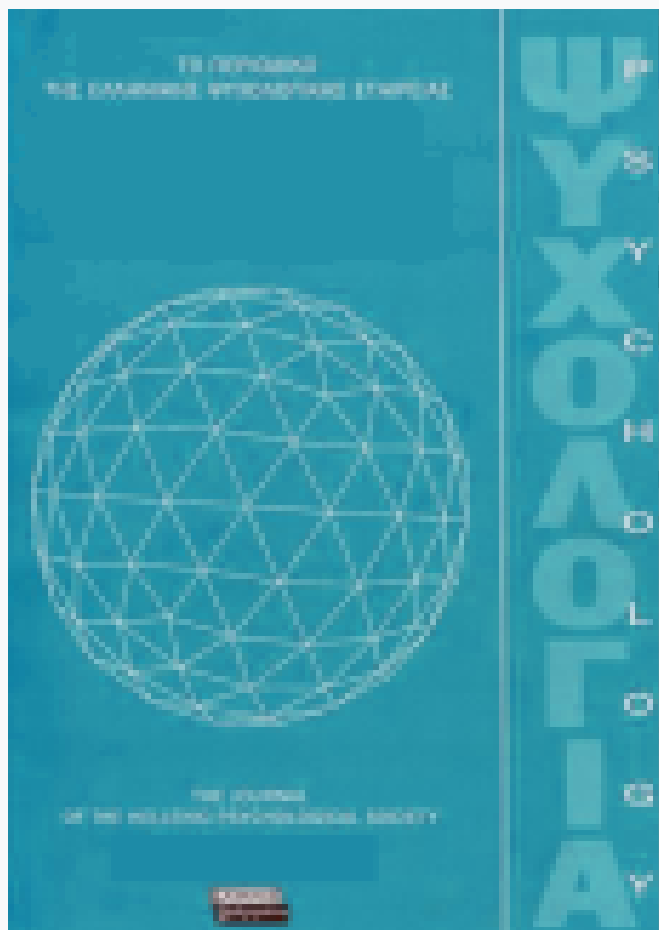


# Psychology: the Journal of the Hellenic Psychological Society

Vol 10, No 2+3 (2003)



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doi: [10.12681/psy\\_hps.23978](https://doi.org/10.12681/psy_hps.23978)

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## To cite this article:

Bolognini, M., Plancherel, B., Laget, J., Halfon, O., Corcos, M., & Jeammet, P. (2020). Depression and dependency: Which relationship?. *Psychology: The Journal of the Hellenic Psychological Society*, 10(2+3), 270–278.  
[https://doi.org/10.12681/psy\\_hps.23978](https://doi.org/10.12681/psy_hps.23978)

## Depression and dependency: Which relationship?

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### ABSTRACT

Dependent behavior, such as drug abuse and eating disorders, are often connected with other mental health problems. The sequential process of these disorders should be better understood in order to develop prevention programs and new treatments. This was the main aim of this research. In total, 308 adolescents and young adults aged 14 to 25 years (mean, 20.5 years) were included in the study. A semi-structured interview (The Mini-International Neuropsychiatric Interview, M.I.N.I.), along with DSM-IV criteria, was used in order to evaluate longitudinally the different mental health disorders. Results show that the Major Depressive Episode was the most common comorbid disorder, followed by Separation Anxiety. The disorders appear in a large proportion of cases before, or simultaneously with, the dependent behavior.

**Key words:** Depression, Drug abuse, Eating disorders.

### Introduction

Substance dependence disorders, irrespective of the object of addiction, can be seen as the expression of the individual's neurobiological, psychopathological, cultural and social vulnerability (Hudson, Weiss, & Pope, 1992; Jonas, Gold, Sweeney, & Pottash, 1987). In light of this, eating disorders belong to the field of addiction diseases, considering that the underlying psychopathological structures are close to those observed in addiction. Evidence has shown that there is a relationship between dependent behavior (drug abuse and eating disorders) and

mental health disorders (Hatsukami, Eckert, Mitchell, & Pyle, 1984; Holderness, Brooks-Gunn, & Warren, 1994; Rounsaville, Kosten, & Kleber, 1986). It is difficult to establish whether drug abuse or eating disorders come first or, conversely, whether mental health disorders are at the origin of drug abuse or eating disorder problems. Nevertheless, it has been observed that when coexisting, dependent behavior and mental disorders will influence each other, their manifestations and their evolution.

Drug abuse and mental health problems have been shown to be strongly associated. In a study by Achenbach and Edelbrock (1984), 59%

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*Note:* Project financed by the Swiss Federal Office for Public Health, ref. 8053. In cooperation with an INSERM net, ref. 494013 (Philippe Jeammet, Maurice Corcos and Martine Flament).

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of girls and 44% of boys aged 16, who were referred to a psychiatric clinic, were taking alcohol or drugs, whereas this was only the case for 10% of a control group from the community sample. Demilio (1989) found that in a group of 57 adolescents who were hospitalised for drug abuse, 35% had major depression, 11% dysthymia, 14% attention deficit disorders, 7% phobia and 16% personality disorders. The coexistence of drug abuse and depression has been described in several studies (Kosten & Rounsaville, 1986; Rounsaville, Kosten, & Kleber, 1986; Weissman, Gammon, John, Merikangas, Warner, Prusoff, & Sholomskas, 1987). In a study by Levy and Deykin (1989) drug abuse and alcohol more often preceded the depressive episode. According to Demilio (1989), depressive symptomatology began before drug abuse in half of the cases, which is confirmed by studies that identify the depressive symptomatology as a risk factor for drug abuse (Bukstein, Brent, & Kaminer, 1989; Bukstein, Glancy, & Kaminer, 1992; Hovens, Cantwell, & Kiriakos, 1994). It has also been shown that children with depressed parents have an increased risk of becoming drug abusers (Schuckit, 1983; Winokur, 1979).

Eating disorders have also been often described as disorders associated with depression. Depressive mood prevalence varies according to studies from 11% (Hatsukami, Eckert, Mitchell, & Pyle, 1984) to 66% (Fornari, Kaplan, Sandberg, & Matthews, 1992), with higher rates in bulimics compared to anorexics (Keller, 1989). Moreover, biological markers of depression have been identified in individuals with eating disorders (Herpertz-Dahlmann & Remschmidt, 1990); anxiety disorders (social phobia and obsessive compulsive disorders) have been identified in two-thirds of anorexic patients (Halmi, Eckert, Marchi, Sampugnaro, Apple, & Cohen, 1991). Finally, individuals with eating disorders are more often characterised with compulsive personality traits and sometimes obsessive personality (Herzog, Keller, Saks, Yeh,

& Lavori, 1992).

The aim of this study was to identify the relationship between dependent behavior and depression, to identify the disorders which are at the origin of, or follow, the dependent behavior, and to investigate how far dependent behavior can lead to mental health disorder. With this perspective, a clinical sample (drug abuse and eating disorders) was compared to a community sample.

## Method

### Sample

Criteria for inclusion in the clinical group refer to the DSM-IV classification (American Psychiatric Association, 1994). On the basis of the data collected in the interview, participants were distributed into the following categories: drug abuse, anorexia, bulimia and bulimic hyperphagia. Participants were recruited from different institutions, corresponding to a wide variety of treatment centres for drug abuse and eating disorders.

Participants were considered as controls when the answers to questions concerning drug abuse diagnoses or eating disorder diagnoses were negative. The control group was selected taking into account age, gender and educational level in order to be comparable to that of the clinical sample. They were recruited in schools, social support agencies and through announcements in coffee bars and leisure centres.

Three hundred and eight (308) participants, 14 to 25 years of age (mean age: 20.5 years) were included in the study. Table 1 shows the distribution of participants according to group and gender. There was an equal number of participants with bulimia and anorexia. Men comprised two-thirds and women one-third of the drug abuse group. The distribution of control participants took into account this difference in gender ratio. Only women were included in the

**Table 1**  
**Distribution of the participants as a function of group and gender**

Diagnosis	Males	Females	Total
Anorexia	—	41	41
Bulimia	—	39	39
Drug abuse	73	34	107
Controls	49	72	121
Total	122	186	308

eating disorders group, as very few men belong to this diagnostic category.

### Procedure

Several contacts were made with institutions and health professionals who care adolescents and young adults with drug abuse or eating disorder problems. The first contact was by telephone in order to make an appointment. Each participant was given a document giving detailed information on the research. This document was sent back to the research unit with the participant's consent. The interview took place at the research unit, in a treatment centre, or at the participants' homes according to their convenience.

There were two sessions: first, a semi-structured interview allowing confirmation of the diagnosis. The second session was used to develop several self-reports. In some cases a third session was necessary. Each participant was given 50.- Swiss francs for his/her participation and the transport costs for travel to the research unit.

Comorbidity was evaluated with the MINI (Mini International Neuropsychiatric Interview, Sheehan, Lecrubier, Sheehan, Amorim, Janavs, Weiler, Hergueta, Baker, & Dunbar, 1998). This instrument enables DSM-IV diagnoses of the most important mental health disorders – in this

study notably depression, dysthymia, separation anxiety, drug abuse, anorexia and bulimia. The semi-structured interview was translated and validated in French (Duburcq, Blin, Charpak, Blachier, Allicar, Bouhassira, Hergueta, & Lecrubier, 1999). A self-report was also filled in by every participant. The Beck Depression Inventory (Beck & Beamesderfer, 1974) was used to evaluate depressed mood at the time of the investigation.

### Results

Major depressive episode was evaluated throughout the participant's lifetime. The information recorded referred to the significant depression symptoms, the duration and the number of episodes. Table 2 shows that major depressive episode was a very important disorder in the clinical sample,  $\chi^2(10, N = 308) = 60.3, p < .001$ . There was a higher proportion of depressed participants in the sample with eating disorders (20% of bulimics and anorexics) compared to 15% of the women with drug abuse. However, the difference is not significant,  $\chi^2(2, N = 114) = 3.05, p < .21$ . The association of depression with gender was significant,  $\chi^2(2, N = 308) = 15.26, p < .001$ , with depression twice as prevalent in women than in men. These differences were still significant, though at a lower level, when only the past depression

**Table 2**  
**Major depressive episode (present and past) as a function of group and gender**

Group	Gender	Present		Past		Total
		<i>n</i>	%	<i>n</i>	%	<i>n</i>
Drug abuse	Males	6	8.2	28	38.4	73
	Females	5	14.7	17	50.0	34
Eating disorders						
	anorexia	8	19.5	25	61.0	41
bulimia	Females	8	20.5	23	59.0	39
Controls	Males	1	2.0	9	18.4	49
	Females	4	5.6	19	26.4	72
Total		32	10.4	121	39.3	308

episode was taken into account,  $\chi^2(1, N = 308) = 6.80, p < .009$ .

Depressed mood was also evaluated with the BDI (Beck & Beamesderfer, 1974) in a 13-item version. Depression was evaluated at the time of the interview. As shown in Table 3, according to multiple comparisons procedure (Tuckey), there was no significant difference between men with drug abuse and the control group ( $p = .067$ ). However, women with drug abuse and participants with eating disorder problems differed significantly from the control group (Tuckey's studentized *t*-test,  $p = .004$  and  $p < .001$ ,

respectively). There was no significant difference between bulimics and women with drug abuse ( $p = .31$ ).

Table 4 presents the distribution of participants according to the age of the first depressive episode and the beginning of dependency. Differences between groups were not significant. In two-thirds of the cases, depression was present during or before the moment corresponding to the beginning of dependency.

Dysthymia was evaluated for the last two years (see Table 5). This disorder was not

**Table 3**  
**Mean BDI scores and standard deviation as a function of group and gender**

Group	Gender	Mean	SD
Drug abuse	Males	6.08	4.78
	Females	8.58	7.02
Eating disorders			
	anorexia	12.68	8.50
bulimia	Females	11.56	8.22
Controls	Males	2.93	4.24
	Females	3.93	5.14

**Table 4**  
**First depressive episode and onset of drug abuse in the clinical group as a function of group and gender**

Group	Gender	Before dependency		Simultaneously		After dependency		Total
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Drug abuse	Males	13	39.4	6	18.2	14	42.4	33
	Females	10	45.5	4	18.1	8	36.4	22
Eating disorders								
anorexia	Females	7	21.2	13	39.4	13	39.4	33
bulimia	Females	9	29.0	14	45.2	8	25.8	31
Total		39	32.8	37	31.1	43	36.1	119

evaluated when there was a major depressive episode. This is the reason why it appears to be rather uncommon (10% of the total sample). Nevertheless, the control group differed compared to the clinical group,  $\chi^2(5, N = 308) = 14.40, p < .01$ , with the highest incidence in bulimics (23%),  $\chi^2(1, N = 111) = 5.97, p < .01$ .

Table 6 shows that separation anxiety was a rather frequent disorder, especially in the clinical group,  $\chi^2(10, N = 308) = 46.80, p < .001$ . This problem emerges during childhood, before the age of 18 years and it can persist up to

adulthood. Women with drug abuse and bulimic participants presented the highest percentage of separation anxiety, respectively 50% and 30%. This disorder was very rare in men from the control group.

As shown in Table 7, there is a high correlation between the age of the first major depressive episode and the age of dependency. Correlation is .46 for anorexic participants, .74 for bulimic participants, .53 for drug abuse females, and .35 for drug abuse males.

**Table 5**  
**Dysthymia (last two years) as a function of group and gender**

Group	Gender	No		Yes		Total
		<i>n</i>	%	<i>n</i>	%	<i>n</i>
Drug abuse	Males	65	89.0	8	11.0	73
	Females	29	85.3	5	14.7	34
Eating disorders						
anorexia	Females	35	85.4	6	14.6	41
bulimia	Females	30	76.9	9	23.1	39
Controls	Males	49	100.0	0	0.0	49
	Females	67	93.1	5	6.9	72
Total		275	89.3	33	10.7	308

**Table 6**  
**Separation anxiety (present and past) as a function of group and gender**

Group	Gender	Present		Past only		Total
		<i>n</i>	%	<i>n</i>	%	<i>n</i>
Drug abuse	Males	17	23.3	10	13.7	73
	Females	17	50.0	2	5.9	34
Eating disorders						
anorexia	Females	10	24.4	5	12.2	41
bulimia	Females	12	30.8	8	15.4	39
Controls	Males	1	2.0	2	4.1	49
	Females	9	12.5	2	2.8	72
Total		66	21.4	27	8.8	308

### Discussion

According to the results presented above, it is evident that dependent behavior, notably eating disorders, are frequently associated with mental health disorders. The prevalence of major depressive episode is particularly high (80% in the lifetime of participants with eating disorders, 75% for women with drug abuse) in comparison with results of other studies. The age of the present sample, as well as the fact that they were only women, might explain this high proportion. It should also be mentioned that the clinical group only included individuals corresponding to DSM-IV diagnoses.

Most of the individuals of the clinical group had mental disorders but the relationship

between dependency and mental health is complex. Three models can be postulated: disorders can be the consequence of dependency; they can be an antecedent or precipitating factor of dependency; finally, the two different problems can result from the participants' vulnerability. This last model cannot be tested in our study, which does not include anamnesis, data on family antecedents, or genetic data.

It is important to specify that synchronic evaluation, such as the study reported here, does not allow the precise identification of the sequential order of the disorders: on the one hand the information only came from one source, the participant; and on the other hand, data concerning the past were gathered in a retrospective way. The Washington University

**Table 7**  
**Pearson's *r* correlation between the age of the first major depressive episode and the age of dependency**

Clinical groups	Gender	<i>r</i>	<i>p</i>	<i>n</i>
Drug abuse	Males	.349	.047	33
Drug abuse	Females	.527	.012	22
Anorexia	Females	.458	.007	33
Bulimia	Females	.734	.000	31

Group (composed of G. Winokur, T. Reich, J. Rimmer, & F. N. Pitts) defined the chronology of disorders in terms of a primary-secondary paradigm (Winokur, Reich, Rimmer, & Pitts, 1970), which does not implicate a causal relationship or an aetiology. Drug abuse is more often mentioned as a primary disturbance in the sense of priority of treatment (MacDonald, 1984). In reality, the direction of the influence is very often bi-directional, the co-occurrence of the two types of problems producing a third entity called "dual diagnosis" (Bukstein, 1995).

The results of our study show that depressed mood or dysthymia coexist with eating disorders in most cases. According to the first model, depression would be the consequence of the dependency disorders. In the case of drug abuse, the substances used can induce depressive disorders. Moreover, drug abuse can, like eating disorders, have a consequence on social and familial functioning as characterised by frequent deterioration such as conflicts and school failures.

According to the second model, depression would come first, preceding the dependent disorder: Depressed mood would be a risk factor for drug abuse (Kushner, Sher, & Beitman, 1990). This is also the case for eating disorders (Strober & Katz, 1988).

In our study, two-thirds of the participants had depressive mood first, or had depressive mood together with dependent behavior. Thus, depression seems, in most cases, to be preceding, or co-occurring with, the dependent behavior rather than the other way round. Also men have lower scores of depression. Gender is consequently an important dimension to consider in evaluating the relationship between dependency and depressive mood.

Separation anxiety was also often related to dependency disorders, notably in women (Bailly-Lambin & Bailly, 1999; Sternberg & Cohen, 1975). It is a disorder occurring more specifically during childhood and at the beginning of adolescence, in most cases between the ages of

5 and 10 years. Therefore, it is a problem preceding the dependent behavior, and which represents, in some way, a vulnerability with reference to drug abuse and to eating disorder behavior (Bailly-Lambin & Bailly, 1999). The comparison between the various groups in our study shows some important differences, offering in evidence that eating disorders individuals are more vulnerable as to separation anxiety than drug abuse individuals.

The fact that some mental health problems precede the dependent behavior has some implications for prevention and treatment. Indeed, when confronted with a depressed adolescent, it is important not only to consider the symptoms but also to give particular attention to some behavior that could occur consequent upon mental health disorders, more specifically drug abuse or eating disorders. This behavior very often occurs during a process that allows time for an intervention that will make possible a preventive action.

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