

# Love addiction: psychometric evaluation and comorbidity in a clinical sample

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## Abstract

**Introduction:** Nowadays, love addiction has become a current subject because of cultural and psychopathological reasons, and even though nosographic systems like DSM used to give insufficient consideration to the issue, sentimental addiction is turning out to be one of the most common behavioural dependency in our country. The aim of the present study was to diagnose the possible presence or predisposition to develop a love addiction through new instruments tested on a clinical sample.

**Methods:** Two different psychological instruments (Relationship Obsessive-Compulsive Inventory and Love Attitudes Scale) were administered on a sample of 83 patients, divided in 4 subgroups according to different psychiatric conditions.

**Results:** Both tests resulted reliable, since they reported elevated signs of correlation between at different times, getting over the coefficient value of 80%. Young Bipolar women, with a medium-low school attendance level and without any sentimental relationship showed to have a tendency to develop obsessive doubts and concern in regard to their emotional relationship.

**Discussion:** The psychometric instruments employed in this study showed to be reliable, emphasizing an high percentage of dysfunctional emotional-relational aspects among the four psychiatric subgroups. Further studies are needed to understand the role of love addiction and its

correlations to other psychopathological aspects.

**KEY WORDS:** Love addiction, relationship obsessive-compulsive inventory (ROCI), love attitudes scale (LAS).

## Introduction

Nowadays, we use to hear more often about “new addictions”, or rather all those forms of addiction that don’t entail chemical substances use. These dependences are usually named “behavioural addictions”, like addiction to sex, shopping, internet, work, sport and the so called gambling, that have been declared one of the addiction disorders and related to substances abuse of DSM-V. Unfortunately, other forms of addiction haven’t found an official nosographic classification. Contrary to the other form of behavioural dependency, love addiction is a dependency towards someone, and this make it harder to recognize and counteract it. The patient is not often aware about his addiction, so he usually considers himself as a victim of a narcissist or a manipulator, putting out of him the origin of his sorrow.

Unfortunately, psychologists, psychiatrists and medical doctors have neither diagnostic parameters approved by DSM-V and ICD-10, nor an Italian measuring scale, even if, nowadays, love addiction is a recurring phenomenon in clinical activity. Even for what concerns pertinent texts about this argument there’s a scarcity of material to work on.

Additionally, the scientific literature has few in-depth analyses on intervention methods and instruments to validate love addiction. Nevertheless, fortunately these scales are really useful to investigate this kind of addiction.

A specific instrument is the *Passionate Love Scale (Short-form A)* created by Elaine Hatfield and Susan Sprecher in 1986. It is a useful Scale to explain what kind of connection could exist between passionate love and potential generation of love addiction, and to determine antecedents, correlations and consequences of passionate love. The *Love Addiction Screening Test* is another efficient instrument, adjusted by Aaron Alan from SLAA’s “40 Questions for Self-Diagnosis”, created by Patrick Carnes and Pia Mellody as a self-evaluative test. Love addiction is cleared up as a form of love that results parasitic, obsessive, inhibited and sluggish, because the individual expe-

riences love as a drug able to cancel in him every other desire and developmental push. The “love-intoxicated’s” need of certainties, causes a sort of ego death, and the beloved person becomes the only one source of gratification and exaltation (1). It could be in comorbidity with the Post-Traumatic Stress Disorder (2) resulting from sexual abuse; it is a disturb that could be shown through self-esteem low level, dissociative symptoms, panic, nightmares, memory and focus loss, dysthymia and burn-out syndrome.

According to Grosso (3), the Dependent Personality Disorder is often linked with other disturbs, and it is seldom considered as the only one diagnosis, usually grouped with Depressive Disorder, Evasive, and Passive-Aggressive Personality Disorder. Love addiction has no gender; it just concerns emotional reminders of individuals. Nicola Ghezzi, in his *L'amore impossibile* (4) explained that love addiction concerns indiscriminately both men and women. Nevertheless, talking about behaviour, men suffering from sentimental addiction usually tend to be more reticent about it than women. It is a behaviour often caused by cultural prejudices and preconception describing men as strong and self-sufficient individuals in every situation.

Male love addicted show a constant symptom: they deny an identification with the role of dominant male, that could be lived alternatively as a passive surrender or an active denial because of their perception of this role as strict and prevailing during childhood; It is a perception due to adults' behaviours and influences. As a result, they show a defenceless, addicted personality.

It is evident how much and in which way problems originated by love addiction are susceptible to several variables, and even if national and international researches are focusing its different aspects since a long time, it remains a very wide field of investigation, and so it needs new and more suitable instruments of study.

The aim of the present study is to diagnose the possible presence or predisposition to develop a love addiction through new instruments tested on a clinical sample.

## Method

### The sample

The clinical sample was formed by 83 individuals, of which 62 patients from the Day Hospital of Agostino Gemelli Hospital's psychiatry and substance addiction ward, in Rome, and 21 love addicts from CoDA (Co-Dependents Anonymous). Patients have been divided in 4 subgroups based on 4 different diagnoses: 20 alcohol addicted, 21 gambling addicted, 21 individuals suffering of bipolar disorder and 21 love addicted. Then, information about some demographic and socio-cultural variables have been gathered from the patients: genre, age, marital status, qualification and job. In total, the sample had 42 women and 41 men

belonging to two different age ranges: 42 patients under the age of 50, and 41 patients over 50; 55 of them were unemployed; for what concern qualifications, the sample showed low socioeconomic level: 7 of them had earned middle school certificate, 12 patients were graduates and the remaining 64 had earned a high school diploma. In the end, for what concern marital status, the majority (53 patients) was married or in a steady relationship, 16 individuals were unmarried/single, 9 were divorcees and the last 5 persons were widowed.

### Procedure

The patients' sample was given two tests, that could be considered useful for psycho-pathological variables survey: T0 at first and T1 after a week of wait. It has been found that it was favourable waiting for a week between the two tests administering, because the purpose was verifying exclusively the reliability of tests, not the potential change of the variables examined, result obtained unpredictably in a short time. All patients took part to the investigation voluntarily and anonymously. At the moment of test-compiling, they were supplied with information put into writing about the research and test-compiling itself. The sample were enthusiastic to participate.

- First test: Love Attitude Scale (LAS), whose purpose is to measure all different love style introduced by John Lee. In his *The colours of Love* (5) Lee observed how man behaviours are guided by fundamental theories, basing his study on a detailed analysis of some sentimental relationships. He affirmed that there are three primary colours of love: Eros, Ludus and Storge, whose, by mixing them to each other, can create secondary colours: Pragma (Ludus + Storge), Mania (Eros + Ludus) and Agape (Eros + Storge). It is important to highlight that love styles are shaped on flexible personalities and behaviours, and that everyone can change his own love style. LAS test could be a valid instrument to investigate love addiction, whose is correlated with Mania and Agape style. This instrument has been translated and adapted into Italian, trying to be accurate and taking care of linguistic expressions. LAS is a self-report questionnaire of 42 items, created to measuring love behaviours. The questionnaire combines attitudes for one's hypothetical current or recent partner with love attitudes in a more general way. LAS was created by Hendrick C. and Hendrick S. (6). This Scale is divided in 6 subgroups formed by 7 items, and each subgroups represents a love style: EROS (passionate love) - it is a passionate, physical and emotional kind of love; LUDUS (Love play) - is a type of love that is “played”: lovers are more interested to quantity instead of quality in the relationship. In its most extreme form, it can become sex addiction; STORGE (friendship love) – it is a kind of love that evolves gradually, starting from a friendship that lasts even if the relationship ends. Sex is not an impor-

tant thing, and everything is based on respect and comprehension. The advantage of this kind of love is in the way partners live their intimacy, the handicap, instead, stays in lack of passion; PRAGMA (practical love) - represents a love guided by brain, and not with heart. The quality of pragmatic love stays in its realism, even if it results a love with no emotion; MANIA (depending and possessive love): this style is characterized by lover's low self-esteem by virtue of this they need the other. Love is a lifeline, a means to acquire value. Marriage becomes a mean to consider partner as a personal "property", and sex becomes a love reassurance. Manic lovers are often anxious and insecure, and that makes them extremely jealous, possessive and obsessive. All of it, in its most extreme form, becomes love addiction; AGAPE (altruistic love) - Agape style is based on the conviction that love means sacrifice. Agape lovers are often spiritual or religious persons. Marriage and children are sacred; sex is a donation to the partner. It is a form of unconditional love, and agape lover often remains involved in an unpleasant relationship, whose only purpose is to not cause pain in the partner by interrupting this relationship. The advantage of agape kind of love is generosity, but on the other side, it can cause a strong sensation of guilt or incapacity. In its most deviant form, it could transform the relationship in a form of torture or in sentimental addiction. So, in Lee's opinion each form of love corresponds to an adapted and dysfunctional way of living the relationship; moreover, Ludus, Agape and Mania are styles that, more than others, can provoke a pathological love; as a matter of fact, Ludus can induce sex addiction, and Agape and Mania can create a love addiction. Participants respond to items using a Likert scale of 5 points: 1 (I totally agree), 2 (partially agree), 3 (neither agree, nor disagree), 4 (partially disagree), 5 (I totally disagree).

- Second test: Relational Obsessive-Compulsive Inventory (ROCI), a test evaluating obsession and compulsion focused on a sentimental bond. High scores reveal fear of being not reciprocate in love, fear that the partner could stray, concern regarding not to be able to make one's partner happy and to be unable to show feelings; thing, this one, that could increase attachment towards the partner and cause love addiction in their most extreme form.

ROCI is a self-report questionnaire of 14 items, created by Doron et al. (7). This instrument measures the seriousness of the obsessive disturb and of the compulsive behaviour, dividing it in three relational dimensions: love for one's partner (1, 7, 8); relationship adequacy (3, 5, 9, 10) and the partner's love (4, 6, 11).

### Statistical analyses

The analysis purpose was to verify if, from a statistic

point of view, the differences between each psychopathological dimension were different: 1- in relation to the group to which it belongs and to the variables socio-demographical and cultural (transverse comparison); 2- in both groups of survey (longitudinal comparison); 3- in relation to the interaction between transverse and longitudinal factors (mixed comparison). For both transverse and longitudinal comparisons have been used parametric and non-parametric tests.

Transverse and longitudinal comparisons are preceded by tests about distribution's normality having the purpose to verify if, from a statistic point of view, distribution of scores moves away from the normal curve. In case of a refusal of normality's hypothesis, it is appropriate to use non-parametric tests, but if normality's hypothesis is approved, parametric tests are more powerful (12). The test used to verify normality is the Shapiro-Wilk one, the most suitable for small samples. An invalid hypothesis represents a normal distribution, and this kind of hypothesis is refused because of its measure of significance (sign.) < 0,05. In the Table 1 below, distributions moved away from normal distribution are written in red.

**Table 1. Shapiro-Wilk normality test.**

Statistic		gl	Sign.
Roci_t0	0,935	83	0,000
Eros_t0	0,967	83	0,033
Ludus_t0	0,979	83	0,181
Storge_t0	0,968	83	0,038
Prog_t0	0,933	83	0,000
Mania_t0	0,966	83	0,025
Agape_t0	0,956	83	0,006
Roci_t1	0,949	83	0,003
Eros_t1	0,960	83	0,011
Ludus_t1	0,984	83	0,398
Storge_t1	0,970	83	0,052
Prog_t1	0,939	83	0,001
Mania_t1	0,969	83	0,042
Agape_t1	0,950	83	0,003

Comparison: 1- groups, marital status and qualification have been used ANOVA's test, Bonferroni's test (both parametric tests) and Kruskal Wallis's test (non-parametric test); 2- gender, age and job, have been used the Student's t-test for independent samples (parametric test) and Man-Whitney test (nonparametric test). To compare all the measures recorded during the two experimental times, have been used Repeated-

measures t-test (parametric test) and Wilcoxon's test (non-parametric test).

All these tests take into account transverse effects (differences between groups and socio-demographic and cultural variables), longitudinal differences and the way they interact. The analysis's model is well-known in literature as MANOVA (parametric test) (Table 2).

**Table 2. Confronti Misti (Manova).**

Roci	F	Sign.
Sorgente		
Cl_età*Occupazione	9,084	,006
Eros		
Tempo*Gruppo	6,143	,003
Tempo*Sex	12,955	,001
Tempo*Gruppo*Sex	4,909	,008
Scolarità	3,669	,039
Stato Civile	5,428	,005
Ludus		
Tempo	8,905	,006
Tempo*Gruppo	4,602	,010
Tempo*Sex*Stato Civile	9,625	,004
Gruppo	6,432	,002
Sex	6,723	,015
Cl_età	5,147	,031
Storge		
Stato Civile	3,293	,036
Mania		
Tempo*Scolarità	12,446	,000
Tempo*Stato Civile	7,426	,001
Scolarità	4,688	,018
Lavoro	4,452	,044
Cl_età*Lavoro	5,590	,026
Scolarità*Stato Civile	4,673	,040

**Table 3. Test-retest method.**

Connections between couples of patients		N	Connection	Sign.
Couple 1	Roci_T0 & Roci_T1	83	0,96	0,00
Couple 2	Eros_T0 & Eros_T1	83	0,87	0,00
Couple 3	Ludus_T0 & Ludus_T1	83	0,89	0,00
Couple 4	Storge_T0 & Storge_T1	83	0,91	0,00
Couple 5	Pragma_T0 & Pragma_T1	83	0,90	0,00
Couple 6	Mania_T0 & Mania_T1	83	0,86	0,00
Couple 7	Agape_T0 & Agape_T1	83	0,93	0,00

## Results

### Longitudinal comparisons

Observing average values obtained from the two tests, it has been observed that there are no differences between the T0 and T1 times of survey. This information is reinforced with longitudinal comparisons through test-retest method, that measures the values' stability over time, Student's t test (parametric test), and Wilcoxon signed-rank test (non-parametric test) (Table 3).

In the first table above, it is examined the correlation index between the two times of administration of Roci test and six subgroup of LAS. Correlation indexes resulted elevated, so the concordance between scores was significant for all couples. From there, it can be deduced that the two tests can be considered sufficiently reliable for what concerns inner coherence. With Wilcoxon's test administration came to light significant differences only in three couples: Pragma\_T1-Pragma\_T0 ( $p < 0,05$ ; -1,66b; 0,048), Mania\_T1-Mania\_T0 ( $p < 0,005$ ; -2,286b; 0,0011) e Agape\_T1-Agape\_T0 ( $p < 0,05$ ; -1,985b; 0,024). These differences could be connected to variability of scores hard to delete, like patient's loss of attention, environmental condition and psychological influence (like anxiety or tiredness).

Then, reliability's evaluation was based on a general estimate of stability's level of scores.

### Transverse comparisons

In the Table 4, emerged important differences:

- Between average of love addicts' group and alcoholics in Mania\_T0 sub-scale ( $F=2,998;3$ ; ,036). Indeed, by administering Bonferroni's test it is possible to deduce that alcoholics' average, in Mania's sub-scale at the first administration, is lesser than the other three groups, especially to love addicted.
- Between pathological gambler and alcoholics averages in Agape\_T0's sub-scale ( $F=3,012;3$ ; ,035). From Bonferroni's test. It is possible to see that Gambler's average is higher than the other three groups, especially to alcoholics.

**Table 4. Bonferroni's test (comparison of average values obtained from 4 groups of patients in the previous two tests).**

Roci	Alcohol add.	Bipolar	Gambling	Love add.	F	Sign.
		-,39824	,08318	-,57252	1,898	,137
	Bip	Alcohol	Gamb	Love		
		,39824	,48146	-,17429		
	Gamb	Alc	Bip	Love		
		-,08319	-,48143	-,65571		
	Love	Alc	Bip	Gamb		
		,57252	,17429	,65571		
<b>Eros</b>	<b>Alcohol</b>	<b>Bipolar</b>	<b>Gambling</b>	<b>Love addict</b>		
		,77619	-3,22381	-,60476	1,890	,138
	Bip	Alc	Gamb	Love		
		,77619	-4,00000	-1,38095		
	Gamb	Alc	Bip	Love		
		3,22381	4,00000	2,61905		
	Love	Alc	Bip	Gamb		
		,60476	<b>1,38095</b>	-2,61905		
<b>Ludus</b>	<b>Alcohol</b>	<b>Bipolar</b>	<b>Gambling</b>	<b>Love addict</b>		
		1,91429	1,24762	-,89524	1,164	,329
	Bip	Alc	Gamb	Love		
		-1,91429	-,66667	-2,80952		
	Gamb	Alc	Bip	Love		
		-1,24762	,66667	-2,14286		
	Love	Alc	Bip	Gamb		
		,89524	2,80952	2,14286		
<b>Storge</b>	<b>Alcohol</b>	<b>Bipolar</b>	<b>Gambling</b>	<b>Love addict</b>		
		2,20238	1,20238	3,34524	1,181	,322
	Bip	Alc	Gamb	Love		
		-2,20238	-1,00000	1,14286		
	Gamb	Alc	Bip	Love		
		-1,20238	1,00000	2,14286		
	Love	Alc	Bip	Gamb		
		-3,34524	-1,14286	-2,14286		
<b>Pragma</b>	<b>Alcohol</b>	<b>Bip</b>	<b>Gamb</b>	<b>Love</b>		
		-1,13095	-2,65476	1,39286	1,853	,144
	Bip	Alc	Gamb	Love		
		1,13095	-1,52381	2,52381		
	Gamb	Alc	Bip	Love		
		2,65476	1,52381	4,04762		
	Love	Alc	Bip	Gamb		
		-1,39286	-2,5238	-4,04762		
<b>Mania</b>	<b>Alc</b>	<b>Bip</b>	<b>Gamb</b>	<b>Love</b>		
		-,25238	-2,53810	-6,20476	2,998	,036
	Bip	Alc	Gamb	Love		
		,25238	-2,28571	-5,9523		
	Gamb	Alc	Bip	Love		
		2,53810	2,28571	-3,66667		
	Love	Alc	Bip	Gamb		
		6,20476	5,95238	3,66667		
<b>Agape</b>	<b>Alc</b>	<b>Bip</b>	<b>Gamb</b>	<b>Love</b>		
		-,84286	-5,12857	-4,08095	3,012	,035
	Bip	Alc	Gamb	Love		
		,84286	-4,28571	-3,23810		
	Gamb	Alc	Bip	Love		
		5,12857	4,28571	1,04762		
	Love	Alc	Bip	Gamb		
		4,08095	3,23810	-1,04762		

Analogously, Kruskal Wallis's test (non-parametric test) measured the value that have been verified through parametric tests: an average statistically different in Mania\_T0 (7,955; 3; .047) and Agape\_T0 (10,291; 3; .016). For what concerns the comparison between the <50's group and the >50's group, the difference between averages was statistically significant ( $p < 0,005$ ; 80,495; 1,953) on Roci\_T0's test, because the under 50's group gave higher average scores compared to the other group.

Going on, have been found statistically significant differences between average scores ( $p < 0,05$ ; 71,263; -1,698) by administrating Storge\_T0: >50s gave higher average than <50s.

Mann-Whitney's test (non-parametric) detected that Roci\_T0's test average scores, for what concerns the two variables of age, are statistically different ( $p < 0,05$ ; 651,5; -1,91).

Watching the job's variable instead, it has been noticed that differences between averages are statistically important in these groups:

- With Agape\_T0, the unemployed group scored a statistically higher average compared to the employed group ( $p < 0,05$ ; 51,864; -2,435).

Differently, according to Mann-Whitney's test (non-parametric), there was not an important difference between the two groups, and it could be affirmed that there's an averages' equivalence.

For what concerns the scholastic variable, there were emerged significant differences between groups from Anova's analysis. Some of them were:

- Administrating Storge\_T0 ( $F = 4,805$ ; 2; 0,011), and in particular the Bonferroni's test, it has been observed that there was a significantly higher average in the group of patients that only had middle school certificate, compared to the group of who had a degree or a high school diploma.
- Administrating the Pragma\_T0 sub-scale ( $F = 3,552$ ; 2; 0,033), from the Bonferroni's test emerged, that the average of the graduates' group was lesser than the group of who had a high school diploma or a middle school certificate.
- In the Mania\_T0 sub-scale ( $F = 9,451$ ; 2; 0,000), and in particular the Bonferroni's test, it has been noticed that, again, the average of the graduates' group was lesser than the others.
- In the Agape\_T0 sub-scale ( $F = 6,365$ ; 2; 0,003), through the Bonferroni's test, again, it could be observed that the average of the graduates' group was lesser than the other two groups.

According to Kruskal Wallis's non-parametric test, on the grounds of the school attendance grouping variable no considerable difference has been noticed in comparison with what appeared in the parametric tests (Anova and Bonferroni).

In particular, have been noticed some differences of the sub-groups' middle ranks Eros\_T0 (6,013; 2; 0,049), Storge\_T0 (9,117; 2; 0,001), Mania\_T0 (14,419; 2; 0,001), Agape\_T0 (11,604; 2; 0,021).

Finally regarding the cross-comparisons, the last grouping variable is the civil status. On the grounds of

the above-mentioned variable, in some groups the average has been noticed to be statistically different.

As mentioned above, the Kruskal Wallis's non parametric test, makes it clear that there are statistically dissimilar differences among the Storge\_T0 (16,467; 3; 0,0001) sub-groups' middle ranks.

With the mixed comparisons, through the Manova's analysis, it just appears an important difference with the Roci test. In particular, in the test on the effects among the subjects, it is significant the connection between the group called "age class" and the "employment" variable ( $F = 9,084$ ;  $p < 0,05$ ). Clearly the responses given in the "age class" group differ remarkably in relation to the employment status.

Regarding the LAS, in the first sub-group "Eros", it is pointed out from the multivariate test that the time factor has a significant result both in the four group of patients (alcoholics, bipolar, players and emotional addicted) and in their gender; it also turns out significantly the interplay between the time factor and the "group and gender" factor, indeed from the tests of the effects on the subjects the interaction between the time and the four groups of patients is important ( $F = 6,143$ ;  $p < 0,005$ ) as the data do not comply the hypothesis of sphericity.

The interaction between the "within" time factor and the gender factor yields a statistically significant effect in the Eros sub-group ( $F = 12,955$ ;  $p < 0,005$ ). Finally, the interaction between the time factor, the four groups of patients and the gender factor has a statistically significant effect ( $F = 4,909$ ;  $p < 0,005$ ).

Then we can assert that the time between the first and second administration affects in a meaningful way the answers given by the first sub-group Eros, it affects not only the four kinds of patients but also their gender.

Finally, in the test on the effects among the subjects, still regarding the sub-group Eros, it appears an effect between the levels of school attendance ( $F = 3,669$ ;  $p < 0,005$ ) and the kind of civil status ( $F = 5,428$ ;  $p < 0,005$ ).

In the end, from this we can say that the different levels of school attendance may affect the kind of answers and also the emotional state in which the patients were when they answered the tests, seems to affect the results.

Taking into account the sub-group Ludus, from the multivariate analysis we can deduce that the time-variable yields significant changes among the following elements: the four groups of patients and the interplay between the gender and the civil status.

In fact, in the test regarding the effects on the subjects it is pointed out that the time - "within factor"- is significant because the assumption of sphericity is not satisfied ( $F = 8,905$ ;  $p < 0,05$ ). The interaction between time (within factor) and the group (between factor) makes a significant effect ( $F = 4,605$ ;  $p < 0,05$ ) and the same thing happens with the interaction between time, gender and the civil status of the sample ( $F = 9,625$ ;  $p < 0,05$ ).

From the test on the effects among the subjects appears that the group-factor (between) has a

significant effect ( $F=6,432$ ;  $p<0,05$ ) just as the gender factor ( $F=6,723$ ;  $p<0,05$ ) and the “class of age” factor ( $F=5,147$ ;  $p<0,05$ ).

In this case we can say that the time factor has a significant role on the conditions of answer in the Ludus sub-group, in the four groups (alcoholics, bipolar, players and emotional addicted) and in the interplay between time, one’s belonging to a gender rather than to another and the civil status.

Moreover, the answers given in the Ludus sub-group are remarkably different mostly in the four groups of patients among the two genders and the two age classes.

In the Storge sub-group, the Manova’s analysis has just pointed out a significant element in the test regarding the effects on the subjects concerning the civil status factor ( $F=3,293$ ;  $p<0,05$ ). In this case only the different emotions felt by the patients have yield a significant effect on the kind of answers given.

Finally, from the multivariate analysis it comes out that there are relevant differences in the scores of the Mania sub-groups.

In particular, the time produces an important effect in the interplay with school attendance variable and the civil status; indeed, in the test on the effects on the subjects it is proven that the answers given by the sample split in the various school attendance levels, in the two periods of supply have big differences ( $F=12,446$ ;  $p<0,05$ ); also it is very important the relation between time and civil status ( $F=7,426$ ;  $p<0,05$ ).

Instead in regards to the test on the effect among the subjects, the “school attendance” factor ( $F=4,688$ ;  $p<0,05$ ), the “work” factor ( $F=4,452$ ;  $p<0,05$ ), the interplay between age class and work ( $F=5,590$ ;  $p<0,05$ ) and the interaction among school attendance and civil status ( $F=4,673$ ;  $p<0,05$ ) have a significant effect.

To conclude, we can assert that in the sub-group Mania the course of time affects some factors. Particularly, both the different levels of school attendance and the civil status are affected from it. While inside the three school attendance groups there are important differences regarding the answers, inside the jobless and the employed groups there are significantly different scores.

Finally, there are differences even among the groups regarding the levels of scholarship especially on their relation with their own civil status.

After all we can notice that the two age classes are different from each other in relation to the employment and the unemployment status they’re in during the test. Through the “Spearman rate” – as we can see in the above chart – it was possible to observe some mutual relations – statistically important – between the following variables (Table 5):

- The Roci test positively correlates itself with the sub-groups Mania ( $rs=,483$ ;  $p<0,01$ ) and Agape ( $rs=,371$ ;  $p<0,05$ ). Those patients who had a high score in the Roci test- hence the extreme concern regarding their own sentimental relationship and as a consequence the obsessive behaviour they

have – correlated themselves with the two kind of love, Mania and Agape, that, according to the scientific literature, are the two sub-groups of the LAS’s questionnaire which can, above all, cause emotional addiction.

- The sub-group Eros is positively connected only with the Mania sub-group ( $rs=,355$ ;  $p<0,01$ ). Those patients who seem prepared to live their sentimental relationships mostly basing themselves on the first feelings of a relationship like, for example, physical chemistry and attraction, they might want to keep this first adrenalin status during their whole sentimental relationship. In this way their partner would become an obsession, just like drugs of which they cannot do without and of which they want more and more meaning, in this case, steady presence and attention from their partner and so on, and all of it will result in a relationship based on emotional dependence.
- The Ludus sub-group is positively connected with the Roci test ( $rs=,297$ ;  $p<0,01$ ), the Pragma sub-group ( $rs=,328$ ;  $p<0,01$ ) and the Mania sub-group ( $rs=,289$ ;  $p<0,01$ ).
- The “playful lovers” pay attention to the most joyful aspect of love, taking into account quantity rather than quality. If this kind of love is taken to extremes can become a sexual addiction. As a matter of fact, it doesn’t surprise that the patients who have a kind of love that is playful show some obsessive-compulsive traits in their sentimental relationship and sometimes the limit between sexual and emotional addiction becomes really thin, as most of the sentimental addicted use sex to make their partner approach themselves. What surprises the most is the big mutual relation between the so called Ludus kind of love and the Pragma one; those who feel a playful kind of love should take more into account their own instinct and less their rationality, something that, in this case, has not been strengthened yet. Perhaps the patients whom have been taken into account do not show a completely playful kind of love, but only a kind of inclination that could not exclude the trend to live a more rational kind of love.
- The Storge kind of love connects itself in a positive way only with the Pragma sub-group ( $rs=,439$ ;  $p<0,01$ ). The connection between these two types of love is very obvious, because the patients who see love as a relationship that can begin from friendship – and in which, lately, one should commit oneself to make the relationship run – usually are inclined to rationalize their relationships in order to know what can be more useful for the couple’s wealth, making it a less passionate and emotional relationship.
- As already seen the Mania type of love it is positively connected with the Roci test ( $rs=,483$ ;  $p<0,01$ ), the sub-group Eros ( $rs=,355$ ;  $p<0,01$ ) and the Ludus one ( $rs=,289$ ;  $p<0,01$ ). Those patients who have carried out high scores in the Mania sub-group are probably emotional affected or

have a higher tendency to develop it, hence they will have the bent to carry out a possessive and control behaviour in their sentimental relationship. This tendency to live love in a pathological way is also connected with the bent to develop a sexual addiction, because those who have in their close relationships negative feeling that they cannot manage, they seek comfort in a pathological relationship with sex, hoping the last one can relieve the stress.

- Finally, the love type Agape, positively connects with the Roci test ( $r_s=,371$ ;  $p<0,01$ ), Eros sub-group ( $r_s=,429$ ;  $p<0,01$ ) and love type Mania ( $r_s=,670$ ;  $p<0,01$ ). Those patients with high scores in the Agape sub-group may have the chance to increase the emotional addiction. Those who have an Agape kind of love see their partner as someone to whom they should devote themselves, for getting their own needs. An exaggerated kind of love like this causes a psychopathological outline that positively connects both the attitude to develop obsessive thoughts regarding the loss of their partner- based on wrong ideas- and control behaviour to avoid that this neglect could really happen. Often those who have an emotional addiction stay ground to the memory of the first stages of their relationship where the enthusiasm- together with a higher physical involvement- was for sure higher and the couple's balance that becomes steady breeds frustration in the addicted partner, which is connected to a development of insecurity and lower self-esteem.

According to the data ensued from this research two profile clearly emerge: 1) bipolar women in the bipolar spectrum, younger than 50 years' old who have a medium-low school attendance level and without any sentimental relationship with a tendency to develop obsessive doubts and concern in regard to their emotional relationship with a compulsive behaviour carried out to relieve anxiety and discomfort caused by the presence and/or the content of these obsessions; 2) men with emotional addiction, older than 50 years old, with higher education and unemployed- with obsessive-compulsive symptoms focused on their partner. According to LAS, the group of male alcoholics under the age of 50 is that at higher risk of developing a sexual addiction, whereas male gamblers with low level of education are those at higher risk for affective dependency.

## Discussion

The aim of this research was to look into – together with new assessment tools on a clinical sample – the presence and tendency to develop an emotional addiction and the obsession and the constraints focused on the emotional relationship.

According to the data ensued from this research, bipolar women, younger than 50 years' old who have a medium-low school attendance level and without any

sentimental relationship, analysed through the Roci test, seem to have a tendency to develop obsessive doubts and concern in regard to their emotional relationship with a compulsive behaviour carried out to relieve anxiety and discomfort caused by the presence and/or the content of these obsessions. This point is very interesting because that is the only group that doesn't have a clear addiction, appears to have a higher risk to develop an emotional addiction. Nevertheless, we have been told by the writings upon this argument that emotional addiction has a comorbidity connection with other affections like mood disorders and, above all, the bipolar disorder and major depression. Indeed, studies show that a salient characteristic of emotional addiction is the mood's inconstancy, "at first bound to the beginning" [...] (of behaviour), afterwards more and more widespread and extended to all of existence's aspects (9).

Moreover, as we can deduct from the data's analysis even the men from the emotional addicted group – older than 50 years old, with higher education and unemployed – show obsessive-compulsive symptoms balanced on their relationship and focused on their partner. Clearly the high score this group has gained is not unexpected because the test focuses on those aspects that are typical of emotional addiction, hence it is nothing but a confirmation of the state of their condition of emotional addicted. The other expected and confirmed thing is that it is really the men who gained the highest score – since even if it is true that both men and women are affected by the emotional addiction in the same way – the two gender show it in a different way because their physic balance works in a different way, so it reacts differently to traumas suffered during childhood, compared to the female one. (4).

Observing the results obtained in Ludus, Mania and Agape sub-groups, that are related to those kinds of love, taken to extremes, are prone to start a pathological love, we can notice that:

- In regards to the sub-group Ludus, both the alcoholics younger than 50 years old, and the players with a lower secondary licence, might develop a sexual addiction because their scores are the highest – but not so high to be considered meaningful – and then we cannot say that they have developed a sexual addiction. On the other hand, considering the players, researches have shown (10) that those who have developed an addiction syndrome do not have the control over the game anymore which became their most important thing, so that they cannot stop playing apart from their will and their care. So, all areas of life – like family, friends and work – are negatively affected by these ludopathic activities, as well as the sexual sphere. Even for alcoholics is easy to fling themselves in another kind of addiction, like the sexual one. In fact, hyper sexuality appears to be like a kind of sexual bulimia without any control, but its mechanism is similar to that that happens with drugs and alcohol addiction because it stimulates the same brain areas (11).

**Table 5. Correlazioni (Coefficiente “r<sub>s</sub>” Spearman).**

			Roci_t0	Eros_t0	ludus_t0	Storge_t0	Prog_t0	Mania_T0	Agape_t0
Rho di Spearman	Roci_t0	Coefficiente di correlazione	1,000	,048	,297**	-,148	-,049	,483**	,371**
		Sign. (a due code)		,669	,006	,181	,661	,000	,001
		N	83	83	83	83	83	83	83
Eros_t0	Eros_t0	Coefficiente di correlazione	,048	1,000	,016	,026	,101	,355**	,429**
		Sign. (a due code)	,669		,886	,814	,363	,001	,000
		N	83	83	83	83	83	83	83
ludus_t0	ludus_t0	Coefficiente di correlazione	,297**	,016	1,000	,252*	,328**	,289**	,172
		Sign. (a due code)	,006	,886		,022	,002	,008	,120
		N	83	83	83	83	83	83	83
Storge_t0	Storge_t0	Coefficiente di correlazione	-,148	,026	,252*	1,000	,439**	-,039	-,028
		Sign. (a due code)	,181	,814	,022		,000	,724	,799
		N	83	83	83	83	83	83	83
Prog_t0	Prog_t0	Coefficiente di correlazione	-,049	,101	,328**	,439**	1,000	,071	,020
		Sign. (a due code)	,661	,363	,002	,000		,522	,855
		N	83	83	83	83	83	83	83
Mania_T0	Mania_T0	Coefficiente di correlazione	,483**	,355**	,289**	-,039	,071	1,000	,670**
		Sign. (a due code)	,000	,001	,008	,724	,522		,000
		N	83	83	83	83	83	83	83
Agape_t0	Agape_t0	Coefficiente di correlazione	,371**	,429**	,172	-,028	,020	,670**	1,000
		Sign. (a due code)	,001	,000	,120	,799	,855	,000	
		N	83	83	83	83	83	83	83

\*\* La correlazione è significativa a livello 0,01 (a due code).

\* La correlazione è significativa a livello 0,05 (a due code).

- In Mania’s kind of love, those who gained a higher score are the women older than 50 years who have been through separation and have a secondary school diploma. Evidently this score wasn’t unexpected but strengthens the test’s ability to analyse emotional addiction and also confirms what the scientific community asserted. Emotional addiction mostly affects women apart from their age but, in this case, refers to the adult women who spent most of their lives to please their partner’s demands who do not want to return the attention they have got ignoring their own needs and aspirations and despite this they have been left alone, and after a large amount of time became aware of their condition so much that they had to ask for some help, which is the incipit to begin a psychological journey towards change direct towards the building of more satisfying emotional bonds (12).
- Agape kind of love mostly involves the group of male players who are younger than 50 years old and a lower secondary school licence. The gambler suffers from a self-esteem and relational problem, therefore winning games could have deep emotional meanings and symbolizes the solution of all their problems and a decisive life change. The player develops a kind of addiction that goes back up to a past family background that will pervade every sphere of their life.

The two tests are trustworthy since they have shown high enough correlation’s rates – among the two periods of administration – going over a coefficient

value of 80%. Therefore, they can depict the same scores and so give the data’s steadiness.

But it seems that time has significantly affected some of the socio-demographic-cultural variables even if referring to a second administration restricted to only one week and then not suitable to point out the way the aforementioned variable change over time, would be worthy to be brought to attention thanks to a third administration in a longer lapse of time, in order to strengthen the big differences from T1.

After all, from Spearman’s mutual relations we can deduce that Roci’s test significant connects with LAS’s sub-groups- Ludus, mania and Agape that, as previously said, show those kinds of love that, brought to the extremes, can result into pathological love. Indeed, while Roci’s test analyses the salient aspects of emotional addiction like, for example, obsessions and compulsions connected to one’s partner and to the relationship with them; at the same time the LAS test analyses the kind of love that prevails in the subject and if there is the supremacy of a kind of love that can result in an emotional or sexual addiction.

In conclusion we can say that the two test used in this research can be considered diagnostic tools useful to analyse the presence or the tendency to develop an emotional addiction. In the examined sample it has been noticed a high percentage of dysfunctional emotional-relational aspects among the four subgroups of psychiatric diagnosis. Given the small sample size and the heterogeneity of the sample, further studies are needed to understand the role of love addiction and its correlations to other psychopathological aspects.

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