

## Quality of Sibling Relationship and Substance Misuse: A Comparative Study

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### Abstract

The aim of the current study is to examine the quality of sibling relationship in families with a sibling with substance misuse (SSU) and compare the relationship to families with a sibling with no use (SNU). Thirty-six (36) families participated in the study (17 with SSU and 19 with SNU; N = 144). Semi-structured interviews were conducted with 40 siblings (20 SNU and 20 SSU; 18-31 years old) in order to qualitatively investigate the characteristics of the sibling relationship. The siblings were not identified with any psychopathology, according to SCL-90R. Moreover, we considered the family cohesion and adaptability, as identified by the FACES III (administered to the whole sample) and the family constellation (including number of children, birth order, gender, family size, family structure, years of substance misuse and socioeconomic level). The results of the thematic analysis seem to support Furman and Buhrmester's (1985) framework, in the context of SNU families. Nevertheless, when considering families with SSU the framework is enriched with a new axis: Loss/mourning. The substance misuse seems to provoke an overturn of the representation of the sibling relationship: the behavioral changes (i.e. disengagement) of the sibling with drug use are experienced as a loss by the sibling non user, thus triggering the psychological process of 'mourning'. Moreover, in these families, the sibling with no drug use seem to experience differential parenting, they feel neglected, angry and they take up a parental role towards the SSU, whom they experience as "sensitive" and "vulnerable".

*Keywords:* sibling relationship, substance use, family functioning

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## Introduction

Sibling relationship is one of the most neglected relations in psychological research (Cicirelli, 1982; Buist, Dekovic, & Prinzie, 2013). However, sibling relationship is one of the longest lasting relationships in an individual's life (Caffaro & Conn-Caffaro, 2005; Cicirelli, 1991; Orsmond, Kuo, & Seltzer, 2009). This may account for the fact that it has been found to be even stronger than parental and peer influence (Pomery, Gibbons, Gerrard, Cleveland, Brody, & Wills, 2005; Rowland, Chapman, & Henggeler, 2008; Windle, 2000). Furthermore, the enduring nature of sibling relationship seems to be an important factor in the shaping of individual development (Conger & Little, 2010; East & Khoo, 2005). Siblings may affect each other's behavior (Alderfer et al., 2010), both positively, as a resilient factor and negatively, as a risk factor. On the one hand, sibling relationship may function (positively) as an agent of socialization (Cox, Marshall, Mandelco, & Olsen, 2003; Hamama, Ronen, & Feigin, 2000), as a network of emotional support, a companionship in life (Dunn, 2005), as the best predictor of positive adjustment among older adults (Waldinger, Vaillant, & Orav, 2007), a role model for empathy towards others (Lam, Solmeyer, & McHale, 2012; McHale & Gamble, 1988), a context of developing competencies and strategies for managing conflict (Dunn, 1983) and learning new roles as mentor. On the other hand, it may function as a risk factor for

mental health and behavior (Feinberg, Solmeyer, & McHale, 2012), use of drugs (Low, Short, & Snyder, 2012; Widom, Weiler, & Cottler, 1999) and initiation and promotion of antisocial behavior in adolescents (Alderfer et al., 2010; Henggeler et al., 2006). In the present study, we aimed to investigate the quality of sibling relationship (Furman & Buhrmester, 1985) in families with a sibling with substance use and compare it to families without substance use.

## Quality of Sibling Relationship

The quality of sibling relationship has not been studied extensively. The existing literature focuses mainly on the following factors affecting its shaping: birth order, family size, gender and individual differences, in various intellectual and personality characteristics. However, research on the effects of structural variables and the quality of sibling relationship is not identical. It seems unlikely that the quality characteristics of sibling relationship are solely determined by the variables of family constellation (Cicirelli, 1995; Furman & Buhrmester, 1985). At the present time, researchers are focusing on the interpersonal relationships between siblings and factors influencing such relationships. The progress of research on sibling relationship has been relatively slow in comparison with research on spousal and parent-child relationships, largely because it wasn't until recently, that the full impact of sibling relationships on the developing individual has been realized (Cicirelli, 1995; Gamble & Yu, 2014; Stocker & McHale, 1992).

One of the first studies on the quality of sibling relationship was that of Furman & Buhrmester (1985), which aimed to create a systematic framework of study and evaluation of the quality characteristics of the sibling relationship. The dimensions that emerged as most important in sibling relationship were: (a) Warmth/Closeness, (b) Status/Power, (c) Conflict, and (d) Rivalry. Siblings are an integral part of the social world of children. The emotional ties between them are commonly considered to be second in power, only compared to those that exist between parents and children (Buhrmester & Furman, 1990). Siblings may have significant effects on each other's growth and influence may vary significantly, depending on the quality of the relationship that exists between them (Van Der Vorst, Engels, Meeus, Deković, & Van Leeuwe, 2007; Yeh & Lempers, 2004). The sibling relationship may be characterized by both love and warmth, as well as by conflict and aggression (Lewis, 2011; Stoneman 2005). One reason that may account for this, could be the existence of considerable variety in the quality characteristics of sibling relationship (Kramer, 2010; Solmeyer, McHale, & Crouter, 2014): it may be equal or asymmetric (regarding the status or power), close or distant, harmonious or conflictual, collaborative or competitive (regarding the emotional tone).

According to the findings of longitudinal studies, sibling relationship becomes less asymmetrical and less intensive with age (Buhrmester & Furman, 1990; Conger & Little, 2010; McHale, Updegraff, & Whiteman, 2012), as the conflicts between siblings seem to be reduced, thus, leading to the improvement of sibling relationship (Kramer, 2010). It has also been suggested that the quality of sibling relationships, in early childhood, provides forecasts for adjustment later in adolescence (Heller & Kramer, 2009; Hegar & Rosenthal, 2011; McHale et al., 2012). Most researchers have focused on a specific aspect of sibling relationship, such as rivalry, without trying to capture the multifaceted nature of relations. For instance, sibling interactions are mainly coded or rated as evidencing affection, caregiving, cooperation, and support or, alternatively, as being coercive, competitive, hostile, or manipulative (Gamble & Yu, 2014). Similarly, much research has focused on sibling interactions in restricted contexts, such as during teaching or when the mother is present (Conger & Little, 2010; Hegar & Rosenthal, 2011). The majority of research on the quality of sibling relationship has focused on children, examining the variation in the quality of sibling relationship according to many factors, such as temperament, suggesting that the siblings' characteristics

could exacerbate the effects of stressful family circumstances on sibling ties (Conger & Little, 2010; McHale et al., 2012; Riggio, 2000) and variables of family constellation such as birth order, and parent-child relationship (Conger & Little, 2010; McHale et al., 2012). Differences in the quality of the relationship have also been associated to differences in individual development and psychological adjustment (Brody, 1998; Brody, Stoneman, & Burke, 1987; Piotrowski, Taylor, & Cormier, 2014; Skopp, McDonald, Manke, & Jouriles, 2005). Most research on adult siblings has focused on the quality of sibling relationship in later life. Findings suggest that older siblings appear as a source of (a) support in times of crisis, (b) empowerment of the sense of control in life and (c) psychological support, emotional closeness, acceptance and companionship (Riggio, 2000). Although, the close sibling relationship has been identified as a protective factor for stressful life events, it cannot effectively protect in all types of events and at all times in life. For instance, young people usually spend much of their time outside home, with their peers. So the closeness of sibling relationship, as well as its warmth, may (temporarily) decrease during adolescence. Therefore, it is unclear whether the sibling relationship will remain an important source of support during traumatic life events, beyond childhood (Waite, Shanahan, Calkins, Keane, & O' Brien (2011).

## Family and Substance Misuse

Research on substance misuse has mainly concentrated on the correlation of substance misuse in the family of the user, as well as, in his/her social environment. Although it has been recognized (Kothari, Sorenson, Bank, & Snyder, 2014) that there are meaningful correlations between characteristics of family functioning (e.g. family values, family cohesion, close relationships with parents), and the tendency to use drugs (Aghakhani, Eftekhari, Zarei, Moradi, & Torabizadeh, 2015; Greenberg, Seltzer, Orsmond, & Krauss, 1999), siblings and peers have rarely been examined simultaneously (Scholte, Poelen, Willemsen, Boomsma, & Engels, 2008).

The existing body of research on the impact of drug use on families, concentrates, predominantly on different family functioning factors and on peers, as either predictive or risk factors for (mainly adolescent) substance misuse. The risk and protective factors can help explain behavior of substance users, as well as the way they contribute to the increase of drug use vulnerability and facilitate preventive efforts (Bränström, Sjöström, & Andréasson, 2007). Family risk factors, predictive to adolescent substance misuse are: high family conflict and low warmth (Arteaga, Chen, & Reynolds, 2010; Calhoun, Conner, Miller, & Messina, 2015; Skeer et al., 2011; Stickley et al., 2013), parental education, family history of dependence (Khoddam, Worley, Browne, Doran, & Brown, 2015), family's poor reactions, parents' inefficient monitoring, lack of intimacy between parents and children, insufficient support, parents' abuse of drugs (Aghakhani et al., 2015; Basnet, Onyeka, Tiihonen, Föhr, & Kauhanen, 2015; Kelley, Lawrence, Millettich, Hollis, & Henson, 2015), low supervision (Karki, Länsimies, Laukkanen, Pirskanen, & Pietilä, 2016), dysfunctional family organization and communication (Carmona, Barros, Tobar, Canobra, & Montequín, 2008; Nisar, Ullah, Ali, & Alam, 2015), maternal incarceration, absence or violence of father (Carmona et al., 2008), lower family income (Donaldson, Nakawaki, & Crano, 2015), and divorce of parents. (Arditti, 2015; Calhoun et al., 2015; Johnson, 2015). However, a divorce can be a relief for children, on the grounds that it can remove a child from a hostile, dysfunctional, and perhaps, abusive environment (Arditti, 2015). Protective family factors to adolescent substance misuse are: family connectedness, cohesion (Kopak, Chia-Chen Chen, Haas, & Gillmore, 2012; Kulis, Ayers, & Baker, 2015), emotional connection, support, discipline, supervision (Creemers et al., 2015; Eassey, Gibson, & Krohn, 2015; Piko & Kovács, 2010), monitoring and parent-child attachment, the proximity of the adolescent and their identification with the parent, (Fallu et al., 2010), well defined boundaries between family subsystems (parental and sibling subsystem; Aghakhani et al., 2015).

Family cohesion seems to be one of the main protective factors in adolescent drug misuse, reported in various studies. The family monitoring or cohesion, refers to the way and extent to which family members interact with each other, the targets they set, the common family activities that they are involved with etc. (Crane, Ngai, Larson, & Hafen, 2005; Preechawong et al., 2007). Families with high cohesion reinforce healthy individuality among their members, while low cohesion interactions restrain the development of intimacy between them (Davies, Cummings, & Winter, 2004). Family members are less likely to develop psychological problems and are easier to adapt to stressful situations, have well defined boundaries (Minuchin, 1974; Olson, 2000; Petrocelli, Calhoun, & Glaser, 2003), depicted in the adequate parental control and supervision (Friedman & Glassman, 2000) and clear communication (Kamon, Stanger, Budney, & Dumenci, 2006).

Furthermore, people who have a positive family history of substance misuse, are more prone to serious substance misuse (Coviello, Alterman, Cacciola, Rutherford, & Zanis, 2004). Also, several studies on parental influence and cannabis use among children, show low parental discipline and low proximity, while high parental warmth is a protective factor against cannabis use (Scherrer et al., 2008; McCutcheon et al., 2013). A feature often found in the history of users of substances is the absence of paternal figure and the presence of an overprotective mother. Generally, fathers of dependent men are referred to as detached, weak or absent (Kaplan & Meyerowitz, 1970; Stanton & Todd, 2009). Therefore, the use of drugs is an indirect or secondary effect of family socialization, where dysfunction of the family structure is a risk factor for the onset of substance use (Barker & Hunt, 2004).

As far as the impact of substances on the family is concerned, the abuse of alcohol or drugs by children and young people can negatively affect family relationships and family dynamics (Velleman & Templeton, 2007). Cohabitation with a user is very difficult, because the user often has many problematic behaviors such as violence, theft, aggression, fraud and lying (Moriarty, Stubbe, Bradford, Tapper, & Lim, 2011; Salter & Clark, 2004). The effort of the family to activate and to resolve problems arising from the use of substances, creates great stress and conflict between family members, exacerbated as the drug problem grows (Barnard, 2005).

As far as research on peers is concerned, it concentrates mainly on adolescence, reporting that there are strong associations between substance use by adolescents and misuse of alcohol, tobacco (Ali & Dwyer, 2009) or other substances by their peers (Garnier & Stein, 2002). Yet, the effect of peers as a risk factor, seems to diminish when the family functions well (Stanton & Todd, 2009). Consequently, substance misuse is not only an “adolescent” problem, but a family problem as well (Vakalahi, 2001).

## Quality of Sibling Relationship and Drugs Misuse

The quality of sibling relationship, in relation to the use of drugs, has mainly been studied as a factor underlying the effect of siblings’ influence on drug use (Yeh & Lempers, 2004). Regarding the quality of sibling relationship, (Van Der Vorst, Engels, Meeus, Deković, & Van Leeuwe, 2007) suggest that there is no high correlation between drinking and modeling effects over time in sibling pairs, reporting a relationship characterized by high levels of support, spending time together, and few conflicts. One of the most prolific areas of research on siblings with drug use, concerns the risk of exposure to and transmission of drug use between siblings. (Glaser, Shelton, & van den Bree, 2010; Poelen, Engels, Van Der Vorst, Scholte, & Vermulst, 2007). Emphasis has been given to the influence of older siblings on younger ones as a risk factor of substance use. Several studies have demonstrated that substance use by one sibling is associated with substance use by the other (Bierut, Strickland, Thompson, Afful, & Cottler, 2008; Kramer, 2010; Rowland, Chapman, & Henggeler, 2008).

Research seems to support the hypothesis that older siblings function as models for the younger ones in substance-abusing behavior. They are an influential resource of guidance and advice, make substances available to younger siblings (Bierut et al., 2008) and influence younger siblings' peer selection (Conger & Little, 2010). The lack of systematic research on the quality of sibling relationship and substance use is particularly evident in early adulthood (Conger & Little, 2010; Lu, 2007; Scharf, Shulman, & Avigad-Spitz, 2005). This accounts for the fact that a link between older and younger sibling substance use has not, yet, been clearly established (Kothari et al., 2014).

Siblings of substance users are more likely to experiment with various substances compared with those who do not have siblings that use substances (Bierut et al., 2008; Latimer et al., 2004). Furthermore, younger siblings of substance users are at great risk to initiate use due to their exposure to drugs. Indeed, the degree of influence of siblings was more than that of parents (Barnard, 2005; Scherrer et al., 2008).

High sibling conflict between brothers has been recognized as a risk factor for the adjustment of adolescents and resorting to different behaviors, such as substance use (Fischer, Pidcock, Munsch, & Forthun, 2005; McHale et al., 2012). There is evidence that poor quality sibling relationship, intense conflict and coercive interactions between siblings, can be a risk factor for the initiation of substance use and antisocial behavior (Kramer, 2010; Low, Short, & Snyder, 2012) and may influence a range of externalizing problems (substance use, delinquency), particularly during adolescence as youths begin to engage in more of these risky behaviors. Furthermore, sibling intimacy has been shown to moderate the influence of adolescents' substance use, risky sexual behavior, and delinquency on their sibling's behavior. Furthermore, research suggests that, the strongest degree of sibling similarity found in pairs is characterized by a high level of warmth (Solmeyer et al., 2014). Moreover, non-user siblings show unusually high rates of depression, stress, antisocial trends, alcoholism and propensity for substance abuse (Angel & Angel, 2003).

The aim of the present study is to assess the quality of sibling relationship in siblings with drug use and compare it with siblings with no use. More specifically, we are interested in the following questions:

1. What are the characteristics of the quality of sibling relationship as described by Furman and Buhrmester (1985), in families where there is substance use by one sibling compared to families where there are no substance users?
2. In which ways is substance use experienced by the sibling non/substance user?
3. In which ways does the sibling non user sibling experience the quality of his/her relationship with the sibling substance user?
4. What are the differences (if any) in the family functioning between families with a sibling substance user and families without a sibling substance user?

## Method

### Participants

Thirty-six families participated in the study, including seventeen with a substance user and nineteen without, constituting a sample of 144 participants ( $N = 144$ ). Participants were Greek Athenian residents. The families with a substance user, were in family therapy programs. A snowball sampling procedure was adopted. More specifically,

participants of families with a substance user were from three psychotherapeutic programs of substance drug users and consented for participation, after we informed them for the purpose of the study, with a consent form. Family and siblings were arranged specific hours, in the places of psychotherapeutic programs, in order to take part in the study. Most of the parents and siblings were in counseling and their children that were substance use. On the other hand, participants of families with siblings no substance users, were selected randomly and their interviews took place in the rehabilitation centres KETHEA and OKANA.

All the participants completed FACES III and questions about the family constellation (see Measures). Semi-structured interviews were conducted with 40 siblings (20 from each family category). All the interviewees completed the SCL-90-R (see Measures). The demographics of the study groups are outlined in Table 1a and Table 1b. It is stressed that the non-parametric Mann-Whitney tests and Fisher exact tests suggested that no statistically significant differences were found with respect to the demographic of the two family categories.

## Ethics

The study was conducted in compliance with the ethical standards of research with human subjects of the University of Aegean. The protocol was approved by the Aegean University Institutional Review Board (IRB), although the project did not involve any harm or risk to the participants.

Table 1a

*The Participants of the Study (Demographics)*

Characteristic	Families ...									
	without Substance Misuse					with Sibling Substance Misuse				
	<i>M</i>	<i>SD</i>	Min	Max	<i>Mdn</i>	<i>M</i>	<i>SD</i>	Min	Max	<i>Mdn</i>
Number of Children	2	1	2	4	2	2	0	2	3	2
Age Sibling 1	26	3	22	30	25	27	7	18	44	26
Age Sibling 2	26	6	18	39	25	36	8	30	42	36
Age User	n/a	n/a	n/a	n/a	n/a	27	5	20	38	25
Years of Substance Use	n/a	n/a	n/a	n/a	n/a	9	5	3	18	9
Age Father	57	5	48	69	55	59	8	46	73	57
Age Mother	51	6	42	66	50	53	6	43	71	50

Note. n/a = not applicable.

Table 1b

*The Participants of the Study (Demographics)*

Characteristic	Families ...			
	without Substance Misuse		with Sibling Substance Misuse	
	N	%	N	%
<b>Gender Sibling 1</b>				
Male	6	37.5	6	31.6
Female	10	62.5	13	68.4
<b>Gender Sibling 2</b>				
Male	8	50.0	1	50.0
Female	8	50.0	1	50.0
<b>Gender User</b>				
Male	n/a	n/a	13	68.4
Female	n/a	n/a	6	31.6
<b>Education Sibling 1</b>				
Compulsory	0	0.0	0	0.0
High School	1	6.3	0	0.0
Technical Univ.	3	18.8	7	36.8
University	6	37.5	11	57.9
MSc/PhD	6	37.5	1	5.3
<b>Education Sibling 2</b>				
Compulsory	0	0.0	0	0.0
High School	0	0.0	0	0.0
Technical Univ.	3	18.8	0	0.0
University	9	56.3	1	100.0
MSc/PhD	4	25.0	0	0.0
<b>Education User</b>				
Compulsory	n/a	n/a	2	10.5
High School	n/a	n/a	0	0.0
Technical Univ.	n/a	n/a	9	47.4
University	n/a	n/a	7	36.8
MSc/PhD	n/a	n/a	1	5.3
<b>Education Father</b>				
Compulsory	0	0.0	1	7.7
High School	4	26.7	0	0.0
Technical Univ.	5	33.3	6	46.2
University	5	33.3	5	38.5
MSc/PhD	1	6.7	1	7.7
<b>Education Mother</b>				
Compulsory	0	0.0	0	0.0
High School	6	37.5	2	11.1
Technical Univ.	2	12.5	10	55.6
University	7	43.8	6	33.3
MSc/PhD	1	6.3	0	0.0

Characteristic	Families ...			
	without Substance Misuse		with Sibling Substance Misuse	
	N	%	N	%
<b>Financial status Sibling 1</b>				
Low	0	0.0	0	0.0
Low-middle	2	12.5	6	31.6
Middle	8	50.0	8	42.1
Middle-high	3	18.8	2	10.5
High	3	18.8	3	15.8
<b>Financial status Sibling 2</b>				
Low	0	0.0	0	0.0
Low-middle	2	12.5	0	0.0
Middle	8	50.0	0	0.0
Middle-high	3	18.8	0	0.0
High	3	18.8	1	100.0
<b>Financial status User</b>				
Low	n/a	n/a	0	0.0
Low-middle	n/a	n/a	6	31.6
Middle	n/a	n/a	6	31.6
Middle-high	n/a	n/a	4	21.1
High	n/a	n/a	3	15.8
<b>Financial status Father</b>				
Low	0	0.0	1	7.7
Low-middle	1	6.7	2	15.4
Middle	9	60.0	5	38.5
Middle-high	2	13.3	2	15.4
High	3	20.0	3	23.1
<b>Financial status Mother</b>				
Low	0	0.0	0	0.0
Low-middle	2	12.5	5	27.8
Middle	7	43.8	5	27.8
Middle-high	4	25.0	5	27.8
High	3	18.8	3	16.7
<b>Occupation Father</b>				
Employee (public)	4	26.7	1	7.7
Employee (private)	3	20.0	1	7.7
Self-employed	6	40.0	6	46.2
Unemployed	0	0.0	0	0.0
Retired	2	13.3	5	38.5
<b>Occupation Mother</b>				
Employee (public)	3	18.8	4	22.2
Employee (private)	3	18.8	5	27.8
Self-employed	5	31.3	4	22.2
Unemployed	4	25.0	2	11.1
Retired	1	6.3	3	16.7

Note. n/a = not applicable.



## Measures

### Sibling Relationship: The Semi-Structured Interviews

Semi-structured interviews averaged 50-65 minutes in duration, were conducted with SNU as well as SSU. As far as the SNU are concerned, after phone contact and agreement was obtained, a home visit was arranged by the research team (consisted of two clinical psychologists). As for the SSU, interviews were conducted in the rehabilitation centre. All interviews were recorded with their consent. We used thematic axes, based on the qualities of sibling relationships recognized by [Furman and Buhrmester \(1985\)](#): (a) Warmth/Closeness (e.g. Tell me about your relationship with your sibling. How often you do things together?), (b) Relative Status/Power (e.g. How often do you ask the opinion and advice of your sibling? Do you believe that your sibling has a greater knowledge than you? Who is the one that takes initiatives or decides what you should do about an issue?), (c) Conflict (e.g. Do you disagree often on certain issues with your sibling? What happens when you disagree?), and (d) Rivalry (e.g. Do you feel that your sibling wants to seem better than you in certain things?). However, additional categories emerged from the semi-structured interviews, in both groups. In particular, in families SNU emerged six categories and 18 subcategories, and respectively in the families with SSU, emerged eight categories and 21 sub-categories (see [Table 4](#) in Results section).

### Psychopathology of Siblings: SCL-90-R

The Greek validated version of Symptom Checklist 90-Revised (SCL-90-R: [Derogatis, Lipman, & Covi, 1973](#); Greek version: [Ntonias, Karastergiou, & Manos, 1991](#)) was administered to the interviewees, in order to depict the existence of pathology in the participant siblings. The SCL-90-R is a self-administered measure and has 90 items, which measure the degree of distress experienced by the individual during the last 7 days, using a 5-point Likert scale (0 to 4) that ranges from “not at all” to “extremely.” SCL-90-R identifies nine symptom dimensions (Somatization, Obsessive-Compulsive, Inter-personal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid, and Psychoticism) and three global indices (the Global Severity Index, the Positive Symptom Total, and the Positive Symptom Distress Index).

### Family Cohesion and Adaptability: FACES III

The Greek version of the Family Adaptability and Cohesion Evaluation Scales III (FACES III; [Olson, 2000](#)) was employed to evaluate the cohesion and adaptability of the families. Cohesion is defined as the degree of emotional bonding between family members, and adaptability refers to the ability of the family system to change in response to situational and developmental stress. The FACES III scale has been translated into Greek by [Papageorgiou and Simos](#) and it has been standardized and adapted into Greek by [Bibou, Stogiannidou, Papageorgiou, and Kioseoglou \(2002\)](#). FACES III is a 20-item, self-report questionnaire administered twice, in order to identify the perceived actual and ideal family condition. The difference between perceptions of actual and ideal conditions yields a discrepancy score, which measures participants' dissatisfaction with family functioning.

### Family Constellation

To investigate the influence of demographic characteristics of family constellation, the following variables were considered: number of children, birth order, gender, years of substance use and educational and socioeconomic level (see [Table 1a](#) and [Table 1b](#)).

## Analyses

For the analysis of qualitative data (semi-structured interview), interpretive thematic analysis was conducted. Interpretive thematic analysis was chosen because it allows the in-depth understanding of the themes under investigation rather than specific questions (Mason, 2009). Through a thematic/topic coding process, we identified specific themes, linked the parts of the data with the data as a whole, and produced a list of common themes or final categories (Leong & Austin, 2005). The interviews' analyses were conducted by an independent rater.

The quantitative analyses were conducted with Statistical Package for Social Sciences (SPSS) v.22. The Kolmogorov-Smirnov and Shapiro-Wilk tests suggested the non-normality of the collected data and, thus, non-parametric tests were employed to investigate the differences between two groups: Mann-Whitney U test (for ordinal or scale variables) and Fisher's exact test (for nominal variables).

## Results

### The Families of this Study

The representation of the families of the present study, as identified by FACES III, are outlined in Table 2.

Two statistically significant differences were found: The pragmatic representation of the cohesion of their family, as identified by both the sibling and the mother in the families without a sibling with substance misuse, were found to be statistically significantly higher than the respective representations in families with a sibling with substance misuse.

Table 2

*Representations of the Families (Interviewed Sibling, Father, Mother) of this Study According to FACES III*

Representation	Families ...						Mann-Whitney	
	without Substance Misuse			with Substance Misuse			U	p
	M	SD	Mdn	M	SD	Mdn		
Cohesion Pragmatic Sibling	7.00	1.15	7.00	5.94	1.51	6.50	66.000	0.001
Cohesion Ideal Sibling	7.63	0.50	8.00	7.56	0.51	8.00	134.000	0.738
Adaptability Pragmatic Sibling	1.62	0.62	2.00	1.44	0.51	1.00	123.000	0.416
Adaptability Ideal Sibling	2.25	1.24	2.00	2.53	0.87	2.00	100.500	0.139
Cohesion Pragmatic Father	7.00	1.24	7.00	7.00	1.29	7.00	89.500	1.000
Cohesion Ideal Father	7.64	0.50	8.00	7.67	0.49	8.00	82.000	1.000
Adaptability Pragmatic Father	1.57	0.51	2.00	1.33	0.49	1.00	64.000	0.267
Adaptability Ideal Father	1.87	0.74	2.00	1.83	0.39	2.00	86.000	0.855
Cohesion Pragmatic Mother	7.56	0.51	8.00	7.06	0.75	7.00	84.500	0.044
Cohesion Ideal Mother	7.73	0.46	8.00	7.78	0.43	8.00	129.000	1.000
Adaptability Pragmatic Mother	1.40	0.51	1.00	1.31	0.48	1.00	109.500	0.716
Adaptability Ideal Mother	2.07	0.92	2.00	1.88	0.34	2.00	108.000	1.000

In Table 3, the results regarding the psychopathology of the interviewed sibling are presented. Note that no statistically significant differences were found, with respect to the category of the family (substance misuse and no substance misuse).

Table 3

*Psychopathology of Interviewed Sibling According to SCL-90-R.*

	Families ...						Mann-Whitney	
	with Substance Misuse			without Substance Misuse				
	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>U</i>	<i>p</i>
Somatization	6.13	7.23	5.00	4.06	5.05	2.00	103.500	0.258
Obsessive compulsion	8.69	5.42	8.00	6.11	6.98	2.00	109.000	0.154
Interpersonal	4.56	4.57	3.00	5.11	5.94	2.00	143.500	0.788
Depression	10.94	9.52	7.50	9.11	10.00	4.00	118.500	0.273
Anxiety	4.50	6.13	2.50	3.42	3.50	2.00	151.500	0.993
Hostility	3.75	4.23	2.00	2.89	3.26	2.00	133.500	0.544
Phobic Anxiety	1.56	2.16	0.50	0.89	2.00	0.00	117.000	0.192
Paranoid Ideation	3.44	3.86	2.50	2.95	3.50	1.00	131.500	0.497
Psychoticism	3.06	3.15	2.00	2.95	4.70	0.00	120.500	0.284

## Identifying Aspects of the Sibling Relationship

In Table 4, we outline the themes identified by the thematic analyses in both family categories.

Table 4

*The Initial Identified Themes of Qualitative Data*

Siblings with no Use (SNU)	Siblings with Substance Use (SSU)
<b>A. Warmth/Closeness</b>	
A1. Understanding-Trust	A1. Understanding-Trust
A2. Time distance (age)	A2. Time distance (age)
A3. Formation of relationship due to sex	A3. Formation of relationship due to sex
A4. Change in relationship based on geographical remoteness	A4. Change in relationship based on geographical remoteness
A5. Evolution of sibling relationship	A5. Reversal of sibling relationship/Departure
A6. Sibling alliance towards stressful events/sibling bond as protection	
A7. Degree of Satisfaction from the quality of sibling relationship	
<b>B. Relative Status/Power</b>	
B1. Superiority-Respect	B1. Superiority-Respect
B2. Leading role of older siblings	B2. Leading role of older siblings
<b>C. Conflict</b>	
C1. Diversity	C1. Diversity
C2. Disagreements/Way of solving	C2. Disagreements/Way of solving
C3. Disparagement/Insult	
<b>D. Rivalry</b>	
D1. Jealousy	D1. Jealousy
D2. Level of satisfaction after success of sibling	D2. Level of satisfaction after success of sibling

Siblings with no Use (SNU)	Siblings with Substance Use (SSU)
<b>E. Representation of parents relationship from sibling participants</b>	
E1. Perception of siblings due to parents representations	E1. Correlation of substance use with lack of boundaries E2. Representation of family structure by the non user sibling E3. Perception of sibling as more "vulnerable" E4. Representation of the family's way management of problems by non user sibling
<b>F. Impact of sibling's substance use on personal life of non user sibling</b>	
	F1. Substance use as stress source F2. Perception of seriousness of substance use
<b>G. Reaction of non user sibling regarding substance use of his or her drug user sibling</b>	
	G1. Denial of the problem/Devaluation
<b>H. Importance of sibling role</b>	
H1. Sibling as a role model	H1. Sibling as a role model
H2. Description of personality of sibling relationship by the sibling participant	H2. Description of personality of sibling relationship by the sibling participant
	H3. Projection in future

## Sibling Relationship in the Family Without Substance Use

The outcome of the semi-structured interviews seems to support the categorization of the quality of sibling relationship identified by [Furman and Buhrmester \(1985\)](#). The main axes found in the analysis of semi-structured interviews of SNU were: (a) Warmth/Closeness, (b) Status/Power, (c) Conflict and (d) Competition.

## Sibling Relationship in the Family With Substance Use

### Warmth/Closeness

As shown in the interviews, the SSU, before the use of substances, addressed to his/her sibling SNU for warmth, understanding and closeness. A sibling user reports: *"Many times, when I needed him, he was there and supported me every time I was not feeling well"*. In the period following the initiation in the use of drugs, siblings non users experience a radical change in the quality of their relationship with the sibling user. One of the SNU reports: *"After the substance use, our relationship changed radically. Although we were very close and we loved each other very much, we were not talking to each other, especially during the period that he was in the use"*. Literature regarding sibling relationship supports that brothers and sisters can be a source of friendship, assistance, or emotional support. Older siblings can act as caregivers, teachers, or standards and in some cases, can compensate for the absence of parents ([Buhrmester & Furman, 1990](#)). Also, the desire for most of the siblings is for the older sibling to be "there", doing things together and be truly interested ([Barnard, 2005](#)).

*Difference in age.* When siblings are younger, they seek to enhance the existing difference in age, while in adolescence or early adulthood they seem to come closer. For instance, one boy says: *"We had not common friends. We rarely went out together with friends. I think that the difference of two years between us played an important role. I mean, that it really made the difference"*. This finding is consistent with those who support that adolescents and young adults with a sibling close in age, seek to enhance existing differences ([Wong, Branje, VanderValk, Hawk, & Meeus, 2010](#)). Sibling contact and support both seem to vary inversely with age ([Lu, 2007](#)).

*Sibling relationship and gender.* As shown in the interviews the same sex siblings spend more time together and have much more in common (“*We say more girly things*”) compared to siblings of opposite sex. More specifically, sisters have a more intimate relationship between them (“*My sister and I have always been very close*”). This finding is consistent with previous research studying the influence of the binary relationship; sex has reported a higher proportion closeness and emotional intimacy between two sisters. Same sex siblings, in childhood, show more positive attitude to each other than the mixed pair’s children (Riggio, 2000).

### **Status/Power**

Older SNU were a source of guidance for the younger SSU before the initiation of the latter in the use of substances. Later, with the emotional disengagement of the SSU, this role was lost. One older brother says: “*Before she started to take drugs, we communicated more and in better ways. We were close. She would talk to me about her personal life. She talked to me as an older brother who was more experienced than her and knew things. In the past, she trusted my opinion on serious issues. Simply, the thing with the substance use is that she does not listen to me anymore*”. The older sibling seems to function as a model for the younger sibling before the use of substances. This finding is consistent with those supporting that older siblings function as a source of guidance, advice, support and knowledge for younger ones (Craig & Baucum, 2007; Rowland et al., 2008). Still, as already mentioned, this role is lost with the initiation of the younger sibling in the use of substances and it is mounted by the SNU.

### **Rivalry**

Both in the families with, as well as those without SU use, siblings appear to have both loving and conflictual relations. This finding is consistent with those that support that sibling relationships are characterized by love and warmth but also conflictual relations (Angell, Meadan, & Stoner, 2012; Buist et al., 2013). Still, in families with substance use, conflict is much more intense and characterizes their relationship. A main source of conflict, is the lifestyle of the SSU, as well as the SNU’s effort to prevent him/her from using substances.

### **Conflict/Anger/Hostility**

The SNUs seem to feel that their parents are preoccupied much more with the SSU than with them. This discrepancy in the parenting is experienced by them as rejection and triggers anger. They express their anger by turning it towards the SSU, as well as the parents. One SNU says: “*My sister is what we commonly describe “a spoiled child”. They have always done her favors*”. The “spoiled” indicates that the SNU experiences user as someone who “has it all” and he/she is angry at this parental attitude. Indeed, research evidence supports that differentiated parental behavior can create competitive relationships in siblings who experience conflicts, jealousy and competition between them (Buist et al., 2013; Piko & Kovács, 2010).

### **Loss/Mourning**

An important finding of the present research is that SNU experience the changes in their relationship with their SSU as a loss. The fact that their sibling has become very remote and unwilling to share, triggers an overturn of his/her representation: their relationship before the use of drugs and the relationship after. As one NUS says: “*...he is not the person I knew. He has become someone else... it’s like a stranger*”. They seem to “mourn” the relationship that they had with their sibling in the past, before the use of substances. It is as if the use of substances has become the “organizer” of how they experience their relationship. One SNU says “*... I feel so disappointed. Our relationship ended at this point (of using substances). I feel so sad for having lost my brother. I want John*

back. I want him to be well again, to stop taking drugs. I want him to find himself again and our relationship to become as it was before he started to use drugs". The fact that the SSU avoids contact with SNU, is emotionally unavailable and disengaged, accounts for the SNU's mourning reaction. One sister says: "Previously when we were teenagers my sister and I had much more in common and we were much closer. However, since my sister began to use drugs our relationship changed dramatically and now that we are adults we do not have the same relationship as in the past. We do not communicate as often and she is emotionally distant. The reason for this change is the use of drugs. That has caused the distance between us. Now, since she entered the program to stop the drugs; that is the past five months, our relationship seems to somehow, improve". At the same time, some of the SNU feel ashamed for the change in their SSU. One SNU says: "I feel ashamed because of him. I often think of what other people think when they find out that he is taking drugs." This finding is consistent with those of other research, according to which, siblings of drug abusers feel embarrassed due to public humiliation (Barnard, 2005).

## Impact of Drug Use on Personal Life of Siblings

### Substance as a Source of Anxiety in Siblings

A main source of anxiety in the SNU, is the dangers of drug taking on the health of the sibling user. "The substance use of my brother was the main problem that has affected my life. Since I found out about the use, I am afraid of what is going to happen to him, to his health, to his life. Sometimes I cannot sleep at night, I feel exhausted, I have headaches and I'm on the verge of depression". This finding is consistent with research findings, according to which, SSU experience the same levels of anxiety and restlessness as their parents (Barnard, 2005; Fischer et al., 2005; McHale et al., 2012) related to the worry about the health of their SU. Furthermore, research supports the presence of high levels of depression and other psychiatric disorders in the siblings of substance users (Angel & Angel, 2003). On the contrary, children with supportive sibling relationships reported fewer symptoms of depression after stressful life events than children with non-supportive sibling relations (Buist et al., 2013).

### Denial of the Problem – Devaluation

Some SNUs refuse to see reality: "There are some excuses that you give to yourself and live in an utopia for a while, because you don't want to see the reality". They underestimate the problem of their sibling users because they have special emotional relationship with the SSU and defend towards accepting the "traumatic" event of substance use. It is a reaction of "blindness" characteristic, of some siblings, who cannot accept the fact that their siblings take drugs (Angel & Angel, 2003; Barnard, 2005). However, the "blindness" is a defense mechanism and is an expected reaction when it occurs at the beginning, when they find out that their sibling is using drugs. This reaction subsides later on and is replaced by conscious awareness of the problem.

### Representations of Parenting Style of the Sibling Non User

From the interviews, it seems that siblings experience their parents as weak, unable to impose their parental authority and settle necessary boundaries for the SSU. One sibling reports: "My parents did not establish clear boundaries and let him do whatever he wanted". Siblings also hold parents responsible for the situation that their sibling is in. They think that their ineffective parenting is the reason that their siblings are taking drugs. Indeed, substance users are presented as "spoiled" in the literature, because there is not an equal treatment and a healthy family structure with well-established boundaries. Instead, there is enmeshment and over-protection to the "weakest" child; a condition which appears to be a predictor of substance use initiation (Stanton & Todd, 2009).

### Representation of Family Atmosphere of the SNU

The SNU experiences an aggressive family atmosphere, one characterized by tension, conflict and hostility: *“There was a very bad atmosphere at home. My parents always fought when they disagreed with each other”; “My brother began to work at the age of 14, when he started substance use, due to our poor economic situation. He had to support, as an older sibling, all the family and our mother who was mourning the loss of our father. At first he began to use substances at the age of 14 and then he proceeded to sell substances to survive”; “My parents live under the same roof, but they have no relations. They just co-exist. They are only formally married. I think that this has affected us”*. The existence of financial problems and depression of the mother is related to substance abuse by the child (Klein, Forehand, Armistead, & Brody, 1994). The child is very likely to initiate the use of substances when there is such a climate at home and feels vulnerable and unprotected. He/she resorts to substance use in order to soothe the tension experienced in the family (Velleman & Templeton, 2007). Furthermore, the absent or disengaged father is equally a risk factor for the onset of substance use (Barker & Hunt, 2004; Kaplan & Meyerowitz, 1970; Stanton & Todd, 2009).

### Perception of SSU by His/Her SNU

The SNU describes the SSU as “vulnerable” and as a “victim” of the negative atmosphere at home. A SNU /brother says: *“My sister has always been the most sensitive in the family and I think that what greatly influenced and contributed in her taking drugs is the behavior of my parents. They are responsible for this”*. The sister user seems to be experienced as the most “sensitive” of the members of the family. In that sense, the sibling user is “triangulated” by the rest of the family group, expressing through their use of drugs, the difficulty of the family to function on a level of an adequate differentiation (Bowen, 1978). This finding is consistent with existing findings supporting that the child user is most vulnerable and prone to delinquent behavior because of the experienced dysfunctional family system (Papadioti-Athanasidou, 2000; Stanton & Todd, 2009).

### Projection Into the Future

SNU express the need to re-experience the relationship that they had before the use of drugs, with their SSU. It is a wish for a kind of “reparation” of the “damage” that has affected not only the sibling relationship but to the functioning of the family as well. *“I want him to be happy and to live nice family moments together. I want our relationship to be as before he started substance use”*. This finding is consistent with research supporting that siblings desire for the sibling relationship to be more supportive with more involvement, without jealousies and quarrels to convert the link into a discreet, trustworthy and friendly relationship (Barnard, 2005).

## Discussion and Concluding Remarks

The present study examines the quality of sibling relationship in families where there is use of drugs and compares it to families with no use. The purpose of the study is a deeper understanding of the sibling relationship in the context of the family with drug use, which will potentially lead to improved prevention, in terms of good practices and intervention programs. According to the basic assumption of the study, siblings are very important in an individual's life and they affect (as well, are affected) by the use of drugs by their siblings (Scholte et al., 2008). The main contribution of the present research is that it sheds further light to the study of sibling relationship of SUs by finding a new category of the quality of sibling relationship: namely *Loss/Mourning*. A main difference in the qualitative characteristics of the two groups is that the siblings, of the families with substance use, experience a

“loss” of the SSU and of their relationship with him/her. It is a mourning process, not found in the families without substance use. The use of drugs seems to function as an important factor/ “organizer” of the quality of sibling relationship, in the sense that it provokes an overturn of the quality of the sibling relationship: the relationship, as experienced before and after the use of drugs. The sibling non- user seems to experience a radical change in the representation of their sibling user. This realization generates feelings of frustration, of withdrawal and above all, of a *mourning* process as he/she experiences the sibling user and their bond, as they knew it, were lost. The perceived loss fuels their wish for a “return” of their sibling. As all wishes it expresses a future situation in which “reparation” of the bond will take place as well as the risk that the SU takes by using substances will stop. Another difference in the quality of sibling relationship between the two families is that in families with substance use, the SNU undertakes a parental role towards their sibling user. It is as if they make up for the difficulty of the parents to function adequately in their parental role. In that sense, there is a reversal of roles in the family. The present parentification of the sibling non user, suggests that transgenerational boundaries are not well established in the families with substance use. The SNU feel angry towards their parents because they feel that their parenting is biased: they “spoil” the sibling user and turn all their attention/care to him/her. Their anger towards their parents seems to be related to the fact that they feel neglected. At the same time, it could also be a “deviation” of their anger towards their sibling user, to whom they cannot express as he/she is experienced as “vulnerable”. The SNU is faced with high levels of stress due, not only to the reversal of roles, but also to the fear of death of their SSU, as he/she is engaged in the danger of taking drugs, to the shame he/she feels towards the social environment for his sibling and to the loss of his relationship with the SSU. Hence, it is not only the SSU that is triangulated in the family system (Bowen, 1978) to reduce the family stress; The SNU also seems to be used by the family system the same way.

As already mentioned, categorization of sibling relationship (Furman & Buhrmester, 1985) has to be reconsidered when referring to SSU. At the same time, the new category of Loss/Mourning has to be taken into consideration.

However, sibling relationships in families without substance use, cannot be described as being free from conflict. As argued by Furman and Buhrmester (1985), in all sibling relationships, beyond the warmth and closeness, jealousy, rivalry, conflict and diversity are also present (Furman & Buhrmester, 1985). Furthermore, in line with both the literature and the present study, the sibling relationship is multidimensional and its shaping depends on many factors (Arteaga, Chen, & Reynolds, 2010; Penk, Robinowitz, Kidd, & Nisle, 1979; Stanton & Todd, 2009).

Considering the limitations of the study, the “snowball” sampling process constitutes the main limitation of the study. First, as our sampling is not random, it affects the external validity of our results (Iosifides, 2003, 2008). Moreover, the population of the study derived from siblings attending either themselves or their sibling users psychotherapeutic program and were Greeks. In the Greek family, bonds, between the family members and the extended family, are still very powerful (Georgas, 1999, 2000). The Greek family appears to be a nuclear family; in the sense that they live separately from their families of origin but they function as an extended family: the children usually choose to live within very close proximity to their parents, they communicate many times daily and above all, individual problems are solved collectively. This type of family has been called “*extended urban family*” (Georgas, 2000). Therefore, it would be appropriate and necessary, for the generalization of the results, to extend the study to samples from different cultural contexts with the purpose to compare and contrast the results. Furthermore, the age range of the sample was limited to early adulthood (18-35), as our knowledge of the sibling relationship in early adulthood is limited. However, if we had also studied other age groups new data would have risen for sibling relationships. One further limitation of the study is that we are investigating the family dynamics



after the drug use. A pre and post-drug use study would be more informative on what really triggers a pathway to substance abuse. In summary, the main differences of the qualitative characteristics of the two groups, is that the members of the families with substance use, experience a loss of the SSU and of their relationship with him/her. It is a mourning psychological process, not found in the families without substance use.

Also, in the family with substance use, there is lack of well-established boundaries and a dysfunctional family structure, within which the child user is more vulnerable. Families with use, experience higher levels of anxiety (fear of death of the SSU, higher levels of conflict and aggression) and present higher levels of psychosomatic reactions. Furthermore, sibling rivalry and conflict seems to be present in both families of users and non-users; in the families with use these characteristics seem to be much stronger. Finally, siblings of non-users in the family of substance use, project in the future their wish for “reparation” of the negative results of the substance use of their sibling.

In conclusion, the factors identified by [Furman and Buhrmester \(1985\)](#) appear to partially describe the sibling relationship in our population. Indeed, all main axes [(a) Warmth/Closeness, (b) Status/Power, (c) Conflict, (d) Competition] found by the researchers, were common in families with use and without substance use, despite small variations in the subcategories. However, another category emerged in the present study: namely *Loss/Mourning*. Therefore, in the present research regarding the sibling relationship in the family with substance use, the categories that emerged were as follows: (a) *Warmth/Closeness*, (b) *Status/Power*, (c) *Conflict*, (d) *Rivalry* and (e) *Loss/Mourning*. Siblings of SUs react to the loss and the frustration by the strong wish to have their family and SSU back.

The results could be applied in family counseling, couple and individual counseling of sibling users. The above knowledge can contribute to a better organization of preventive intervention programs aimed at a neglected group of siblings, which is directly affected. As revealed in the results of this research, the fact that drug users are, according to the literature review, “sensitive” and “vulnerable” individuals, does not make their non-user siblings strong. In order to design an effective prevention/intervention program, we need to take into account the needs of all family members and especially those of siblings, that seem to be easily “allotted” the position of a strong, parental role by the family. The Counseling Psychologist must inform the parents about the needs of their child non user and draw their attention on the effects of stress on them. That way, the sibling will not be triangulated, the family may find better ways to deal with stress and depending episodes of the sibling drug user will be avoided ([Kiriakides, 2000](#)). Work with siblings substance users is fundamental in family counseling.

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