indirect effects were estimated using 5000 bootstrapped resamples at 95 % confidence intervals (CIs). When 95 % CI did not include zero, the indirect effects were considered significant. All variables were centered. The result was non-significant. Another set of moderation analyses were performed to test whether facets of emotional dysregulation significantly moderated the effect of NU on LA, strengthening this relationship H_5. The LA total was entered as the outcome variable (Y), the NU as the predictor (X) and the facets

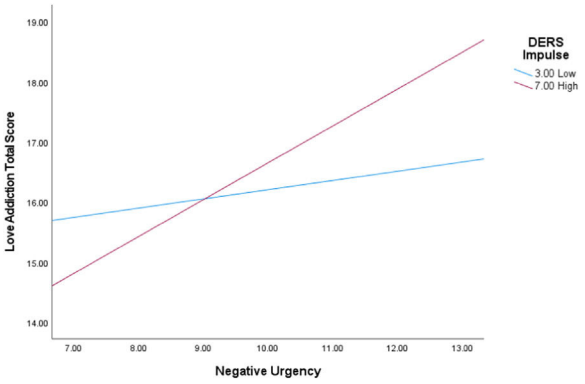

Fig. 1 NU and LA moderated by Emotional regulation — impulse.

of emotion regulation (DERS) as the moderator variable (W) in each analysis. The results revealed that only DERS-Impulse facet was a significant moderator of the relationship between NU and LA (β = 0.12, p = 0.006), suggesting those with high negative urgency are more vulnerable for LA if they are high on DERS-Impulse (have difficulties in that aspect of emotion regulation). The relationship is considerably weaker for those that have a low score (shown as 3) in Fig. 1.

Discussion

According to the findings, four of the five hypotheses were sufficiently supported. Only the fourth hypothesis was rejected as anxious attachment style did not moderate the effect of negative urgency on LA. Below is a more detailed discussion of each hypothesis.

As hypothesised (H1), NU predicted LA over and above other impulsivity facets indicating that individual's tendency to engage in impulsive behaviour while experiencing feelings of distress is an important determinant of LA. In addition to the NU, PU also significantly predicted LA in the current study which suggests that both emotion-based dispositions are risk factors for engagement in LA. This is in line with recent research[29] where PU was associated with problem gambling and online gambling disorder, supporting that LA shares similarities with other behavioural addictions. Furthermore, Sophia[3] found that those with LA showed significantly higher levels of impulsivity as measured by the Barratt impulsivity scale (BIS). A limitation to the BIS measure is that it lacks clarity as to why the individual engaged in impulsive behaviour. The S-UPPS-P scale used in this study provides a more comprehensive assessment of the trait and incorporates emotions-based dispositions to explain the contribution of both negative and positive mood when engaging in impulsive behaviours. Therefore, the study provides information on the extent to which both high arousal negative and positive emotions play role in engagement in risk behaviours.

The second hypotheses examined whether emotional dysregulation (ED) would significantly predict LA. Research[3,4] exploring emotional dysregulation and attachment found both variables predicted LA with mean scores differing significantly between the control and clinical groups. Furthermore, studies found[25] that ED and trait impulsivity showed significant association with alcohol misuse. In the current study, facets of emotional dysregulation were not predictive of LA aside from 'impulse' subscale, only partially supporting H_2. This subscale measures difficulty regulating behaviour when distressed[27] and aligns with the definition of NU of trait impulsivity. It can be suggested therefore that individuals with high trait NU maybe at higher risk for experiencing difficulties in emotion regulation which in turn puts them at higher risk for engaging in risk behaviours such as LA. Although the results of the moderation analyses supports this (H_5), further research considering other addiction studies is needed to substantiate which facet of ED is predominant in predicting LA.

The third hypothesis, anxious attachment will significantly and positively predict LA over close and depend attachment styles was accepted. The findings were in line with previous research[4] where individuals with LA had significantly higher scores in the 'Pre-occupied' attachment category using the Relationship Questionnaire[27] which is similar to the anxious facet in the R-AAS-SF. In addition, the current study, built upon previous research that showed associations between avoidant and anxious attachment styles in romantic relationships and internet gaming addiction.[30] Furthermore, research[4] demonstrated that participants with anxious and avoidant attachment styles showed more problematic online gaming issues than participants with secure attachment style. More research is needed using the AAS to build upon the current findings within LA due to the low reliability score of Cronbach's alpha for Close and Depend in the current study.

The fourth hypothesis was rejected as anxious attachment style did not moderate the effect of negative urgency on LA. Limited research exists in understanding the mechanisms through which urgency facets leads to LA. Further research is needed to substantiate this hypothesis to understand if other mediating factors influenced this relationship.

The fifth hypothesis was concerned with whether emotional dysregulation would have a strong moderating effect upon trait impulsivity (NU) and LA scores. Results of the moderation analysis supported this hypothesis. Our findings are in line with previous studies[25] that showed the indirect effect of emotion dysregulation on alcohol misuse through the effect of trait impulsivity. Recent research[4] found that all facets of DERS were significantly associated with LA, supporting the link between the two. Unlike previous literature, however, the current study focused on trait impulsivity as stable personality trait. Past research has examined how difficulties in emotion regulation could result in problems with impulse control, which in turn may crystallise in trait impulsivity.[31] A criticism of this approach can be seen where Chapman's team[32] focused their attention on state experiences, lacking consideration of the contribution of trait impulsivity as relatively stable personality trait of which this study has addressed.

Findings from current study have important clinical implications. Mood disorders such as anxiety and depression were shown to be significantly associated with Sexual Addiction and seem to mediate the relationships between emotion dysregulation, addiction and impulsivity.[33] The current study assessed, in a large sample of the general population, the potential predictive value of trait impulsivity, emotional

dysregulation and attachment in explaining LA. The current study is the first of its kind to indicate that personality trait 'impulsivity' indirectly influences LA (H5), specifically in a negative emotional context through emotional regulation, suggesting those high on trait negative urgency maybe more vulnerable for development or maintenance of LA, especially if they have difficulties in emotion regulation. However, the study should be considered with its limitations. The LAI-SF English translation[2] whilst retaining a high Cronbach's alpha score overall (α = 0.74) was used in an English speaking sample for the first time in the current study. Further studies are warranted to include both LAI and LAI SF in an English speaking sample using Exploratory factor analysis and Confirmatory factor analysis, which the researchers intend to carry out in future work. The sample is self-selected and thus, not necessarily representative of the population under study. The reliance on self-report measures may be problematic due to possible lack of insight and social desirability biases.[34] However, the differential pattern of results observed argues somewhat against these possibilities. In addition, the absence of socio-economic status and of cultural exploration may add further insight and explanation to the present findings. Future studies may help tease out these distinctions by examining the relationship between the impulsivity- related traits and later impulsive behaviour and symptomatology and the role of one's environment. Qualitative research would help to add further credibility to these results and provide a holistic picture.

Conclusions

To conclude, results of the current study and supporting empirical research of both substance and non-substance addictions demonstrate the predictive nature of impulsivity traits, specifically negative urgency, emotional dysregulation — impulse and to an extent attachment style — anxious attachment can significantly predict LA. This study provides evidence for how LA shares similar symptoms and predictors of addictions which are recognised in psychiatric nosology. There is hope that building upon this current research LA can join other behavioural and non-substance addictions in being recognized in psychiatric literature. Further research is suggested with qualitative research using interviews to provide a richer picture to the current findings.

Conflict of Interest

The authors have no conflict of interest to declare.

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Ethical considerations

The study was approved by the ethics committee at the University of West London prior to the study being carried out. Consent was gained and post survey a debrief was provided at the end and resources for support were signposted.

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Supplementary materials

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