

Attachment and substance use in adolescence: A review of conceptual and methodological aspects

Apego y consumo de sustancias en la adolescencia: Una revisión de aspectos conceptuales y metodológicos

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Resumen

El apego se considera actualmente uno de los mayores factores de riesgo y/o protección para el consumo de sustancias en la adolescencia. El presente trabajo revisa los estudios más importantes que se han publicado en los últimos 30 años al respecto, centrándose en aquellas cuestiones conceptuales y metodológicas que pueden estar dificultando concluir qué impacto ejerce el apego, sobre todo el apego a los padres, en el consumo de sustancias de los jóvenes. Los resultados indican, en general, que el apego seguro o un mayor apego entre padres e hijos actúa como factor de protección frente al consumo de drogas, si bien existe una gran variabilidad en torno al concepto de apego y su evaluación. En segundo lugar, la mayor parte de los estudios revisados incluyen además otros factores que pueden estar condicionando la influencia del apego a los padres en el consumo de drogas de los hijos y que explicarían, al menos en parte, la disparidad de los resultados en los distintos estudios. Entre estos factores destacarían las características individuales (como el sexo, la edad o la autoestima de los individuos), y la influencia de otras fuentes de apego, como los iguales y sus circunstancias, como por ejemplo el consumo de drogas por parte de éstos. Finalmente, se discute la importancia de tener en cuenta dichas consideraciones conceptuales y metodológicas en la investigación del apego como factor de riesgo y/o protección frente al consumo de drogas en la adolescencia.

Palabras clave: Apego, drogas, adolescencia, familia, revisión.

Abstract

Attachment is currently considered one of the major risk and/or protective factors for substance use in adolescence. This paper reviews the most important studies published in the last 30 years in this field, focusing on the conceptual and methodological issues that may be making it more difficult to draw conclusions about the impact of attachment – especially attachment to parents – on substance use among youths. In general, the results indicate that secure attachment or stronger attachment between parents and children acts as a protective factor against drug use, even though there is a great variability in relation to the concept of addiction and its assessment. Secondly, most of the research reviewed also covers other factors that may be conditioning the influence of attachment to parents on children's drug use and which would explain, at least in part, the disparity of the results from different studies. Notable among such factors would be individual characteristics (such as sex, age or self-esteem) and the influence of other sources of attachment, including peers and their circumstances (such as their drug use). Finally, we discuss the importance of taking into account the mentioned conceptual and methodological considerations aspects in research on attachment as a risk and/or protective factor for drug use in adolescence.

Key words: attachment, drugs, adolescence, family, review.

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We now know that the family plays a key role in the psychoactive substance use of children, not only in its onset but also in the progression toward abuse and dependence (Velleman & Templeton, 2007; Velleman, Templeton, & Copello, 2005). It is for this reason that much of the research on risk and protective factors for drug use have focused on family variables that can influence this type of behaviors by adolescents and youths (e.g., Garcia-Pindado, 1992; Lilja, Larsson, Wilhelmsen, & Hamilton, 2003; Lloyd, 1998; Petraitis, Flay, & Miller, 1995; Poikolainen, 2002; Rees, 2005; Tyas & Pederson, 1998). One of the variables that has attracted most interest, due to its influence on the individual's life from birth, is attachment to the family in general, or attachment to parents in particular.

According to classical approaches (Bowlby, 1969, 1979), attachment is defined as the emotional bond the child develops with caregivers, and which provides the emotional security that is essential for sound development of the personality. Such security will depend largely on the availability or accessibility and responsiveness of the primary attachment figure, usually the mother. Subsequent work by Ainsworth, Blehar, Waters, & Wall (1978) permitted the development of a classification of types of attachment (secure, resistant and avoidant), which would later be complemented by Main & Solomon's (1990) addition of the disorganized type (a combination of the resistant and avoidant styles).

As children begin to have more and more contact with the outside world and learn about the accessibility and responsiveness of their attachment figure, they start to build their internal working models (Bowlby, 1988). These models are representations about the self and about others, which will permit individuals to make decisions about their behavior. In short, they are guidelines for the interpretation of experiences and for orienting attachment behaviors that tend to persist over time and operate unconsciously. According to Bowlby (1988), early attachment relationships serve as a prototype for the rest of the relationships that individuals will experience during their development, so that if the attachment style in childhood is of an insecure type, it is likely to continue to be so in adult life. Other studies have proposed, moreover, that the attachment style can be transmitted across generations, so that there is a strong association between patterns of patterns of maternal attachment and those of child attachment (e.g., Benoit & Parker, 1994; Byrne, Goshin, & Joestl, 2010; Makariev & Shaver, 2010; Rosenstein & Horowitz, 1996).

Based on the image that individuals have of themselves and of others, Bartholomew & Horowitz (1991) drew up a new classification of attachment styles in adults, taking into account two dimensions: the image of others (as figures who can be trusted and who are accessible) and the image of the self (evaluation of oneself as someone who is worthwhile and elicits (or not) interest in others). The four types of attachment proposed are secure, dismissive-avoidant, anxious-preoccupied, and fearful-avoidant. The last three styles fall within the general category of insecure attachment, which would be associated with effects on individuals' physical and mental health. In general, insecure styles would be more exposed to physical problems because they are characteri-

zed by the constant presence of negative emotions (Garrido-Rojas, 2006). Just the opposite would occur in the case of secure attachment, characterized by positive emotions such as happiness or security, which promote the well-being of the individual. Moreover, insecure styles would tend to use maladaptive emotional regulation strategies, such as emotional suppression in the case of dismissive-avoidant, thereby increasing the risk of physical or mental illness. In the specific case of drug abuse, attachment theory suggests that this would be a clearly maladaptive strategy which individuals use to cope with insecurity of attachment and reduce the distress this causes in them (Rosenstein & Horowitz, 1996). More recent studies, such as that of Schindler, Thomasius, Sack, Gemeinhardt, & Küstner (2007), point out that individuals with insecure attachment lack effective coping strategies, which makes them especially vulnerable to drug use when they find themselves exposed to stressful life events. Insecure attachment is also related to problems in personal functioning, which has led some authors to consider whether these people might use substances as a form of self-medication with a view to solving their interpersonal problems (e.g., Thorberg & Lyvers, 2010).

However, studies analyzing the role of attachment in the offspring's drug use are highly diverse as regards the conception of attachment on which they are based, the methodology employed and the results obtained, which makes it difficult to draw conclusions about whether certain types of attachment may act as risk or protective factors for substance use. Therefore, the objective of the present study is to analyze the major studies published in the last 30 years on the relationship between attachment and drug use in adolescence and early adulthood. The reviews carried out to date have focused on risk factors or determinants in general for substance use in adolescence, including attachment, but none have analyzed in depth the conceptual and methodological aspects that may be influencing the impact of attachment to parents in their children's drug use.

Method

In carrying out this review we used the PubMed and PsycINFO databases, employing the following search terms: "attachment" and its combination with "substance abuse", "addiction", "drug abuse", "drug use", "drug dependence", "alcohol", "alcohol dependence", "beer", "wine", "spirits", "hard liquor", "smoking", "tobacco", "cigarettes", "illicit drug", "narcotics", "morphine", "cannabis", "hashish", "marijuana", "heroin", "heroin dependence", "ecstasy", "MDMA", "psychedelic agent", "hallucinogens", "cocaine", "crack cocaine", "lysergic-acid", "LSD", "designer drugs" and "club drugs".

The search was confined to studies published between 1st January 1980 and 31st December 2010, and the languages considered were English, Spanish, French, Italian and Portuguese. In order to better organize the information, all the articles found were grouped in the following categories: empirical articles, reviews, and meta-analyses. Regarding empirical articles, for the present review we selected only those that contained data from original research.

The initial search yielded 3,018 references in the PubMed database and 858 in PsycINFO. After controlling for duplications in both databases and reading all the abstracts, we

selected a total of 140 empirical articles and 8 reviews in relation to the search keywords for drugs and attachment (see Figure 1). Selection criteria for the articles were as follows: source of attachment to which they referred (selection in first place of those including one or both parents as source

of attachment), methodological characteristics (e.g., sample size selected) and relevance of the publication (publication source, year of publication). In a second screening using the same initial selection criteria, we selected 28 scientific 1 articles and 8 reviews.

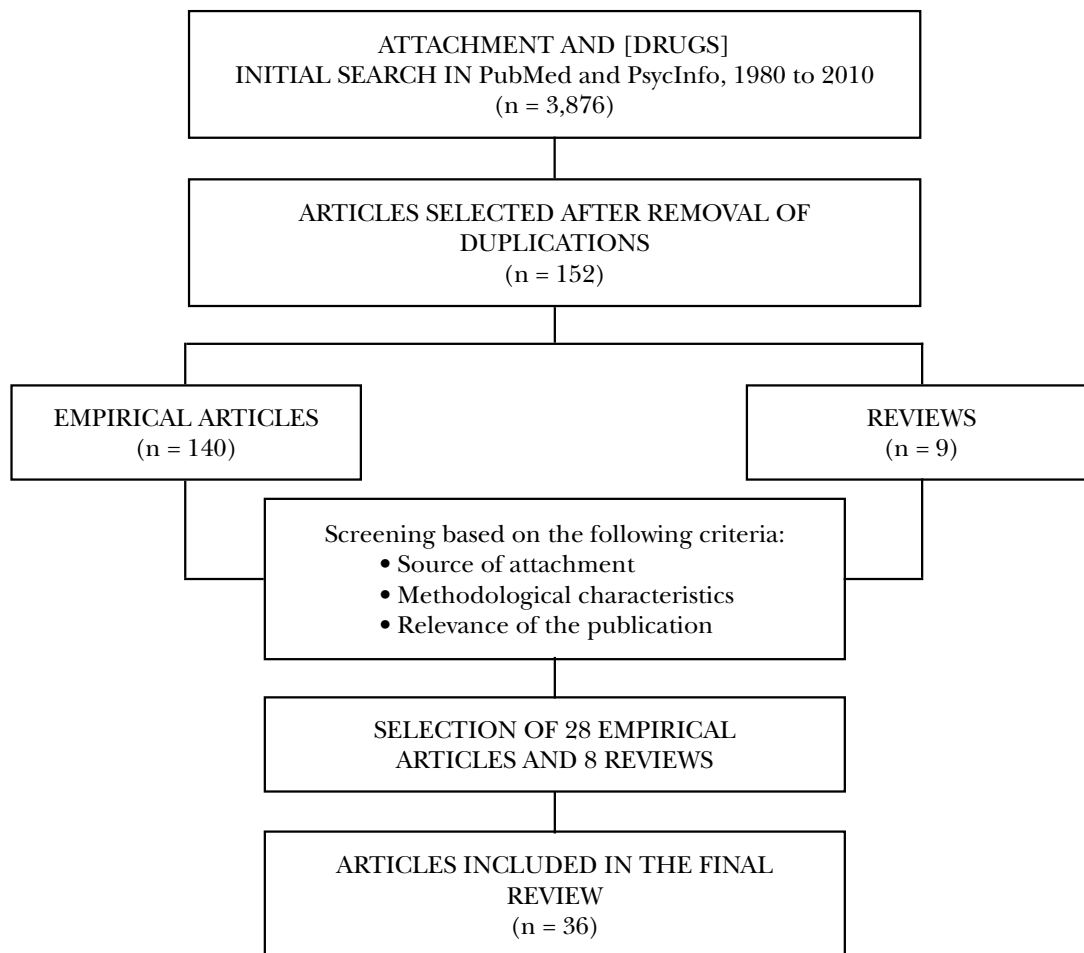


Figure 1. Selection of articles for the review

Results

First of all, we analyzed the 8 reviews found as a result of the search based on the keyword “attachment” and all those related to drug use. Some of the reviews focus on antecedents or risk factors for drug use in adolescence (Lloyd, 1998; Poikolainen, 2002; Tyas & Pederson, 1998), and just one is based on family determinants for use, including alteration of affective bonding, attachment and parent-child communication (Garcia-Pindado, 1992). Others analyze theoretical models related to drug use, among them those based on commitment and social attachment (Lilja et al., 2003, Petraitis et al., 1995).

Another review focused on child attachment in general, mentioning only superficially the relationship between inadequate attachment and the use of alcohol and drugs (Rees, 2005). The only review found on the relationship between attachment, as understood by the classic authors, and drug use in adolescence focused exclusively on the type of assessment instrument used, but without going into other

methodological or conceptual issues (De Lucas Taracena & Montañes Rada, 2006). Except for this last work, the reviews included the topic of attachment but rarely as a central issue, merely noting that less attachment and lack of attachment are related to drug use.

Secondly, we analyzed the empirical articles selected, finding certain discrepancies with regard to the impact of parent-child attachment on the children’s drug use. It may be that such discrepancies are influenced, at least in part, by aspects of a conceptual and methodological nature which we shall discuss presently.

Issues related to the concept of attachment

One of the main drawbacks found is the variability in the conceptual delimitation of attachment. Bowlby (1979) defined attachment as the emotional bond children develop with their caregivers or attachment figures and which provides them with the emotional security without which their personality would not develop adequately. This security

would depend to a large extent on the accessibility and response capacity of the principal attachment figure, normally the mother. However, the majority of the studies reviewed do not start out from the original conception of attachment and its classification (secure versus insecure attachment), understanding as attachment aspects as diverse as closeness of father or mother (e.g., Brook, Whiteman, Finch, & Cohen, 1998; Foshee & Bauman, 1994), trust (e.g., McGee, Williams, Poulton, & Moffitt, 2000), communication or intimacy (Olsson, Coffey, Toumbourou, Bond, Thomas, & Patton, 2003) or parental control/supervision (e.g., Crawford & Novak, 2002), all key variables that act as risk and protective factors for substance use in young people (Velleman et al., 2007). Nevertheless, this conceptual heterogeneity is at odds with the traditional conception of attachment proposed by Bowlby (1969), Ainsworth et al. (1978) or Main & Solomon (1990), which allowed the classification of attachment relations between parents and children as “secure attachment” or “insecure attachment.”

The second important issue concerns the confusion between similar constructs, especially as regards styles of insecure attachment. Thus, for example, Hazan & Shaver's (1987) avoidant type corresponds to Bartholomew & Horowitz's (1991) fearful-avoidant, since both refer to children of parents who are reserved, detached and often reject or ignore signs from their children. On the other hand, there is more doubt about the correspondence for Bartholomew & Horowitz's (1991) preoccupied type in the classifications of attachment proposed by Ainsworth et al. (1978) or Main & Solomon (1990).

Attachment figures

Although a large part of the studies analyzed focused on parents as the principal attachment figures (e.g., Brook et al., 1998; Foshee & Bauman, 1994; Scragg, Reeder, Wong, Glover, & Nosa, 2008), distinguishing in some cases attachment to the mother from attachment to the father (e.g., McArdle et al., 2002; Bahr, Hoffmann, & Yang, 2005), there are other studies that include attachment to peers (e.g., Hoppe, Wells, Haggerty, Simpson, Gainey, & Catalano, 1998; Henry, Oetting, & Slater, 2009), which alters the relationship between parental attachment and children's drug use. In any case, attachment to peers has nothing to do with the original conception of attachment proposed by Bowlby (1969), though it is true, as we shall see later, that early relations with the principal attachment figures (parents) act as prototypes for the rest of the relations that individuals experience during their development, such as those with peers.

It is not surprising, therefore, that the majority of empirical articles, as well as some reviews, include attachment to peers as a determinant of substance use in adolescence (Tyas & Pederson, 1998), even though in these cases they depart from the classical concept of attachment, which was based on the parent-child dyad, primarily the child's relationship with the mother. The question arises, then, as to what extent the term *attachment* has lost its traditional meaning, becoming employed too loosely to refer to the relations of closeness, trust and/or proximity between adolescents and their various support figures (parents, peers, etc.).

In a similar vein, other research has focused on attachment to school (e.g., Dornbuch, Erickson, Laird, & Wong,

2001), to the community (Clark, Belgrave, & Nasim, 2008) or to God (Horton, Ellison, Loukas, Downey, & Barrett, 2010), but their results are far from conclusive. Thus, for example, Dornbuch et al. (2001) and Horton et al. (2010) found that attachment to school in the first case and attachment to God in the second reduced the probability of consuming legal substances (tobacco and alcohol) and illegal ones (mainly marijuana), while Clark et al. (2008) found no relationship between community attachment and use of alcohol and marijuana. We might ask ourselves, then, whether the relationship between attachment and substance use in adolescence depends on the source of attachment considered, since in the case of parents, peers or school this relationship is more evident (e.g., Bahr et al., 2005; McArdle et al., 2002), whilst in the case of the community the results are inconclusive (e.g., Clark et al., 2008).

Thirdly, a notable aspect of the studies reviewed is the over-representation of mothers, the fathers' presence being scarce or even non-existent (e.g., Branstetter, Furman & Cottrell, 2009; Brook et al., 1998; De la Rosa, Dillon, Rojas, Schwartz & Duan, 2010; Foshee & Bauman, 1994; Scragg et al., 2009). This aspect may constitute a bias, since the attachment style, as pointed out by Ravitz, Maunder, Hunter, Sthankiya, & Lancee (2010), may vary within the same family from mother to father, and therefore relate in different ways to drug use. It has even been suggested that the influence of attachment to each parent may have a different effect depending on the age of the child. For example, Foshee & Bauman (1994) found that attachment to the mother predicted drug use in early adolescence, whilst attachment to the father predicted it in later adolescence. Miller & Volk (2002) found that the relationship between different family variables (e.g., negative view of the child, time spent with the family) and smoking in a sample of 1,725 youths was only significant among adolescents aged under 18, a finding the authors attributed to the declining importance of the family when children begin higher education and become independent. Studies such as that of Brook et al. (1998), on the other hand, revealed that attachment to parents was significantly related to drug use from adolescence to early adulthood.

We should also note that most studies have assessed attachment in families considered “intact” (e.g., Schindler et al., 2007), which from the traditional perspective would refer to those including both biological parents. This aspect may influence the relationship between attachment and substance use, since there are authors who suggest that “non-intact” families are not always associated with lower attachment to the children and therefore to greater likelihood of drug use. For example, Hoffman (1995) found that those one-parent families which included other adults (e.g., a grandmother) had attachment levels similar to those of intact families, and thus constituted a protective factor against drug use. In contrast, McArdle et al. (2002) found that living in an intact family was a predictor of no drug use (for both alcohol and illegal drugs), while youths living in non-intact families and whose relation with their parents was poor, the probability of their using drugs increased considerably.

Types of attachment

Regarding the research on the influence of secure versus insecure attachment on substance use, De Lucas Taracena &

Montañes Rada (2006), in their review on the subject, conclude that there is a clear link between insecure attachment and drug use, though the results are inconclusive with regard to the insecure attachment style most strongly related to such use. In one of the most recent studies, Molnar, Sadava, DeCourville, & Perrier (2010) found a direct relationship between attachment anxiety and greater alcohol use among youths aged 19, whilst the relationship between drinking and attachment avoidance appeared to be mediated by factors of a social (e.g., social facilitation, conformity) and/or affective nature (e.g., enhancement and coping motives).

However, the majority of the empirical studies reviewed analyzes attachment in quantitative terms (greater or lesser attachment to parents, to school, to peers) and not in qualitative fashion (e.g., secure versus insecure attachment). For example, Tyas & Pederson (1998) concluded that low attachment to parents and peers was related to higher prevalence of cigarette smoking in adolescents. In a more recent study, Kostecky (2005) found that lower parental attachment was significantly related to greater use of alcohol, marijuana and other drugs.

Attachment studies are mostly cross-sectional (e.g., Rosenstein & Horowitz, 1996) rather than longitudinal (e.g., Brook et al., 1998), which means we cannot determine whether insecure attachment or lower attachment are risk factors for drug use or their consequence. In those cases in which both types of studies – cross-sectional and longitudinal – have been carried out, the results are still more contradictory. For example, Van der Vorst, Engels, Meeus, Dekovic, & Vermulst (2006) examined the impact of parental attachment on alcohol use in adolescents. The cross-sectional analyses indicated that the greater the attachment to parents, the lower the alcohol use in the children, whilst the longitudinal analyses suggested that it was alcohol use at an early age that reduced attachment to parents. Once again, it must be considered that attachment, as understood by Van de Vorst et al. (2006), is not based on the classic distinction between secure and insecure attachment. The fact that alcohol use impairs the relationship between parents and children, in terms of reduced confidence or greater distancing, does not mean that the type of attachment between parents and children moves, for example, from secure to insecure.

Assessment of attachment

The studies reviewed differ considerably as regards the assessment instruments employed. Although various tools are available for the assessment of attachment, such as Hazan & Shaver's self-report questionnaire (HSSR, Hazan & Shaver, 1987), the semi-structured interview derived from Bartholomew's model (Bartholomew & Horowitz, 1991) or the Adult Attachment Interview (AAI; Main & Goldwyn, 1992), which permit the classification of attachment into secure or insecure, the majority of the studies reviewed do not use any of them. Thus, very few studies employ standardized questionnaires, such as the AAI (e.g., Anolli & Balconi, 2002; Rosenstein & Horowitz, 1996) or the IPPA (Inventory of Parent and Peer Attachment; e.g., Van der Vorst et al. 2006; Scragg et al., 2008), and many base themselves on a small number of items (or just one) for assessing attachment (e.g., Arbinaga, 2002; Clark et al., 2008; McGee et al. 2000; Olsson et al., 2003). In this last case, the questions vary as regards the terms used and the way they are formulated (e.g., how close

they feel to their parents, level of support received, trust they have with mother and father).

It is also common for researchers to use self-report questionnaires whose psychometric properties are, to say the least, questionable (e.g., McGee et al., 2000). Moreover, self-report measures of attachment are not entirely reliable, since they focus on the view held by the respondent at that time. Nor is it uncommon for there to be discrepancies according to the informant, that is, for the child to consider that he or she has low attachment to the parents, whilst the father or mother perceives the opposite (e.g., Dornbuch et al., 2001). It has also been suggested that the attachment style varies according to the relational focus: the same individual can report a secure attachment style with the mother and an insecure style with the father (e.g., Tyas & Pederson, 1998), so that it is necessary to properly identify the source of attachment and assess each one separately.

Some studies also indicate that the relation between attachment and drug use is influenced by the source of information on attachment. Thus, for example, Dornbuch et al. (2001), in a longitudinal study with 13,568 adolescents, found a significant relation between family and school attachment and lower prevalence, frequency and intensity of use of tobacco, alcohol and marijuana. However, this relation disappeared when the informants about attachment to parents and school were the adolescents themselves.

Assessment of substance use

Regarding the assessment of substance use in adolescents and/or youths, practically all the studies reviewed are based on self-report measures (e.g., Kassel, Wardle, & Roberts, 2007; Olsson et al., 2003), and this may have influenced the results obtained.

Most of the studies reviewed explored the relationship between parental attachment and the use of certain drugs in the children, especially tobacco (e.g., Foshee & Bauman, 1994) alcohol (e.g., Crawford & Novack, 2002) and marijuana (e.g., Hoffmann, 1995). In the case of those that include other illegal substances, the prevalence is usually not high enough for obtaining conclusive results (e.g., Kostecky, 2005). Some authors have even suggested that the type of attachment characteristic of substance abusers depends more on the type of drug used than on whether its use is higher or lower (e.g., Kassel et al., 2007).

Some studies examine the relationship between attachment and drug use without specifying that such use is experimental, which is quite different from regular use, and very common in adolescence (Petraitis et al., 1995). Experimental substance use is understood as an exploratory behavior, and hence may be associated with a secure attachment style. In contrast, those youths who move on to more regular use, or who become abusers of or dependent upon a substance, tend to present an insecure attachment style. Studies such as that of Van der Vorst et al. (2006) go further, concluding that parental attachment may perhaps not play a key role in initiation into the use of substances such as alcohol (between age 11 and age 14), but that it has a stronger impact in younger children (aged 9-10), where parental influence is greater, or in older adolescents (aged 16-17), where alcohol use is more frequent and intensive. Recent studies, such as that of Randolph, Russell, Tillman, & Fincham (2010), have found that attachment to the mother, at least, signifi-

cantly influences alcohol use in late adolescence and early adulthood (around age 18), when youths are more open to maintain pro-social relationships with their parents than in early adolescence.

Influence of sociodemographic variables (age, sex)

It is important to take into account the influence of key sociodemographic variables such as sex and age of the youths. Specifically, some studies suggest that the relationship between parental attachment and smoking is influenced by the children's age, so that attachment to the mother would have more influence in early adolescence, whilst attachment to the father would be more influential in later adolescence (Foshee & Bauman, 1994). It is also stressed that the influence of attachment to parents loses strength as youths get older and become more independent (Danielsson, Romel-sjö, & Tengström, 2010; Henry et al., 2009; Miller & Volk, 2002). This does not mean, however, that the quality of the parent-child relationship becomes worse.

With regard to sex, some studies have found that the relation of attachment has a significantly stronger impact on drug use in one sex than in the other. Thus, for example, El-Guebal, West, Maticka-Tyndale, & Pool (1993), and Brook et al. (1998) found a stronger relation between attachment and drug use in daughters, while studies such as those of Crawford & Novack (2002) or Horton et al. (2010) found that the impact of parental attachment on substance use was more relevant in sons. Other studies, meanwhile, have found no significant differences with regard to attachment as a function of age or sex (Dornbuch et al., 2001; Kassel et al., 2007; McArdle et al., 2002; Olsson et al., 2003).

Inclusion of third variables in the relation between attachment and drug use

In general, the majority of studies that analyzed the role of attachment as a risk or protective factor for drug use in adolescence include other variables that may be conditioning this relationship, such as parental supervision (Crawford & Novack, 2002), parents' personality (Brook, Richter, & Whiteman, 2000), family structure or drug use by peers (Hoffman, 1995), parents' drug use (e.g., Finzi, Cohen, Sapir, & Weizman, 2000; Hoppe et al., 1998) or self-esteem (Kassel et al., 2007).

As far as parents' own substance use is concerned, Drape-la & Mosher (2007), for example, found that drug use by parents had a significant effect on their attachment relationship with their children, increasing the risk of the children's use of legal and illegal substances. Children strongly attached to user parents were also more likely to have friends who used substances and a lower perception of risk, both aspects which increased their risk of using drugs.

Hoppe et al. (1998) found that deviant behavior by the parents affected the bond with their children, increasing their risk that they would also perform deviant behaviors. On comparing the children of parents on methadone treatment and the children of non-drug users, it was found that the former had a weaker bond with their parents (identified less and had less intimacy with them), but showed greater attachment to school and peers. However, these children had a lower risk of initiating alcohol use if they lived with just one parent or if, living with both parents, they felt strongly

identified with them. This finding would partially confirm social control theory (Hirschi, 1969), whereby attachment to one of the parents in children of drug users protects them against drug use.

More recent work, such as that of De la Rosa et al. (2010), indicates that attachment to non-user mothers reduces the risk of daughters' performing maladaptive behaviors (drug use and unsafe sex), whilst attachment to drug-user mothers significantly increases the likelihood that their daughters will have sex under the influence of alcohol. Other studies, however, such as that of Scragg et al. (2008), confirmed that low parental attachment is associated with higher risk of smoking among adolescents, regardless of whether the parents smoke or not.

Some of the studies reviewed have considered the influence of peers on the relationship between attachment to parents and substance use. For example, McArdle et al. (2002) found that the influence of family variables (family structure, quality of the parent-child relationship) disappeared when the availability of substances in the peer group was high. In other studies, like that by Bahr et al. (2005), it was concluded that the relationship between attachment to parents and substance use is mediated by peer influence. According to Clark et al. (2008), the strongest predictor of alcohol and marijuana use in a sample of African American adolescents is drug use by peers, and not attachment to the community. Other studies have found, moreover, that attachment to peers increases over time, and if they are alcohol-using peers there is a significantly higher risk that an adolescent will drink alcohol (Henry et al., 2009).

Regarding the influence of individual variables, such as self-esteem, Kassel et al. (2007) examined the nature and magnitude of the relationship between adult attachment style and cigarette smoking, alcohol and marijuana in a sample of 212 university students (62% women). They also analyzed whether this relationship was mediated by other variables such as dysfunctional attitudes and low self-esteem. For the assessment of adult attachment they administered the Collins and Read Inventory (1990), which comprises 18 items and assesses three attachment styles (close, depend and anxious). They found that insecure attachment, especially the anxious type, was significantly related to both frequency of substance use and the fact of using substances to cope with stress or emotional distress, especially in people with low self-esteem and a greater tendency toward dysfunctional attitudes.

Another very common individual variable in the analysis of the relationship between attachment and drug use is aggressiveness. Studies such as that of Brook et al. (1998) propose that high aggressiveness in childhood has a significant influence on the type of attachment between parents and children, which in turn is related to unconventional behaviors in the children, such as drug use.

Discussion

This study has presented a review of the most relevant literature published in the last 30 years on the relationship between attachment and drug use in adolescence and early adulthood, with reference to the influence of certain conceptual and methodological aspects on that relationship. The reviews carried out to date, except for that by De Lu-

cas Taracena & Montañes Rada (2006), have not focused exclusively on the issue of attachment, but have included it as one more risk versus protection factor for substance use. These reviews conclude, in general, that greater attachment or secure attachment is a protective factor, whilst less attachment or insecure attachment constitutes a clear risk factor for drug use. However, this review has shown that researchers have not used the concept of attachment uniformly and that there are key methodological questions in its study that should be addressed before drawing conclusions about the role of attachment to parents in substance use by their children.

The review of the selected studies suggests, first, the difficulty of isolating the relationship of attachment between parents and children from the influence of other attachment relationships (with peers, school, etc.) in predicting substance use in adolescence (e.g., Eitle, 2005). According to classical perspectives (Bowlby, 1969, 1979), the emotional security provided by caregivers, particularly mothers, during childhood serves as the foundation for the formation of internal working models, in other words, for forming representations about oneself and others that will allow individuals to properly develop their personality and make decisions about their behavior. Thus, early relationships of attachment function as a prototype for other relationships that people will have in adulthood, so that those individuals with an insecure attachment style in childhood will tend toward the same type of attachment in the different stages of their development, with the risks this involves for their physical and mental health (Garrido-Rojas, 2006). As some authors have recently posited (e.g., Schindler et al., 2007; Thorberg & Lyvers, 2010), these individuals with insecure attachment would have more problems in their interpersonal functioning and stress coping than those with secure attachment, and this could increase their risk of using substances. However, it is worth considering to what extent those studies using only attachment to parents (e.g., Brook et al., 1998; Drapela & Mosher, 2007; Rosenstein & Horowitz, 1996; Scragg et al., 2008) have taken into account the possibility that relations with other relevant figures adolescents' lives (e.g., friends, school) are influencing the likelihood of their consuming substances, which would explain, for example, why in some cases no great differences in risk of substance use are found between adolescents with secure and insecure attachment (e.g., Danielsson et al., 2010). We believe it is necessary to consider the influence of other types of cultural, gender, or indeed developmental variables that may qualify the parent-child attachment relationship, as traditionally conceived, by the first authors who analyzed the matter. That is, while we accept that the parent-child attachment style is established in an individual's first years of life and that it constitutes a guide for interpreting experiences and relating to others, we do believe that the relation between attachment style and the probability of substance use is influenced by other variables, such as peer relations, gender, the presence of other sources of family support, and so on.

Regarding this last-named aspect, considering that most of the reviewed studies on attachment to parents are based on intact families, and given the way family types have evolved in recent years, it would seem necessary to extend research on the influence of parental attachment to other types of family (e.g., reconstituted families, families with sa-

me-sex parents, families with adopted children, families that include other potential sources of attachment such as grandparents, etc.).

Second, it may also be that the influence of sources of attachment depends on the stage of adolescence, as proposed by Henry et al. (2009). Thus, in early adolescence parents and school may be exerting more influence, while in later adolescence there would be greater importance of peer relationships and their circumstances (e.g., whether or not peers use substances). However, Velleman et al. (2005), though supporting the idea that the influence of parents decreases as their children get older, conclude that it is also always necessary to take into account the family's influence on choice of peers. According to these authors, those youngsters who enjoy a positive relationship with their parents are less influenced by substance-using peers, and are therefore less likely to perform this type of behavior. As we noted earlier, the fact that as individuals develop the relation with their parents changes does not mean that that relation deteriorates, and much less that a parent-child attachment relationship of a secure type becomes an insecure one. Indeed, as classical approaches to attachment (e.g., Bowlby, 1988) indicate, early attachment relationships between children and their parents act as prototypes for the other relationships they will experience during their development, so that the attachment style in childhood – secure or insecure – is likely to be the same in adulthood. A separate issue is the possibility that certain sources of support (e.g., friends) take on importance relative to others (e.g., parents) at certain stages of the individual's development (such as adolescence).

Having stressed the importance of these two considerations, we can conclude that certain conceptual and methodological questions must be taken into account on exploring the relation between attachment and drug use in youths:

1) The variability in the concept of attachment (classical or traditional conception of attachment versus closeness, trust, control/supervision, communication, intimacy, etc.) contributes to the discrepancies as to whether a particular type of attachment, or greater or lesser attachment, are associated with an increased risk for drug use in youths. Those studies based on the traditional concept of attachment and which classify it into secure versus insecure (e.g., Kassel et al., 2007; Rosenstein & Horowitz, 1996) agree that there is a clear link between insecure attachment and drug use, though it is unclear which category of insecure attachment (resistant, avoidant, disorganized, etc.) is most closely associated with drug use. As mentioned earlier, we believe that the concept of attachment has been used too loosely for referring to the relationship of closeness, supervision and control, trust, and intimacy between adolescents and their various support figures (parents, peers, etc.).

2) The range of instruments used across the different studies evaluating attachment has contributed to the fact that the results obtained were not conclusive and generalizable (De Lucas Taracena & Montañes Rada, 2006). Thus, those studies that used questionnaires or interviews that permit the classification of attachment style as secure versus insecure (e.g., Hazan & Shaver's self-report questionnaire, HSSR; the Adult Attachment Interview, AAI; Bartholomew and Horowitz's semi-structured interview; the Collins and Read Inventory) indicate that, in general, drug use is linked to insecure attachment, of avoidant (Rosenstein & Horowitz,

1996), fearful (Schindler et al., 2007) or anxious type (Kassel et al. 2007). In contrast, secure attachment is associated with lower risk for substance use (e.g., Branstetter et al., 2009).

Studies which have assessed attachment in quantitative terms are in agreement that greater attachment to parents (e.g., Bahr et al., 2005; Crawford & Novack, 2002; Kostecky, 2005; Scragg et al., 2008), to the family in general (e.g., Arbinaga, 2002; Olsson et al., 2003), and to parents and school (Dornbuch et al., 2001; Henry et al., 2009) is associated with lower risk for drug use. In work that takes into account substance use by the sources of attachment, it was found that greater attachment to parent users (e.g., Drapela & Mosher, 2007) and peer users (e.g., Henry et al., 2009) increases the risk of adolescent substance use.

3) It is not possible to establish causal relationships between attachment and substance use in youths. Most of the studies are cross-sectional so that we cannot tell whether insecure attachment is a risk factor for drug use or a consequence of it (e.g., Hoppe et al., 1998; Olsson et al., 2003). The longitudinal studies carried out are highly variable in terms of length of follow-up, with periods ranging from one year (e.g., Dornbuch et al., 2001) to 18 years (McGee et al., 2000), so that the results as regards which variable leads to the other (attachment to drug use, or vice versa) are inconclusive, even in the more recent studies. For example, Van der Vorst et al. (2006) conclude that it is substance use that influences type of attachment, at least toward parents, while for Danielsson et al. (2011) secure parental attachment is a protective factor against heavy drinking. There is a need, then, for more longitudinal studies that could help to clarify the role of attachment to parents as a risk/protective for drug use or as a consequence of it.

4) It is necessary to distinguish between experimental substance use in adolescence, which can be related to a secure attachment style, and regular use, abuse or dependence, more related to insecure attachment (e.g., Petraitis et al., 1995; Schindler et al., 2007). In this connection, it would also be advantageous to use other methods of assessing substance use, given that the self-report, the kind of tool most widely used in the reviewed studies (e.g., Randolph et al., 2010), may could introduce certain biases in the results.

5) The heterogeneity of the samples selected (source of attachment, parents' sex, children's age and sex, type of substance used, etc.) is a determining factor in the study of the relationship between attachment and drug use in youths. More specifically, many of the studies carried out to date on parental attachment include attachment to peers, a variable which, as we have seen, may alter the relationship between parent-child attachment and drug use (e.g., Henry et al., 2009).

Taking into account the above, it can be stated that, in general, and despite the conceptual and methodological considerations discussed, there is considerable evidence of the importance of attachment, especially to parents (Rees, 2005; Velleman et al., 2005), but also to peers and school, as a risk or protective factor for drug use in adolescence and early adulthood (Garcia-Pindado, 1992). In the specific case of the family, key variables related to attachment, such as cohesion, communication between its members and their attitudes constitute the basic pillars on which the prevention of substance use among youths can be built (Lilja et al., 2003). However, it must be borne in mind that the influence of the

family does not occur in a vacuum; rather, there are other determinants that will influence substance use (e.g., attachment to peers or to school), and on which further research is needed (Velleman & Templeton, 2007). If, as would seem to be confirmed by recent studies (Byrne et al., 2010; Makariev & Shaver, 2010), attachment style does not vary over time, and moreover, is transmitted across generations from parents to children, it would be relevant to take into account the improvement in quality of attachment between parents and children, as well as the influence of other socializing agents, such as peers and school, with a view to the prevention and treatment of drug use.

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Conflicts of interest

The authors declare not conflict of interest.

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