# ANGLIA RUSKIN UNIVERSITY

# DISTAL AND PROXIMAL RELATIONAL FACTORS, EMOTIONAL CAPABILITIES AND PSYCHOLOGICAL HEALTH OUTCOMES IN SUBSTANCE USERS

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**Abstract**

This dissertation examined certain distal and proximal relational factors and emotional capabilities of individuals in therapeutic programs in Greece. The three studies aimed to extend existing work by examining links between distal (child abuse reports) and proximal (adult attachment, social support) relational factors with psychological health outcomes of substance users in addiction treatment programs. Moreover, in the above links the thesis tested the mediating role of emotional capabilities associated with some of these relational factors on the psychological health of substance users.

The first pilot study examined relationships among childhood maltreatment experiences, attachment organization, social support, emotion perception with psychological health outcomes in a sample of substance users' compared to a control group. The results showed that substance users had significantly higher scores of: reported child abuse experiences, marginally higher scores of insecure attachment, significantly higher levels of depression, and significantly lower levels of satisfaction with social support, self-esteem and emotion perception. Child abuse, attachment organization and social support were all associated with low psychological health outcomes. Results from hierarchical regressions suggested that anxious attachment and social support were significant mediators of the association between child abuse on substance users' psychological health. The study also highlighted differences in emotion perception between the two groups.

The second study extended research by focusing on emotional capabilities that are associated with child abuse and attachment and may mediate their relationship with psychological health. Beyond replicating the effects of child abuse and attachmnet on psychological health outcomes, emotional capabilities, especially, use of emotion and emotion regulation had a negative association with low

psychological health. Emotional capabilities and especially use of emotion and emotion regulation mediated the association between child abuse experiences and insecure attachment in substance users' psychological health. Anxious attachment had a negative association with positive emotions and use of emotion mediated anxious' attachment association with positive emotions, while sexual abuse and anxious attachment had a positive association with negative emotions, and self-emotional appraisal mediated their relationship with negative emotions. These findings pointed to the importance of paying attention to emotional processes that may help explain why traumatic experiences influence psychological health outcomes.

The third study tested an innovative intervention program and examined how it may influence a) emotion awareness on self-reported emotional capabilities and b) psychological well-being. Compared to a group of substance users who did not complete the intervention, substance users who participated in the intervention did not demonstrate significant increase in their emotion capabilities or well-being, and, in some cases, subjective aspects of the emotional capabilities (self-emotion appraisal) decreased.

Taken together, the results from the three studies, supported the view that: a) distal (childhood maltreatment) and proximal (attachment organization) relational factors are important predictors of substance users' well-being; b) proximal factors (anxious attachment) mediate effects of abusive experiences; c) emotional capabilities and specifically regulatory processes have a prominent role as mediators of relational factors on substance users' well-being. Substance users represent a diverse population with a range of psychological needs and relational and emotional factors should be thoroughly investigated and related applications in therapy and interventions are explored.

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# CHAPTER 1

# ATTACHMENT ORGANIZATION IN ADULT CLOSE RELATIONSHIPS: RELATIONAL AND EMOTIONAL PROCESSES IN SUBSTANCE USERS

## 1.1. Relational factors in substance use

During the past decades, researchers have devoted considerable attention to understanding individual differences in the way people behave in their social environments. These efforts have resulted in a growing body of work that includes important theoretical contributions in relational and emotional processes. Although a variety of factors have been identified as contributing to individual differences in relationship functioning, the literature is still limited in the field of relational and emotional processes in clinical populations, especially in substance users. The purpose of this thesis was to examine relational and emotional processes in substance user population in addiction treatment programs.

At the beginning, it is meaningful to discuss research on family and family relationships of substance users, in order to shed light in substance users' specific social environment. Substance users, usually, come from families and live in an environment that emotions are rarely expressed and most of the times substance users and their families express negative emotions (Isaacson, 1991a). It has been argued that drug users' families live in a warped environment wherein inconsistent behaviours abound and rules appear to be lacking (Isaacson, 1991a). Boundaries are either too rigid or virtually nonexistent (Mackensen & Cottone, 1992), resulting in isolation or enmeshment of the family members (Crnkovic & DelCampo, 1998), who, consequently, shift roles and behaviors in an attempt to bring balance and

stability to the family system and improve its survival (Crnkovic & DelCampo, 1998; Teichman & Basha, 1996). Substance users promote the continued addiction by encouraging oppression or behaviours that enable drug use (Isaacson, 1991a). Often, the family's main defense mechanism is denial of the addiction, its extent or its impact on the family (Dore, Kauffman, Nelson-Zlupko, & Granfort, 1996; National Center on Child Abuse and Neglect, 1994). According to Isaacson (1991a), the three main rules are: i) "don't trust" (owing to the inconsistency and inability to predict the future), ii) "don't feel" (oppress emotions such as anger or happiness), and iii) "don't talk" (keep the secret of addiction within the family. As a result, family members have difficulty expressing emotions, processing troubles, and achieving intimacy. The basic emotions experienced, although rarely expressed, tend to be anger, shame, guilt and depression (Crnkovic & DelCampo, 1998). The outcome can be poor communication skills, family conflict, chaotic or rigid interaction patterns, role distortion or role reversal, and generally low levels of family competence (Sheridan, 1995; Wolock & Magura, 1996).

Certainly, the above observations translate to influencing relational processes. There is some empirical research on the implication of attachment theory on family and substance use which signifies the terms "attachment" or "bonding" as a proxy of "quality of relationship". These studies do not have a clear relation to attachment theory concepts (e.g., Lee & Bell, 2003; McArdle, Wiegersma, Gilvarry et al., 2002), while some other studies make an attempt to expand attachment organization to family systems (Byng-Hall, 1999). Some of these studies are referring to a ''shared working model'' (Marvin & Stewart, 1990), and to a ''family script'' (Byng-Hall, 1995). Byng-Hall proposed (1999) the concept of a ''secure family base.'' Some researchers tried to draw a parallel between insecure patterns of family attachment

and Minuchin's (1974) patterns of dysfunctional family relationships (Byng-Hall, 1999; Marvin & Stewart, 1990).

Apart from family and family relationships of substance users, it is also meaningful to introduce some useful information related to social and interpersonal relationships of substance users, which as one can realize play an important role in their psychological health and well-being.

As a preface in understanding relationship processes related to substance use, it would be useful to explain the exact meaning of the term *"relationship"*. The term "relationship" refers to a continuing and stable association between two persons (Hinde, 1997). The existence of a relationship suggests that these persons have established a continuing bond with each other and that this bond has unique characteristics, such as history and awareness of the nature of the specific relationship (Hinde, 1997). The two persons influence each other's thoughts, feelings, and behaviour; and they share the expectation to interact with each other in the future. Human behavior in *relationships* is affected by past and present relationship experience, which provides frameworks for interpersonal understanding and guidelines for responding to partners. As we will look into this issue in the next sections, negative relationship experience can be particularly influential in relationships during adulthood.

According to Havassy, Wasserman & Hall (1995) avoidance of other drug users may result in decreased drug availability, the number and frequency of drug cues and the social pressure to use. Substance use in the social networks promotes the risk of relapse, while sober networks increase abstinence (Havassy et al., 1995). Furthermore, associating with abstainers should increase social reinforcement of abstinence and promote participation in non-drug-related rewarding activities; people who abstain from drug use after treatment have fewer regular drug users in their

social networks (e.g., Hawkins & Fraser, 1987). This potential for change may be heightened during major life transitions, including the transition to adulthood. A successful transition to adulthood also involves developing socially conforming conduct and healthy practices, reducing risky behavior, and abstaining from criminal behavior and substance misuse (Roisman, Masten, Coatsworth, & Tellegen, 2004b). Most youth demonstrate a gradual decrease in substance use and antisocial behavior towards the end of this transition period, as they enter adulthood (Bachman, O'Malley, Schulenberg, Johnston, Bryant, & Merline, 2002).

Integration in "healthy" and protective relationships may facilitate this successful transition and furthermore to abstinence from problem behavior such as substance use. Close personal relationships, which play a protective role for problem behavior, perhaps the adult equivalent of early attachment, it may be useful to take a functional view of attachment in adults as the achievement of felt security rather as a structurally determined set of behaviors (West & Sheldon-Keller, 1994).

### 1.2. The significance of distal and proximal relational factors in substance use

The last two decades there has been plenty of evidence on the relational and emotional factors of psychological functioning in adulthood. The present thesis, will examine possible distal and proximal relational factors related to substance use that can help us understand the population of substance users.

One of the possible distal relational factors is childhood maltreatment, which refers to rejecting, terrorizing, exploiting etc, children and adolescents in the context of familial relationships (Brassard, Germain, & Hart, 1987) mainly, by their parents or adults who are responsible for their upbringing. Several studies indicate that the experience of child abuse is a risk factor for a number of common mental disorders

in adolescence and adulthood, including alcohol and drug-related problems. In many cases, the experience of abuse appears to lead in later life to increased feelings of depression and anxiety, which place the victims at greater risk of developing substance use problems (Gutierres & Van Puymbroeck, 2006).

Possible proximal relational factors of substance use could be attachment organization and social support. Attachment theory has been one potent research framework to explain the emotional functioning in adulthood (see Mikulincer & Shaver, 2007). Another, important theoretical framework for the understanding of how relating may affect psychological well-being has been social support. Attachment organization and social support are closely related. However, there has been quite limited study of the close relationship of these two frameworks in clinical populations and especially substance users in addiction treatment programs.

More specifically, attachment theory has been used to predict, both theoretically and empirically, a wide range of psychopathology (Sroufe, 1989). Secure attachment is hypothesized to promote expectations that others will be responsive to one's needs by developing a perception of self-efficacy in dealing with challenges and a willingness to seek support from others during times of distress (Bowlby, 1988). Expectations of support during times of distress leads to regulation of negative affect and encourages an adaptation of a specific way of emotion regulation in order to relieve from painful experiences (Mikulincer & Shaver, 2007). Although the literature on adult attachment in substance users is limited, researchers have empirically supported some predictions of substance use as a function of insecure attachment style (Caspers, Yucuis, Troutman & Spinks, 2006; Cooper, Shaver, & Collins, 1998).

By using attachment and social support theory, as they will be presented in the following sections, the research plan was designed to examine possible mediators

between abusive childhood experiences and difficulties in psychological health of substance users in addiction treatment programs. The present program of studies, therefore, attempted to offer an innovative theoretical framework to identify specific relational and emotional factors that may mediate the relationship between child abuse and adverse psychological functioning in adulthood. Moreover, the first study focused on the attachment system as associated with emotional regulation processes (intraindividual) and affiliative processes (social support), while the second study focused on possible emotional mediators that influence psychological health and well-being of substance users. The third study was a proposition for an intervention targeting to increase their emotion awareness. Such an understanding can be a valuable tool in procedures that will improve the outcomes of therapeutic process both for substance users and addiction treatment programs. In particular, it can help for information provision that can lead to a configuration of a new framework for a better understanding of substance users' personality according to their relational and emotional factors and implementation of improving their psychological health and reducing the incidence of substance use problem.

## 1.3. The significance of emotional processes in substance use: the self-medication hypothesis

The self-medication hypothesis (Khantzian, 1985) refers to the use of substances as a form of distress or pain alleviation. According to the self-medication hypothesis (SMH), individuals' choice of a particular drug is not accidental or coincidental, but instead, a result of individuals' psychological condition, as the drug of choice provides relief to the user specific to his or her condition. Specifically, addiction is hypothesized to function as a compensatory means to modulate affects

and treat distressful psychological states, whereby individuals choose the drug that will most appropriately manage their specific type of psychiatric distress and help them achieve emotional stability (Khantzian, 1997; 2003). According to Khantzian (1985) drug dependent individuals generally experience more psychiatric distress than non-drug dependent individuals, and the development of drug dependence involves the gradual incorporation of the drug effects and the need to sustain these effects into the defensive structure-building activity of the ego itself. The addict's choice of drug is a result of the interaction between the psychopharmacologic properties of the drug and the affective states from which the addict is seeking relief (Khantzian, 1985). The drug's effects substitute for defective or non-existent ego mechanisms of defence (Khantzian, 1985). The self-medication hypothesis (SMH) initially focused on heroin use.

The specific sample of the present study consisted mainly of heroin users and it is meaningful mentioning that heroin, which is an artificial opioid substance, functions as an analgesic, reducing the perception of and reaction to pain, while also increasing pain tolerance. Opiates are hypothesized to self-medicate aggression and rage (Khantzian, 1985; 1999).

### 1.4. Child abuse as distal relational factor in substance use

Several studies have found that experiences of childhood abuse increase the risk for mental health problems for both adults (e.g., Wind & Sivern, 1992) and adolescents (Boney-McCoy & Finkelhor, 1995; Stein, Rae-Grant, Ackland & Avison, 1994). The literature on experiences of childhood victimization indicates that there is increased risk for the development of depression, self-esteem problems

and anxiety in both children and adults who were victimized. These mental health problems may in turn be precursors for the eventual development of substance use problems in adulthood.

Recent studies have indicated that histories of child abuse and neglect are highly prevalent in populations of treatment-seeking drug addicts and alcoholics. The trauma of living in the shade of parental maltreatment affects not only the daily functioning of children, but also the entire course of their development. Studies have shown that emotional, cognitive, behavioural and social disorders accompany these children into adolescence and adulthood (Cicchetti & Toth, 1995; Gauthier, Stollak, Messe, & Aronoff, 1996). A number of studies have also shown that children who have experienced physical abuse or harsh and/ or neglectful parenting have been found to experience difficulties in the domain of intimate close relationships (Birtchnell, 1993; Brown & Moran, 1994).

A clear understanding of the mechanisms by which child abuse in general, and sexual abuse in particular, results in substance use is necessary to help the treatment for those who have been victimized. The literature on the effects of sexual abuse offers some clues as to mechanisms that may link childhood victimization and later substance use. Finkelhor and Kendall-Tackett (1997) suggest that trauma and stress resulting from childhood sexual victimization can alter the normative course of cognitive and social development for children. Their claim meets with a significant amount of data connecting sexual abuse to problems with fundamental developmental tasks, such as the formation of identity and self concept (e.g., Feiring, Taska, & Lewis, 1996) and behavioural self-control (e.g., Brodsky, Oquendo, Ellis, Haas, Malone, & Mann, 2001). Negative self-concept (Harter, 1999) and deficient self-control have been identified, in turn, as risks for adolescent substance use (Hawkins, Catalano, & Miller, 1992; Neumark-Sztainer, Story, French, & Resnick,

1997). Therefore, it is possible that negative self-concept and behavioural under-control constitute pathways from child sexual abuse to adolescent substance use.

In addition, low self-esteem accompanies sexual abuse, especially among girls, and especially during adolescence. Negative feelings about the self, in turn, relate to substance use in adolescence and adulthood. From a theoretical standpoint, low self-esteem, depression, and hopelessness may result in attempts to dissociate or escape from the pain of low self-regard by engaging in self-destructive and escapist behaviours, such as drug use (Harter, 1999). In other words, adolescents who feel badly about themselves may self-medicate in order to feel better, at least temporarily. Gutierres and Todd (1997) also claim that existing research suggests that drug users as a group have lower self-esteem than nonusers.

Finally, Riggs and Jacobvitz (2002, p. 201) attempt to explain the relation between trauma, drug users, and unresolved attachment: ‘‘The denial and altered state of mind associated with substance abuse function defensively to keep a person from evaluating and re-experiencing the painful reality of having been abused and thereby contribute to the failure to resolve trauma’’.

All the above findings suggest that the experience of childhood abuse is a risk factor for a number of common mental disorders, including alcohol and drug-related problems. In many cases, experiencing abuse appears to lead in later life to increased feelings of depression and anxiety, which, while not sufficient to result in diagnosing a mental health disorder, place the victim at greater risk of developing substance problems, possibly as a result of self-medication.

Taken together, these findings suggest that the link between child maltreatment and later substance use may be explained, in part, by disruptions in early attachment relationships that lead to insecure attachment and problems with substance use. Specifically, child maltreatment may be associated with both insecure

attachment and substance abuse. In relation to attachment, there is little research on attachment organization mediating this possible connection between childhood maltreatment and psychological health and well-being of substance users, and I will be discussing this in the following section.

### 1.5. Attachment theory and child abuse

Attachment theory provides several possible explanations related to the behaviour of maltreated children. Attachment relationships are fundamental to the individual functioning at all ages (Crittenden, & Ainsworth, 1989) and each attachment style affects areas such as social skills, functional/ dysfunctional relationships, affect regulation, coping in stress situations (Weinfield, Sroufe, Egeland, & Carlson, 1999). The primary purpose of attachment, the promotion of the protection and survival of the young is put in risk by maltreatment. Children who experience maltreatment from an early age may adopt similar coping strategies in life, and expect the same maltreatment in future new relationships. New figures on which maltreated children impose their internal working models include teachers, peers, therapists and others (Toth & Cicchetti, 1996).

Studies of physically abused and neglected children, in the context of the attachment theory, show that physically abused children (ages 1 to 4 years) are insecurely attached to their mothers (Ciccheti, et al., 1995; Crittenden, 1992), exhibiting in particular an avoidant pattern. Also, investigations of attachment in maltreated children have shown high levels of insecure (avoidant and ambivalent) attachment (Crittenden, 1988; Egeland & Sroufe, 1981). Egeland and Sroufe (1981) found a specific association between child abuse and the development of avoidant attachment. More specifically, they found that all the physically abused infants were categorised as “avoidant” and 50% of the neglected infants as “anxious/ambivalent”.

Youngblade and Belsky (1990) classified most of the neglected children as anxious/ambivalent. Gauthier, et al. (1996) studied undergraduates (average age 19 years) who had been physically abused or neglected in childhood, and reported that physical abuse was significantly related to the avoidant attachment style. George (1996) relates more avoidance and more approach-avoidance conflict to abused infants. More recent research findings by Finzi-Dottan, Ram, Har-Even, Shnit, & Weizman (2001) are consistent with the above, suggesting that physically abused children were characterized mostly by the avoidant attachment style, and neglected children were characterized by the anxious/ambivalent attachment style.

Research regarding emotional skills, childhood abuse appears to have harmful effects on attachment security (Bacon & Richardson, 2001; Roche, Runtz, & Hunter, 1999). Furthermore, factors that promote insecure attachment in childhood have been identified as a significant risk factor for many types of psychological difficulties in later life, including anxiety and depressive disorders, substance abuse, and posttraumatic stress disorder (Allen, Huntoon, Fultz, Stein, Fonagy, & Evans 2001; Bifulco, Moran, Ball, & Lillie, 2002). Finally, several studies have demonstrated that the effects of childhood abuse on adult well-being are mediated by the quality of adult attachments (Roche et al., 1999; Shapiro & Levendosky, 1999).

Negative stimuli and experiences are better recalled than those that are non emotional, and sometimes better than those that are positive stimuli and experiences (e.g., Reisberg & Heuer, 2004). Avoidant individuals defensively regulate the processing of potentially distressing information (Bowlby, 1980) and attachment avoidance is negatively associated with memory for particularly severe child sexual abuse incidents (Edelstein, Ghetti, Quas, et al., 2005).

According to the above literature, people with abusive childhood experiences tend to exhibit insecure attachment, which has been related to difficulties in intimate

adult relationships. At this point it is very useful to present the basic principles of attachment theory, which will help to shed light into the connection between child abuse and attachment organization.

### 1.6. Attachment theory as a theoretical framework for the understanding of interpersonal relationships

Attachment theory began with the theoretical work of John Bowlby (1982) who viewed early attachment relationships as influencing the nature and course of relationships throughout life, especially for intimate love relationships and parenting. Bowlby suggested that "attachment behavior is held to characterize human beings from the cradle to the grave" (1977, p. 203). Bowlby (1982/1969) argued that human beings are born with an innate psychobiological system (the *attachment behavioural system*) that motivates them to seek proximity to significant others (*attachment figures*). This system achieves basic regulatory functions (protection from threat and alleviation of distress) in human beings of all ages, but is most directly observable during infancy (Bowlby, 1988). Bowlby (1973) described important individual differences in attachment-system functioning. Interactions with attachment figures who are available and responsive in times of need help the best functioning of the attachment system, support a relatively stable sense of attachment security, and increase confidence in support seeking as a distress-regulation strategy (Bowlby, 1973). When a person's attachment figures are not available and supportive, proximity seeking fails to relieve distress and a sense of attachment security is not achieved. Then strategies of affect regulation other than proximity seeking (*secondary attachment strategies)*, have recently been understood, in terms of two major dimensions, *avoidance and anxiety* (Mikulincer & Shaver, 2003).

More specifically, later studies (e.g., Bartholomew, 1990, Bartholomew & Horowitz, 1991; Brennan, Clark, & Shaver, 1998) proposed a two-dimensional space of attachment styles. The first dimension, typically called attachment *avoidance*, reflects the extent to which a person distrusts relationship partners, and strives to maintain behavioural independence and emotional distance from them. The second dimension, typically known as attachment *anxiety*, reflects the degree to which a person worries that a partner will not be available in times of need. The two dimensions can be measured with reliable and valid self-report scales (e.g., Brennan et al., 1998, Fraley, Waller, & Brennan, 2000; Tsagarakis, Kafetsios, & Stalikas, 2007) and refer to relationship quality and adjustment (see Mikulincer & Shaver, 2003; Shaver & Clark, 1994; Shaver & Hazan, 1993).

In studies of adolescents and adults, tests of those theoretical ideas have generally focused on a person's *attachment style.* The term attachment style refers to the systematic pattern of relational expectations, emotions, and behaviours that results from internalization of a particular history of attachment experiences (Fraley & Shaver, 2000; Shaver & Mikulincer, 2002). At the beginning, research was based on Ainsworth, Blehar, Waters, and Wall's (1978) three-category typology of attachment styles in infancy, secure, anxious, and avoidant. This typology was later applied to adults in a study by Hazan and Shaver (1987), in which the secure style was characterized as feeling comfortable with closeness and not worrying about abandonment, the avoidant style as feeling uncomfortable with closeness and thus keeping distance in relationships, and the anxious/ambivalent (or ''preoccupied'') style as showing intense desire for closeness, together with worries about the partners' feelings and the possibility of abandonment. An improvement on this typology was proposed by Bartholomew (1990; Bartholomew & Horowitz, 1991), who differentiated two avoidant styles. Individuals with the fearful avoidant style

admit desire for closeness and intimacy, but interpersonal distrust and fear of rejection lead to avoidance of closeness. The dismissive-avoidant style is characterized by the negation of attachment needs, and so these individuals passively avoid close relationships, value independence and autonomy at the expense of intimacy, and consider relationships with others as relatively unimportant.

In the present thesis the Greek version of the *Experiences in Close Relationships Inventory Revised* (G-ECR_R, Fraley, et al., 2000; Tsagarakis, et al., 2007) was used. The use of G-ECR_R, of two dimensions (avoidance and anxiety) in a clinical sample of substance users is a novelty.

### 1.6.1. The cognitive basis of Adult Attachment organization

According to Bowlby (1980), every situation we come across with in life is constructed in terms of the *representational models* we have of the world about us and of ourselves and others. Information reaching through one's sense organs is selected and interpreted in terms of those models and its significance for us and for those we care for, is evaluated in terms of them. Plans of action are conceived and executed with those models in mind. The way persons interpret and evaluate each situation, moreover, depends on how we feel (Bowlby, 1980). More specifically, Bowlby hypothesized that the quality of childhood relationships with caregivers result in *internal representations* of attachment relations that later become integrated into the personality structure and thereby provide the prototype for later social relations. However, attachment theory could possibly predict developmental pathways that may lead to specific patterns of problems in adult personal relationships.

Also, attachment theory has been used as a framework for understanding the specific processes through which close relationships in adulthood are influenced by

each partner's personal and interpersonal history. Central to this approach is the notion of *working models* of self and others. Working models are cognitive-affective schemata based on the individual's experience in his or her interpersonal world. (Bartholomew & Horowitz, 1991; Collins & Read, 1990; Main, Kaplan, & Cassidy, 1985). Bowlby proposed that early meaningful relationships lead to the formation of ''internal working models'' of self and others, and that these models are the basis for perception, feeling and behaviour in all later meaningful relationships, extending into adulthood. The study of individual differences in internal working models, reflected upon behaviour patterns labeled as ''attachment styles'' was developed by Ainsworth, et al. (1978).

According to the current literature, the *attachment styles* first identified in infancy remain fairly stable over time and are carried into adulthood (Collins, 1996; Collins & Read, 1990; Cooper et al., 1998; Hazan & Shaver, 1987, 1994). The shift from infant to childhood attachment to adult attachment can be conceptualized as a gradual reordering of attachment hierarchies (Cooper et al., 1998). More specifically, in infancy and childhood, the context for attachment is the relationship between the child and their caregiver; during adolescence, attachment becomes peer oriented; and in early adulthood attachment behaviors shift towards romantic patterns (Stein, Jacobs, Ferguson, Allen, & Fonagy, 1998).

As in infancy and childhood, the differences in adult attachment style and subsequent behavior are hypothesized to be a result of underlying differences in the individuals' internal working models, which continue to solidify through adolescence (Collins, 1996). Working models operate "as part of a broader system of cognitive and motivational processes that enable people to make sense of their social experience and to function in ways that serve their personal needs" (Collins, 1996, p. 812). Therefore, adult attachment is connected to behaviors, both specific to

romantic relationships and in the broader social context, through the mechanism of internal working models (Golder, Rogers, Gillmore, Spieker, & Morrison, 2005).

### 1.6.2. The affective basis of Adult Attachment organization: emotion regulation

Attachment theory is one of the major conceptual frameworks for understanding affect regulation. Secure attachment has generally been associated with positive affect while insecure attachment with negative affect (Mikulincer & Florian, 1998). Individuals high in attachment security are found having an open, flexible style of emotion regulation, that means they have access to a wide range of emotions and are able to adjust their emotional responses in ways that are appropriate to prevailing situational incidents (Cassidy, 1994; Magai, Hunziker, Mesias, & Culver, 2000). Individuals with an insecure style of attachment were found to experience less positive affect than those with secure attachments, and also manifested deficits in the ability to self-regulate anxiety, depression and other negative emotions (Parker, 1982).

According to Bowlby's hypotheses on psychological correlates of the sense of attachment security, persons who have a sense of attachment security firstly tend to react to stressful events with lower levels of distress than persons who score high on avoidance or anxiety /preoccupation dimensions (Feeney & Kirkpatrick, 1996; Mikulincer & Florian, 2001). Secondly, persons who hold a sense of attachment security are more likely to cope with stress by relying on support–seeking than do persons who score high on avoidance or anxiety / preoccupation, dimensions (Fraley & Shaver, 1998; Simpson, Rholes, & Nelligan, 1992). Thirdly, securely attached persons hold more positive expectations about relationship partners than persons who score high on the avoidance dimension (Collins, 1996; Collins & Read, 1990). Additionally, securely attached persons hold more positive self–views than persons

who score high on anxiety/ preoccupation dimension (Bartholomew & Horowitz, 1991; Mikulincer, 1998). Finally, persons who hold a sense of attachment security are more likely to engage in exploration and affiliation activities, and to be more sensitively responsive to their partner's needs than persons scoring high on avoidance or anxiety/preoccupation dimension (Mikulincer, 1997; Mikulincer & Selinger, 2001).

Attachment theorists have proposed that early relationships establish the context for the child's developing capacities for emotional regulation and self-regulation. Self-regulation is the natural outgrowth of the child's internalization of a parent's sensitive and containing responses to bids for comfort and care. Although initially this regulatory function is suggested to occur only in the context of caregiving relationships, as a child internalizes a general representation of the soothing and responsive caregiving relationship, he or she begins to be able to soothe and regulate himself or herself. Along the same process, when caregivers are less sensitively responsive to children's cues for comfort and care, children are thought to internalize a representational model of others as more dismissive, rejecting, and inconsistent and the self as unworthy and unlovable. This generalized model of a less secure relationship is thought to have important implications as both a prototype for subsequent relationships and as a precursor for psychological maladjustment (Sroufe, Carlson, Levy, & Egeland, 1999).

More specifically, emotion regulation is the ability required to control negative emotions, so that they are only displayed at appropriate times. The mutual dependence between mother and infant appear to be a good way of understanding the connection between emotion regulation and attachment style. For example, individuals who have found that expressing frustration and sadness has resulted in increased attention from caretakers will continue to use this strategy in future

relationships. Alternatively, when caretakers are inconsistent with their reaction to such outbursts, the child will attempt to increase the frequency of caretaker response by reacting more and more dramatically. The result is likely to be an anxious style of attachment. Therefore, in this view, attachment styles represent a person's learned strategies for regulating negative emotions (Zimmermann, Maier, Winter & Grossmann, 2001).

Both the developmental (Ainsworth, et al., 1978; Sroufe & Waters, 1977; Sroufe & Fleeson, 1986) and the adult literature (Cassidy & Kobak, 1988; Kobak, Cole, Ferenz-Gillies, & Fleming 1993; Kobak & Sceery, 1988) agree on the importance of affect regulation on attachment organization. Patterns of emotion play a significant role on interpersonal interaction (Grossman & Grossman, 1991). Research studies (Bowlby, 1969; Tennant, 1988) and attachment styles in infancy and childhood have confirmed that the sensitivity and responsiveness of the primary caregiver to the child's emotional states is a major determinant of the way the child learns to regulate distressing affects and to relate to other people. Children who were securely attached experienced an optimal and consistent responsiveness expression and learned that modulated emotional expression has positive outcomes. Deficient caregiving results in insecure patterns of attachment behaviour and impedes the development of effective affect regulating skills.

Studies of adolescents and adults (Hindy & Schwarz, 1994; Rothbard & Shaver, 1994) found that those with secure attachment styles report low levels of negative affect and form strong relationships with others to whom they turn for support when emotionally distressed. Individuals high in attachment security are proposed to have an open, flexible style of emotion regulation, which means that they have access to a wide range of emotions and are able to adjust their emotional

responses in ways that are appropriate to prevailing situational contingencies (Cassidy, 1994; Magai, et al., 2000).

More specifically, in terms of attachment styles, dismissing or avoidant attachment has been associated with an emotion regulatory style characterized by affect 'minimization' (Cassidy, 1994) and a tendency to route negative emotion from consciousness (Cassidy, 1994; Hazan & Shaver, 1987; Magai et al., 2000; Mikulincer, 1998b). Young adults who are highly dismissing/avoidant are rated as more hostile and defensive (Kobak & Sceery, 1988; Mikulincer, 1998a; Mikulincer, Florian, & Weller, 1993), and scores on avoidance are positively correlated with disgust and contempt in both males and females, as well as being negatively correlated with joy and interest in males (Magai, Distel & Liker, 1995). Dissmissing/avoidant attachment has also been associated with low levels of anxious attachment (Bartholomew & Horowitz, 1991) and a greater fear of death at a non-conscious level (Mikulincer, Florian, & Tolmacz, 1990). This pattern of results may suggest that the 'minimizing' regulation pattern associated with dissmissingness/ avoidance may be specific to the avoidance of emotions connoting weakness, such as fear and anxiety.

Individuals characterized by a preoccupied/ ambivalent attachment style tend to have what Cassidy (1994) refers to as a 'maximizing' style of emotion regulation, that is, they are very sensitive to rejection and distress (Kobak, et al., 1993; Mikulincer, 1998b). In terms of discrete emotions, ambivalence has been associated with greater anxiety, as rated by peers (Kobak & Sceery, 1988). Ambivalence has also been associated with reports of greater shame and lack of self-confidence

(Bartholomew & Horowitz, 1991; Magai & McFadden, 1995), as well as higher levels of sadness and self-reported anxiety (Magai & McFadden, 1995).

Furthermore, in terms of *discrete emotions*, Kobak and Sceery's (1988) research on young adults, based on the Adult Attachment Interview (AAI) (Main et al., 1985) and peer ratings, indicated that securely attached individuals are more cheerful than either ambivalent or avoidant individuals. Secure attachment has also been associated with self-reports of less depression, anger, and hostility than either insecure group (Hazan & Shaver, 1987), lower proneness to anger (Mikulincer, 1998a), lower anxiety (Mikulincer & Orbach, 1995), and higher levels of curiosity – a facet of the emotion of interest.

It is worth mentioning that most of what social scientists know about the relations between attachment and emotion comes from research involving adolescents and younger adults. Less attention has been paid to emotion in the context of older adult attachment, despite the marked developmental changes in emotion and emotion regulatory capacities in later life (see Consedine, Magai, & Bonanno, 2002; Gross, Carstensen, Pasupathi, Goetestam-Skorpen, & Hsu, 1997). In one of the few studies assessing attachment and affect in adults that included a significant number of older adults (range: 24 to 92 years), Magai et al., (2000) found that attachment security, as assessed by the AAI, was associated with objectively measured facial expressions of joy and reports of low levels of anxiety, sadness, and anger. These researchers also found that dismissing attachment was negatively associated with reports of experiencing anxiety and with mixed emotion signals (negative/positive blends) during a negative affect induction, suggesting the incomplete masking of negative affect. Attachment preoccupation was associated with levels of reported anger and anxiety, and with facial expressions of disgust.

### 1.7. Attachment organization as a proximal relational factor in substance use

From an attachment point of view substance use can be understood as an artificial deactivating strategy, as an attempt to cope with attachment insecurity, to diminish emotional distress, and regulate interpersonal relationships in individuals with insecure attachment representations. Fearful individuals seem to perceive attachment-related distress in the way preoccupied individuals do. However, unlike them, they do not view ‘‘closeness-seeking as a viable option’’ (Shaver & Mikulincer, 2002). And unlike dismissing individuals, they do not possess the defensive mechanisms of a deactivating strategy. They do not seem to have any attachment strategy of coping with attachment-related emotional distress. In this situation the use of psychoactive substances seems to become attractive. Substance abuse, as it has already mentioned in section 1.3, has been described as a ‘‘self medication against emotional distress’’ (Newcomb, 1995), and an attempt to cope with ‘‘emotional instability and lack of control’’ (Petraitis, Flay, Miller, Torpy, & Greiner, 1998).

As it has been already mentioned above, a part of emotion regulation refers to the ability to control negative emotions, such as emotional distress and according to Zimmermann et al. (2001) attachment styles represent a persons’ strategy for regulating negative emotions. As it appears from the above, substance users seem to be insecurely attached and this means that they are associated with negative emotions (Mikulincer & Florian, 1998) and also display deficits in the ability to self-regulate anxiety, depression and other negative affects (Parker, 1982).

In relation to attachment style, it is one of the factors that influence the ability to cope with stressful experiences (Diehl, Elnick, Bourbeau, & Labouvie-Vief, 1998). Secure attachment is an inner resource that may help a person to positively appraise stressful experiences, to constructively cope with psychological distress, and

to improve his or her well-being and adjustment. In contrast, either avoidant or anxious-ambivalent attachment can be viewed as potential risk factor that may detract from individual resilience in times of stress, leading to poor coping and to maladjustment (Mikulincer & Florian, 1998). Several studies on attachment and substance use disorders consistently report a link between insecure attachment and substance abuse.

Studies examining the recollections of drug-dependent adults in treatment about caregiving in their family of origin consistently characterize parents as emotionally distant and overcontrolling (Cosden & Cortez-Ison, 1999). According to Bowlby (1973) when caregivers are less sensitively responsive to children's cues for comfort and care, children are thought to internalize a representational model of others as more dismissive, rejecting, and inconsistent and the self as unworthy and unlovable (Sroufe et al., 1999). Harter (2000) argued that inconsistent nurturance in childhood combined with parents who regard their own needs as central, leads to difficulty in trusting others, being appropriately intimate, and maintaining reasonable boundaries. Experiences with caregivers who are unavailable or inconsistent and consume substances also may lead their children to repeat poor relationships in young adulthood.

Studies on attachment and substance use link insecure attachment with substance use (Schindler, Thomasius, Sack, Gemeinhardt, Kustner, & Eckert, 2005), but, it will become obvious from the following paragraphs, it is difficult to specify which insecure attachment styles are associated with substance use.

The following studies have reported associations between an insecure attachment style and substance use and I will attempt to analyze this. Kassel, Wardle, and Roberts (2007), using Collins and Read (1990) inventory, examined the relationship between adult attachment style and use of cigarettes, alcohol, and

marijuana in a sample of college students. They proposed a conceptual model positing that adult attachment style influences both drug use frequency and stress-motivated drug use through its impact on dysfunctional attitudes and self-esteem. They found positive associations between anxious attachment and both drug use frequency and stress-motivated drug use and more specifically, related to drug use frequency. They observed that relationship between attachment style and drug use was mediated via dysfunctional attitudes about the self and self-esteem, leading to the argument that low self-esteem enhances the likelihood of more drug use.

In a clinical sample, Thorberg & Lyvers (2006) examined attachment, fear of intimacy and differentiation of self by using Revised Adult Attachment Scale (AAS) (Collins, 1996) in volunteers, including clients enrolled in addiction treatment programs. They found that insecure attachment, high fear of intimacy and low self-differentiation appear to characterize clients enrolled in addiction treatment programs. According to their findings, insecure attachment, among the above could be a risk factor for the development of substance abuse/dependence.

Caspers et al., (2006) using a sample of adoptees, found that individuals classified as dismissing, preoccupied or earned-secure reported the highest rates of substance abuse/dependence, individuals classified as dismissing reported significantly lower rates of treatment participation despite their high rates of substance abuse/dependence, while the secure group reported lowest rates of both substance abuse/dependence and treatment participation. Attachment representations were derived with the use of the Adult Attachment Interview. Their results show that different studies use different measures and perhaps the observed differences are due to methodological reasons.

Schindler et al., (2005) using the Bartholomew (1990) interview coding system to assess attachment in a sample of opiate using, drug dependent adolescents

compared to controls, found that fearful attachment was predominant in drug users. There was a link between fearful attachment and drug dependence. They also found that a higher dismissing attachment score was associated with relatively less drug use, while a higher fearful attachment score with relatively more drug use. Their interpretation was that the more someone is able to cope with attachment related distress in a dismissing way, the fewer drugs he or she needs.

Also the study of Golder, et al., (2005) adds to the existing body of evidence on the topic of attachment as a very useful framework in understanding substance use and related risk behaviors. They found that differences in attachment security were related to substance use and to problematic behaviours whereas attachment differences in behaviour were found to be partially mediated by psychological distress and low self-esteem. Women with higher levels of attachment insecurity were more likely to engage in risky behaviours than more securely attached women. Golder et al. (2005), using Adult Attachment Scale (AAS) by Collins and Read (1990), found that avoidance was significantly related to all measures of risky behaviour.

In Finzi-Dottan, Cohen, Iwaniec, Sapir, & Weizman's (2003) study, using the Adult Attachment Style Scale (Hazan & Shaver, 1987) when both partners had a secure attachment style, cohesion was strong in a clinical sample of drug addicts and their wives. This enabled them to support each other with the difficulties involved in the recovery process. Individuals characterized by the two other styles (avoidant and anxious/ambivalent) were apparently less equipped to deal with stress. In Finzi-Dottan's study, most of the drug users had an avoidant style. According to Finzi-Dottan, et al. (2000) the avoidant drug user shows aloof independence and lack of interest in confronting or resolving family conflicts. He is likely to deny the pain the addiction has caused his family or to minimize its impact on his partner. In Finzi-

Dottan's, et al. (2003) study, when both the drug user and his wife were characterized as anxious/ambivalent, family cohesion and adaptability were lower, and the family was less able to cope with the challenges imposed by the recovery process.

Cooper, et al., (1998) studied attachment styles (HSSR), different types of problem behaviour, and emotion regulation in a large representative community sample of adolescents. Results show that heavier use was linked to insecure attachment, to avoidant, and especially to anxious attachment styles. The authors made a distinction between experimental and heavy use. Heavier substance use is viewed as part of a wider pattern of problem behaviour, as an attempt to cope with distress.

Mickelson, Kessler, & Shaver (1997) also used the HSSR in a large representative sample of adolescents and adults. They found that substance use disorder had a stronger relation to avoidant than to anxious attachment. This is an important study because of its large representative sample, of its focus on clinically relevant substance use disorders (SUDs), and because of the use of the CIDI. A limitation is that SUDs were assessed as lifetime prevalence, with the actual disorders possibly appearing some decades in the past, while attachment was assessed as present attachment category. This might have weakened the link between attachment and SUDs, which might have been even stronger in a sample of present substance abusers.

Substance abuse itself is also a form of psychological maladjustment. Primarily on the basis of clinical observations and interviews, proponents of the self medication hypothesis of addiction (see Khantzian, 1997) have conceptualized drug use as a compensatory (albeit self-destructive) attempt to regulate overwhelming and persistent negative affect that otherwise causes extreme levels of emotional distress.

Empirical findings from studies examining affect regulation have also, generally, indicated that drug-dependent adults are less tolerant to affective distress than non drug-dependent adults and that drug use severity tends to increase along with levels of affect dysregulation (Keller & Wilson, 1994).

Thus the review of the related literature demonstrated a strong link between insecure attachment and substance use. However, results were far from clear regarding the exact attachment process. According to the above literature, anxious attachment style influences positively both frequency of drug use and stress-motivated drug use through its impact on dysfunctional attitudes about the self and self-esteem, leading to the argument that low self-esteem enhances the likelihood of more drug use (Kassel, et al. 2007). Also, heavier use was found be linked to insecure attachment, and especially to anxious attachment styles (Cooper, et al., 1998). Furthermore, individuals classified as dismissing and preoccupied reported the highest rates of substance use and lower rates of treatment participation (Caspers, et al., 2006).

On the other hand, there was a link between fearful attachment and drug dependence, a more fearful attachment was associated with relatively more drug use, while a more dismissing attachment with relatively less drug use. Their interpretation was that the more someone is able to cope with attachment related distress in a dismissing way, the less drugs he or she needs (Schindler, et al., 2005).

Also, individuals characterized by avoidant and anxious/ambivalent were less equipped to deal with stress and more specifically, most of the drug users had an avoidant style (Finzi-Dottan, et al., 2003, Mickelson, et al., 1997). And as we have seen above, the *avoidance* strategy enables drug users to develop manipulative behaviours in order to avoid their negative self-concept and inability to cope with stressful situations and interpersonal relationships (Hofler & Kooyman, 1996).

According to them, insecure attachment, among the above could be a risk factor for substance use and attachment theory provides a useful framework in understanding substance users' personality and substance use. If substance use is linked to a certain pattern of attachment, this would enable us to draw conclusions on these processes in substance abusers and might lead to development of appropriate interventions into substance use problems.

Yet, there are unanswered questions concerning the plausible process and the direction of the relations such as the relation between insecure attachment and addiction. It is not clear from the literature, the processes that preced and lead up to insecure attachment styles of substance users, what kind of childhood experiences affect substance users' personality in relation to attachment organization.

One of our hypotheses is that insecure substance users' attachment styles might be related to childhood maltreatment experiences. As we have seen above, literature on child abuse and attachment organization in adult populations is quite limited. On the other hand there is plenty of research related to substance users who have experienced physical or sexual abuse (Clark, Lesnick, & Hegedus, 1997; Sullivan & Farrell, 2002), while substance use is seen as an attempt to cope with the emotional distress caused by these experiences. The connection between child abuse and attachment organization could be an interesting avenue, trying to shed light in the aetiology of insecure attachment and later substance use.

Another important issue is to examine how substance users regulate their emotions and how this is related to attachment organization. As we have seen above, attachment theory is one of the major conceptual frameworks for understanding affect regulation. Insecure attachment is associated with negative emotion (Mikulincer & Florian, 1998) and substance users come from families where they face difficulties in expressing emotions and mainly, negative emotions. Charles-

Nicolas (1991) suggested that families of drug users adolescents tend to avoid, or are unable to tolerate negative mental states (anxiety, frustration) and separations.

Individuals characterized by insecure attachment (preoccupied/ ambivalent) tend to have what Cassidy (1994) refers to as a 'maximizing' style of emotion regulation. They are very sensitive to rejection and distress (Kobak, et al., 1993; Mikulincer, 1998b). In terms of discrete emotions, anxious-preoccupied attachment has been associated with greater anxiety (Kobak & Sceery, 1988) and higher levels of sadness and self-reported anxiety (Magai & McFadden, 1995).

It is worth mentioning that most of social scientists' knowledge about the relations between attachment and emotion comes from research involving adolescents and younger adults. Less attention has been paid to emotion in the context of older adult attachment, despite the marked developmental changes in emotion and emotion regulatory capacities in later life (see Consedine, et al., 2002; Gross, et al, 1997). Also, literature is very limited on attachment organization and emotion in clinical population especially, substance users.

In relation to the literature, substance dependence may be the consequence of an inefficient regulation of distressing emotions via mental processing (Taylor, Bagby & Parker, 1997), because dependent behaviours represent ways of regulating negative emotions, anxiety and depressive feelings (van Vreckem & Vandereycken, 1995). And as it has already mentioned above, substance use is seen as ''self-medication against emotional distress'' (Newcomb, 1995, p. 14). According to Cook (1991), the most powerful reinforcing experiences a person can become addicted to, are those that distract the individual from negative emotional states. The use of psychoactive substances may constitute such experiences.

Furthermore, Magai (1999) suggested that adults engage in addictive behaviours to regulate affect. Jeammet (1994) considered the use of psychoactive substances such as self-medication aimed at reducing anxiety and depression—emotional states individuals are commonly confronted with. Such behaviours may replace other ways of reducing anxiety internally (i.e., psychological defenses).

As I will discuss in the next sections in more detail, social support has been proposed to be health promoting, health restoring and it appears to protect individuals from the negative effects of stress on health and adjustment. It is an essential emotional and social resource for drug use. It is important to study the role of social support as a protective factor in substance users.

Extending this line of research, as the last two decades attachment research has become a strong theoretical framework for understanding links between intrapersonal and interpersonal processes to concerning emotion in close relationships, the present thesis aimed at examining whether drug users were characterized by certain insecure patterns of relational behaviour (that resonate with the above descriptions). Furthermore, it intended to examine whether these aspects of relating may be associated with substance users' psychological health and well-being.

More specifically, the clarification of these questions will shed light to main fields of addiction, such as relationship between child abuse experiences on attachment organization, the association between attachment organization and the psychological health of substance users and the possible relational and emotional mediators of substance users' psychological health. This rather complicated model, which is proposed from the present thesis, will offer valuable information related to the gap in the existing literature in the field of substance use and dysfunctional pattern of human behaviour in general. A continued balance between theory,

research, and practice will further advance the development of successful interventions into addiction (Cassidy & Shaver, 1999; Suess & Sroufe, 2005).

### 1.8. Social support as proximal relational factor in substance use

The study of social support first appeared in the research literature in the early 1970s. The term "social support" refers to a variety of phenomena, such as health, illness, recovery from illness, and adjustment and psychological functioning. People with satisfying levels of support cope better with stress, are healthier and recover from illness more quickly, and seem to be better adjusted. Social support is not simply assistance that is exchanged among network numbers, but it reflects a complex set of interacting events and processes that include behavioral, cognitive, and bodily components. Social support has been found to be health promoting, health restoring and associated with decreased mortality risk. It appears to protect individuals from the negative effects of stress on health and adjustment.

Sarason, Pierce, & Sarason, (1990) proposed a model of support that is organized around the central personality variable 'sense of acceptance'. This is the extent to which an individual generally feels valued, unconditionally accepted, and loved by others. It is viewed as the core construct underlying perceptions that others are available if one needs them (perceived available support), and the propensity to interpret the behaviours of others as supportive (perceptions of received support). Sarason et al. (1990) did not, however, equate perceived available support and the sense of acceptance at the construct level. Instead, they formulated an interactionistic model of support wherein perceived available support in a particular stressful situation is a function of (i) the sense of acceptance, (ii) the type of the stressful situation, and (iii) the quality of the current primary relationships. To whom one turns for help depends on the type of stressor, and whether one believes that this

person would be helpful depends, not only on one's general sense of acceptance, but also on the quality of one's current relationship with this person. However, this quality will be influenced by one's sense of acceptance: a strong sense of acceptance is more likely to lead to relationships from which one can expect help.

Current views of social support consider it as characteristic of the social environment, as a characteristic of an interactional context with emphasis on what is received from others, or as stable meaning attached to behaviour of others, resulting from earlier experience and based on views of self and others developed as a partial consequence. The role of close personal relationships is very important as key sources of support provision. As far as relationships are processes and not states (Duck, 1994; Duck & Sants, 1983), social support is considered to be a process based on the importance of close relationships and the behavior resulting from those relationships.

Social support is widely recognized to protect against anxiety and depression and to enhance perceived quality of life. Several studies showed that support indicators are positively related to mental health in the normal population and also discriminate between normal population controls and psychiatric cases (House, 1981; Turner, 1983). Because stress has a negative impact on psychological adjustment, much of the earlier research focused on social support as moderator of stress. Wethington and Kessler (1986) argued that perceptions of support availability are more important than actual support transactions and that the latter promotes psychological adjustment through the former, as much as by practical resolutions of situational demands. It is worth mentioning that social support is only effective to the degree that the recipient perceives it (House, 1981).

In relation to substance use, the quality of social relationships has been a strong influence. For example, family relationships have been implicated in the

continued injection drug use and needle sharing among methadone maintenance patients (Brennan & Moos, 1990) and parental support is inversely related to substance use. High support reduces the effect of risk factors and increases the effect of protective factors (Wills & Cleary, 1996). Hence, a relational process that may be implicated in the preservation of dysfunctional relational patterns of drug users maybe social support and secure attachment styles, because secure individuals have a positive view of both others and the self, are more likely to engage in effective emotion regulation.

The social environment has also been recognized to play an important role in affecting treatment outcomes (Havassy et al., 1995). Both the quantity and the quality of social relationships affect substance abuse treatment outcomes and the time of readmission (Havassy, Hall & Wasserman, 1991; Havassy et al., 1995). Several reports concerning the beneficial role of supportive relationships in long-term recovery from alcoholism and drug addiction have been partially substantiated by empirical research (Havassy et al. 1991; Humphreys, Moos & Cohen 1997). While there is a growing recognition that social support may help former substance abusers to maintain their sobriety (Havassy et al. 1995).

When examining the literature on the relationship between social support and treatment outcomes, it is important to bear in mind that the term social support has been defined and assessed in several different ways, resulting in different outcomes (see Havassy et al. 1991). For example, some researchers (Strug & Hyman 1981) have emphasized the "structural" dimension of social support (e.g. the extend of supportive resources available), while others (Beattie, Longabaugh, Elliot, Stout, Fava, & Noel, 1993) have viewed social supporting terms of its "functional" aspects (e.g. actual or perceived emotional and instrumental support). Yet, other researchers (Humphreys et al., 1997) have focused on the "quality" component of support from

non-substance abusers. Beattie & Longabaugh (1997) showed that each dimension of social support is relatively independent of one another in relation to their impact on treatment outcomes.

In the present studies we examined both structural and functional aspects of social support.

### 1.9. Attachment organization and emotional processes

A potentially important gap in the literature related to connections between attachment and emotion variables is the lack of clear, theoretically detailed statements, referring as to why these phenomena should be related; or what functions the emotions play in the attachment or interpersonal systems. Although recent work has began to examine how emotion experience refers to attachment schemas (e.g., Mikulincer, Hirshberger, Nachmias, & Gillath, 2001; Mikulincer & Shaver, 2007), there has been little work towards reconciliation between developmental-functionalist theories of emotion (e.g., Consedine et al., 2002) and attachment research. This exception exists despite the inherent emotionality of adult attachment organization and the particular importance of emotion signalling originally noted by Bowlby (see Magai & McFadden, 1995).

Bowlby's (1969) original formulation of early attachment dynamics was explicit in suggesting that the infant is pre-adapted to displaying a number of differentiated signals that are activated by attachment-relevant stimuli. As such, his treatment of emotion signalling is explicitly Darwinian and functionalist insofar as his argument is predicated on the appropriateness and readability of infant emotion displays (Magai & McFadden, 1995). In the context of early attachment, hard-wired emotion signals indicate the infant' s needs to the social environment and, ideally, prompt caregivers to respond appropriately. In this view, the 'purpose' of emotion

signals in the context of the attachment system (e.g. crying, orientation, smiling) is the child's survival (Magai & McFadden, 1995). At this stage at least, experienced affect, as in the case of 'felt security' is incidental -a by-product of proximity-promoting tendencies (Magai & McFadden, 1995; although see Zimmermann, et al., 2001). For Darwin (1872/1965), emotional expressions showed the continuity between adult human behavioural mechanisms and those of lower animals and infancy. According to his insight, our emotions have a primitive quality. They are not fully under voluntary control. Although they seem to aid communication between people, they also, indicate our animal and infant origins. One of Darwin's (1872/1965) most interesting suggestions is that patterns of adult affection, of taking those we love in our arms for example, are based on patterns of parents hugging infants.

Despite this strongly functionalist beginning, applications of attachment theory to the study of adult attachment have tended to treat emotions as resulting from attachment patterns (e.g., Collins, 1996; Mikulincer, Gillath, Halevy, Avihou, Avidan, & Eshkoli 2001), without providing a clear explanation as to why particular dimensions of attachment should systematically relate to particular patterns of emotion or what functions they might serve in doing so. Why, for example, do highly dismissive individuals present with a more hostile/defensive, disgusted, contemptuous and non anxious emotion profile? More specifically, what functions do these emotions serve within their attachment system? In offering substantively developed accounts for understanding the functions of emotion, emotion theory has the potential to greatly enrich the understanding of how emotion operates within the attachment system. Below is presented a brief overview of the developmental-functionalist account of emotion. The present thesis also suggested that the

aforementioned processes are augmented in the case of substance users in addiction treatment centers.

Functional accounts of emotion assume that emotions are adaptations to the problems of social and physical survival (Keltner & Gross, 1999). Resulting from millennia of selective pressures, the primary emotions – such as anger, joy, or sadness – have reliable neuropsychological, phenomenological, physiognomic and motivational properties that distinguish them from each other (Izard, 1991). They are pre-wired and functional within the opening months of life, and the emotion system is viewed as the primary organizer of human personality, thought and behaviour across the lifespan (Izard, 1971, 1977, 1991; Magai & McFadden, 1995).

Although emotions are thought to have multiple cognitive, physiological and organizational functions (see Averill, 1994; Consedine et al., 2002; Levenson, 1994), some of their most important aspects are social or communicative, they occur in the context of close relationships (Keltner & Gross, 1999), and have obvious implications within the attachment theory. Many theorists have suggested that the emotions were selected at least partly because of their innate expressive qualities (e.g. Frijda, 1994; Frijda & Mesquita, 1994; Izard, 1991). Visible displays may indicate to social others that a particular event has emotional potential or content (Buck, 1999; Frijda & Mesquita, 1994; Levenson, 1994), communicate behavioural intentions or internal states (Izard, 1991) – typically via facial displays (Jakobs, Manstead, & Fisher, 1999; Levenson, 1994) – and allow for the rapid coordination of social interaction (Keltner & Gross, 1999). In addition, however, evolutionary/functionalist accounts are also careful to acknowledge that emotions have multiple functions – in the words of Averill (1994) they are 'many splendored

things'. As such, emotions are more than expressions alone. The different aspects of an emotional response – experience, expression, cognitive change, physiology and action – serve diverse functions in intrapersonal and interpersonal contexts (Averill, 1994; Keltner & Gross, 1999; Keltner & Haidt, 1999), potentially at different stages of the lifespan (Consedine et al., 2002), the implications of which have yet to be fully considered.

### 1.10. Aims of the studies

The preceding discussion has shown that a lot of research has already been conducted on relational and emotional factors in substance users. Notwithstanding that, there is limited information regarding distal relational factors such as child abuse and proximal relational factors such as attachment organization and social support related to substance use and how this may influence relating practices. The study of links among child abuse, attachment organization, social support and emotion capabilities as possible predictors in substance user groups and how this may influence their psychological health can shed new light into the these processes. However, as the evidence for a link between abusive childhood experiences and adult relationship difficulties grows, so the need to understand how this effect occurred is of crucial importance and becomes more urgent. This significant, but understudied issue was the focus of the present research program, which was consisted of three studies. The studies presented in this thesis attempted to offer an innovative theoretical framework for the above issues.

The first study focused on providing a preliminary understanding of the role of distal relational factors such as child abuse and proximal relational factors such as attachment organization and social support and emotion recognition on psychological

health (depression, low mental health (ghq) and self esteem) of drug users' population in addiction treatment programs compared to a control group of non users. Moreover, the first study focused on the attachment system as possible mediator of the relationship between child abuse and psychological health of substance users. Substance users were expected to be characterised by more childhood maltreatment experiences, insecure attachment, less social support and low emotion recognition to exert a more significant influence on their psychological health compared to the control group.

The second study intended to replicate, firstly, the findings of the first study, secondly, to examine the extent to which certain emotion intelligence skills might be related to psychological health of substance users and, thirdly, whether the above emotional factors might mediate the effect of child abuse and insecure attachment on psychological health and well-being of substance users. It was expected that substance users would have the same personality/ relational style with the one from the first study, their emotional intelligence skills would be negatively associated with their psychological health and they would mediate the relationship between relational factors (child abuse and insecure attachment) and psychological health.

Finally, the third study was testing an intervention targeting to increase emotion awareness in substance users. The last part of the study focused on an intervention, which was related to a training program including both cognitive and first person affective/ experiential components designed to increase emotional awareness and knowledge on self-reported emotional capabilities. It was expected that the experimental group completing the intervention, would show a significant increase in emotion awareness and that would improve their psychological health compared to substance users not enrolled in the intervention group.

The present thesis intended to offer an innovative theoretical and therapeutic framework on substance users' personality/ relational style and their emotional intelligence capabilities. Such an understanding could be a valuable tool in procedures that will improve the outcomes of therapeutic process both for substance users and addiction treatment programs. Moreover, it can help provide information that can lead to a configuration of a new framework for better understanding of substance users' personality and needs, according to attachment organization. Also, this piece of information would be useful for implementation on reducing the incidence of substance use problem and would further advance the development of successful interventions on addiction, that might influence substance users' recovery process.

# CHAPTER 2

# RELATIONAL AND EMOTIONAL PROCESSES OF SUBSTANCE USERS: AN EXPLORATORY STUDY – STUDY 1

## 2.1. Introduction

Adult attachment styles have been directly implicated in the tendency to use and abuse substances. A number of studies discussed in the introduction, suggested that insecure attachment style influence risky behaviours and especially substance use (Caspers, et al., 2006; Golder, et al., 2005; Kassel, et al., 2007). One of the key observations of the literature review was the difficulty to link substance use to a specific insecure attachment style, while in some studies, there was a link between fearful attachment and drug dependence (Schindler, et al., 2005), whereas in some others most of the drug users had an avoidant style (Finzi-Dottan, et al., 2003; Mickelson, et al., 1997).

Extending this line of research, the first study aimed at examining whether substance users from addiction treatment programs were characterised by certain insecure attachment styles. Secondly, it aimed to study relational and emotional processes and whether these aspects of relating may be associated with substance users' psychological health and specifically, to examine how relational and emotional processes mediate association between child abuse, attachment styles and substance users' psychological health.

Child abuse and substance use

Research has pointed out that both childhood sexual and physical abuse increase the risk for later substance use (Brown & Anderson, 1991; Dembo, Dertke, La Voie, Borders, Washburn, & Schmeidler, 1987). Hence, substance use can be

seen as an attempt to cope with the emotional distress caused by these traumatic experiences. Powerful drugs, such as opiates, help suffering survivors of childhood maltreatment in their effort to self-medicate their emotional pain (Dembo, et al., 1987; Khantzian, 1985).

As a risk factor, child abuse has a lasting impact on individuals and is associated with increased risk of psychopathology in adulthood (Muller, Goebel-Fabbri, Diamond, & Dinklage, 2000; Muller, Sicoli, & Lemieux, 2000; Roche, et al., 1999). Clinical research suggests that the experience of child abuse has a variety of negative effects, such as low self-esteem or low self-worth. Low self-esteem can result in alcohol and/or drugs consumption, as a way of coping with negative perceptions of self (Miller, Downs, & Testa, 1993). Similarly, the clinical literature reports a wide range of negative emotional consequences from childhood abuse experiences, especially fear (Browne & Finkelhor, 1986), anxiety (Polusny & Follette, 1995), guilt (Miller, Downs, Gondoli, & Keil, 1987), and shame (Browne & Finkelhor, 1986). It is suggested that substance users, usually, make an effort to regulate these negative affective states (Khantzian, 1993). A qualitative analysis of women in treatment for substance use found that survivors of child abuse used alcohol and/or drugs as a means to "medicate the pain" and deal with feelings of "being dirty, afraid and worthless" (Woodhouse, 1992).

Attachment organizaion, social support and child abuse

Researchers have more recently studied how protective factors may interact and exert their effects on psychological health (Muller & Lemieux, 2000; Muller, et al., 2000; Roche et al., 1999). Secure attachment and social support considered as two such protective factors. As we have mentioned above, persons with secure attachment styles acknowledge distress without being overwhelmed and seek support from significant others (Mikulincer et al., 1998). Attachment organization has an

influence on the perception of, and search for support (Kafetsios & Sideridis, 2006; Mikulincer & Florian, 1995). Secure persons perceive and seek emotional and instrumental support, whereas insecurely attached individuals tend to maintain distress and increase vulnerability by suppressing negative emotions and avoiding seeking support (Mikulincer & Florian, 1995). It appears that a secure attachment style may help the victim of abuse in coping with the trauma or provide a type of resilience not present in victims with insecure attachment styles (Shapiro & Levendosky, 1999). Especially, a negative view of self, associated with some insecure attachment styles is a significant risk factor (Muller et al., 2000) for lower psychological health and this may be understood in relation to the influence that the working model of self has on interpersonal functioning.

McLewin and Muller (2006) tried to determine the processes of attachment security, and particularly a positive model of self, which have their protective effects on adult victims of child abuse. One possible protective factor may be interpersonal, that is, success in adult relationships. There is a considerable amount of research on the relation between attachment and various aspects of intimate relationships. Secure attachment has been associated with both less conflict (Wekerle & Wolfe, 1998) and better quality in close relationships (Feeney, Noller, & Callan, 1994). Since attachment is so closely associated with intimate relationships in adulthood (Hazan & Shaver, 1987), and these close relationships are important sources of social support in times of stress (Whiffen & Oliver, 2004), the constructs of social support and attachment also need to be examined thoroughly. In the introduction we drew important links between attachment and social support, and this is pursued empirically in the present study.

Child abuse and attachment organization

Child abuse is associated with insecure attachment relationships in both childhood and adulthood (Cicchetti & Barnett, 1991; Crittenden, 1985; Egeland & Sroufe, 1981; Gauthier, et al., 1996; Main & Hesse, 1990; Main & Solomon, 1990). Research with victims of childhood maltreatment has shown that insecure attachment styles, particularly those characterized by a negative view of self (i.e., anxious-preoccupied and fearful), may lead these individuals at high risk for developing psychopathology. Research on adult victims of childhood abuse (Muller, & Lemieux, 2000) has shown greater psychopathology associated with those individuals with preoccupied or fearful (negative view of self) attachment patterns. Similarly, Muller, et al. (2000) found that among adults maltreated as children, negative view of self was a better predictor for posttraumatic stress symptoms than was negative view of others. Negative view of self is associated with two insecure attachment styles: anxious-ambivalent and fearful-ambivalent. Roche, et al. (1999) in a study involving women with history of childhood sexual abuse, found that participant's view of self appeared to be the most important attachment dimension for predicting adjustment.

Attachment organization and substance use

Attachment styles can be implicated in the regulation of relationship-related distress. For example, fearfully avoidant individuals, who are characterized by both high avoidance and anxious attachment, generally require closeness from attachment figures, but also feel unable to trust and rely on them. This is contradictory, because while their attachment system remains activated (Mikulincer & Shaver, 2007) their behavioural strategies imply deactivation. Fearful individuals seem to feel attachment-related distress in the way preoccupied individuals do, but unlike them, they do not view ''closeness-seeking as a viable option'' (Shaver & Mikulincer, 2002). While, secure attachment is an inner resource that may help individuals to

positively appraise stressful experiences, to constructively cope with psychological distress, and to improve their well-being and adjustment, in contrast, insecure attachment, can be viewed as a potential risk factor that may detract from individual resilience in times of stress, leading to poor coping and to maladjustment (Mikulincer & Florian, 1998). Insecurely attached individuals do not seem to have any attachment strategy of coping with attachment-related emotional distress. The use of psychoactive substances as ‘‘self-medication against emotional distress’’ seems to be one viable option for these individuals. So, from an attachment point of view, substance use can be understood as an attempt to cope with attachment insecurity, to diminish emotional distress, and to regulate interpersonal relationships. (Caspers et al., 2006; Golder et al., 2005, Kassel et al., 2007, Shaver & Mikulincer, 2002).

Attachment organization and emotional processes

Adult attachment organization is closely related to emotional processes, as well. Studies on adolescents and adults showed that those with secure attachment style report low levels of negative affect and form strong relationships with others to whom they turn for support, when emotionally distressed (Hindy & Schwarz, 1994; Rothbard & Shaver, 1994). Secure attachment has, generally, been associated with positive, and insecure attachment, with negative emotion (Mikulincer & Florian, 1998). Individuals with an insecure style of attachment were found to experience less positive affect than those with secure attachments, and also manifested deficits in the ability to self-regulate anxiety, depression and other negative affects (Parker, 1982). Individuals high in attachment security are said to have an open, flexible style of emotion regulation, which means that they have access to a wide range of emotions and are able to adjust their emotional responses in ways that are appropriate to prevailing situational contingencies (Cassidy, 1994; Magai, et al., 2000).

Attachment organization and emotion perception

Research also suggest that, in young men, difficulties with identifying emotions and communicating emotions associated with attachment style (Kafetsios, 2004) maybe associated with substance use, even after adjusting for other psychosocial and demographic variables (Helmers & Mente, 1999). More specifically, related to emotional perception, Magai et al. (2000) have found that secure individuals are relatively accurate in decoding facial expressions of negative emotions, while avoidant individuals had lower scores in emotion decoding accuracy (especially joy). Anxious/ ambivalent males were inaccurate in decoding anger, but anxious/ ambivalent females were more accurate, highlighting gender as a moderator of the attachment and emotional intelligence relationships. More recently, work that employed both laboratory and naturalistic tasks of emotion decoding accuracy demonstrated positive association between secure attachment and emotion decoding accuracy of partners' facial expressions (Kafetsios, 2000; 2004). Emotion perception can influence social relationships and substance use. Recognition of emotional facial expressions is a crucial element of social interaction and it has been associated with social and clinical aspects related to addiction (Kornreich, Philippot, Foisy, Blairy, Raynaud, Dan, et al., 2002; Townshend & Duka, 2003). Insufficiencies in identifying facial expressions of fear, for example, could be associated with changes in the conditioning of fear responses in situations of risk of drug use, increasing the probability of relapses. Furthermore, Kornreich, Foisy, Philippot et al. (2003) suggested that the impaired emotional facial expressions decoding abilities might be part of a more general emotional intelligence deficit in alcoholics and opiate addicts. The toxic effect of chronic alcohol consumption or of combined alcohol and drug use on brain regions implicated in the decoding of emotional facial expressions could be responsible for the more severe emotional facial expressions decoding disturbances

seen in substance users. Therefore, the importance of emotion perception leads us to investigate it as one of the most significant emotional factor, affecting substance users' psychological health.

Combined, these findings suggested that the link between distal relational (child abuse) and proximal relational factors (insecure attachment) might explain possible problems in substance users' psychological health. Specifically, child maltreatment may be associated with both insecure attachment and substance use.

### 2.2. Aims and Hypotheses of the first study

The study of adult attachment organization and relational and emotional aspects in general, in substance user groups and how this may influence relating practices has been relatively neglected. However, as the evidence for a link between abusive childhood experiences and adult relationship difficulties grows, so does the need to understand how this effect occurs is of crucial importance.

The aim of the first study was to provide preliminary understanding of how child abuse, attachment and the related relational and emotional factors in substance users are related. More specifically, it was investigated the role of distal relational factors (such as child abuse experiences), proximal relational factors (such as attachment organization and social support) and emotional factors (such as emotion recognition), and their possible psychological outcomes (depression, low mental health (ghq) and self-esteem) of substance users' in addiction treatment programs.

In the present thesis the Greek version of the *Experiences in Close Relationships Inventory Revised* (G-ECR_R, Fraley, et al., 2000; Tsagarakis, et al., 2007) was used. The use of G-ECR_R, of two dimensions (avoidance and anxiety) in a clinical sample of substance users is a novelty given that previous research has examined attachment styles in categories.

More specifically the first study explored: a) Whether there is a different patterning of adult attachment organization and related distal relational factors (childhood maltreatment experiences) in substance users, compared to controls, b) To what extent childhood maltreatment experiences of substance users may explain individual differences in attachment organisation and their psychological health and well-being in substance users, c) The role of social support of substance users in the said connections and, d) finally, the role of potential emotional capabilities such as emotion recognition.

*Hypotheses*

1. It was anticipated that compared to a group of non-users, the substance users will report: a) higher scores on insecure attachment styles (higher avoidance and anxiety), b) higher scores on child abuse experiences, c) lower psychological health, d) less social support and e) poorer performance on emotion recognition.

   *Null hypothesis:* It was anticipated that there will be no difference between the substance users and the group of non-users on: a) attachment styles, b) child abuse experiences, c) psychological health, d) social support and e) emotion recognition.

2. In both groups it was expected that insecure attachment will mediate the relationship between child abuse experiences and psychological health (depression, low mental health and self-esteem). However, I did not have specific hypothesis for the difference in the size of the mediation in the two groups.

   *Null hypothesis:* In both groups it was expected that insecure attachment will not mediate the relationship between child abuse experiences and psychological health.

3. In both groups it was expected that social support will mediate the association between relational factors (child abuse and attachment) and psychological health (depression, low mental health and self-esteem).

*Null hypothesis:* In both groups it was expected that social support will not mediate the association between relational factors (child abuse and attachment) and psychological health.

4. It was also expected that emotion recognition will mediate relationship between child abuse, attachment and psychological health outcomes.

*Null hypothesis:* Emotion recognition will not mediate relationship between child abuse, attachment and psychological health outcomes.

## 2.3. Method

A correlational design was used for study 1.

### 2.3.1. Sample

The sample was convenience. Ninety eight (98) participants (mainly opiate users) were recruited from two outpatient programs, KETHEA and OKANA (KETHEA $N$ = 48, OKANA $N$ = 50) in Athens, Greece. KETHEA is a drug free program, while OKANA is a Methadone Maintenance Programme (MMP), which prescribes substitutes for heroine users, mainly methadone and buprenorphine. There were no significant differences in variables of the study between the two groups, apart from age and self-esteem. Substance users from OKANA were older and seemed to have higher self-esteem, which is positively associated with age. The average age of the sample was 31.9 ($SD$ = 8.52 yrs) and ranged from 21-52 years. In terms of gender, 79.6% ($N$ = 78) were males, 20.4% ($N$ = 20) were females. The average length of drug use was 9.42 (1-24 yrs., $SD$ = 5.86 yrs). Education varied from elementary to university, with 17.3% having graduated from Elementary

School, 31.6% from High School, 46.9% from Lyceum and 4.1% from University. Most of them were unemployed (64.6%). With respect to marital status, 9.2% were married, 8.2% divorced, 27.6% in long-term relationship, 11.2% in temporary relationship, and the most of them (43.9%) were self-described as single.

The control group was selected by snowballing. It was consisted of 80 participants, 56.3% ($N$ = 45) men and 43.8% ($N$ = 35) women. Their average age was 30.19 ($SD$ = 10.52 yrs) and ranged from 18-55 years. Most of them, 74,7% ($N$ = 59), were University graduates, 22.8% ($N$ = 18) were Lyceum graduates and 2.5% ($N$ = 2) were Elementary graduates. Most of them (68.4%) were employed. In terms of marital status, 21.3% were married, 1.3% divorced, 30% in long-term relationship, 8.8% in temporary relationship and most of them (38.8%) self-described as single.

**2.3.2. Measures**

The Greek version of the scales was used. The only scale which hadn't been translated in Greek before was *The Child Abuse and Trauma (CAT) Scale*. It was translated in Greek and then blindly back-translated by a Greek post graduate student.

Adult attachment style was measured using the Greek version of the *Experiences in Close Relationships Inventory Revised* (G-ECR_R, Fraley, et al., 2000; Tsagarakis, Kafetsios, & Stalikas, 2007). The scale consists of 36 questions referring, in general, to feelings in romantic relationships. Responses were made on a five-point scale ("strongly disagree" to "strongly agree"). The items correspond in either of two dimensions (avoidance and anxiety). The Greek version of the ECR_R has shown to have good factor structure, reliability and validity. In the present study, alpha coefficients were calculated at 0.87 for Avoidance, and 0.86 for Anxiety.

The *Child Abuse and Trauma (CAT) Scale* was used, which yields a quantitative index of the frequency and extend of various types of negative

experiences in childhood and adolescence. Barbara Sanders and Evvie Becker-Lausen (1995) have developed this scale and data on this measure were presented for two large samples of college students and for a small clinical sample of subjects with a diagnosis of Multiple Personality Disorder. The strong internal consistency and test-retest reliability of the scale in the college population is documented, and its validity is attested to by demonstrating that it correlates significantly with outcomes such as dissociation, depression, difficulties in interpersonal relationships, and victimization, all of which have previously been associated with childhood trauma or abuse. The extremely high scores of the Multiple Personality subjects confer additional validity to the measure. The authors suggest that the construct of psychological maltreatment underlies the destructive elements of numerous forms of abuse and neglect.

The CAT scale includes 38 items and was presented to the respondents as home environment questionnaire. It contains questions related to the individual's childhood or adolescent experiences of sexual mistreatment, physical mistreatment and punishment, psychological mistreatment, physical and emotional neglect, and negative home environment (e.g., parental substance abuse or fighting). Its goal was the measurement of the individual's present, subjective perception of the degree of stress or trauma present in his/her childhood, based on the concept that "the meaning a child makes of experiences influences how the experience affects the child" (Newberger & De Vos, 1988, p. 505). In the present study 29 out of 38 items were used[1]. Alpha coefficients were calculated at 0.87 for neglect, 0.67 for punishment and 0.88 for the rest of questions.

Social support was assessed with the short-form *social support questionnaire* (SSQ6 Sarason, Sarason, Shearin, & Pierce, 1987). This is a six-item version of the

[1] KETHEA's ethical committee approved only one item from the Sexual abuse category.

original 27-item scale (Sarason, Levine, Basham, & Sarason, 1983). For each of the six questions subjects are required to list all persons who can provide support of the type described in the question (min 0 max 9); and, also, indicate how satisfied they are overall with that level of support (six point scale). Hence, the scale provides a quasi-structural measure of social support (number of persons available for support i.e. SSQnum) and one perceived global satisfaction measure (SSQsatisf). The two parts had good internal consistency ($\alpha$ = 0.79 and $\alpha$ = .89 respectively).

*Perception of emotion from the Mayer, Salovey & Caruso Emotional intelligence test (MSCEIT)*

Two sections, from the paper and pencil version 2.0 of the MSCEIT (Mayer, Salovey, & Caruso, Emotional Intelligence Test, 2002, 141 items) related to emotional perception were used: four faces, three landscapes, and three abstract designs. In the faces task the participant reports on the emotional content of each face rating the degree of happiness, fear, surprise, disgust and excitement on a five-point scale (1 = no emotion and 5 = extreme amount of emotion). On the landscape task, participants' reactions to the pictures are rated in terms of: happiness, fear, anger, and disgust. The three abstract tasks are rated on sadness, fear, anger, surprise, and disgust on a similar five-point scale. Each rating point (1 = no emotion to 5 = extreme amount of emotion) was represented by a small face drawing to signify the amount of emotion, and hence ensuring the task was as uncontaminated as possible with verbal content. The internal consistency for the sub-scale was good ($\alpha$= .86).

In general, the test measures individuals' performance on tasks and ability to solve emotional problems. The consensus method was followed based on a Greek consensus data base (see Kafetsios, Maridaki-Kasotaki, Zammuner, Zampetakis, & Vouzas, 2009). Participants' scores reflect the degree of fit between their responses and those of the norm for this sample. Consensus scoring is the preferred method for

assessing EI abilities as it provides a solution to the problem of determining what constitutes a correct answer (Mayer et al., 2002). The consensus approach is based on what the majority of the respondents regard as correct in a certain group and has been shown to be more effective than the target method (i.e., what target identifies as expressed or felt). The measure was only used in the substance users' group.

Outcome variables

Depression was assessed with the *Center for Epidemiological Studies-Depression Scale (CES-D)* (Radloff, 1977), which is a self-rating scale used for the measurement of depression. In particular, we used the Greek translation, which has been assessed by Fountoulakis et al. (2001) as per reliability, validity and psychometric properties. The CES-D consists of 20 items that cover affective, psychological, and somatic symptoms. The participant specifies the frequency in which the symptom is experienced (i.e. "a little", "some", "a good part of the time", or "most of the time"). The Chronbach alpha for the total scale was equal to 0.92.

The *General Health Questionnaire* (GHQ, Goldberg, 1978) was used to measure the subjects' current low mental health. The scale (20 item version) assesses depression, state anxiety, somatic symptoms and social dysfunction. Its correlation with Beck Depression Index is particularly strong ($r$ = .72; Goldberg, 1978). Items concern situations, which the individual had to cope with over the last few weeks that influenced psychological health. The Greek translation of the scale had satisfactory internal consistency (Cronbach's $\alpha$ = .72) in a previous study sample (Kafetsios, & Sideridis, 2006). Higher scores signify higher distress. In the present study alpha coefficient was calculated at 0.93.

Self-esteem was assessed with the the Greek version of *Rosenberg self-esteem scale* (Rosenberg, 1965). The Rosenberg self-esteem scale is a self-report

questionnaire with 10 items rated on a 4-point Likert-type scale. The scale assesses general self-esteem. In the present study alpha coefficients was calculated at 0.83.

The factors and severity of drug use were assessed with the *Treatment Demand Indicator (TDI)* (EMCDDA, Standard Protocol 2.0, 2000). TDI is the latest version of the protocol "First Treatment Demand Indicator", which had been edited in 1992. The Committee of Experts in Epidemiology of drugs of the European Council (Group Pompidou) worked out this protocol with the aim of using a common methodology for collecting comparable data among European countries, for drug users who ask for help from therapeutic programs.

**2.4. Results**

No association was found between gender and the remainder variables.

We conducted one-way Analysis of Variance (ANOVA) to exam the *first hypothesis*. The first set of analyses compared levels of both predictor and outcome variables between the group of Drug Users (DU) and the Control group (Table 1). There were significant differences in *childhood maltreatment experiences*, *neglect* (DU: $M = 1.42$, $SD = .84$, Controls: $M = 0.91$, $SD = .61$, $F = 19.5$, $p < .001$), punishment (DU: $M = 1.48$, $SD = .68$, Controls: $M = 1.20$, $SD = .66$, $F = 7.72$, $p < .01$). Drug Users reported more psychological and physical abuse compared to Controls.

Regarding *attachment dimensions*, *Drug Users* were observed as being more avoidant (DU: $M = 3.14$, $SD = 1.05$, Controls: $M = 2.85$, $SD = .85$, $F = 3.72$, *ns*, $p = .055$) and more anxious (DU: $M = 3.66$, $SD = 1.12$, Controls: $M = 3.36$, $SD = 1.01$, $F = 3.26$, *ns*, $p = .072$) than the control group, but the difference was at marginally non significant levels.

Substance users reported having fewer number of supportive persons than Controls but the difference was marginally non significant (DU: $M$ = 17.06, $SD$ = 8.84, Controls: $M$ = 18.54, $SD$ = 8.22, $F$ = 1.27, *ns*). In contrast, there was a significant difference in perceived satisfaction with social support (DU: $M$ = 29.98, $SD$ = 5.32, Controls: $M$ = 31.74, $SD$ = 3.55, $F$ = 4.94, $p < .05$). Drug Users were less satisfied from their personal relationships than the control group.

On the contrary, substance users reported significantly lower *self-esteem* (DU: $M$ = 3.42, $SD$ = .69, Controls: $M$ = 4.01, $SD$ = .62, $F$ = 34.18, $p < .001$) compared to the control group. There was a significant difference in *depression* (DU: $M$ = 1.69, $SD$ = .75, Controls: $M$ = 1.16, $SD$ = .65, $F$ = 24.33, $p < .001$). Drug Users felt more depressed than Controls. There was no significant difference in average *low mental health (ghq)* scores between the two groups.

In relation to emotional recognition, substance users had lower scores in recognizing others' people emotions (DU: $M$ = 43.07, $SD$ = 9.53, Controls: $M$ = 50.36, $SD$ = 6.41, $F$ = 35.77, $p < .001$) compared to general population. There was, also, a significant difference in *recognizing own emotions* (DU: $M$ = 41.00, $SD$ = 8,90, Controls: $M$ = 44.34, $SD$ = 10,15, $F$ = 5.34, $p < .01$). Drug Users, also, had lower scores in recognizing their own emotions.

Table 2 presents results from bivariate correlations between the study's main variables for the drug user's group. In relation to *attachment organization*, *avoidance* was significant negatively correlated ($r$ = -.21, $p < .05$) with emotion recognition of other people's emotions and self esteem ($r$ = -.42, $p < .01$) and positively correlated with depression *($r$ = .34, $p < .01$). Anxious attachment* was positively correlated with neglect ($r$ = .35, $p < .01$), punishment ($r$ = .31, $p < .01$), low mental health (ghq) ($r$ = .47, $p < .01$) and depression ($r$ = .60, $p < .01$), while it was negatively correlated with

social support (number of persons) ($r$ = -.24, $p$ < .05) and self-esteem ($r$ = -.58, $p$ < .01).

In relation to *child abuse experiences,* they were positively associated with anxious attachment, but not avoidance, as it has already mentioned before. Regarding *neglect*, there was positive correlation with low mental health (ghq) ($r$ = .41, $p$ < .01), and depression ($r$ = .47, $p$ < .01), while regarding *punishment*, there was a positive correlation with low mental health (ghq) ($r$ = .43, $p$ < .01), and depression ($r$ = .47, $p$ < .01), while a negative one with self-esteem ($r$ = -.21, $p$ < .05).

In relation to *social support*, there was, a negative correlation between the *number* of supportive persons and anxious attachment, as it has already mentioned before and depression ($r$ = -.31, $p$ < .01), while there was a positive one with self-esteem ($r$ = .23, $p$ < .05). Regarding *perceived satisfaction* from social relationships, there was a negative correlation with depression ($r$ = -.41, $p$ < .01) and low mental health (ghq) ($r$ = -.32, $p$ < .01), while a positive one with self-esteem ($r$ = .33, $p$ < .01).

In relation to *emotional recognition*, there was a significant negative correlation between recognizing *other people's emotions* and avoidance, as it has already mentioned before. Regarding *recognizing own emotions*, there was a significant positive association with age ($r$ = .23, $p$ < .05) and self-esteem ($r$ = .25, $p$ < .05), while a negative one with depression ($r$ = -.22, $p$ < .05) and low mental health (ghq) ($r$ = -.36, $p$ < .01).

*Self-esteem* was positively associated with age ($r$ = .31, $p$ < .01), social support (both number of persons and perceived satisfaction) and recognition of own emotions, while it was negatively associated with both avoidance and anxious attachment, punishment, low mental health (ghq) ($r$ = -.53, $p$ < .01), and also depression ($r$ = -.61, $p$ < .01).

In relation to *low mental health* (ghq) there was a positive correlation with anxious attachment, neglect, punishment, and depression ($r = .78$, $p < .01$), while a negative one with social support (perceived satisfaction), recognition of own emotions and self-esteem, as it has already mentioned before. This suggests that low level of well-being is associated with high anxious attachment, punishment, neglect, and depression, while high level of well-being is associated with high perceived satisfaction, high level of emotional recognition of own emotions and self-esteem.

**Table 1:**

Differences between Drug user and Control groups
in the study's variables

| | Drug users' Group Mean (*SD*) | Control Group Mean (*SD*) | *F* (1,175) |
|---|---|---|---|
| CAT neglect | 1.42 (.84) | .91 (.61) | 19.5*** |
| CAT punishment | 1.48 (.68) | 1.20 (.66) | 7.72** |
| Avoidance | 3.14 (1.05) | 2.85 (.85) | 3.72 *ns* $p = .055$ |
| Anxiety | 3.66 (1.12) | 3.36 (1.01) | 3.26 *ns* $p = .072$ |
| SSQ number of persons | 17.06 (8.84) | 18.54 (8.22) | 1.27 *ns* |
| SSQ perceived satisfaction | 29.98 (5.32) | 31.74 (3.55) | 4.94* |
| MSCEIT[2] (recognize other peoples' emotions) | 43.07 (9.53) | 50.36 (6.41) | 35.77*** |
| MSCEIT (recognize own emotions) | 41.00 (8,90) | 44.34 (10,15) | 5.34* |
| CES-D (depression) | 1.69 (.75) | 1.16 (.65) | 24.33*** |
| GHQ (low mental health) | 2.45 (.65) | 2.29 (.44) | 3.57 *ns* |
| Self-esteem | 3.42 (.69) | 4.01 (.62) | 34.18*** |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$.

[2] Values in the control group MSCEIT scores correspond to the average reported for the general population (Kafetsios, 2008)

**Table 2:** Zero-order correlations of 1st study's variables in substance user group ($N = 98$)

| | *M* | *SD* | *α* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age | 31.9 | 8.5 | - | | | | | | | | | | | | | |
| 2. Avoidance | 3.14 | 1.06 | .86 | -.18 | 1.00 | | | | | | | | | | | |
| 3. Anxiety | 3.66 | 1.13 | .87 | -.21* | .29** | 1.00 | | | | | | | | | | |
| 4. CAT neglect | 1.42 | .85 | .87 | .02 | .06 | .35** | 1.00 | | | | | | | | | |
| 5. CAT punishment | 1.49 | .69 | .68 | .11 | .12 | .32** | .66** | 1.00 | | | | | | | | |
| 6. social support (number of persons) | 17.06 | 8.84 | .82 | .11 | -.17 | -.24* | -.23 | -.06 | 1.00 | | | | | | | |
| 7. social support (perceived satisfaction) | 29.99 | 5.33 | | -.08 | -.16 | -.16 | -.15 | -.16 | .37** | 1.00 | | | | | | |
| 8. MSCEIT (recognize others´ people emotions) | 43.27 | 9.21 | .80 | .04 | -.21* | -.001 | -.03 | -.09 | .06 | .13 | 1.00 | | | | | |
| 9. MSCEIT (recognize own emotions) | 40.79 | 8.41 | | .23* | -.07 | -.17 | -.17 | -.18 | .05 | .16 | .36** | 1.00 | | | | |
| 10.MSCEIT (recognize own & others´ people emotions) | 42.03 | 7.27 | .86 | .15 | -.17 | -.10 | -.12 | -.16 | .07 | .17 | .84** | .81** | 1.00 | | | |
| 11. self-esteem | 2.58 | .69 | .83 | .31** | -.42** | -.58** | -.18 | -.21* | .23* | .33** | -.05 | .25* | .11 | 1.00 | | |
| 12. low mental health (ghq) | 2.45 | .65 | .92 | -.05 | .18 | .47** | .41** | .43** | -.18 | -.32** | -.01 | -.36** | -.21* | -.53** | 1.00 | |
| 13. depression (cesd) | 1.69 | .75 | .91 | -.09 | .34** | .60** | .47** | .47** | -.31** | -.41** | .05 | -.22* | -.01 | -.61** | .78** | 1.00 |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$.

**Table 3:** Zero-order correlations of 1st study's variables in the control group ($N = 80$)

| | *M* | *SD* | *α* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age | 30.2 | 10.52 | | | | | | | | | | | |
| 2. Avoidance | 2.86 | .86 | .86 | .01 | 1.00 | | | | | | | | |
| 3. Anxiety | 3.36 | 1.01 | .87 | -.10 | .33** | 1.00 | | | | | | | |
| 4. CAT neglect | .92 | .61 | .87 | -.19 | .01 | .23* | 1.00 | | | | | | |
| 5. CAT punishment | 1.20 | .66 | .68 | .06 | .00 | .21 | .56** | 1.00 | | | | | |
| 6. social support (number of persons) | 18.55 | 8.22 | .82 | -.09 | -.06 | -13 | -07 | -20 | 1.00 | | | | |
| 7. social support (perceived satisfaction) | 31.74 | 3.55 | | -.18 | -.41** | -.17 | -.07 | .09 | .03 | 1.00 | | | |
| 8. self-esteem | 1.99 | .062 | .83 | .21 | -.19 | -.56** | -.37** | -.15 | .25* | .13 | 1.00 | | |
| 9. low mental health (ghq) | 2.29 | .45 | .92 | -.15 | .24* | .29** | .09 | .10 | -.04 | .02 | -.40** | 1.00 | |
| 10. . depression (cesd) | 1.16 | .66 | .91 | -.19 | .24* | .49** | .38** | .16 | -.21 | -.17 | -.64** | .58** | 1.00 |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$.

Finally, *depression* was positively associated with both avoidance and anxious attachment, both neglect and punishment and low mental health (ghq), while it was negatively associated with social support (both number of persons and perceived satisfaction), emotional recognition of own emotions and self-esteem.

Table 3 presents results from bivariate correlations between the study's main variables for the control group. In the control group, in relation to *attachment organization*, *avoidance* was significant negatively correlated with social support (perceived satisfaction from relationships) ($r$ = -.41, $p$ < .01) and positively correlated with low mental health ($r$ = .24, $p$ < .05) and depression ($r$ = .24, $p$ < .05). *Anxious attachment* was positively correlated with neglect ($r$ = .23, $p$ < .05), low mental health (ghq) ($r$ = .29, $p$ < .01) and depression ($r$ = .49, $p$ < .01), while negatively with self-esteem ($r$ = -.56, $p$ < .01).

In relation to *child abuse experiences, neglect* had a positive correlation with anxious attachment and depression ($r$ = .38, $p$ < .01), while a negative one with self-esteem ($r$ = -.37, $p$ < .01).

In relation to *social support*, there was a positive correlation between the *number* of supportive persons and self-esteem ($r$ = .25, $p$ < .05). Regarding *perceived satisfaction* from social relationships, there was a negative correlation with avoidance, as it has already mentioned before.

*Self-esteem* was negatively correlated with anxious attachment, neglect, low mental health (ghq) ($r$ = -.40, $p$ < .01) and depression ($r$ = -.64, $p$ < .01), while it was positively correlated with sexual abuse ($r$ = .26, $p$ < .05) and social support related to number of persons ($r$ = .25, $p$ < .05).

*Low mental health (ghq)* was positively correlated with both avoidance and anxious attachment and depression ($r$ = .58, $p$ < .01), while negatively with self-esteem.

Finally, *depression* was positively correlated with both avoidance and anxious attachment, neglect and low mental health (ghq) while negatively with self-esteem.

To evaluate the relative contribution of relational factors on psychological health outcomes, the *second hypothesis* was tested in a series of hierarchical linear regressions. Table 4 presents the results from hierarchical linear regression analyses in two steps to test for the mediating effects of child abuse and attachment organization on *depression*. According to Baron and Kenny (1986) mediation is present if: (a) the predictor, mediator and outcome variables are significantly related and (b) there is a reduction in the effect of the predictor on the outcome variable after controlling for the mediator. These analyses assessed the relative influence of child abuse experiences and attachment organization on depression in the two groups. In both groups, neglect during childhood had a significant association with depression (but more influential in the control group), punishment had a significant association with depression only in the drug user group. The positive correlation means that greater depression is associated with presumably more child abuse experiences. In the drug user group, anxious attachment fully mediated the association of child abuse with depression. In both groups, anxious attachment had a significant association with depression (but more influential in the drug user group). The positive correlation means that greater depression is associated with presumably more anxious attachment. Also, avoidant attachment had a significant association with depression in the drug user group. Overall, drug users' ($F = 11.44$, $p < .001$) child abuse experiences (neglect and punishment) and both anxious and avoidant attachment had a greater total explanatory power on depression than in the control group ($F = 5.46$, $p < .001$).

In addition, for the DU group, formal tests of significance of the mediation were carried using the Sobel test (Preacher & Hayes, 2004). In the case of depression, anxious attachment was a significant mediator of punishment, $z = 2.86$, $p < .01$, and of neglect effects $z = 3.12$, $p < .01$, but avoidance was not a significant mediator neither of punishment, $z = 1{,}10$, $p = .27$, *ns* nor of neglect $z = .60$, $p = .55$, *ns*.

**Table 4:**

Regression of *Depression* on Child abuse and Attachment
in the Drug user and Control Groups

| | Drug user Group | | Control Group | |
|---|---|---|---|---|
| | Step 1 ($\beta^i$) | Step 2 ($\beta^t$) | Step 1 ($\beta^i$) | Step 2 ($\beta^t$) |
| Sex | -.01 | .02 | .19 | .13 |
| Age | -.13 | .01 | -.06 | -.04 |
| CAT Neglect | .27* | .18 | .33* | .29* |
| CAT Punishment | .30* | .19 | -.04 | -.09 |
| Avoidance | | .18* | | .11 |
| Anxiety | | .42*** | | .36** |
| $R^2$ | | .49 | | .35 |
| $R^2$ change | | .21 | | .16 |
| F change | | 18.34*** | | 8.60*** |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^i$ = standardizes beta when variable entered in first step; $\beta^t$ = final beta after attachment organization dimensions were entered in second step.

**Table 5:**

Regression of *Low mental health (ghq)* on Child abuse and Attachment
in the Drug user and Control Groups

| | Drug user Group | | Control Group | |
|---|---|---|---|---|
| | Step 1 ($\beta^i$) | Step 2 ($\beta^t$) | Step 1 ($\beta^i$) | Step 2 ($\beta^t$) |
| Sex | -.05 | -.02 | .05 | -.02 |
| Age | -.09 | -.01 | -.13 | -.12 |
| CAT Neglect | .22 | .14 | -.02 | -.04 |
| CAT Punishment | .30* | .23 | .12 | .09 |
| Avoidance | | .04 | | .18 |
| Anxiety | | .33** | | .19 |
| $R^2$ | | .32 | | .12 |
| $R^2$ change | | .10 | | .09 |
| F change | | 6.58** | | 3.41* |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^i$ = standardizes beta when variable entered in first step; $\beta^t$ = final beta after attachment organization dimensions were entered in second step.

Table 5 presents the results from hierarchical linear regression analyses in two steps to test for the mediating effects of child abuse and attachment organization

on *low mental health (ghq)*. In relation to low mental health (ghq), child abuse, especially punishment had a significant association with low mental health (ghq) and anxious attachment fully mediated the association of punishment with low mental health (ghq) in the drug user group. Child abuse experiences (punishment) and anxious attachment had an explanatory power on low mental health (ghq) ($F = 5.94$, $p < .001$) in drug users.

In the case of low mental health (ghq), anxious attachment was a significant mediator of punishment effects on low mental health, $z = 2.51$, $p < .05$.

Table 6 presents the results from hierarchical linear regression analyses in two steps to test for the mediating effects of child abuse and attachment organization on *self-esteem.* With respect to self-esteem, both avoidance and anxious attachment had a significant association with self-esteem in drug users, while only anxious attachment had an association with the control group. Self-esteem, which was significantly lower, as we have seen in drug users (Table 1) was positively related with age.

**Table 6:**

Regression of *Self-esteem* on Child abuse and Attachment
in the Drug user and Control Groups

| | Drug user Group | | Control Group | |
|---|---|---|---|---|
| | Step 1 ($\beta^i$) | Step 2 ($\beta^t$) | Step 1 ($\beta^i$) | Step 2 ($\beta^t$) |
| Sex | .02 | -.01 | -.14 | -.07 |
| Age | .34** | .18* | .10 | .08 |
| CAT Neglect | -.04 | .06 | -.32* | -.28* |
| CAT Punishment | -.23 | -.10 | .03 | .10 |
| Avoidance | | -.25** | | -.03 |
| Anxiety | | -.46*** | | -.48*** |
| $R^2$ | | .44 | | .40 |
| $R^2$ change | | .28 | | .22 |
| F change | | 22.47*** | | 12.88*** |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^i$ = standardizes beta when variable entered in first step; $\beta^t$ = final beta after attachment organization dimensions were entered in second step.

In order to test the *third hypothesis* about social support possible mediating effect on the association between relational factors (child abuse and attachment) and

psychological health, a series of regression analyses assessed the relative influence of child abuse experiences, attachment organization and social support on depression in the two groups (Table 7). Perceived support satisfaction seemed to fully mediate the association of avoidance with depression and had a negative association with it. The negative correlation between perceived support satisfaction and depression means that greater depression is associated with presumably less perceived support satisfaction. In Controls, social support networks had a negative association with depression.

**Table 7:**

Regression of *Depression* on Child abuse, Attachment and Social support in the Drug user and Control Groups

| | Drug user Group | | | Control Group | | |
|---|---|---|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Sex | -.01 | .02 | .09 | .19 | .18 | .22 |
| Age | -.13 | .01 | -.02 | -.05 | -.01 | .02 |
| CAT neglect | .27* | .18 | .13 | .32 | .30 | .34* |
| CAT punishment | .30* | .19 | .18 | -.11 | -.17 | -.24 |
| Avoidance | | .18* | .13 | | .06 | .03 |
| Anxiety | | .42*** | .39*** | | .32* | .30* |
| SSQ number of persons | | | -.05 | | | -.28* |
| SSQ perceived satisfaction | | | -.28** | | | -.07 |
| $R^2$ | | | .56 | | | .35 |
| $R^2$ change | | | .08 | | | .08 |
| F change | | | 7.96** | | | 3.01 |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after social support dimensions were entered in third step.

A series of regression analyses assessed the relative influence of child abuse experiences, attachment organization and social support on low mental health (ghq) in the two groups (Table 8). Perceived support satisfaction had a negative association with low mental health (ghq) and had independent associations with low mental health (ghq) in relation to anxious attachment. This was expected since attachment and social support were not associated in a bivariate way (Table 2).

A series of regression analyses assessed the relative influence of child abuse experiences, attachment organization and social support on self-esteem in the two groups (Table 9). In drug users, perceived support satisfaction had a positive association with self-esteem. The positive correlation means that greater self-esteem is associated with presumably more perceived support satisfaction.

**Table 8:**

Regression of *Low mental health (ghq)* on Child abuse, Attachment and Social support in the Drug user and Control Groups

| | Drug user Group | | | Control Group | | |
|---|---|---|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Sex | -.04 | -.02 | .04 | .08 | .08 | .09 |
| Age | -.09 | .01 | -.02 | -.18 | -.15 | -.11 |
| CAT neglect | .23 | .14 | .12 | .08 | .04 | .07 |
| CAT punishment | .30* | .23 | .21 | .04 | .02 | -.02 |
| Avoidance | | .03 | .01 | | .14 | .19 |
| Anxiety | | .35** | .33** | | .17 | .19 |
| SSQ number of persons | | | .02 | | | -.01 |
| SSQ perceived satisfaction | | | -.23* | | | .11 |
| $R^2$ | | | .37 | | | .14 |
| $R^2$ change | | | .04 | | | .01 |
| F change | | | 3.13* | | | .27 |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after social support dimensions were entered in third step.

In order to test the *fourth hypothesis*, a series of regression analyses assessed the relative influence of child abuse experiences, attachment and emotional recognition on depression, low mental health and self-esteem in drug users (Table 10). There was a difference with regards to emotional recognition. *Recognition of other people's emotions* had an association with depression, and self-esteem. There is a positive correlation which means that greater depression is associated with presumably being better at recognizing other people's emotions. The negative correlation between recognizing other people's emotions and self-esteem means that lower self-esteem is associated with presumably being better at recognizing other

people's emotions. *Recognition of own emotions* had an association with self-esteem and low mental health (ghq). There is a negative correlation which means that lower mental health (ghq) is associated with presumably being better at recognizing own

**Table 9:**

Regression of *Self-esteem* on Child abuse, Attachment and Social support in the Drug user and Control Groups

| | Drug user Group | | | Control Group | | |
|---|---|---|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Sex | .01 | -.02 | -.08 | -.04 | -.03 | -.06 |
| Age | .33** | .17* | .20* | .19 | .12 | .09 |
| CAT neglect | -.05 | .06 | .09 | -.24 | -.20 | -.24 |
| CAT punishment | -.23 | -.09 | -.07 | .06 | .14 | .20 |
| Avoidance | | -.24** | -.20* | | -.11 | -.10 |
| Anxiety | | -.47*** | -.45*** | | -.43** | -.42** |
| SSQ number of persons | | | -.01 | | | .20 |
| SSQ perceived satisfaction | | | .26** | | | .01 |
| $R^2$ | | | .50 | | | .36 |
| $R^2$ change | | | .06 | | | .04 |
| F change | | | 5.14* | | | 1.33 |

***Note:*** $*p < .05$; $**p < .01$; $***p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after social support dimensions were entered in third step.

emotions. The positive correlation between recognizing own emotions and self-esteem means that greater self-esteem is associated with presumably being better at recognizing own emotions. Also, emotion recognition seemed to have independent association with avoidance and it was not related to the association with attachment on depression and self-esteem.

Furthermore, avoidance was negatively associated with emotional recognition; while age had a positive association with recognition of own emotions. The negative correlation between accuracy in recognizing other people's emotions and avoidance means that lower avoidance is associated with presumably being better at recognizing other people's emotions. The positive correlation between recognizing own emotions and age means that older age is associated with presumably being

**Table 10:**

Regressions of *Depression*, *Low mental health (ghq)* and *Self-esteem* on Child abuse, Attachment and Emotional recognition in Drug users

| | Depression | | | Low mental health | | | Self-esteem | | |
|---|---|---|---|---|---|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Sex | -.01 | .02 | .02 | -.05 | -.01 | -.01 | .02 | -.01 | -.02 |
| Age | -.13 | .01 | .04 | -.09 | -.01 | .07 | .34** | .18* | .13 |
| CAT Neglect | .27* | .18 | .17 | .22 | .14 | .12 | -.04 | .06 | .07 |
| CAT Punishment | .30* | .19 | .18 | .30* | .23 | .20 | -.23 | -.10 | -.09 |
| Avoidance | | .18* | .21** | | .04 | .08 | | -.25** | -.29** |
| Anxiety | | .42*** | .40*** | | .33** | .30** | | -.46*** | -.43*** |
| ER (recognizing other people's emotions) | | | .17* | | | .14 | | | -.20* |
| ER (recognizing own emotions) | | | -.15 | | | -.31** | | | .20* |
| $R^2$ | | | .52 | | | .40 | | | .48 |
| $R^2$ change | | | .03 | | | .08 | | | .04 |
| F change | | | 2.64 | | | 5.59** | | | 3.90* |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after emotion recognition entered in third step.

better at recognizing own emotions. Also, avoidance had a negative correlation with all five basic emotions and especially a significant negative one with sadness ($r$ = -.24, $p$ < .05).

## 2.5. Discussion

The pathways associated with substance use are without any doubt complicated, involving contextual, interpersonal, and intrapersonal factors (Kassel, Weinstein, Skitch, Veilleaux, & Mermelstein, 2005). In the present study, we attempted to explore the possible role of certain distal (child abuse) and proximal (attachment organization and social support) relational factors towards explaining relational and emotional processes in substance users from addiction treatment programs compared to a sample of non-users. Based on a burgeoning literature pointing to strong associations between insecure attachment patterns and psychological health, we hypothesized that insecure attachment styles would be associated with childhood maltreatment experiences, increased depression, low mental health, self-esteem and emotion recognition. Moreover, we hypothesized that any observed relationships between childhood maltreatment experiences and low psychological health would be mediated by insecure attachment. In general, our findings supported several of the main predictions.

Firstly, the study showed that, compared to controls, substance users reported more psychological (neglect) and physical (punishment) abuse. They had higher scores in depression, while lower in self-esteem and social support (satisfaction from relationships) than the control group. Substance users were found to be more insecurely attached, compared to controls, but the differences were at marginally non significant levels. More specifically, substance users were more anxious and avoidant, but the differences were not at significant levels. Nevertheless, substance

users were more avoidant than controls, at a marginally significant level. A possible explanation could be sought in the measure we used to assess attachment, which was the Greek version of the *Experiences in Close Relationships Inventory Revised* (G-ECR_R, Fraley, et al., 2000; Tsagarakis, et al., 2007). The use of G-ECR_R, of two dimensions (avoidance and anxiety) in a clinical sample of substance users is a novelty. As a self-report measure, it puts a focus on interpersonal behaviour in romantic relationships and mainly it is subject to potential biases in that respect.

At the level of correlational analyses, as expected, anxious attachment was significantly and positively associated with childhood maltreatment experiences and both depression and low mental health (ghq); avoidant attachment was significantly and positively associated with depression, as well as negatively with recognition of other people's emotions in substance users. The association found, between child maltreatment and anxious attachment, was consistent with the literature. According to Herman (1992), damaged attachments of abuse survivors, explained that these individuals incorporate negative beliefs about the worthiness of self.

One of the main hypotheses was that substance users would be characterized by more childhood maltreatment experiences than controls. People with a childhood trauma history represent a significant proportion of injecting drug users (Van Hasselt et al., 1992). There are several explanatory models for the effects of child abuse trauma on mental development may help describe the vulnerability of survivors of child abuse to chemical dependency. As we have already mentioned in the introduction of this chapter, substance use can be seen as an attempt to cope with the emotional distress caused by these traumatic experiences. Powerful drugs, such as opiates, help suffering survivors of childhood maltreatment in their effort to self-medicate their emotional pain (Dembo, et al., 1987; Khantzian, 1985).

Also, the results showed that childhood maltreatment experiences were positively associated with insecure attachment, mainly anxious attachment. The above findings were consistent to existing literature confirming that child abuse or neglect leads to the development of both an insecure attachment style and maladaptive coping strategies (Crittenden, 1992). The primary purpose of attachment, when promoting the protection and survival of the young, is risked by maltreatment. Children, who experience maltreatment from an early age may adopt similar coping strategies in life, and expect the same maltreatment in future new relationships. There is plenty of literature related to a specific association between child abuse and the development of insecure attachment (Crittenden, 1988; Egeland & Sroufe, 1981; Finzi-Dottan, et al., 2001; Gauthier, et al., 1996; George, 1996; Youngblade & Belsky, 1990).

According to the aforementioned literature, when substance use was attributed to alleviation from stress, as anticipated, anxious attachment was playing a more significant role than avoidant attachment. Research findings had shown that substance use is motivated by attempts to cope with affective distress and is strongly linked to adverse outcomes (e.g., Kassel, Stroud, & Paronis, 2003; Kassel, Jackson, & Unrod, 2000). Thus, as anticipated, anxious attachment appeared to exert even stronger influence over substance use attributed to the relief of affective distress. Our findings suggested that anxious attachment is the most important aspect of insecure attachment in terms of predicting the psychological health of substance users. A plausible etiological process linking insecure attachment and substance use is that insecurely attached individuals develop dysfunctional attitudes about themselves such that when these underlying insecurities are activated, they reduce the individual's self-esteem. Such low self-esteem enhances the likelihood of more drug use and, perhaps more importantly, more stress-motivated use of substances. There is

strong reason to believe that drugs as pharmacologically distinct as alcohol, nicotine, and marijuana may all be used, at least by some individuals, in order to dampen stress or alleviate negative affect (Kassel et al., 2007). In support of this, findings of the present study showed that anxious attachment deteriorates and works as a risk factor for substance users' psychological health, which has been already damaged from child abuse experiences during childhood and adolescence. Therefore, it seemed that a secure attachment style might assist substance users and victims of abuse in coping with the trauma or can provide a type of resilience not present in victims with insecure attachment styles.

Furthermore, one of the main goals of the present study was to examine the potential contribution of working models of attachment relationships in understanding the association between child maltreatment and psychological health in a high-risk sample of substance users. Crittenden (1992) found that child abuse or neglect leads to the development of both an insecure attachment style and maladaptive coping strategies. Results of this investigation support previous findings of an association among child maltreatment, insecure attachment and poor psychological health. It is well-documented that child abuse experiences are related to a range of psychological and interpersonal problems (Browne & Finkelhor, 1986; Crittenden, 1992).

One of the most remarkable results was the fact that anxious attachment was found to fully mediate the effect of childhood maltreatment experiences on substance users' psychological health. A series of regressions of avoidance and anxious attachment on depression, low mental health and self-esteem in the drug users' group and also comparisons with similar analyses in the control group showed that anxious attachment had more influence on all these three outcome variables. The fact that anxious attachment was a significant mediator of the association between childhood

maltreatment experiences and substance users' psychological health confirmed the hypothesis that the link between child abuse and psychological health may be partially explained by disruptions in attachment relationships. Insecure working models of attachment were a significant predictor of psychological health, in support of Bowlby's (1969/1982, 1973, 1980) view that insecure attachment relationships may lead to problems with relationship functioning and adjustment. The association of attachment insecurity with psychological distress is, also, supported by Mikulincer and Florian's (1998) finding, that insecure attachment is associated with negative affect. These results suggest a self-regulation role for substance users' psychological health examined here. Herman's (1992) research indicates that insecure attachment may leave individuals with diminished capacity for emotional self-regulation in the face of stressful life situations. People who lack the internal capacity for self-regulation may be motivated to engage in high-risk behaviour, such as substance use, in order to regulate their emotions. If this were the case one would expect to see at least partial mediation of psychological health's outcomes by insecure attachment. Our results are consistent with this expectation. Moreover, in the case of depression and self-esteem, avoidance also wielded an influence, something that was not, whatsoever, observed in the control group. A possible explanation might be that avoidant substance users had lower self-esteem compared to controls.

In relation to the third hypotheses, as we have already mentioned, substance users reported lower scores for social support (satisfaction from relationships) compared to controls. It might be that assessing general social support is insufficient. According to the literature (Sarason, Sarason, & Gurung, 1997), perceived support satisfaction is more closely related to well being outcomes than network size. Social support (satisfaction from relationships), also, was found to be associated negatively with depression and low mental health, while positively with self-esteem. After

reviewing several studies (Henderson, 1977) concluded that lack of support is associated with depression whether or not severe life events had occurred. He stated that there is a strong negative effect between depression and social support and our findings are consistent to this. However, it is worth looking at third variables, such as personality, which may affect both social relationships and vulnerability to depression. It was remarkable that social support (satisfaction from relationships) was found to mediate the association between avoidance and depression. This finding may suggest that at least for the specific cultural context, where general accessibility to social networks is the norm, behavioural strategies (support seeking) associated with avoidant attachment in early adulthood are less prominent (Kafetsios & Sideridis, 2006).

As previously mentioned, social support is widely recognized to protect against anxiety and depression and to enhance perceived quality of life. Several studies showed that support indicators are positively related to low mental health in the normal population and also discriminate between normal population controls and psychiatric cases (House, 1981; Turner, 1983). Furthermore, longitudinal research with high-risk individuals has indicated that a socially supportive relationship with at least one figure is protective against maladaptation later in life (Egeland, 1997). Also, survivors of child maltreatment have also been reported to benefit from social support (Muller, et al., 2000).

Wethington and Kessler (1986) argued that perceptions of support availability are more important than actual support transactions and that the latter promotes psychological adjustment through the former, as much as by practical resolutions of situational demands. Social support is only effective to the degree that the recipient perceives it (House, 1981). Our findings are consistent with such a proposition.

Indeed, lack of positive social support, particularly among clinical populations, such as substance users who face many problems in their everyday life, such as injection drug use, poverty and unemployment is very frequent. Substance users represent a diverse population with a range of psychological and health needs. It is important for future research to examine both positive and negative sources of support and examine their impact on overall health outcomes, including high-risk behaviour.

Regarding emotion recognition, avoidance was found to be negatively associated with recognition of other people's emotions. Our results were in line with Magai et al. (2000), who found that avoidant individuals had lower scores in emotion decoding accuracy. In general, the group of substance users was found to be particularly low in emotion recognition, especially in recognition other people's emotions. A possible explanation might be related to Kornreich et al.'s (2003) findings, who suggested that the impaired emotional facial expressions decoding abilities might be part of a more general emotional intelligence deficit in alcoholics and opiate addicts. The toxic effect of chronic alcohol consumption of combined alcohol and drug use on brain regions implicated in the decoding of emotional facial expressions could be responsible for the more severe emotional facial expressions decoding disturbances seen in substance users.

The negative association between avoidance and emotion recognition seemed to be supported from a body of research. According to Fuendeling (1998), avoidants are generally emotionally defensive. Developmental theory also sees avoidance as a result of emotional socialization in environments where affective experiences are undervalued and consciously denied (Main, 1991). We suspected that the negative association between avoidant attachment and emotion recognition represents a devaluing of interpersonal relationships, and this difficulty in recognition of other

people's emotions might reflect dissatisfaction with existing social networks. Recognition of emotional facial expressions is a crucial element of social interaction and it has been associated with social and clinical aspects related to addiction (Kornreich, et al., 2002; Townshend & Duka, 2003). Insufficiencies in identifying facial expressions of fear, for example, could be associated with changes in the conditioning of fear responses in situations of risk of drug use, increasing the probability of relapses.

Concerning the fact that recognition of other people's emotions was positively associated with depression, it is indeed supported by the existed literature, suggesting that depression is associated with overestimation of sadness expressions (Hale, 1988). Furthermore, impaired emotional perception and awareness can lead to low psychological health. Sloan and Kring (2007) cite research showing that greater emotional awareness predicts better treatment outcomes, while lower awareness is associated with a host of psychological disorders, including anxiety, depression, and somatoform, eating, and personality disorders. Failing to recognize emotions not only undermines individuals' productive potential, but also can have negative interpersonal consequences (Sloan & Kring, 2007; Suveg, Southam-Gerow, Goodman, & Kendall, 2007; Zeman, Klimes-Dougan, Cassano, & Adrian, 2007). If a person expresses an emotion nonverbally without being aware of it, the impact this has on others might confuse him or her.

In relation to substance disorders, they are characterized by multiple neuropsychological dysfunctions and by interpersonal problems and social isolation (Hales, Yudofsky & Talbott, 1994). Substance users' difficulties in emotion recognition, especially during the recovery process, might be a vulnerability factor for relapse, as users are vulnerable to induced emotional disturbances due to distorted interpersonal relationships. In addition the fact that recognition of other people's

emotions was negatively associated with self-esteem, while recognition of own emotions was positively associated with it, suggests that substance users' empathic abilities and emotion awareness may deteriorate their psychological well-being and motivate them to use substances. According to the mentioned literature, several individuals are motivated to use substances in order to 'self-medicate' temporary or chronic negative affective states or to seek altered states of consciousness (Khantzian, 1985; Sher & Trull, 1994). The self-medication concept could apply to emotion recognition. Altered emotion recognition is likely to lead to discomfort, which in turn might increase substance consumption.

We could interpret the negative association between avoidance and that of sadness as indicative of a tendency towards affect 'minimization' (Cassidy, 1994) and the routing of threatening negative emotions from consciousness (Hazan & Shaver, 1987; Magai et al., 2000). These findings were consistent with the work of Hesse (1999) who has noted that avoidant attached individuals rarely talk about feelings, and even when they do, such expressions are marked by "a notable absence of expressions of emotional vulnerability" (p. 424).

The present findings raised the need for further investigation related to emotional processes of substance users, closely related to their substance use and their psychological health in general, which would be one of our main focuses in the following chapter.

Concluding, substance users seemed to have a personality/relational style that was characterized by childhood maltreatment experiences and rather higher avoidant and anxious attachment. In particular, these aspects determined to a great extent low levels of psychological health and self-esteem. They were also characterized by cognitions of less satisfaction from personal relationships that also influence levels of depression. Future research should explore these aspects and, in particular, the

emotional processes that mediate the above. Comprehending the latter processes could prove valuable assistance to forming a new framework that would embody attachment organization theories to the interpretation of substance users' personality and needs. This knowledge could, on one hand, improve the outcomes of therapeutic processes both for substance users and for addiction treatment programs (e.g. positively influence the recovery process), and on the other hand, implement the reduction of substance use incidence by offering more successfully targeted intervention schemes against addiction.

# CHAPTER 3

# EMOTIONAL PROCESSES RELATED TO CHILD ABUSE, ATTACHMENT ORGANIZATION AND PSYCHOLOGICAL HEALTH OF SUBSTANCE USERS– STUDY 2

## 3.1. Introduction

As was discussed thus far, distal and proximal relational factors seemed to have an important role of psychological health and well-being of substance users. As far as emotional factors found to be related with psychological health and well-being, as well as a need for futher investigation raised, because according to the general psychological literature there is growing evidence that emotional capabilities are important predictors of health and well-being (Matthews, Zeidner, & Roberts, 2002).

Furthermore, the study presented in this chapter attempted to further understanding of the relational and emotional factors that may mediate relationships between child abuse experiences and adverse psychological functioning in adulthood in substance users population enrolled in addiction treatment programs. It aimed to shed light on the role of a number of potential mediators that were not examined in the first study, but initial evidence pointed to their importance.

The second study focused on emotion skills and abilities that may be related to child abuse and relationship schemata such as attachment working models. More specifically, the second study focused on *emotion regulation* and *emotion recognition.* There are several reasons as to why it is important to examine emotional factors.

Firstly, as it was discussed in the introduction, attachment organization has a strong emotion regulation component. As was discussed in the introduction, emotion

regulation is an important aspect of adult attachment organization (Mikulincer & Shaver, 2007). Moreover, attachment organization is associated with several other emotion skills. A number of studies, recently, have found links between insecure attachment and emotion skills such as the decoding of emotion (Kafetsios, 2004; Magai et al., 2000). Besides, results from the first study suggested that at least for the case of emotion recognition, substance users' such emotion skills are limited.

Insecure attachment styles (avoidant and anxious-preoccupied) are related to dysfunctional emotion regulation that may link with maladaptive behaviours in adulthood, such as substance use. Individuals with insecure attachment styles experienced unresponsive and ineffective support during episodes of distress, resulting in negative views of self or others and accordingly are more likely to use ineffective methods of dealing with negative emotions (deactivating or hyperactivating regulation strategies; Mikulincer & Shaver, 2003). As previously mentioned, the ineffective management of negative emotions among individuals high on insecure attachment maybe a risk factor for using substances as a mean of alleviating emotional discomfort (Caspers, et al., 2006), but also, within the population of substance users, we hypothesized that adverse distant and proximal relational factors would predict lower levels of psychological health

Secondly, emotion skills and related processes were approached from an emotional intelligence perspective. At a theoretical level, *emotional intelligence* reflects the extent to which a person attends to, processes, and acts upon information of an emotional nature inter-personally and intra-personally (Petrides & Fuhrman, 2000). Interpersonally, emotion awareness and regulatory processes associated with emotional intelligence are expected to benefit people's social relationships (e.g., Lopes, Brackett, Nezlek, Schutz, Sellin, & Salovey, 2004; Lopes, Salovey, Côté, & Beers, 2005) hence affecting the experience of emotion and stress. Intrapersonally,

use of emotion and being aware of one's own emotions can lead to regulating stress and negative emotion so that one can perform better in life.

Emotional intelligence and psychological health

Matthews, et al., (2002) pointed out that the level of emotional intelligence skills may have implications on both mental disorders in which emotion plays a central role, as well as disorders that relate to non-emotional features of emotional intelligence skills. Mood and anxiety disorders are examples of disorders that have a maladaptive emotional state, as core symptoms. Better perception, understanding, and management of the emotion skills may prevent development of maladaptive psychological states associated with mood and anxiety disorders. Research has shown that those with higher emotional skills do tend to have typically more positive mood and are more able to repair mood after a negative mood induction (Schutte, Malouff, Simunek, Hollander, & McKenley, 2002; Slaski & Cartwright, 2003). As an implication, developing emotional skills might work as a protective psychological factor for abstinence from substances and improving psychological health.

For example, a number of researchers have reported a positive relationship between emotional intelligence and greater feelings of emotional well-being (Goleman, 1995; Salovey & Mayer, 1990; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995), greater optimism (Schutte, Malouff, Hall, Haggerty, Cooper, et al., 1998), life satisfaction (Ciarrochi, Chan, & Caputi, 2000; Mayer, Caruso, & Salovey, 1999) and, according to Saklofske, Austin, and Minski (2003), emotional intelligence is negatively related to loneliness and depression-proneness. Ciarrochi, Deane, & Anderson (2002) have reported that individuals able to regulate emotions were less likely to suffer from depression, hopelessness and suicidal ideation when under stress. Petrides and Furnham (2003) found that individuals with high levels of emotional intelligence were more susceptible to mood induction, as evidenced by

faster recognition of emotions. Therefore, difficulty in identifying and expressing feelings should be negatively associated with emotional intelligence. According to Goleman (1995), difficulties in identifying and communicating emotions are related to substance use. Higher emotional intelligence is linked with aspects of better psychosocial functioning (e.g., Brown & Schutte, 2006; Salovey & Grewal, 2005; Schutte et al., 1998), including intrapersonal factors, such as greater optimism and interpersonal factors, such as better social relationships. Some of these psychosocial factors, such as more social support and more satisfaction with social support for those with higher emotional intelligence (Brown & Schutte, 2006), may serve as buffers to physical illness. Such support may, also, protect people from depression and suicidal ideation (Kalafat, 1997).

Emotional well-being, also, includes positive mood and high self-esteem. Research indicated that higher emotional intelligence is associated with states of higher positive mood and greater self-esteem (Schutte, et al., 2002). Much research has focused on the beneficial aspects of self-esteem and has found that high self-esteem is related to a variety of positive low mental health indices, such as less depression, less anxiety, less loneliness, less social anxiety, and less alcohol and drug abuse (Leary, 1999b). Therefore, like in the first study, self-esteem was also included in this study as a potential psychological outcome of relational and emotional factors.

Research has found links between levels of emotional skills and indices of interpersonal functioning as peer ratings of relationship and emotional success (Mehrabian, 2000), and self-reported empathy, relationship quality, secure attachment, perceived well-being, and, particularly, general life satisfaction and happiness (Bar-On, 1997; Ciarrochi, et al., 2000; Kafetsios, 2004; Lopes, Salovey, & Straus, 2003; Schutte, et al., 2002). Evidence is also accumulating for the association of emotional intelligence with deficits in fundamental abilities essential to such

outcomes, including identifying feelings in oneself and describing one's feelings to others (Parker, Taylor & Bagby, 2001), and interpersonal perception, including the decoding of others' emotional expressions (Mayer, DiPaolo, & Salovey, 1990).

In particular, Ciarrochi, et al., (2002) identified the moderating role of emotional intelligence in the relationship between stress and a number of measures of psychological health, such as depression, hopelessness and suicidal ideation among young people. These studies, but mainly the core essence of emotional intelligence, indicate that a negative correlation exists between stress, ill health and emotional intelligence levels, assuming that people scoring high in emotional intelligence are expected to cope effectively with environmental demands and pressures as those commonly assessed by occupational stress and health measures (Nikolaou & Tsaousis, 2002; Slaski & Cartwright, 2002).

Emotional skills and psychological health in relation to substance use

In recent years, there has been an increasing interest in how emotional reactions and experiences affect both physical as well as psychological health. The lack of emotional skills is associated with deviant behaviour (e.g., vandalization and physical fights) and self-destructive acts (e.g. drug and alcohol abuse, cigarette smoking) (Brackett, Mayer, & Warner, 2004). Furthermore, males with lower emotional intelligence demonstrate significantly higher involvement than females in potentially harmful behaviours, such as using illegal drugs, excessive alcohol drinking, and engaging in deviant behaviour, which supports the association between lower emotional intelligence and larger amounts of alcohol consumption, illegal substance use, and involvement in deviant behaviour (Brackett & Mayer, 2003; Trinidad & Johnson, 2001).

Emotional regulation according to Gross' s theory

The present thesis focused on two particular emotional intelligence abilities, emotion regulation and emotion recognition. In addition, to emotion regulation and management from an EI perspective, the study also adopted a theoretical approach that has been prominent in the social and personality literature recently. According to Gross' s theory, there are two *emotion regulation* strategies (cognitive reappraisal and expressive suppression) that relate to emotional intelligence skills. Gross (1999) defined emotion regulation as conscious and unconscious efforts an individual employed to increase, maintain or decrease facets of emotions. In particular, *suppression*, by arriving later in the emotion regulation process, leads to the consumption of a significant amount of emotional resources, whereas *reappraisal*, coming earlier in the emotional regulation process, conserves resources, since it regulates emotion at a more basic level (John & Gross, 2004). The available evidence from experimental and correlational studies support these key hypotheses, showing that *suppression* of emotion has overall significant detrimental effects (among other) on memory, social interaction, health outcomes and positive emotion; *reappraisal* of emotion, on the other hand, has generally a superior effect of cognitive, affective and social consequences (Gross, 1998; Gross & John, 2003; John & Gross, 2004). By focusing on the attempts individuals make to influence which emotions they have, when they have them and how these emotions are experienced and expressed, the two emotion regulation strategies are distinguishable from other forms of affect regulation such as coping, mood regulation and defenses (Gross, 1998).

Emotion regulation and psychological and physical health

Salovey, Bedell, Detweiler, and Mayer (1999) suggest that individuals who can regulate their emotional states are healthier because they 'accurately perceive and appraise their emotional states, know how and when to express their feelings,

and can effectively regulate their mood states,' (p. 161). This set of characteristics, dealing with the perception, expression, and regulation of moods and emotions, suggests that there must be a direct link between emotional intelligence and physical as well as psychological health.

Additionally, Salovey (2001) claims that the failure of emotional self-management leads to significant negative influences on health, for example, excessive cardiovascular reactivity. He suggests that a way of coping for people low on this dimension of emotional intelligence is through smoking, drinking and eating fatty foods, which can also lead to long-term health damage. However, he also claims that suppressing negative feelings is not a healthy strategy either, suggesting that emotions' manifestation has a positive impact on physical health when people are confident about their abilities to regulate them. He maintains that the best way of dealing with the expression of our feelings in terms of our health is through the rule of the 'golden mean'. 'We may need to express negative feelings, but in a way that is neither mean spirited nor stifled' (p. 170).

Emotion regulation and substance use

As was discussed in the introduction, Taylor et al. (1997) suggested that psychiatric disorders, including substance disorder and eating disorder, might be the consequences of an inefficient regulation of distressing emotions. For van Vreckem and Vandereycken (1995), both substance and eating disorder constitute ways of regulating negative emotions, anxiety and depressive feelings. According to Cook (1991), the most powerful reinforcing experiences a person can become addicted to are those that distract the individual from negative emotional states. The use of psychoactive substances, ingesting food, or seeking sensations may constitute such experiences. Concerning substance dependence, Magai (1999) suggested that adults engage in addictive behaviours to regulate affect. As we have already mentioned in

the introduction, Jeammet (1994) considered the use of psychoactive substances such as self-medication aimed at reducing anxiety and depression, emotional states adolescents are commonly confronted with. Moreover, substance abuse has been related to deficits in emotion regulation (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996) and in perceiving and using emotions (Brackett et al., 2004). Finally, it has been found that alcohol-dependent individuals show reduced sensitivity to emotional expressions and have lower emotion recognition accuracy rates (Frigerio, Burt, Montagne, Murray, & Perrett, 2002).

Emotion recognition

Another emotion skill examined in this study is that of emotion recognition. *Emotion recognition* has been proposed as a necessary condition for empathy, which in turn leads to a feeling of rapport and understanding in human interactions (Davis, 1994). Emotions are mostly communicated nonverbally, and the ability to decode facial expressions constitutes an important social skill (Patterson, 1999) and the ability to interpret nonverbal emotional cues plays an important role in maintaining successful relationships and healthy psychological functioning (Carton, Kessler, & Pape, 1999). Many researchers assume that nonverbal deficits cause relationship difficulties. Specifically, it has been shown that individuals who are less skilled in emotions also demonstrate less social competence and-importantly-are less liked by their peers (Feldman, Philippot & Custrini, 1991; Philippot & Feldman, 1990). Alternatively, the relation may be bi-directional, people with high quality relationships having more opportunities to practice and improve their nonverbal skills (Boyatzis & Satyaprasad, 1994).

Emotion recognition and substance use

Related to substance users' deficits in emotion recognition, this seems to be associated with greater interpersonal problems (Kornreich, et al., 2002). Specifically,

patients with alcoholism exhibited impaired processing of non-linguistic aspects of language during disclosure (Monnot, Nixon, Lovallo, Ross, 2001) and deficient emotional facial expression recognition (Phillipot et al., 1999; Kornreich, Blairy, Philippot, et al., 2001, 2003; Townshend & Duka, 2003). Interestingly, emotion recognition deficit was more severe in patients with alcoholism as compared to patients with opiate dependence (Kornreich, et al., 2003) and was detected even after long-term abstinence (Kornreich et al., 2001). It has been proposed that facial emotion decoding problems could be present before the development of addiction and chronic alcohol consumption may have an additional detrimental effect on the decoding of social signals. The clinical significance of these findings is that altered social cognitive functions may contribute to the community adaptation failure of many patients, even after long-term abstinence.

With respect to emotion recognition, the results in first study showed that the group of substance users was particularly low in emotion recognition, especially in recognition other people's emotions, avoidance had a negative relation with recognition of other people' s emotions and with all five basic emotions, especially with sadness. Recognition of others' emotions had a positive effect on depression, while a negative one on self-esteem; and recognition of own emotions had a negative effect on low mental health, while a positive one on self-esteem.

### 3.2. The contribution of the second study

According to the main results of the first study substance users from addiction treatment programs seemed to have a personality/relational style that was characterised by rather higher avoidance and anxious attachment attachment. They seemed to come from families where they had experienced more child abuse, they had higher scores in depression, while lower scores in self-esteem and also they

enjoyed less satisfaction from their relationships than a control group of non-drug users. A series of analyses of avoidance and anxious attachment on psychological health outcomes (depression, low mental health and self-esteem) in the drug user group showed that anxious attachment had more influence on all three outcome variables. In the control group, anxious attachment also had positive effect on depression, while a negative one on self-esteem. Moreover, in the case of depression and self-esteem, avoidance exerted an influence, something that also was not observed in the control group. These results point to the fact already observed in other studies (Caspers, et al., 2006, Schindler, et al., 2005; Thorberg & Lyvers, 2006) that a combination of high avoidance and high anxious attachment might characterise drug users.

Further analyses examined the extent to which anxious attachment and avoidance mediate the effect of traumatic experiences on psychological health of the two groups. Mainly in substance users, anxious attachment mediated the effect of childhood maltreatment experiences on psychological health. Finally, substance users were found to be particularly low in emotion recognition, especially in recognition other people's emotions. Especially avoidants were facing more difficulty in emotion recognition (according to correlations, drug users seemed to be more avoidant compared to control group).

Despite the considerable amount of research that exists to support the link between emotional skills and health outcomes, few researchers have investigated the possibility that this relationship is ambiguous. In other words, it is possible that the relationship between emotional skills and health outcomes is due to third variables. According to some researchers, emotional skills have been shown to act as a moderator of relational factors in research exploring the relationship between stress and health (Ciarrochi et al., 2002; Salovey, Rothman, Detweiler, & Steward, 2000).

The adaptive recognition of emotion, use of emotion to enhance cognition, understanding of emotion, and emotion regulation may contribute to mental and physical health in various ways.

The second study explored the emotional processes that may mediate the child abuse, attachmnet and psychological health, in particular, emotional intelligence capabilities, emotional regulation and emotional recognition. As previously mentioned, good interpersonal relationships depend on the ability to accurately decode non-verbal signals from communicating partners (Carton, et al., 1999).

The concept of emotional intelligence (EI) has increased greatly for both researchers and practitioners across disciplines since its introduction in 1990 by Salovey and Mayer. At a theoretical level, EI is typically thought of as a multi-componential construct that reflects the extent to which a person attends to, processes, and acts upon information of an emotional nature intra-personally and inter-personally (Mayer & Salovey, 1997). At the operational level, there are ensuing debates that have led to two distinct perspectives: the ability EI and trait EI (Mayer, Salovey, Caruso, & Sitarenios, 2003; Petrides, & Furnham, 2001; Schutte, et al., 1998).

The ability approach upholds a cognitive view of EI, which suggests that its measurement should be based on performance and conform to ability models of human behaviour (e.g., Carroll, 1993). So far, the most prominent measure of this approach has been the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, et al, 2003). The trait approach conceptualizes EI more broadly within a framework of individual self-perceived emotionality and emotion self-efficacy (e.g., Petrides & Furnham, 2000). Operationally, a number of self-report

scales have been developed to measure emotional self-efficacy: the EQ-*i* (Bar-On, 1997), the SEIS (Schutte et al., 1998), the TEIQue (Petrides & Furnham, 2001).

In the present study a special case of an EI assessment method, the Wong and Law Emotional Intelligence Scale (WLEIS; Wong & Law, 2002), which measures self-report emotion self-efficacy was used. This is a relatively short, sixteen item, measure that conceptually adheres to the ability model but assesses the four EI capabilities through self-report. The scale seems to be a promising research tool due to its brevity and its predictive validity. The scale has shown to be distinct from the Big Five personality factors and to have convergent validity with other EI ability-related measures such as the Trait Meta-mood scale (Law, Wong, & Song, 2004), or parts of the MSCEIT (Law, Wong, Huang & Li, 2008).

The results of the first study pointed to emotion recognition as an important factor, which seems to be particularly low in substance users. Similar results were found in alcoholics. More specifically, studies have shown findings of poor decoding of emotional facial expressions in recently detoxified alcoholics (Kornreich, Blairy, Philippot et al., 2001a; Philippot, Kornreich, Blairy, Baert et al., 1999) and in alcoholics abstinent for at least 2 months (Kornreich, Blairy, Philippot et al., 2001b), causing a serious effect on their interpersonal relations. In drug users, especially, avoidants were facing more difficulty in emotion recognition.

Learning more about the dimensions of emotional capabilities of patients with certain mental disorders and how they differ from others may, in turn allow for a better understanding of their state and an improvement in therapeutic interventions.

### 3.3. Aims and Hypotheses of the second study

The present study, first, it aimed to validate the results from the first study. According to those results, substance users were found to have attachment styles that

was characterized by higher avoidance and anxious attachment. I intended to replicate the extent to which relational factors were predictors of psychological health. In particular, these aspects determine to a great extent high levels of depression and low levels of low mental health and self-esteem.

Secondly, it aimed to extend research of emotional processes that mediate the above. Thirdly, and most importantly, it aimed to examine the extent to which certain emotion skills might be related to psychological health of substance users and, fourthly, whether the above factors may mediate the effect of child abuse and attachment on psychological health and well-being of substance users.

In the present study, we have used, among the other questionnaires we used in the first study, PANAS questionnaire, which addresses positive and negative aspects of psychological well-being, trying to investigate positive aspects, which according to Fredrickson (2001), play an important role in individuals' psychological health.

More specifically, the second study focused on the predictive role of psychological variables/dimensions, such as child abuse experiences, attachment organization and emotional intelligence skills on psychological well-being of drug users. The present study aimed to:

(a) examine the association between child abuse experiences and attachment organization with psychological health outcomes (depression, low mental health and self esteem), positive and negative affect; (b) examine the association between emotional intelligence skills, such as self-emotion appraisal, others' emotion appraisal, use of emotion and especially emotion regulation with psychological health outcomes (depression, low mental health and self esteem), positive and negative affect; (c) test whether emotional intelligence skills, such as self-emotion appraisal, others' emotion appraisal, use of emotion and especially regulation of

emotion constitute important mediators of relational factors' associations with psychological health outcomes and positive and negative affect;

Based on the information reviewed in the introduction, the following *hypotheses* were formulated:

1. It was expected childhood maltreatment experiences and insecure attachment organization to be associated with low psychological health outcomes (high depression, low mental health and self-esteem) and low positive and high negative affect.

*Null hypothesis:* It was expected that there will be no association between childhood maltreatment experiences and insecure attachment organization with low psychological health outcomes and low positive and high negative affect.

2. It was expected an association between emotional intelligence capabilities and especially emotion regulation and emotion recognition and psychological health and the expected association between relational factors (child abuse and insecure attachment) and psychological health and positive and negative affect to be mediated by emotional intelligence capabilities.

*Null hypothesis:* It was expected there will be no association between emotional intelligence capabilities and especially emotion regulation and emotion recognition and low psychological health and that emotional intelligence capabilities will not mediate the association between relational factors (child abuse and insecure attachment) and psychological health and positive and negative affect.

3. It was expected two specific strategies of emotion regulation according to Gross (1999), especially suppression to mediate the association between relational factors (child abuse and insecure attachment) and psychological health and negative affect.

*Null hypothesis:* It was expected that emotion regulation and especially suppression will not mediate the association between relational factors (child abuse and insecure attachment) and psychological health and negative affect.

### 3.4. Method

A correlational design was used for study 2.

#### 3.4.1. Sample

The sample was convenience and consisted of 80 participants. All research participants were mainly opiate users and recruited from OKANA (Organisation Against Drugs), its Methadone Maintenance Program (MMP) and its drug free programs in Athens.

The average age of the sample was 39.35 years old (*SD* = 8.30 yrs) and ranged from 22-56 years. In terms of gender, 67.5% (*N* = 54) were males, 32.5% (*N* = 26) were females. The average length of drug use was 16.22 years (2-35 yrs, *SD* = 7.91yrs). Education varied from elementary to university, with 13.8% having graduated from Elementary School, 32.5% from High School, 51.3% from Lyceum and 2.5% from University. Almost half of them were unemployed (54.4%). With respect to marital status, 18.8% were married, 12.5% divorced, 30% in long-term relationship, 11.3% in temporary relationship and the rest (27.5%) were self-described as single.

#### 3.4.2. Measures

The Greek version of the scales was used. The only scale which hadn't been translated in Greek before was *The Child Abuse & Trauma Scale (CATS)*. It was translated in Greek and then blindly back-translated by a Greek post graduate student.

Independent variables:

Adult attachment style was measured using the Greek version of the *Experiences in Close Relationships Inventory Revised* (G-ECR_R, Fraley, et al., 2000; Tsagarakis, Kafetsios, & Stalikas, 2007). The scale consists of 36 questions referring, in general, to feelings in romantic relationships. Responses were made on a five-point scale ("strongly disagree" to "strongly agree"). The items correspond in either of two dimensions (avoidance and anxiety). The Greek version of the ECR_R has shown to have good factor structure, reliability and validity. In the present study alpha coefficients were calculated at 0.90 for Avoidance and 0.93 for Anxiety.

The *Child Abuse and Trauma (CAT) Scale* was used, which yields a quantitative index of the frequency and extend of various types of negative experiences in childhood and adolescence. Barbara Sanders and Evvie Becker-Lausen (1995) have developed this scale and data on this measure were presented for two large samples of college students and for a small clinical sample of subjects with a diagnosis of Multiple Personality Disorder. The strong internal consistency and test-retest reliability of the scale in the college population is documented, and its validity is attested to by demonstrating that it correlates significantly with outcomes such as dissociation, depression, difficulties in interpersonal relationships, and victimization, all of which have previously been associated with childhood trauma or abuse. The extremely high scores of the Multiple Personality subjects confer additional validity to the measure. The authors suggest that the construct of psychological maltreatment underlies the destructive elements of numerous forms of abuse and neglect.

The CAT scale includes 38 items and was presented to the respondents as home environment questionnaire. It contains questions related to the individual's childhood or adolescent experiences of sexual mistreatment, physical mistreatment

and punishment, psychological mistreatment, physical and emotional neglect, and negative home environment (e.g., parental substance abuse or fighting). Its goal was the measurement of the individual's present, subjective perception of the degree of stress or trauma present in his/her childhood, based on the concept that «the meaning a child makes of experiences influences how the experience affects the child» (Newberger & De Vos, 1988, p. 505). Alpha coefficients were calculated at 0.86 for neglect, 0.83 for sexual abuse, 0.68 for punishment and 0.86 for the rest of questions.

Social support was assessed with the short-form *Social Support Questionnaire (SSQ6)* (Sarason, Sarason, Shearin, & Pierce, 1987). This is a six-item version of the original 27-item scale (Sarason, et al., 1983). For each of the six questions subjects are required to list all persons who can provide support of the type described in the question (min 0 max 9) and also indicate how satisfied they are overall with that level of support (six point scale). Hence, the scale provides a quasi-structural measure of social support (number of persons available for support-SSQnum), and one perceived global satisfaction measure (SSQsatisf) The two parts had good internal consistency ($\alpha$ = .90 and $\alpha$ = .89 respectively).

Emotion measures

*The Emotion Regulation Questionnaire (ERQ) (Gross & John, 2003).* To measure individual differences in emotion regulation, Gross and John (2003) developed the ERQ to assess the tendency to adopt the two main strategies of emotion regulation, which was used in this study. The questionnaire consists of ten items focusing on the chronic use of strategies of reappraisal or emotional suppression. The items content is deliberately limited to emotion-regulatory strategies, avoiding potential confounding with positive or negative affect, well-being or general social functioning (John and Gross, 2004). The scale had good

reliability in the reappraisal ($\alpha$ = .84) and was satisfactory for the emotional suppression ($\alpha$ = .69)

*Emotional intelligence self-report.* It was used the self-report Wong and Law Emotional Intelligence Scale (WLEIS, Wong & Law, 2002). This is a relatively short, sixteen item, measure that conceptually adheres to the ability model but assesses the four EI capabilities through self-report. The scale seems to be a promising research tool due to its brevity and its predictive validity. The scale has shown to be distinct from the Big Five personality factors and to have convergent validity with other EI ability-related measures such as the Trait Meta-mood scale (Law et al., 2004), or parts of the MSCEIT (Law et al., 2008). The scale consists of four dimensions that are consistent with Mayer and Salovey's (1997) definition of EI. The Self-Emotion Appraisal (SEA) dimension assesses an individual's self-perceived ability to understand their emotions. The Others' Emotion Appraisal (OEA) dimension assesses a person's tendency to be able to perceive other peoples' emotions. The Use of Emotion (UOE) dimension concerns the self-perceived tendency to motivate one self to enhance performance. The Regulation of Emotion (ROE) dimension concerns individuals' perceived ability to regulate their own emotions.

Studies replicated the four-factor structure obtained by Wong and Law (2002), through confirmatory factor analysis (i.e. Kafetsios & Zampetakis, 2008; Law et al., 2004; Law et al., 2008; Shi & Wang, 2007; Wong & Law, 2002; Zampetakis, Mpeldekos, & Moustakis, 2009). Usually responses to the WLEIS are made on a 7-point Likert-type scale (1 = strongly disagree, 7= strongly agree) and the total scale scoring is derived by summing the score on each item in the scale (summative) is used to locate respondents on the latent trait continuum; the higher the score, the more emotionally intelligent the individual. This procedure implies: (1)

a dominance response process; that is the probability of observing a high item score increases monotonically as the distance between person and item locations increases and (2) the content of each item is equally informative at all levels of trait EI. However, despite the encouraging evidence about the utility and validity of the WLEIS no work has explicitly examined the psychometric properties of the scale under an unfolding perspective. In the present study coefficients alphas for the four elements were: SEA: ($\alpha$ = .84), OEA: ($\alpha$ = .64), UOE: ($\alpha$ = .84), ROE: ($\alpha$ = .56).

Outcome variables

*Positive and Negative Affect Schedule* (Watson, Clark & Tellegen, 1988). The scale consists of 37 adjectives, which refer to positive and negative emotions and it is asked from the subject to answer according to what emotion he/she has the moment fills in the questionnaire. Responses were made on a six-point scale (1 = not at all to 6 = very much). Coefficients alphas for positive emotions were: ($\alpha$ = .89), and for negative emotions: ($\alpha$ = .91).

The *Center for Epidemiological Studies-Depression Scale (CES-D)* (Radloff, 1977), which is a self-rating scale, will be used for the measurement of depression. In particular, the Greek translation of which was assessed the reliability, validity and psychometric properties by Fountoulakis et al. (2001) was used. The CES-D consists of 20 items that cover affective, psychological, and somatic symptoms. The participant specifies the frequency with which the symptom is experienced (that is: a little, some, a good part of the time, or most of the time). The Chronbach alpha for the total scale was equal to 0.92.

The *General Health Questionnaire* (GHQ, Goldberg, 1978) was used to measure the subjects' current low mental health. The scale (20 item version) assesses depression, state anxiety, somatic symptoms and social dysfunction. Its correlation with Beck Depression Index is particularly strong ($r$ = .72; Goldberg, 1978). Items

concern situations with which the individual had to cope over the last few weeks that influenced psychological health. The Greek translation of the scale had satisfactory internal consistency ($\alpha$ = .72) in the study sample (Kafetsios, & Sideridis, 2006). Higher scores signify higher distress. In the present study alpha coefficient was calculated at 0.92.

Self-esteem was assessed with the *Rosenberg self-esteem scale* (Rosenberg, M. 1965). The Rosenberg self-esteem scale is a self-report questionnaire with 10 items rated on a 4-point Likert-type scale. The scale assesses general self-esteem. In the present study alpha coefficients was calculated at 0.87.

The factors and severity of drug use were assessed by the *Treatment Demand Indicator (TDI)* (TDI, 2000). TDI is the latest version of the protocol "First Treatment Demand Indicator" which had been edited in 1992. The Committee of Experts in Epidemiology of drugs of European Council (Group Pompidou) worked out this protocol with the aim of using a common methodology for collecting comparable data among European countries for drug users who ask for help from therapeutic programmes.

### 3.5. Results

An Analysis of Variance (ANOVA) was conducted and no differences were found between the two groups of substance users from substitution and drug free addiction treatment centers.

Table 1 presents results from bivariate correlations between the study's main variables. As it can be seen *age* was positively associated with regulation of emotion (ROE) and negatively with anxious attachment and satisfaction from relations, but it was not statistical significant.

Both *avoidance* and *anxious attachment* were significant negatively correlated with all four dimensions of emotional intelligence (avoidance: SEA: $r$ = -.34, $p$ < .01, OAE: $r$ = -.29, $p$ < .01, UOE: $r$ = -.26, $p$ < .05 & ROE: $r$ = -.27, $p$ < .05), (anxious attachment: SEA: $r$ = -.49, $p$ < .01, OAE: $r$ = -.39, $p$ < .01, UOE: $r$ = -.36, $p$ < .01 & ROE: $r$ = -.44, $p$ < .01), and self-esteem (avoidance: $r$ = -.34, $p$ < .01) & (anxious attachment: $r$ = -.49, $p$ < .01), while positively with neglect (anxious attachment: $r$ = .25, $p$ < .01) & (anxious attachment: $r$ = .44, $p$ < .01). *Avoidance* was positively correlated to punishment ($r$ = .27, $p$ < .01), suppression ($r$ = .58, $p$ < .01) and depression ($r$ = .23, $p$ < .01). *Anxious attachment* was positively correlated with sexual abuse ($r$ = .38, $p$ < .01), negative affect ($r$ = .47, $p$ < .01), low mental health (ghq) ($r$ = .29, $p$ < .01) and depression ($r$ = .52, $p$ < .01).

In relation to child abuse, *neglect* was significantly positively correlated with and depression ($r$ = .26, $p$ < .01), while negatively with social support both number of persons ($r$ = -.24, $p$ < .01) and satisfaction from relations ($r$ = -.25, $p$ < .01) and self-esteem ($r$ = -.29, $p$ < .01). *Punishment* was negatively correlated with low mental health (ghq) ($r$ = -.29, $p$ < .01). *Sexual abuse* was statistical positively significant with negative affect ($r$ = .51, $p$ < .01), low mental health (ghq) ($r$ = .25, $p$ < .05) and depression ($r$ = .42, $p$ < .01), while negatively with social satisfaction ($r$ = -.24, $p$ < .01) and self-esteem ($r$ = -.30, $p$ < .01).

In relation to *social satisfaction* was significant positively correlated with self-esteem ($r$ = .28, $p$ < .01), while negatively with depression ($r$ = -.36, $p$ < .01).

There was a significant negative association between *reappraisal* and low mental health (ghq), but it was not significant. On the other hand, *suppression* was negatively associated with regulation of emotion (ROE) ($r$ = -.29, $p$ < .01).

In relation to *emotional intelligence capabilities*, the *self-emotion appraisal* (SEA) dimension was significant positively correlated with positive affect ($r$ = .29, $p$

< .01) and self-esteem ($r$ = .44, $p$ < .01), while it was negatively correlated with negative affect ($r$ = -.36, $p$ < .01), low mental health (ghq) ($r$ = -.24, $p$ < .01) and depression ($r$ = -.31, $p$ < .01). The *Use of Emotion* (UOE) dimension was significant positively correlated with positive affect ($r$ = .54, $p$ < .01) and self-esteem ($r$ = .63, $p$ < .01), while it was negatively correlated with low mental health ($r$ = -.36, $p$ < .01) and depression ($r$ = -.47, $p$ < .01). The *regulation of emotion* (ROE) dimension was positively correlated with positive affect ($r$ = .32, $p$ < .01) and self-esteem ($r$ = .37, $p$ < .01), while negatively with negative affect ($r$ = -.30, $p$ < .01), low mental health ($r$ = -.33, $p$ < .01) and depression ($r$ = -.25, $p$ < .01).

*Positive affect* were positively associated with self-esteem ($r$ = .42, $p$ < .01), while negatively with low mental health ($r$ = -.44, $p$ < .01), and depression ($r$ = .40, $p$ < .01). On the other hand, *negative affect* were negatively associated with self-esteem($r$ = -.51, $p$ < .01), while positively with low mental health ($r$ = .51, $p$ < .01), and depression ($r$ = .67, $p$ < .01).

Finally, *self-esteem* was negatively correlated with both low mental health ($r$ = -.52, $p$ < .01), and depression ($r$ = -.71, $p$ < .01), while *low mental health (ghq)* was positively correlated with depression ($r$ = .71, $p$ < .01).

**Table 1:**

Zero-order correlations of 2nd study's variables

| | *M* | *SD* | **α** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age | 39.6 | 8.28 | | 1.00 | | | | | | | | | | | | | | | | | | |
| 2. Avoidance | 2.81 | 1.06 | .90 | .05 | 1.00 | | | | | | | | | | | | | | | | | |
| 3. Anxiety | 3.17 | 1.24 | .93 | -.15 | .45** | 1.00 | | | | | | | | | | | | | | | | |
| 4. CATneglect | 1.36 | .79 | .86 | .01 | .25* | .44** | 1.00 | | | | | | | | | | | | | | | |
| 5. CAT punishment | 1.85 | .80 | .68 | .11 | .27* | .19 | .47** | 1.00 | | | | | | | | | | | | | | |
| 6. CAT sexual abuse | .23 | .53 | .83 | -.00 | .16 | .38** | .50** | .13 | 1.00 | | | | | | | | | | | | | |
| 7. social support (numb of pers) | 15.5 | 9.44 | .90 | -.02 | -.01 | -.02 | -.24* | .05 | -.15 | 1.00 | | | | | | | | | | | | |
| 8. social support (satisfaction) | 4.74 | 1.13 | .89 | -.12 | -.18 | -.20 | -.25* | -.12 | -.24* | .47** | 1.00 | | | | | | | | | | | |
| 9. reappraisal | 4.53 | 1.30 | .84 | -.07 | -.02 | .08 | -.06 | -.01 | -.05 | .05 | -.01 | 1.00 | | | | | | | | | | |
| 10. suppression | 3.17 | 1.24 | .69 | -.04 | .58** | .20 | .03 | .04 | .02 | -.00 | .04 | .19 | 1.00 | | | | | | | | | |
| 11. WLSEA | 5.43 | 1.10 | .84 | .02 | -.34** | -.49** | -.16 | -.13 | -.06 | -.14 | .03 | .05 | -.19 | 1.00 | | | | | | | | |
| 12. WLOAE | 5.34 | 1.00 | .64 | .08 | -.29** | -.39** | -.06 | -.11 | .09 | .02 | .04 | .12 | -.18 | .55** | 1.00 | | | | | | | |
| 13. WLUOE | 4.86 | 1.25 | .84 | .07 | -.26* | -.36** | -.05 | .02 | -.07 | .12 | .13 | .02 | -.18 | .43** | .35** | 1.00 | | | | | | |
| 14. WLROE | 4.49 | 1.96 | .56 | .18 | -.27* | -.44** | -.04 | .02 | -.05 | -.14 | .05 | .04 | -.29* | .47** | .41** | .34** | 1.00 | | | | | |
| 15. panaspos | 3.29 | .82 | .89 | -.07 | -.06 | -.19 | -.02 | .08 | -.02 | .12 | .17 | .12 | .01 | .29** | .12 | .54** | .32** | 1.00 | | | | |
| 16.panasneg | 1.82 | .85 | .91 | -.09 | .20 | .47** | .21 | -.08 | .51** | .04 | -.16 | -.07 | .07 | -.36** | -.09 | -.20 | -.30** | -.18 | 1.00 | | | |
| 17. self-esteem | 3.80 | .75 | .87 | .09 | -.34** | -.49** | -.29** | -.05 | -.30** | .07 | .28* | -.01 | -.18 | .44** | .14 | .63** | .37** | .42** | -.51** | 1.00 | | |
| 18. ghq (low mental health) | 2.23 | .57 | .92 | .08 | .06 | .29** | .03 | -.29** | .25* | -.00 | -.20 | -.20 | -.07 | -.24* | -.17 | -.36** | -.33** | -.44** | .51** | -.52** | 1.00 | |
| 19. cesd (depression) | 1.38 | .67 | .92 | .02 | .23* | .52** | .26* | -.07 | .42** | -.12 | -.36** | -.07 | .05 | -.31** | -.10 | -.47** | -.25* | -.40** | .67** | -.71** | .71** | 1.00 |

***Not :*** * $p < .05$ **; $p < .01$ ***; $p < .001$.

In relation to *first* and *second hypotheses*, a series of regression analyses assessed the relative influence of child abuse experience, attachment organization and emotional intelligence on depression of drug users. Table 2 presents the results from hierarchical linear regression analyses in three steps to test for the mediating effects of child abuse, attachment organization and emotional intelligence capabilities on *depression*. According to Baron and Kenny (1986) mediation is present if: (a) the predictor, mediator and outcome variables are significantly related and (b) there is a reduction in the effect of the predictor on the outcome variable after controlling for the mediator. Both child abuse and attachment, especially sexual abuse and anxious attachment were associated with depression. More specifically, the positive correlation means that greater depression was associated with more sexual abuse and anxious attachment, while anxious attachment seemed to partially mediate sexual abuse ($F = 6.41$, $p < .001$). The negative correlation means that lower depression was associated with better use of emotion and use of emotion seemed to partially mediate anxious attachment ($F = 6.10$, $p < .001$).

Formal tests of significance of the mediation were carried using the Sobel test (Preacher & Hayes, 2004). In the case of depression, anxious attachment was a significant mediator of sexual abuse, $z = 2.31$, $p < .05$, and use of emotion was a significant mediator of anxious attachment $z = 2.69$, $p < .01$.

Table 3 presents the results from hierarchical linear regression analyses in three steps to test for the mediating effects of child abuse, attachment organization and emotional intelligence capabilities on *low mental health*. In relation to *low mental health,* age, punishment, anxious attachment and use of emotions were significantly associated with low mental health. More specifically, age and anxious attachment were positively associated with low mental health, while punishment and use of emotion were negatively associated with it. The negative association of

punishment might be explained by a suppression effect. Substance users might report all punishment experiences, because they were better functioning. Use of emotion and regulation of emotion seemed to fully mediate anxious attachment ($F = 4.00$, $p < .001$).

According to sobel test, in case of low mental health, anxious attachment was not a significant mediator of punishment $z = 1.49$, $p = .14$ ns, neither use of emotion was a significant mediator of punishment $z = -.21$, $p = .83$ ns. While, use of emotion was a significant mediator of anxious attachment $z = 2.02$, $p < .05$.

**Table 2:**

Regression of *Depression* on Child abuse, Attachment and Emotional intelligence capabilities

| | Depression | | |
|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Age | .05 | .11 | .11 |
| Gender | -.16 | -.13 | -.14 |
| CAT neglect | .24 | .07 | .11 |
| CAT punishment | -.18 | -.20 | -.16 |
| CAT sexual abuse | .34** | .25* | .22* |
| Avoidance | | .02 | -.03 |
| Anxiety | | .45*** | .35** |
| WL Self-Emotion Appraisal | | | -.10 |
| WL Others' Emotion Appraisal | | | .19 |
| WL Use of Emotion | | | -.33** |
| WL Regulation of Emotion | | | -.03 |
| $R^2$ | .23 | .39 | .50 |
| $R^2$ change | .23 | .16 | .11 |
| F change | 4.40** | 9.02*** | 3.77** |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after emotional intelligence capabilities entered in third step.

**Table 3:**

Regression of *Low mental health (ghq)* on Child abuse, Attachment and Emotional intelligence capabilities

| | Low mental health (ghq) | | |
|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Age | .15 | .20 | .23* |
| Gender | -.12 | -.11 | -.12 |
| CAT neglect | .15 | .04 | .10 |
| CAT punishment | -.37** | -.37** | -.34** |
| CAT sexual abuse | .23 | .16 | .19 |
| Avoidance | | -.04 | -.11 |
| Anxiety | | .34** | .13 |
| WL Self-Emotion Appraisal | | | -.04 |
| WL Others' Emotion Appraisal | | | -.01 |
| WL Use of Emotion | | | -.22* |
| WL Regulation of Emotion | | | -.23 |
| $R^2$ | .21 | .29 | .40 |
| $R^2$ change | .21 | .08 | .11 |
| F change | 3.83** | 3.93* | 3.02* |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after emotional intelligence capabilities entered in third step.

Table 4 presents the results from hierarchical linear regression analyses in three steps to test for the mediating effects of child abuse, attachment organization and emotional intelligence capabilities on *self-esteem.* Related to self-esteem, neglect, anxious attachment and others' emotion appraisal were significantly and negatively associated with self-esteem, while use of emotions was significantly and positively associated with it. The negative correlation means that lower self-esteem was associated with presumably more neglect and anxious attachment and better others' emotion appraisal. The positive correlation means that higher self-esteem was associated with presumably better use of emotions. Anxious attachment seemed fully mediate neglect, while others' emotion appraisal and especially, use of emotion seemed to fully mediated anxious attachment ($F = 9.15$, $p < .001$).

According to sobel test, in case of self esteem, anxious attachment was a significant mediator of neglect $z = -2.95$, $p < .01$ and use of emotion was a significant

mediator of anxious attachment $z$ = -2.88, $p$ < .01, while, others' emotion appraisal was not a significant mediator of anxious attachment $z$ = .55, $p$ = .58 ns.

Table 5 presents the results from hierarchical linear regression analyses in three steps to test for the mediating effects of child abuse, attachment organization and emotional intelligence capabilities on *positive and negative affect.* With regards to positive and negative affect, only use of emotions was positively associated with positive affect, which seemed to mediate the negative association with anxious attachment ($F$ = 3.86, < .001). The positive correlation means that higher positive affect was associated with presumably better use of emotions. According to sobel test, in case of positive affect, use of emotion was a significant mediator of anxious attachment $z$ = -2.77, $p$ = < .01.

Related to negative affect, sexual abuse and anxious attachment were positively associated with it, while self-emotion appraisal was negatively associated with it. The positive correlation means that higher negative affect was associated with presumably more sexual abuse and anxious attachment. The negative correlation means that lower negative affect was associated with presumably better self-emotion appraisal. Anxious attachment seemed to mediate sexual abuse and self-emotional appraisal seemed to mediate anxious attachment ($F$ = 5.02, $p$ < .001). According to sobel test, in case of negative emotions, anxious attachment was a significant mediator of sexual abuse $z$ = 2.39, $p$ < .05, while self-emotional appraisal was not a significant mediator of anxious attachment $z$ = 1.34, $p$ = .18 *ns.*

Overall, child abuse and attachment had a greater total explanatory power on negative affect ($F$ = 5.02, $p$ < .001) than on positive affect ($F$ = 3.86, $p$ < .001).

**Table 4:**

Regression of *Self-esteem* on Child abuse, Attachment and Emotional intelligence capabilities

| | Self-esteem | | |
|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Age | .10 | .05 | .04 |
| Gender | .11 | .06 | .10 |
| CAT neglect | -.30* | -.14 | -.21 |
| CAT punishment | .07 | .12 | .05 |
| CAT sexual abuse | -.17 | -.10 | -.07 |
| Avoidance | | -.15 | -.06 |
| Anxiety | | -.35** | -.13 |
| WL Self-Emotion Appraisal | | | .21 |
| WL Others' Emotion Appraisal | | | -.30** |
| WL Use of Emotion | | | .51*** |
| WL Regulation of Emotion | | | .13 |
| $R^2$ | .15 | .29 | .60 |
| $R^2$ change | .15 | .14 | .31 |
| F change | 2.61* | 7.21** | 12.80*** |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after emotional intelligence capabilities entered in third step.

**Table 5:**

Regressions of *Positive and Negative affect* on Child abuse, Attachment and Emotional intelligence capabilities

| | Positive affect | | | Negative affect | | |
|---|---|---|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Age | -.11 | -.15 | -.17 | -.06 | -.01 | -.01 |
| Gender | -.10 | -.11 | -.10 | .03 | .06 | .01 |
| CAT neglect | -.10 | -.01 | -.09 | .04 | -.10 | -.06 |
| CAT punishment | .17 | .18 | .12 | -.17 | -.19 | -.18 |
| CAT sexual abuse | .03 | .09 | .08 | .50*** | .42*** | .43*** |
| Avoidance | | .01 | .11 | | .05 | .01 |
| Anxiety | | -.27 | -.01 | | .36** | .25 |
| WL Self-Emotion Appraisal | | | .08 | | | -.27* |
| WL Others' Emotion Appraisal | | | -.14 | | | .13 |
| WL Use of Emotion | | | .52*** | | | .03 |
| WL Regulation of Emotion | | | .21 | | | -.10 |
| $R^2$ | .04 | .09 | .39 | .28 | .40 | .45 |
| $R^2$ change | .04 | .05 | .30 | .28 | .11 | .06 |
| F change | .58 | 2.03 | 8.14*** | 5.79*** | 6.61** | 1.70 |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after emotional intelligence capabilities entered in third step.

With regards to *third hypotheses*, a series of regression analyses assessed the relative influence of child abuse experience, attachment organization and emotional

regulation on *depression* of drug users (Table 6). Both child abuse and attachment, especially sexual abuse and anxious attachment were positively associated with depression. The positive correlation means that higher depression was associated with presumably more sexual abuse and anxious attachment. Suppression of emotion was negatively associated with depression, but it was not significant.

**Table 6:**

Regression of *Depression* on Child abuse, Attachment and Emotion regulation

| | Depression | | |
|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Age | .05 | .11 | .10 |
| Gender | -.15 | -.12 | -.14 |
| CAT neglect | .22 | .06 | .05 |
| CAT punishment | -.18 | -.20 | -.20 |
| CAT sexual abuse | .35** | .26* | .25* |
| Avoidance | | .03 | .09 |
| Anxiety | | .45*** | .45*** |
| Reappraisal | | | -.06 |
| Suppression | | | -.11 |
| $R^2$ | .23 | .38 | .40 |
| $R^2$ change | .23 | .16 | .01 |
| F change | 4.37** | 9.22*** | .75 |

***Note:*** $*p < .05$; $**p < .01$; $***p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after emotion regulation entered in third step.

In relation to *low mental health*, sexual abuse and anxious attachment were significantly and positively associated with it, while punishment was negatively associated with it (Table 7). Both dimensions of emotion regulation, reappraisal and suppression were negatively associated with low mental health, but it was not significant.

Related to self-esteem (Table 8), anxious attachment was significantly and negatively associated with it. Also, neglect and sexual abuse were negatively associated with it, but it was not significant.

**Table 7:**

Regression of *Low mental health (ghq)* on Child abuse, Attachment and Emotion regulation

| | Low mental health (ghq) | | |
|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Age | .15 | .19 | .17 |
| Gender | -.10 | -.09 | -.11 |
| CAT neglect | .11 | -.01 | -.02 |
| CAT punishment | -.35** | -.36** | -.36** |
| CAT sexual abuse | .25* | .18 | .17 |
| Avoidance | | -.02 | .06 |
| Anxiety | | .33** | .36** |
| Reappraisal | | | -.18 |
| Suppression | | | -.14 |
| $R^2$ | .20 | .29 | .33 |
| $R^2$ change | .20 | .08 | .05 |
| F change | 3.66** | 3.96* | 2.79 |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after emotion regulation entered in third step.

**Table 8:**

Regression of *Self-esteem* on Child abuse, Attachment and Emotion regulation

| | Self-esteem | | |
|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Age | .10 | .05 | .05 |
| Gender | .09 | .04 | .04 |
| CAT neglect | -.25 | -.10 | -.10 |
| CAT punishment | .05 | .10 | .10 |
| CAT sexual abuse | -.20 | -.11 | -.11 |
| Avoidance | | -.17 | -.17 |
| Anxiety | | -.34** | -.34** |
| Reappraisal | | | .01 |
| Suppression | | | .01 |
| $R^2$ | .14 | .29 | .29 |
| $R^2$ change | .14 | .15 | .00 |
| F change | 2.41* | 7.56** | .01 |

***Note:*** *$p < .05$; **$p < .01$; ***$p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after emotion regulation entered in third step.

In relation to *positive and negative affect* (Table 9), anxious attachment was significantly and negatively associated with positive affect. Reappraisal was positively associated with positive affect, but it was not significant. Related to negative affect, sexual abuse and anxious attachment were significantly and

positively associated with them. Anxious attachment seemed to mediate sexual abuse. Overall, child abuse and attachment had a greater total explanatory power on negative affect ($F = 5.30$, $p < .001$) than on positive affect ($F = .95$).

**Table 9:**

Regressions of *Positive and Negative affect* on Child abuse, Attachment and Emotion regulation

| | Positive affect | | | Negative affect | | |
|---|---|---|---|---|---|---|
| | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) | Step 1 ($\beta^{i}$) | Step 2 ($\beta^{ii}$) | Step 3 ($\beta^{t}$) |
| Age | -.11 | -.14 | -.13 | -.06 | -.01 | -.02 |
| Gender | -.12 | -.13 | -.15 | .04 | .07 | .07 |
| CAT neglect | -.05 | .04 | .06 | .02 | -.12 | -.13 |
| CAT punishment | .15 | .16 | .15 | -.16 | -.19 | -.18 |
| CAT sexual abuse | .01 | .06 | .07 | .51*** | .43*** | .43*** |
| Avoidance | | -.01 | .02 | | .06 | .06 |
| Anxiety | | -.26 | -.29* | | .36** | .37** |
| Reappraisal | | | .15 | | | -.08 |
| Suppression | | | -.04 | | | -.01 |
| $R^2$ | .03 | .09 | .11 | .28 | .40 | .40 |
| $R^2$ change | .03 | .05 | .02 | .28 | .11 | .01 |
| F change | .52 | 2.10 | .82 | 5.89*** | 6.81** | .40 |

***Note:*** $*p < .05$; $**p < .01$; $***p < .001$; $\beta^{i}$ = standardizes beta when CAT dimensions were entered in first step; $\beta^{ii}$ = beta after attachment organization dimensions were entered in second step; $\beta^{t}$ = final beta after emotion regulation entered in third step.

### 3.6. Discussion

As we have already mentioned in the introduction of this chapter, in the general psychological literature there is growing evidence that emotional capabilities are important predictors of health and well-being (Matthews, et al., 2002). The lack of emotional skills is associated with self-destructive acts (e.g. drug and alcohol abuse) (Brackett, et al., 2004), whereas individuals with lower emotional intelligence demonstrate significantly higher involvement in potentially harmful behaviours, such as using illegal drugs etc, which supports the association between lower EI and illegal substance use (Brackett & Mayer, 2003; Trinidad & Johnson, 2001). Research has shown that individuals with higher emotional skills tend to have more positive

mood and are more able to repair mood after a negative mood induction (Schutte, et al., 2002; Slaski & Cartwright, 2003). As an implication, developing emotional skills might work as a protective psychological factor for abstinence from substances and improvement of psychological health.

The second study aimed to validate the results from the first study and extend research of emotional factors which might be related to psychological health of substance users and furthermore to examine whether the above factors may mediate the relationship between relational factors (child abuse and attachment) and psychological health and well-being of substance users.

In both studies, study 1 and study 2, comparable samples of substance users were used. Therefore, it is interesting that, a similar pattern of results was found in the first study, was replicated in the second study. The results from the second study showed as well, that childhood maltreatment experiences were positively associated with insecure attachment, mainly anxious attachment and also they were positively associated with substance users' depression and low mental health (ghq), while they were negatively associated with self-esteem. Also, anxious attachment was found to mediate the relationship between child abuse and psychological health.

The main findings were in line with several of our expectations. At the level of correlational analyses, anxious attachment was significantly and positively associated with child abuse, depression, low mental health and negative affect, while it was significantly and negatively associated with self-esteem and all four dimensions of emotional intelligence; avoidant attachment was significantly and positively associated with child abuse, suppression and depression, as well as negatively with self-esteem and all four dimensions of emotional intelligence. The new findings related to emotional factors showed that self-emotion appraisal was significantly and positively associated with self-esteem and positive affect, while it

was significantly and negatively associated with depression, low mental health and negative affect. Use of emotion was as well, significantly and positively associated with self-esteem and positive affect, while significantly and negatively associated with depression and low mental health. Finally, regulation of emotion was significantly and positively associated with self-esteem and positive affect, while it was significantly and negatively associated with depression, low mental health and negative affect. Our results were in line with literature, we have already mentioned in the introduction of this chapter, suggesting that, a negative correlation exists between stress, ill health and emotional intelligence levels, assuming that people scoring high in emotional intelligence are expected to cope effectively with environmental demands and pressures as those commonly assessed by occupational stress and health measures (Nikolaou & Tsaousis, 2002; Slaski & Cartwright, 2002).

In line with first hypothesis sexual abuse was found to have a positive association with depression and negative affect, while neglect a negative one with self-esteem. These findings were consistent with the first study and the existed literature on experiences of child abuse indicated that there is increased risk for development of depression, self-esteem problems and anxious attachment in both children and adults who were abused. Findings were consistent with Harter's (1999) conception of a depression/adjustment composite, and with the body of research linking childhood sexual abuse with low self-esteem, depression, and suicidality (e.g., Feiring, Taska, & Lewis, 1999; Koss, Bailey, Yuan, Herrera, & Lichter, 2003).

Also, the results showed that childhood maltreatment experiences were positively associated with insecure attachment, both avoidant and anxious attachment. The above findings were consistent to existed literature confirmed that child abuse or neglect leads to the development of both an insecure attachment style and maladaptive coping strategies (Crittenden, 1992). The primary purpose of

attachment, when promoting the protection and survival of the young, is risked by maltreatment. Children, who experience maltreatment from an early age may adopt similar coping strategies in life, and expect the same maltreatment in future new relationships. There is plenty of literature related to a specific association between child abuse and the development of insecure attachment (Crittenden, 1988; Egeland & Sroufe, 1981; Finzi-Dottan, et al., 2001; Gauthier, et al., 1996; George, 1996; Youngblade & Belsky, 1990).

Also, in relation to first hypothesis, insecure attachment, especially anxious attachment, was found to have a positive association with depression, low mental health and negative affect, while a negative one with self-esteem. In accordance with Bowlby (1980), attachment theory may be highly relevant in understanding the aetiology of depression. The experiences of early loss, separation and rejection by the parent or caregiver (conveying the message that the child was unlovable) may all lead to insecure internal working models (Dozier, Stovall, & Albus, 1999). So, insecurely attached individuals develop negative internal working models about the self and the world based on their interactions with important others and such negative internal working models subsequently confer vulnerability to depression. Also, these findings were in tune with earlier studies, reporting a link between insecure attachment representations and psychological distress (Dozier et al., 1999). Furthermore, these findings add to a burgeoning literature suggesting that insecure attachment, particularly the anxious attachment dimension, may be a risk factor for emotional distress, including anxiety and depression (Hankin, Kassel & Abela, 2005; Kafetsios & Sideridis, 2006; Mickelson et al., 1997) and in turn, this kind of attitudes was associated with lower self-esteem (Hankin, et al., 2005). Furthermore, according to Hankin, et al. (2005) insecure attachment dimensions are not simply correlates or

consequences of depressive symptoms but may be causal risk factors that contribute prospectively to increase elevations in depressive symptoms.

Consistent with the findings from the first study was the finding that anxious attachment mediated the relationship between child abuse and psychological health outcomes and negative affect. Furthermore, the fact that anxious attachment was a significant mediator of the association of childhood maltreatment experiences with substance users' psychological health confirmed the hypothesis that the link between child maltreatment and psychological health may be partially explained by disruptions in attachment relationships. Specifically, insecure working models of attachment were a significant predictor of psychological health, in support of Bowlby's (1969/1982, 1973, 1980) view that insecure attachment relationships may lead to problems with relationship functioning and adjustment. The association of attachment insecurity with psychological distress is, also, supported by Mikulincer and Florian's (1998) finding, that insecure attachment is associated with negative affect. These results suggested a self-regulation role for substance users' psychological health examined here. Herman's (1992) research indicates that insecure attachment may leave individuals with diminished capacity for emotional self-regulation in the face of stressful life situations. People who lack the internal capacity for self-regulation may be motivated to engage in high-risk behaviour, such as substance use, to regulate their emotions. If this were the case we would expect to see at least partial mediation of psychological health's outcomes by insecure attachment. Our results were consistent with this expectation.

According to second hypothesis, use of emotion was found to be negatively associated with depression and low mental health, while positively associated with self-esteem and positive affect. Regulation of emotion was negatively associated with low mental health. Others' emotion appraisal was negatively associated with

self-esteem, while self-emotion appraisal was negatively associated with negative affect.

It is remarkable that, use of emotion was found to mediate the relationship between anxious attachment and psychological health outcomes. Contrary to our expectations, use of emotions and neither emotion regulation nor emotion recognition, was found to be a significant mediator between relational factors (child abuse and attachment with psychological health outcomes (depression, low mental health and self-esteem). These unexpected findings, referred to use of emotion, intrapersonally, as the fact that being aware of one's own emotions and express his or her emotions can lead to regulating stress and negative emotion so that one can perform better in life (Lopes, et al., 2004; 2005). On the other hand, substance use has been related to deficits in emotion regulation (Hayes, et al., 1996) in perceiving and using emotions (Brackett et al., 2004), in reducing sensitivity to emotional expressions and lower emotion perception accuracy rates (Frigerio, et al., 2002). Following the existing literature our sample of substance users might face similar difficulties in emotional intelligence capabilities.

The WLEIS questionnaire, we used in this study, is a self-report measure of trait EI and does not measure EI abilities. In our study use of emotion is associated with freely expressing positive affect. As we have already mentioned above, substance users come from families that face a difficulty in expressing emotions and mainly they express negative emotions. Charles-Nicolas (1991) suggested that families of drug users adolescents tend to avoid, or are unable to tolerate negative mental states (anxiety, frustration) and separations. According to Schutte et al. (1998 & 2002) lower emotional intelligence was related to lower positive mood. They found that lower emotional intelligence was related to more depression, which was characterized by low positive mood. A low positive mood state comprises feelings of

sadness and lethargy (e.g., Watson et al., 1988), which may be components of depression. The findings of the present study provided some insight into possible connections between emotional intelligence and emotional well-being.

As we have mentioned in the introduction of this chapter, emotional well-being includes positive mood and high self-esteem, because high self-esteem is related to a variety of positive psychological health indices, such as less depression, less anxiety, less loneliness, less social anxiety, and less alcohol and drug abuse (Leary, 1999b). According to Schutte et al (2002) and Ciarrochi et al. (2000) individuals with higher emotional intelligence had higher self-esteem. Also, Bednar, Wells, & Peterson's (1989) findings showed that self-esteem was the outcome of a self-evaluative affective process. The understanding and regulation of emotions components of emotional intelligence may facilitate positive affect in the self-evaluative process. The findings of Schutte et al. (2002) demonstrated that self-esteem assessed as a state significantly decreased after a negative state induction and significantly increased after a positive state induction supported Leary's (1999a, b) view that self-esteem was the result of specific feedback from the environment and that it could be a state as well as a trait.

Matthews et al. (2002) claimed that people with higher emotional intelligence might prevent development of maladaptive emotional states associated with mood and anxiety disorders. Additionally, components of emotional intelligence, such as use and regulation of emotion and others' emotion appraisal may have direct impact on depression, low mental health and self-esteem. Also, the ineffective management of negative emotions among the insecure groups places them at greater risk for using substances to alleviate emotional discomfort (Caspres, et al., 2005). Research had shown that those with higher emotional intelligence do tend to have typically more positive mood and are even more able to repair their mood after a negative mood

induction (Schutte, et al., 2002). Individuals high in emotional intelligence have a greater ability to perceive, understand, regulate, and harness emotions (e.g., Salovey & Mayer, 1990; Schutte et al., 1998), which means that high emotional intelligence might work as a protective factor. High emotional intelligence ability may enable individuals to maintain higher characteristic positive mood states.

The above literature and the present findings, which showed that emotion capabilities, such as use of emotion and emotion appraisal may have a direct impact on substance users psychological health lead us to the decision to test an intervention targeting to increase emotion awareness in substance users.

Contrary to our expectations, the two specific strategies of emotion regulation according to Gross (1999), which was our third hypothesis, did not mediate the relationship between relational factors (child abuse and insecure attachment) and psychological health of substance users. This is at first sight quite difficult to explain. According to John and Gross (2004), only two emotion-regulation strategies, reappraisal and suppression, were examined in general terms, rather than in the context of specific emotions such as anger, sadness, and pride. Nevertheless their notion of emotion regulation needs to be broadened and deepened. Another point is that most of their research has been based on samples of relatively healthy participants. Existing literature is very limited related to measuring emotion regulation in the context of samples in which there is more variability in both psychological and physical health status.

# CHAPTER 4

# TESTING AN INTERVENTION TARGETING TO INCREASE EMOTION AWARENESS IN SUBSTANCE USERS – STUDY 3

## 4.1. Introduction

According to the main results of the second study, emotional intelligence capabilities and especially use, appraisal and regulation of emotion were found to be significant mediators of the relationship between anxious attachment and psychological health of substance users in addiction treatment programs. In particular, use of emotions seemed to fully mediate the relationship of anxious attachment and self-esteem, while others' emotion appraisal had a negative effect on self-esteem. The above results provide the evidence that emotional capabilities are important predictors of psychological health and well-being.

Emotional intelligence and Well-being

Both theory and previous research suggest a link between emotional intelligence and emotional well-being. Emotional intelligence, as it has already mentioned before, includes the ability to understand and regulate emotions, while emotional well-being includes positive mood and high self-esteem.

Several studies showed that high emotional intelligence would lead to greater feelings of emotional well-being (Goleman, 1995; Salovey & Mayer, 1990; Salovey, et al., 1995). Individuals who are able to understand and regulate their emotions should be able to maintain a better perspective of life and experience better emotional health. Some empirical evidence that emotional intelligence is associated with emotional well-being comes from research indicating that higher emotional intelligence is associated with less depression (Schutte et al., 1998), greater optimism

(Schutte et al., 1998), and greater life satisfaction (Ciarrochi et al., 2000). Thus, both theory and previous research suggest a link between emotional intelligence and emotional well-being.

As it has already mentioned before, individuals' emotional well-being refers mainly to mood and self-esteem. In relation to mood, there are two distinct mood characteristics, typical positive and typical negative affect. Positive and negative affect seems to be separate dimensions that are not associated with each other (e.g., Watson & Clark, 1984; Watson et al., 1988). High positive affect includes feelings of enthusiasm and alertness, while low positive affect involves feelings of sadness and tiredness; high negative affect refers to anger and fear, whereas low negative affect involves feelings of calmness and serenity (e.g., Watson et al., 1988). Positive mood seems to support approach behaviour, while negative mood seems to support avoidance behaviour (Watson, Weise, Vaidya, & Tellegen, 1999).

On the other hand related to emotion perception, the ability to perceive others' emotions is also considered to be an important dimension of emotional intelligence (Mayer & Salovey, 1997). Therefore, the propensity to attend to and accurately decode other people's emotions has been thought to contribute the 'affective glue' that promotes coordinated social interaction (e.g., Feldman, et al., 1991). However, there is limited research examining the interpersonal processes related to emotion perception. Emotion perception may entail interpersonal costs as well as benefits and the former are not well understood.

Yet, a few laboratory and correlational studies suggest that being highly skilled at reading others' emotions, or particularly attentive to others' feelings may not always lead to positive social outcomes. A research program by Rosenthal and colleagues suggests that individuals who are highly skilled at decoding nonverbal cues involving channels that are difficult to control, such as voice and body,

experience more difficulties in social relationships than those who are less skilled (Blanck, Rosenthal, Snodgrass, DePaulo, & Zuckerman, 1981; Rosenthal & DePaulo, 1979).

Emotion recognition and therapeutic change

Primary emotions underline the value of emotion recognition. Primary emotions carry action potentials with important functions, organizing our behaviour to help us survive (Greenberg & Safran, 1987). Failing to recognize emotions not only undermines their productive potential, but also can have negative interpersonal consequences (Sloan & Kring, 2007; Suveg, et al., 2007; Zeman et al., 2007). If a person expresses an emotion nonverbally without being aware of it, the impact this has on others will likely confuse him or her. The woman who asks her husband about his weekend long fishing trip in an angry tone while being unaware of her own anger at his spending time away, will likely be baffled when he starts complaining that she never supports his hobbies.

Impaired emotional perception and awareness can also lead to low mental health. Sloan and Kring (2007) cite research showing that greater emotional awareness predicts better treatment outcomes, while lower awareness is associated with a host of psychological disorders, including anxiety, depression, and somatoform, eating, and personality disorders. Likewise, Zeman et al. (2007) and Suveg et al. (2007) provide evidence that adolescents with bulimia or major depression are less superficial at identifying their emotions than adolescents without these clinical problems. Even when people are aware of an emotion they may mislabel it, which can also cause psychological impairments. A clear example of this is the individual who increases a panic attack by mistaking his anxiety as heart failure. As deficits in accurate emotion recognition appear to foster psychopathology, addressing these deficits has become central to the treatment of psychological

problems in most therapeutic approaches. In the treatment of panic, for example, both cognitive-behavioural (Barlow, 2002) and psychodynamic (Milrod, Busch, Cooper, & Shapiro, 1997) interventions emphasize the importance of correctly identifying one's emotional state. An important aspect of the therapeutic intervention therefore involves helping individuals to more accurately identifying their emotional experience.

Therapeutic interventions aim to alter people's awareness of emotions, and also to change their emotional experience. Unlike efforts to change awareness, emotion regulation in therapy can involve either an increase or a decrease (Sloan & Kring, 2007; Suveg et al., 2007), depending on the kind of emotion and the aims and orientation of treatment.

Emotion awareness as part of general emotional change

Working with overregulated emotional pain involves distinguishing between different types of emotional expression (primary and secondary, adaptive and maladaptive) and facilitating key productive emotion sequences. This promotes access to primary adaptive emotions and transforms maladaptive emotional responses into more productive experience, enabling the client to change. Leslie & David (2001) focus on three change principles in the affective domain that consider the processes of overregulating emotional pain, and also apply to working with emotion generally.

The principles are (a) awareness of emotion, (b) regulating emotion, and (c) changing emotion with emotion. The first and most general principle of change is the promotion of *emotion awareness*. Increased emotion awareness enhances functioning in a variety of ways. Becoming aware of and symbolizing primary emotional experience into words provides access to the information and the tendency towards action implied in emotion, and supports adjustment of experience into a person's

ongoing self-narrative. Awareness of what one feels has always been recognized as an important therapeutic goal. This principle applies to primary emotion. It also applies to awareness of the difference between secondary and primary emotion, and the role that secondary emotion plays in the maladaptive regulation of primary emotion.

The second change principle addresses *emotion* arousal and its *regulation*. This involves promoting the client's ability to receive and alleviate emerging painful emotional experience. Here amygdala-based emotional arousal needs to be approached, allowed, and accepted rather than avoided or controlled. In this process, people need to use their higher brain centres not to control emotion, but to consciously recognize the alarm messages being sent from the amygdala and then act to calm the activation.

The third and probably most fundamental change principle involves the *changing of emotion with emotion*. This suggests that a primary maladaptive emotion state is best transformed by replacing the maladaptive emotion with another more adaptive emotion. For example, once aroused, maladaptive fear can be replaced by the more boundary establishing emotions of adaptive anger or disgust, or by evoking the softer feelings of compassion or forgiveness. Reason is seldom sufficient to change automatic emergency based emotional responses. Rather one needs to replace one emotion with another. Emotion awareness is needed, first, to distinguish that the emotion is a maladaptive one, rather than a healthy adaptive emotion. Once this evaluation is made, one then needs to work on transforming this state to a more adaptive one (Greenberg & Paivio, 1997).

Despite ongoing discussion over how best to define and operationalize emotions, therapists increasingly agree on emotions' importance in psychological health and change. Research suggests that accurately recognizing emotions is critical

to psychological health, and most major therapeutic approaches aim to address deficits in emotion awareness. Interventions also focus on emotion regulation; cognitive-behavioural therapy typically working to reduce negative emotions, such as anxiety and depression, and experiential and psychodynamic therapists to increase emotion experiencing. Increasingly, however, these approaches are joined toward using emotion experience within therapy to ultimately reduce negative emotions. This application of emotions' role in meaning change and human behaviour points to the way in which drawing on basic emotion research can enable us to create assessments and treatments grounded in an empirically supported understanding of mechanisms of change; and in doing so, fostering greater psychotherapy integration.

Experimental intervention methods

Outcomes research is a broad umbrella term without a consistent definition, but in general, tends to describe research that is concerned with the effectiveness of public-health interventions and health services; that is, the *outcomes* of these services. Attention is frequently focused on the affected individual – with measures such as quality of life and preferences (Jefford, Stockler & Tattersall, 2003). Moreover, the term 'outcomes research' describes a variety of fields of research that use a variety of methodologies, often with differing aims. The US Agency for Healthcare Research and Quality suggests that: "outcomes research seeks to understand the end results of particular health care practices and interventions. End results include effects that people experience and care about, such as change in the ability to function. In particular, for individuals with chronic conditions – where cure is not always possible – end results include quality of life as well as mortality. By linking the care that people get to the outcomes they experience, outcomes research has become the key to developing better ways to monitor and improve the quality of care" (Agency for Healthcare Research and Quality. Outcomes Research Fact Sheet.

AHRQ Publication no. 00-P011. Rockville: Agency for Healthcare Research and Quality, 2000).

Nonetheless, conducting an effective treatment outcome study can be challenging as it requires investment of time, careful design decisions that will impact what can ultimately be known several years later; and is typically accomplished only via funding. Yet it addresses the need to demonstrate that a treatment works; it moves the field forward by revealing what interventions are helpful within a given treatment, and it provides data to move beyond emotional allegiances into rational selections of treatment. Historically, the past two decades have seen a virtual explosion of outcome research as managed care has gained ascendancy (Najavits, 2003).

In that perspective, outcomes research complements clinical trial research and it aims to: (i) provide better information to inform patient decisions, (ii) guide health providers and (iii) inform health policy decisions (Jefford, et al., 2003). Even more, outcomes research has been suggested to benefit (i) healthcare providers (e.g. via greater certainty regarding the benefit of an intervention, standards/guidelines to guide clinical practice, shared responsibility in decision-making, health-care organization management, greater use of effective interventions and discontinuation of ineffective interventions/practices, an organizational culture emphasizing quality), (ii) governmental agents (e.g. via cost savings as inappropriate use is eliminated, greater ability to plan health services, targeting research in areas of greatest potential impact based on examination of databases and last, but not least (iii) the consumer (e.g. via increasing their participation in decision-making and choice-making regarding hospital/practitioner/treatment options, offering assurance regarding effectiveness of interventions and –greatly– assessment and development of interventions to improve well-being, not just survival) (Jefford et al., 2003).

Especially, regarding well-being, and even quality of life as suggested by Zubarana and Foresti (2009), a growing number of scientific investigations started to empirically measure the effects of EI on life quality, academic/occupational success, resistance to stress, health and the quality of social/marital relationships, to name but the few most significant outcomes. Taken together, these studies indicate that EI is an active and essential ingredient of life success and happiness. A vast amount of research has documented a positive association between trait EI and well-being related variables (e.g., Petrides, Pita & Kokkinaki, 2007; Schutte et al., 2002). In view of this, interventions designed to improve EI have recently bloomed particularly among children, managers and subjects with affective difficulties (Matthews, et al., 2002). Despite the huge expansion of EI development methods and the preliminary evidence for their effectiveness – especially with children (Zins, Weissberg, Wang, & Walberg, 2004), very few EI programs are based on a solid theoretical model and even fewer have been rigorously tested (Matthews et al., 2002). Among few researchers, Nelis, Quoidbach, Mikolajczak & Hansenne (2009) investigated whether EI could be developed among young adults using a proper experimental design and a theoretically grounded training program. Taken together, the results suggested that some emotional abilities and habits might be effectively improved, even using a relatively short training (Nelis et al., 2009).

However, as already mentioned, studies linking substance users, emotional intelligence and intervention programs are scarce. On the contrary, a number of intervention/prevention research investigating training outcomes of special characteristics on –for example– gender-based, culture-based, age-based substance abuse groups has bloomed the last decades. For example, in a pilot study a women's manual-based substance use disorder recovery model was sought to be evaluated on opioid-dependent women in a methadone maintenance treatment program who

received 12 sessions of the gender-based model in group format over two months. Assessment was conducted before and after the intervention, with results indicating significant improvements in drug use (verified by urinalysis), impulsive-addictive behaviour, global improvement, and knowledge of the treatment concepts (Najavits, Rosier & Nolan, 2007).

Another study, evaluated the effectiveness of applying a new British intervention method —the '5-Step Method'— (developed to help family members of people with alcohol and drug problems) on Italian population. It analysed 52 treatment reports compiled by the treating professionals, to examine how well the method had been introduced into the Italian sociocultural context. The analysis showed that the training was effective and it also suggested that some overall strategies, such as giving family members a plan and proposing up to five sessions with the family member are very helpful interventions (Arcidiacono, Sarnacchiaro & Velleman, 2008).

In another research, main aim was the evaluation of a culturally grounded prevention intervention targeting substance use among urban middle-school students. In that study, the curriculum consisted of 10 lessons promoting antidrug norms and teaching resistance and other social skills, reinforced by booster activities and a media campaign. Support was found for the intervention's overall effectiveness, with statistically significant effects on gateway drug use as well as norms, attitudes, and resistance strategies but with little support for the cultural matching hypothesis (Hecht, Marsiglia, Elek, et al., 2003).

### 4.2. The significance of the third study

The aim of this study was to explore further the emotional structures and functions relating to adult attachment and emotional capabilities in the population of substance users in addiction treatment programs.

The present study implemented a training program that involved both instructional and first-person affective/experiential components with the aim of increasing emotion awareness. This is related to central approaches to emotion as knowledge structures (e.g., Izard, 2001) but also to EI theory. Despite the strong recent interest on emotional intelligence (EI), there has been limited evidence on how emotional intelligence may develop and improve through training, especially in clinical populations like drug users. The present study tested the effects of a program designed to increase emotional intelligence related competencies, traits, and abilities. To our knowledge, there is no published study on the effects of training on EI abilities in substance user population.

The purpose of this study was to test the effects a theoretically informed training method designed to increase emotional awareness and knowledge may have on emotional intelligence competencies, abilities and traits. It was designed for career starters and the present study tried to replicate it in the drug user population.

### 4.3. A training method that targets on emotion awareness

The distinction between ability and trait/mixed models of EI concerns not only how one will decide to evaluate emotional intelligence change, but also which aspects of EI one decides to deal with through training (Cherniss, 2000).

*Emotion awareness* is an important emotional construct both conceptually and operationally. It refers to the basis of the interrelated set of skills that constitute

emotional intelligence (Boyatzis, 1996; Mayer et al., 2000). Through increased self-awareness individuals are more able to detach themselves from events and regulate their emotions, in order to prevent them from becoming 'immersed in' and 'carried away' by their emotional reaction. Emotion awareness is a main ability that includes components from both intrapersonal and interpersonal domains and is included in both the ability and mixed EI models. For example, supporters of both the trait and the ability EI model suggest that EI competencies developed in the course of life (such as self-management, relationship management and social awareness) are based on awareness of own emotions (Goleman, 2000; Salovey, Woolery, & Mayer, 2001). This means that, first the stimuli are registered and then the emotional information takes place. Emotion perception and understanding of emotion are related elements of emotion awareness in the ability approach.

Emotional perception is the ability of registering emotional stimuli in self and others; it has been suggested that it is an ability that has its roots in evolution, and affinities with empathic and emotion communication processes (e.g. Buck, 1984). Emotion perception and understanding are basic abilities that help more dynamic EI abilities such as emotion facilitation and management of emotion. Although the empirical evidence for the suggested EI hierarchy (emotion perception, emotion facilitation, emotion understanding, emotion management) is questionable, evidence from different aspects of emotion theory tend to agree on the predominance of these key abilities, as well as for the development of EI ability as a whole.

The abilities to perceive and label emotion constitute central processes also with regards to related research on emotion change (Izard, 2001, 2002). The approach followed in this study took into account the recent discussion on the significance of Emotion Perception and Learning (EPL; Izard, 2001); for example, emotion awareness is closely related to Izard's emotion knowledge (EK) construct. Izard

(2002) moreover figures a number of principles of how one can translate emotion theory principles into training programs. His second principle proposes emotion experience and learning as a key for effective change: such experience should include tasks that increase empathy training, awareness of emotions in self and others, 'their phenomenology, and their specific motivational characteristics' (Izard 2002, p. 801). Following Robinson and Clore (2001) the training method we devised includes experiential knowledge (e.g. photographic stimuli) and activates episodic memories (e.g. recall and reflection on emotion episodes at work).

Research suggests that preventive interventions help to increase emotion knowledge and emotion utilization may also help to decrease behaviour problems associated with poor emotion knowledge and emotion-perception bias. Yet, investigators still face a major challenge in determining how emotion knowledge and other aspects of the emotional components of prevention programs are translated into the skills involved in the social communication and social interactions of everyday life.

The last study implemented an intervention with the aim of increasing emotion awareness. It was intended offer an innovative theoretical and therapeutic framework, since the particular program was not applied in individuals with major emotional or physical health problems or substance abuse problems. In the first study substance users were found to be low in emotion perception, and we supposed they would be low in emotional awareness, as well. In the second study, use of emotion, emotion regulation and emotion appraisal were found to be associated with psychological health and mediate the relationship between insecure attachment and psychological health. The aim of the third study was to examine the effects of a method aimed at increasing emotion awareness and knowledge and how this may influence their self-reported emotional capabilities that mediate their personality/

relational style and their psychological health and well-being. The literature is very limited in investigating emotional change in substance users enrolled in addiction treatment centers.

The purpose of this study was, therefore, to test the effects of a theoretically informed intervention program designed to increase participants' emotional awareness and knowledge on emotion self-efficacy, self-reported EI capabilities with the use of WLEIS questionnaire. A second aim was to test whether the specific method would also help improve substance users' psychological health and well-being. This was the first time the specific training method that was replicated in a clinical population of substance users.

A special case of an EI assessment method is the Wong and Law Emotional Intelligence Scale (WLEIS; Wong & Law, 2002). This is a relatively short, sixteen item, measure that conceptually adheres to the ability model but assesses the four EI capabilities through self-report. The scale seems to be a promising research tool due to its brevity, evidence of its predictive validity especially in the organizational sphere, and good basic psychometric properties spanning student and non-student samples in numerous countries (Law, et al., 2008; Shi & Wang, 2007; Wong & Law, 2002; Zampetakis, et al., 2009). The scale has shown to be distinct from the Big Five personality factors and to have convergent validity with other EI ability-related measures such as the Trait Meta-mood scale (Law et al., 2004), or parts of the MSCEIT (Law, et al., 2008). The scale has shown to predict reliably job satisfaction (Kafetsios, & Zampetakis, 2008; Wong & Law, 2002), performance (Wong & Law, 2002), leadership interaction with subordinates (Kafetsios, Nezlek, & Vassiou, in press ; Law et al., 2004).

### 4.4. Hypotheses of the third study

1. Substance users from the intervention group would show an increase in their emotional intelligence capabilities (self-emotion appraisal, others' emotion appraisal, use of emotion and regulation emotion) compared to non intervention group.

   *Null hypothesis:* There would be no difference between intervention group and non intervention group in their emotional intelligence capabilities.

2. Depression would be decreased and low mental health and self-esteem would be increased in the intervention group.

   *Null hypothesis:* There would be no difference between intervention group and non intervention group in depression, low mental health and self-esteem.

### 4.5. Method

A semi-experimental design was used for study 3.

#### 4.5.1. Sample

The sample was convenience and consisted of 80 substance users (mainly opiate users). All research participants were recruited from outpatient programs of OKANA (Organization Against Drugs): Methadone Maintenance Programme (MMP) and drug free programs in Athens, and were aged 20-55 years old.

The sample was divided into two groups.

Half of the participants (intervention group; $N$ = 40) completed a self-administered training method designed to increase emotion awareness through performance tasks and instruction. Comparisons of the training group with a group of participants who had not received the training method (non-intervention group; $N$ = 40) anticipated to show a significant increase in many work-related EI competencies (self-awareness, self-management, and social relations), abilities (perception of

emotion, managing others' emotions, empathy at work) and in the frequency of positive affect.

### 4.5.2. Procedure

The study involved three sessions: (1st) assessment, (2nd) training, and (3rd) re-assessment. Forty (40) substance users participated in the intervention group (took part in all three sessions) and 40 participated only in 1st and 3rd session (assessment and re-assessment), hence constituting the non intervention group. Testing of assessment and re-assessment was almost 1-2 months apart. In the intervention group reassessment (3rd session) took place between 2-4 weeks after the end of the training session (2nd session). The intervention session (2nd session) was recommended to be completed within a period of 1-3 weeks.

### 4.5.3. Measures

*The present intervention method targets emotion awareness*

The intervention used was "The experimental intervention. A self-administered intervention to increase emotion awareness/literacy" (see Kafetsios, 2005; Kafetsios & Zammuner, under review).

Following, we present a brief description of the intervention, whereas a detailed presentation can be found in Kafetsios (2005). The self-administered method includes an instructional and an experiential part aimed at increasing cognitive and emotional knowledge base of emotion awareness through a series of self-administered exercises.

*Instructional (explicit) part:* Direct information about the nature of emotions, of the distinction between basic and non-basic emotions, and especially information about the four branches of emotional intelligence abilities (emotion perception, emotion usage, emotion understanding, managing emotions) was provided

*Emotional validation and invalidation.* This part provided explicit examples about tactics that do and do not promote communication and validation of others in interpersonal situations at work and in general.

*Experiential part*

*Interpersonal emotions*. Participants recalled, and reported on, work situations that affected them emotionally and rated how angry, satisfied, happy rejected, sad themselves and the other person felt during those interactions.

*Self-concept.* Participants were asked to consider a number of self-attributes and produce up to ten self-descriptions of characteristics that described them best, in terms of roles, beliefs and behaviours.

*Emotion recollection and labeling.* Participants were provided with six basic emotions (sadness, happiness, surprise, fear, disgust and anger) and asked for each emotion to describe in writing a personal situation or event in which they had felt the particular emotion.

*Empathy.* Participants were provided with a number of specific examples of both work and real life situations, asked to identify with the story protagonist and for each to rate three possible reactions.

*Expressing emotions.* Participants were provided with a number of specific examples of work situations, asked to identify with the story protagonist and to rate which behaviour was the most suitable for each situation.

*Recognizing emotions.* Participants were presented with pictures of emotional expressions and were required to rate those in terms of the extent to which they expressed certain basic emotions. The correct answers were provided at the end of each session.

*Emotion duration*. Participants' emotional knowledge was primed by an exercise that asked them to order a list of emotion terms with respect to their duration. Terms

clustered within each group referred to the same basic emotion and the participant needed to infer this.

*Positive impact.* Participants' emotional knowledge was primed by an exercise that asked them to order a list of emotion terms with respect to their positive impact. Terms clustered within each group referred to the same basic emotion and the participant needed to infer this.

*Emotion intensity.* Participants' emotional knowledge was primed by an exercise that asked them to order a list of emotion terms with respect to their intensity. Terms clustered within each group referred to the same basic emotion and the participant needed to infer this.

### 4.6. Results

We tested for the effects of training method on EI change using repeated-measures means difference analyses of variance tests (ANOVAS), with EI competences, traits and abilities at time 1 and time 2 as the within-subject factors, and group manipulation (intervention and non-intervention) as the between subjects factor (Table 1). In general there were no significant statistical differences between the two groups after the intervention. More specifically, related to attachment organization, substance users from the intervention group were observed as being more avoidant (intervention: $M$ = 2.84, $SD$ = .85, non-intervention: $M$ = 2.69, $SD$ = 1.04) and more anxious (intervention: $M$ = 3.49, $SD$ = 1.23, non-intervention: $M$ = 3.19, $SD$ = 1.27) than the non-intervention group. In both groups, avoidance seemed to increase ($F$ (1,78) = .25 *ns*) (intervention: $M$ = 2.95, $SD$ = 1.01, non-intervention: $M$ = 2.72, $SD$ = 1.11), while anxious attachment seemed to decrease after the intervention ($F$ (1,78) = .23 *ns*) (intervention: $M$ = 3.37, $SD$ = 1.19, non-

intervention: *M* = 2.98, *SD* = 1.29), but the difference was not statistically significant.

In relation to *first hypothesis*, substance users from the non-intervention group scored higher in most of the emotional intelligence dimensions than the intervention group both before and after the intervention, but the differences were not significant. There were no differences between the two groups after the intervention, except for self-emotion appraisal (SEA), but the difference was at a marginally non significant level (*F* (1,78) = 3.91 *ns*, *p* = .052 ). Substance users from the non-intervention group had higher self-emotion appraisal (SEA) (intervention: *M* = 5.36, *SD* = 1.33, non-intervention: *M* = 5.60, *SD* = 1.13), but the self-emotion appraisal (SEA) of the intervention group seemed to decrease after the intervention comparing to non-intervention group, which was increased (intervention: *M* = 5.09, *SD* = 1.14, non-intervention: *M* = 5.76, *SD* = .92). Also, substance users from the non-intervention group scored higher in the other three dimensions, others' emotion appraisal (OAE) (*F* (1,78) = .82 *ns*) (intervention: *M* = 5.46, *SD* = 1.02, non-intervention: *M* = 5.53, *SD* = .92), use of emotion (UOE) (*F* (1,78) = .12 *ns*) (intervention: *M* = 4.69, *SD* = 1.09, non-intervention: *M* = 4.85, *SD* = 1.55) and regulation of emotion (ROE) (intervention: *M* = 4.08, *SD* = 1.46, non-intervention: *M* = 4.59, *SD* = 1.44). Related to regulation of emotion (ROE), there was a difference between the two groups after the intervention, but it was not statistically significant (*F* (1,78) = 1.89 *ns*). After the intervention, there was an increase in the intervention group, while a small decrease in the non-intervention group (intervention: *M* = 4.50, *SD* = 2.46, non-intervention: *M* = 4.50, *SD* = 1.53).

**Table 1:**

Means differences in intervention and non intervention groups

| | Intervention group | | Non-Intervention group | | |
|---|---|---|---|---|---|
| | T1 | T2 | T1 | T2 | |
| | | | Mean (*SD*) | | *F* (1,78) |
| Avoidance | 2.84 (.85) | 2.95 (1.01) | 2.69 (1.04) | 2.72 (1.11) | .25 |
| Anxiety | 3.49 (1.23) | 3.37 (1.19) | 3.19 (1.27) | 2.98 (1.29) | .23 |
| WLSEA Self-Emotion Appraisal | 5.36 (1.33) | 5.09 (1.14) | 5.60 (1.13) | 5.76 (.92) | 3.91 $p = .052$ |
| WLOAE Others' Emotion Appraisal | 5.46 (1.02) | 5.24 (.96) | 5.53 (.93) | 5.51 (.99) | .82 |
| WLUOE Use of Emotion | 4.69 (1.09) | 4.72 (1.08) | 4.85 (1.55) | 4.95 (1.42) | .12 |
| WLROE Regulation of Emotion | 4.08 (1.46) | 4.50 (2.46) | 4.59 (1.59) | 4.50 (1.53) | 1.89 |
| Reappraisal | 4.46 (1.11) | 4.60 (1.18) | 4.09 (1.44) | 4.48 (1.43) | .51 |
| Suppression | 3.02 (1.02) | 3.14 (1.31) | 3.24 (1.25) | 3.20 (1.18) | .35 |
| Positive emotions | 3.36 (.68) | 3.28 (.80) | 3.35 (.75) | 3.31 (.86) | .06 |
| Negative emotions | 1.73 (.83) | 1.87 (.90) | 1.76 (.83) | 1.77 (.81) | .61 |
| Depression | 1.41 (.79) | 1.42 (.76) | 1.35 (.71) | 1.33 (.60) | .08 |
| Low mental health (Ghq) | 2.13 (.61) | 2.22 (.66) | 2.22 (.54) | 2.26 (.60) | .39 |
| Self-esteem | 3.59 (.70) | 3.63 (.76) | 3.77 (.85) | 3.98 (.70) | 1.89 |
| Social support (numb of pers) | 15.74 (9.81) | 16.36 (9.25) | 13.39 (8.19) | 14.50 (9.75) | .07 |
| Social support (satisfaction) | 4.95 (.91) | 4.69 (1.11) | 4.89 (1.04) | 4.79 (1.19) | .62 |

***Note:*** $*p < .05$; $**p < .01$; $***p < .001$.

Substance users from the intervention group had higher reappraisal than non-intervention group (intervention: $M = 4.46$, $SD = 1.11$, non-intervention: $M = 4.09$, $SD = 1.44$.) and lower suppression (intervention: $M = 3.02$, $SD = 1.02$, non-intervention: $M = 3.24$, $SD = 1.25$). After the intervention, in the intervention group, both reappraisal and suppression seemed to increase, while in non-intervention group, reappraisal seemed to increase, while suppression was slightly decreased, for

reappraisal ($F$ (1,78) = .51 *ns*) (intervention: $M$ = 4.60, $SD$ = 1.18, non-intervention: $M$ = 4.48, $SD$ = 1.43) and for suppression ($F$ (1,78) = .35 *ns*) (intervention: $M$ = 3.14, $SD$ = 1.31, non-intervention: $M$ = 3.20, $SD$ = 1.18).

There were no differences in experiencing positive emotions in both groups (intervention: $M$ = 3.36, $SD$ = .68, non-intervention: $M$ = 3.35, $SD$ = .75). After the intervention, there was a small decrease in positive emotions in the intervention group, while in non-intervention group, the decrease was smaller ($F$ (1,78) = .06 *ns*) (intervention: $M$ = 3.28, $SD$ = .80, non-intervention: $M$ = 3.31, $SD$ = .86). There were, also, no significant differences in experiencing negative emotions in both groups (intervention: $M$ = 1.73, $SD$ = .83, non-intervention: $M$ = 1.76, $SD$ = .83). After the intervention, there was a small increase in negative emotions in the intervention group, while in non-intervention group, the score remained almost the same ($F$ (1,78) = .61 *ns*) (intervention: $M$ = 1.87, $SD$ = .90, non-intervention: $M$ = 1.77, $SD$ = .81).

With regards to *second hypothesis* related to psychological health, substance users from the intervention group had higher scores in depression before the intervention (intervention: $M$ = 1.41, $SD$ = .79, non intervention: $M$ = 1.35, $SD$ = .71), and there were no differences between the two groups after the intervention ($F$ (1,78) = .08 *ns*) (intervention: $M$ = 1.42, $SD$ = .76, non-intervention: $M$ = 1.33, $SD$ = .60). Also, substance users from the intervention group had lower scores in mental health (intervention: $M$ = 2.13, $SD$ = .61, non-intervention: $M$ = 2.22, $SD$ = .54), but after the intervention, there was an increase in the intervention group ($F$ (1,78) = .39 *ns*) (intervention: $M$ = 2.22, $SD$ = .66, non-intervention: $M$ = 2.26, $SD$ = .60). Substance users from the intervention group had, also, lower scores in self-esteem (intervention: $M$ = 3.59, $SD$ = .70, non-intervention: $M$ = 3.77, $SD$ = .85), and after the intervention, self-esteem seemed to increase, especially, in the non-intervention

group ($F$ (1,78) = 1.89 *ns*) (intervention: $M$ = 3.63, $SD$ = .76, non-intervention: $M$ = 3.98, $SD$ = .70).

There were no differences in both groups in social support. In satisfaction from relationships, the intervention group seemed to be more satisfied than the non-intervention group (intervention: $M$ = 4.95, $SD$ = .91, non-intervention: $M$ = 4.89, $SD$ = 1.04), but after the intervention, there was a decrease in satisfaction from relationships, especially in the intervention group ($F$ (1,78) = .62 *ns*) (intervention: $M$ = 4.69, $SD$ = 1.11, non-intervention: $M$ = 4.79, $SD$ = 1.19)

None of the above differences between the two groups were statistically significant.

**4.7. Discussion**

The purpose of the present study was to investigate whether EI capabilities could be developed and emotional well-being could be improved among substance users in addiction treatment centers using an intervention targeting to increase emotion awareness. To our knowledge, this study is the first attempt to assess whether EI can be trained and one of the first that provide evidence that EI-related skills can change as a result of a theoretically informed self-administered intervention that targeted emotion awareness in substance user population.

The theoretically informed intervention (see Izard, 2001) constructed for the purposes of this study targeted emotion awareness through a number of tasks: emotion perception through performance tasks, understanding of emotions in self and others, recall and elaboration of emotion situations, and an empathy task. Overall, the results suggested that the intervention affected some aspects of emotion intelligence capabilities and well-being, as reflected in the comparison of participants'

performance in EI abilities and competencies measured in the intervention group before the intervention and 1-2 weeks after completion of the intervention.

Furthermore, some aspects of EI capabilities were found to be affected by the intervention. Contrary to our expectations and hypotheses most of the EI capabilities in the intervention group were found to decrease compared to the non-intervention group. More specifically self-emotion appraisal showed a marginally significant decrease in the intervention group and self-esteem increased only in the non-intervention group, but it was not statistical significant. Others' emotion appraisal, related to emotion perception, decreased in the intervention group compared to non-intervention and only regulation of emotion was characterized by an increase in the intervention group, but it was not significant. Reappraisal increased in both groups after the intervention, while suppression increased after the intervention only in the intervention group, but it was not significant. Positive emotions decreased, while negative emotions increased, only in the intervention group, but the difference was not statistical significant.

It is noteworthy that the magnitude of the changes was unrelated to the level of emotional intelligence prior to the intervention.

Also, contrary to our expectations and hypotheses the psychological health and well-being was not improved in the intervention group. On the contrary, psychological health outcomes (depression, low mental health) remained unchanged. As we have already mentioned above, self-esteem increased only in the non-intervention group. It is noteworthy that social support (satisfaction from relationships) decreased in both groups, especially in the intervention one.

These adverse and unexpected findings lead us to the conclusion that the specific training method might not succeed in teaching emotion awareness on self-

reported EI capabilities in substance users. We could try to give some possible explanations.

According to Boyatzis and his colleagues, emotional intelligence refers to competence knowledge, skills, and/or abilities that lead to effective job performance. This evidence has led Boyatzis to claim that 'competencies can be developed' (Boyatzis et al., 1996). The theoretically informed training method constructed for the purposes of this study targeted emotion awareness through a number of tasks emphasizing behaviours in work situations. In our study, the sample was consisted of clinical population, such as substance users with an extremely different psychological profile compared to general population.

Measures of trait EI that stress generic, conscious, personality characteristics, self-structures and self-goals related to coping strategies (Lazarus, 1991) are admittedly over general, and have psychometric limitations (Petrides & Furhnam, 2000; Goldenberg, Matheson, & Mantler, 2006). Most importantly, trait EI measures are biased by self-perceptions, social desirability biases, and the extent to which the person has direct access to his / her emotions and related behaviours. A crucial and problematic issue is whether the self-appraisal of any skill and ability can be accurately reported by participants (Zeidner, Matthews, & Roberts, 2004; Robinson & Clore, 2001). On one hand, it is problematic whether self-appraisal of any skill or ability can be accurately reported by participants (Barrett, Miguel, Tan, & Hurd, 2001), and on the other hand that trait-EI measures are influenced by personality characteristics more than ability EI measures are.

Generic measures of personality traits may not be the best tools to monitor and promote change at a more basic level, that involving emotion in the self and in specific situations. This observation is also coherent with the findings that widely used self-report measures of trait EI do not discriminate between EI abilities and

personality traits (Brackett & Mayer, 2003). Certainly, the results from this study pointed to the need for self-report measures that not only involve self-identity related emotion questions but also tap situational aspects of emotion in clinical populations.

Contrary to the prediction that emotion awareness would improve emotion intelligence capabilities of substance users, we found that the emotion awareness managed to decrease emotion appraisal, related to emotion perception, which lead to the conclusion that, at least in substance users, being aware of one's emotions does not help to improve emotion perception. In a recent study (Kafetsios & Lopes, under review), they found that high ability or tendency to decode others' emotions experience less positive affect in everyday interpersonal interactions than less perceptive individuals. Their findings were consistent with the proposition that the ability or tendency to read others' emotions can entail costs for social interaction. However, we cannot infer causality and it is possible that the observed relationship is due to a third-variable effect. At this point we could raise the question whether being aware of our emotions and trying to improve our emotion perception could help us to improve our psychological well-being. At least, our findings showed that teaching emotion awareness in substance users, decrease emotion perception and do not help to improve self-esteem, while substance users from non-intervention group managed to increase self-esteem without any training.

Another possible explanation, from a socio-cognitive perspective, substance users may actually have a richer informational base that acts as an availability heuristic in judging their emotion self efficacy (e.g., Schwarz, Bless, Strack, Klumpp, Rittenauer-Schatka, & Simmons, 1991). In keeping with this explanation, it results from a recent study on EI abilities and traits (Kafetsios, Maridaki-Kassotaki, Zammuner, Zampetakis, & Vouzas, 2009). The study found that students attending business and positive science degrees (who, theoretical have a smaller information

base on Emotional Intelligence abilities) scored higher on EI traits than a group of students from social sciences (mostly Psychologists). However, the social science group had higher scores in EI abilities, suggesting that self-perception of own EI skills. The possibility that a wider EI cognitive base is biasing the judgment of general emotionality self-efficacy (and the particular components responsible for this) could be the subject of further research.

Finally, this particular training method, might not be designed to meet clinical populations' needs and psychological profile of substance users. Future research could extend this line of research by designing training methods, which would meet clinical populations' needs and be consistent with their psychological profiles.

# CHAPTER 5

## GENERAL DISCUSSION

The present thesis, examined distal and proximal relational and emotional factors in substance users. At the center of the approach taken in this thesis, is attachment theory. Apart from a theory of relating types, attachment theory is one of the major conceptual frameworks for understanding emotion regulation, and it was approached as such. Secure attachment has generally been associated with positive affect (Mikulincer & Florian, 1998) while insecure attachment with negative affect. Individuals with an insecure style of attachment were found to experience less positive affect than those with secure attachments, and also manifested deficits in the ability to self-regulate anxiety, depression and other negative affects (Parker, 1982). Equally from a self-medication hypothesis (Khantzian, 1985) perspective, addiction is hypothesized to function as a compensatory means to modulate affects and treat distressful psychological states, whereby individuals choose the drug that will most appropriately manage their specific type of psychiatric distress and help them achieve emotional stability (Khantzian, 1997, 2003). According to the above analysis, it was anticipated that insecure attachment, should be a risk factor for psychosocial factors and substance use.

Therefore one main aim of the thesis was to provide evidence for emotion related factors associated with the emotion regulation component of insecure attachment in substance users. If substance use is linked to certain patterns of attachment, this would enable drawing conclusions on these processes in substance users and may lead to developing appropriate interventions regarding substance use problems. Further investigation of possible emotional mediators between the association of childhood maltreatment experiences and insecure attachment with

psychological health of substance users could also shed light on the protective factors that would enable substance users to develop manipulative behaviours in order to deal with coping with stressful situations and interpersonal relationships in a functional way.

Researchers have only recently started to investigate the link between attachment, substance use and emotional factors. Current evidence on the connection of attachment organization and emotion regulation in high-risk populations is still limited and many assumptions have not yet been tested. One of the aims of the present research project was to extend and contribute to the growing literature on possible distal (i.e., childhood maltreatment) and proximal relational factors (i.e., attachment organization and social support) and their possible emotional mediators for substance users.

The first study of this dissertation, presented preliminary findings related to substance users' personality/ relational style characterized by child abuse experiences, more insecure attachment, lower social support and emotion recognition which had an effect on their psychological health outcomes compared to a control group of non users. In addition, the study explored the mediation of insecure attachment in the relationship between child abuse experiences and substance users' psychological health and well-being. The second study investigated the mediation of emotional intelligence capabilities on the relationship between distal and proximal relational factors and psychological state of drug users. The last study intended to test an intervention targeting to increase emotional awareness of substance users, which was anticipated to increase their emotional intelligence skills and improve their psychological health and well-being.

This general discussion begins with a summary of the main results and elaborates on the most relevant findings. Next, the theoretical implications of the

results will be discussed in relation to some broader considerations regarding the current view on attachment and emotional intelligence skills. Throughout this discussion, I will also provide a number of recommendations and guidelines for future research. Finally, several limitations of the studies are indicated.

## Relational factors affecting substance users' psychological health

### Reported child abuse

In the first study the most important results showed that, as expected, substance users had more childhood maltreatment experiences, more depression and lower self-esteem compared to controls. The results of both studies showed that child abuse experiences had a positive association with substance users' psychological health (depression and low mental health), while a negative one on self-esteem. More specifically, sexual abuse was found to have a positive association with depression and negative affect. These findings were consistent with the existing literature pointing out that experiences of child abuse are associated with increased risk depression, self-esteem problems and anxiety in both children and adults who report high rates of abuse (e.g., Feiring et al., 1999; Koss, et al., 2003).

There is sizeable literature related to substance users' experiences of physical or sexual abuse (Clark, et al., 1997; Sullivan & Farrell, 2002), while substance use is seen as an attempt to cope with the emotional distress caused by these experiences. The trauma of living in the shade of parental maltreatment affects not only the daily functioning of the developing person, but also the course of their development. Studies have shown that emotional, cognitive, behavioural and social disorders accompany abused children into adolescence and adulthood (Cicchetti & Toth, 1995; Gauthier, et al., 1996). Research has also pointed out that both childhood sexual and

physical abuse increase the risk for later substance use (Brown & Anderson, 1991; Dembo et al., 1987). Hence, substance use can be seen as an attempt to cope with the emotional distress caused by those traumatic experiences. Powerful drugs, such as opiates, help suffering survivors of childhood maltreatment in their effort to self-medicate their emotional pain (Dembo, et al., 1987; Khantzian, 1985).

Also, the results from both studies showed that childhood maltreatment experiences were positively associated with insecure attachment, mainly anxious attachment. The above findings were consistent with existing literature that child abuse leads to the development of both insecure attachment styles and maladaptive coping strategies (Crittenden, 1992). The primary purpose of attachment, when promoting the protection and survival of the young, is risked by maltreatment. Children, who experience maltreatment from an early age may adopt similar coping strategies in life, and expect the same maltreatment in future new relationships. There is plenty of research pointing to a specific association between child abuse and the development of insecure attachment from a developmental perspective (Crittenden, 1988; Egeland & Sroufe, 1981; Finzi-Dottan, et al., 2001; Gauthier et al., 1996; George, 1996; Youngblade & Belsky, 1990). Therefore, it seemed that a secure attachment style may assist the victim of child abuse in coping with the trauma or provides a type of resilience not present in victims with insecure attachment styles.

One of the most important findings of the study was that insecure attachment and especially anxious attachment was found to mediate the relationship between child abuse and psychological health. The mediatory role of anxious attachment, which will be discussed in more detail in the following section, confirmed the hypothesis that there is a relationship between child maltreatment and psychological health. Taken together, these findings suggest that the link between child

maltreatment and later high-risk behaviours may be partially explained by disruptions in early attachment relationships that lead to insecure attachment and substance use. Specifically, child maltreatment was associated with both insecure attachment and substance abuse. The connection among child abuse, attachment organization and substance use could be an interesting finding, potentially pointing to the aetiological factors of later substance use.

Adult attachment in substance users

Current evidence on the connection between attachment organization and emotion regulation in high-risk populations is still limited and many assumptions have not yet been tested. One of the aims of the present research project was to extend and contribute to the growing literature.

With regards to the preponderance of adult attachment styles in the substance use group the findings were not as clear as expected. Substance users were found to be more insecurely attached, compared to controls, but the differences were at marginally non significant levels. Based on the literature, we would have expected the difference between the two groups to be significant. A possible explanation could be the measure we used to assess attachment (G-ECR_R, Fraley, et al., 2000; Tsagarakis, et al., 2007) may not be fit for clinical samples of substance users. As a self-report measure, it puts a focus on interpersonal behaviour in the context of romantic relationships and hence may be subject to potential biases in clinical populations like substance users.

In the first study, substance users were found to be more insecurely attached, especially more avoidant, compared to those from the second study. In general, substance users were more anxious than avoidant. Our findings were in somewhat agreement with findings by Kassel, et al., (2007) and Cooper et al., (1998), who

found that substance users were characterized by anxious attachment and also, Schindler, et al., (2005) who found that there was a preponderance of fearfully attached participants; in his sample, however, the findings are not in agreement with research by Golder, et al., (2005), Finzi-Dottan, et al., (2003) and Mickelson, et al., (1997) who found that substance users were higher on avoidant than anxious attachment.

Taking together the results on attachment, showed that insecure attachment and especially anxious attachment, was a consistent predictor of substance users' depression and negative emotions, while insecure attachment was a negative predictor of self-esteem and positive emotions. Insecurely attached individuals develop negative internal working models about the self and the world based on their interactions with important others and such negative internal working models subsequently confer vulnerability to depression. Also, these findings were in tune with earlier studies, reporting a link between insecure attachment representations and psychological distress (see e.g., Dozier, et al., 1999). These findings add to a literature suggesting that insecure attachment, particularly the anxious attachment dimension, may be a risk factor for emotional distress, including anxiety and depression (Eng et al., 2001; Hankin, et al., 2005; Kafetsios & Sideridis, 2006; Mickelson et al., 1997) and in turn, this kind of attitudes was associated with lower self-esteem (Hankin, et al., 2005).

One of the most consistent findings was that insecure attachment and especially anxious attachment, was found to be the strongest and consistent predictor of substance users' psychological health and mediated the relationship between child abuse and psychological health. Furthermore, the fact that anxious attachment was a significant mediator of the effect of childhood maltreatment experiences on substance users' psychological health confirmed the hypothesis on the link between

child maltreatment and psychological health as partially explained by disruptions in early attachment relationships. The association between child maltreatment and psychological health, especially depression, decreased when insecure working models of attachment, and especially anxious attachment, were accounted for. Specifically, insecure working models of attachment were a significant predictor of psychological health, in support of Bowlby's (1969/1982, 1973, 1980) view that insecure attachment relationships may lead to problems with relationship functioning and adjustment. The association of attachment insecurity with psychological distress is, also, supported by Mikulincer and Florian's (1998) finding, that insecure attachment is associated with negative affect. These results suggest a self-regulatory role for substance users' psychological health examined here. Herman's (1992) research indicates that insecure attachment may leave individuals with diminished capacity for emotional self-regulation in the face of stressful life situations. People who lack the internal capacity for self-regulation may be motivated to engage in high-risk behaviour, such as substance use, to regulate their emotions. If this were the case we would expect to see partial mediation of psychological health's outcomes by insecure attachment. Our results are consistent with this expectation.

In the first two studies, comparable samples of substance users were used. Therefore, it is interesting that in many respects, a similar pattern of results emerged as in the first study with regards to links between relational variables and psychological health. This, certainly, confirms the reliability of our findings regarding the association among child abuse experiences, insecure attachment and certain emotional capabilities affected substance users' psychological state. The results of the second study replicated the first study's results, in what has to do with relationships among childhood maltreatment experiences, insecure attachment and substance users' psychological health and well-being. Insecure attachment

(especially anxious attachment) was a significant mediator of child abuse's association with their psychological health and well-being.

The findings from the second study, also, reaffirmed results from the first study that use of substances to cope with negative affect was related to anxious attachment, offers further evidence that a primary function of adult attachment is the regulation of emotion. Our results are in line with fundamental propositions from attachment theory that internal working models function to regulate emotion (Sroufe & Waters, 1977). Our findings related to research with adolescents and adults proposed that insecure attachment is associated with a variety of dysfunctional strategies of affect regulation (Mikulincer & Shaver, 2007). Individuals who are unable to adequately repress or manage negative affect in the interpersonal context may turn to substance use as a way of tension reduction and affective relief, which may subsequently result in a problematic substance use.

Avoidance had, also, a significant association with psychological health. Avoidance was found to have positive relationship with depression, while a negative one with self-esteem. This was not observed in the control group. Hofler and Kooyman (1996) suggested that the *avoidance* strategy enables drug users to develop manipulative behaviours in order to avoid their negative self-concept and inability to cope with stressful situations and interpersonal relationships. Evidently, such behaviours also have implications for the therapeutic process. Avoidant attachment was also negatively correlated with another emotional factor, the recognition of other people's emotions. Therefore, the above evidence, although not entirely convincing, tend to suggest that higher levels of anxious and avoidant attachment may contribute to lower levels of psychological health in drug users, and that the capacity to accurately decode others' emotions may mediate links between attachment and psychological health.

Social support

Social support, a proximal relational factor, emerged as a protective factor in the prediction of low psychological health and well-being. Social support (especially the functional aspect of satisfaction from relationships), had a negative association with psychological health (depression and low mental health), while a positive one of self-esteem. In keeping with others (Sarason et al., 1997), it was found that support satisfaction was more closely related to well-being outcomes than network size. Also, social support (satisfaction from relationships) was found to mediate the relationship between avoidant attachmnet and depression.

Indeed, lack of positive social support, particularly among clinical populations, such as substance users who face many problems in their everyday life, such as injection drug use, poverty and unemployment is very frequent. Substance users represent a diverse population with a range of psychological and physical health needs. It is important for future research to examine both positive and negative sources of support and examine their impact on overall health outcomes, including high-risk behaviours.

Emotion skills/ capabilities

As pointed out by Isaacson (1991a), substance users, usually, come from families and live in an environment that emotions are rarely expressed and most of the times substance users and their families express negative emotions. As a result, family members have difficulty expressing emotions, processing and achieving intimacy (Isaacson, 1991a). The first study highlighted one of the emotion processes that became the focus in the following studies: emotion recognition. In general, the group of substance users was found to be low in emotion recognition. Avoidant attachment was negatively correlated to the recognition of other people's emotions.

On the one hand, recognition of other people's emotions had a positive association with depression, while a negative one with self-esteem. On the other hand, recognition of own emotions had a negative association with low mental health, while a positive one with self-esteem.

A possible explanation could be that the particular sample of substance users might face difficulties in emotion recognition *because* of substance use. According to Kornreich et al. (2003), the impaired emotional facial expressions decoding abilities might be part of a more general emotional intelligence deficit in alcoholics and opiate addicts. The toxic effect of chronic alcohol consumption or of combined alcohol and drug use on brain regions implicated in the decoding of emotional facial expressions could be responsible for the more severe emotional facial expressions decoding disturbances seen in substance users. We were not in a position to disentangle the likely sources of lower emotion recognition capabilities, and this could be the topic of some future research.

According to the literature, impaired emotion perception and awareness can lead to low psychological health. Sloan and Kring's (2007) research showed that greater emotion awareness predicts better treatment outcomes, while lower emotion awareness is associated with a host of psychological disorders, including anxiety, depression, and somatoform, eating, and personality disorders. Failing to recognize emotions not only undermines individuals' productive potential, but also can have negative interpersonal consequences (Sloan & Kring, 2007; Suveg, et al., 2007; Zeman et al., 2007). If a person expresses an emotion nonverbally without being aware of it, the impact this has on others will likely confuse him or her. For example, a woman who asks her husband about his weekend long fishing trip in an angry tone while being unaware of her own anger at his spending time away, will likely be baffled when he starts complaining that she never supports his hobbies.

Regarding the fact that recognition of other people's emotions had a positive association with depression, suggested also that depression is related with overestimation of sadness expressions (Hale, 1988). Substance users' difficulties in emotion recognition, especially during the recovery process, might be a vulnerability factor for relapse, as users are vulnerable to induced emotional disturbances due to distorted interpersonal relationships.

The negative association between avoidance and emotion recognition is supported from a body of research. According to Fuendeling (1998), avoidants are generally emotionally defensive. Developmental theory (Main, 1991) and research on adult attachment (Kafetsios, 2004) also sees avoidance as a result of emotional socialization in environments where affective experiences are undervalued and consciously denied. We suspected that the negative association between avoidant attachment and emotion recognition represents a devaluing of interpersonal relationships, and this difficulty in recognition of other people's emotions might reflect dissatisfaction with existing social networks.

The second study was designed with an aim, on the one hand to replicate our previous findings and on the other hand to further investigate the emotional capabilities that may mediate relational factors' associations with the psychological health of substance users.

Related to emotional intelligence capabilities, use of emotion was found to have a negative association with depression and low mental health, while a positive one with self-esteem and positive affect. Others' emotion appraisal was found to have a negative association with self-esteem, and self-emotion appraisal had a negative association with negative affect.

It is remarkable that, use of emotion was found to mediate the relationship between anxious attachment and psychological health outcomes. More specifically,

related to self-esteem, use of emotion mediated the relationship between anxious attachment and self-esteem. According to the literature, insecure attachment was associated with higher levels of dysfunctional attitudes and, in turn, this kind of attitudes was associated with lower self-esteem (Hankin et al., 2005). As we have already mentioned before, substance users come from families that face a difficulty in expressing emotions and mainly they express negative emotions. Charles-Nicolas (1991) also points out that families of drug users adolescents tend to avoid, or are unable to tolerate negative mental states (anxiety, frustration) and separations.

Based on theoretical predictions, we would have expected the opposite from what was found that, mainly, emotion regulation and not so much use of emotion, would mediate relationships of insecure attachment with psychological health outcomes. These unexpected finding, could be explained by the fact that use of emotion may concern interpersonal aspects of emotion expression and management that may allow better psychological health intrapersonally but mainly interpersonally (see for example, Lopes et al., 2005). Intrapersonally, also, use of emotion relates to positive affectivity (Fredrickson, 2001) and it may be this element that accounts for our findings. On the other hand, substance use has been related to deficits in emotion regulation (Hayes, et al., 1996) in perceiving and using emotions (Brackett et al., 2004), in reducing sensitivity to emotional expressions and lower emotion perception accuracy rates (Frigerio, et al., 2002). Following the existing literature our sample of substance users might face similar difficulties in emotional intelligence capabilities.

In our study, use of emotion was associated with positive affect. According to Schutte et al. (2002), lower emotional intelligence should be related to lower positive mood. They found that lower emotional intelligence was related to more depression, which was characterized by low positive mood. The findings of the second study provided some insight into possible connections between emotional intelligence

capabilities and emotional well-being. Individuals high in emotional intelligence have a greater ability to perceive, understand, regulate, and harness emotions (e.g., Salovey & Mayer, 1990; Schutte et al., 1998), which means that high emotional intelligence might work as a protective factor. The results from the second study might suggest that emotional intelligence capabilities, and particularly use of emotion, may enable individuals to maintain higher characteristic positive mood states. A low positive mood state comprises feelings of sadness and lethargy (e.g., Watson et al., 1988), which may be related to depression. Findings from the first study, where substance users were found to have lower scores on emotion recognition comparing to controls, are in support of the above literature.

In explaining the mediatory role of use of emotion in the relationship between anxious attachment and self-esteem, it is important to consider that use of emotion highlights the social dimensions of the expression of emotion. Such relationships are understandable given research demonstrating the benefits of expressing emotions. Expressing emotion helps to coordinate social interactions by signaling how the expresser is feeling, by eliciting appropriate emotional responses from others, and by rewarding or deterring certain behaviors in interaction partners (Kennedy-Moore & Watson, 2001). Also, the negative association between others' emotion appraisal and self-esteem may raise difficulties in moderating relationships with the other people.

Related to this rationale may be findings from the first study that substance users had lower emotion recognition and this partly explained some psychological health outcomes. Recognition of emotional facial expressions is a crucial element of social interactions and it has been consistently associated with social and clinical aspects related to addiction (Kornreich et al., 2002; Townshend & Duka, 2003). The nature of this mediating relationship might affect negatively substance users' self-esteem. This finding suggested that substance users' empathic abilities can

deteriorate their psychological well-being. This result may also be interpreted in terms of that the particular scale measured self-reported emotion recognition, not ability, like in the first study.

Contrary to our expectations, the findings of the analyses using Emotion Regulation Questionnaire (ERQ, Gross & John, 2003) measuring individual differences in emotion regulation did not return many findings. This is at first sight quite difficult to explain. According to John and Gross (2004), only two emotion-regulation strategies, reappraisal and suppression, were examined in general terms. Our findings may point to the fact that the notion of emotion regulation needs to be broadened and deepened. Another point is that most of their research has been based on samples of relatively healthy participants. Existing literature is very limited related to measuring emotion regulation in the context of samples in which there is more variability in both psychological and physical health status.

Emotion skills training intervention

Whereas the studies presented in Chapters 2 and 3 focused on relational and emotional processes influencing substance users' psychological health and well-being, Chapter 4 aimed at testing an intervention targeting to increase emotional awareness on self-reported EI capabilities of substance users. According to the literature, individuals with higher emotional capabilities may prevent development of maladaptive emotional states (e.g., mood and anxiety disorders Matthews et al., 2002). Additionally, components of emotional intelligence, such as use and regulation of emotion and others' emotion appraisal, may have a direct impact on depression, low mental health and self-esteem. As such, the aim in the third study was to test the effects of an intervention tailored to increase emotional awareness on

substance users emotion intelligence capabilities that were earlier found important correlates of relational and psychosocial factors.

To our knowledge, this was one of the first attempts to assess whether emotional intelligence capabilities can be altered as a result of a theoretically informed self-administered intervention that targeted emotion awareness in a substance user group. The intervention targeted emotion awareness through a number of tasks: emotion perception through performance tasks, understanding of emotions in self and others, recall and elaboration of emotion situations, and an empathy task.

Overall, the results suggested that the intervention affected some aspects of emotion intelligence capabilities and well-being, as reflected in the comparison of participants' performance in EI abilities and competencies measured in the intervention group before the intervention and 1-2 weeks after completion of the intervention.

Contrary to our expectations, certain of the self-reported emotion intelligence capabilities targeted in this intervention group decreased compared to the non-intervention group, although we have to be cautious in interpreting the present findings. More specifically, self-emotion appraisal showed a significant decrease in the intervention group. Others' emotion appraisal also decreased in the intervention group comparing to the non-intervention group. Only regulation of emotion was characterized by an increase in the intervention group, but this was at non significant levels. Reappraisal and experience of positive emotions remained unchanged, while suppression and experience of negative emotions seemed to increase in the intervention group, but the difference was not statistical significant. It is noteworthy that the magnitude of the changes was unrelated to the level of emotional intelligence capabilities prior to the intervention.

Contrary to the prediction, the psychological health and well-being was not improved in the intervention group. Low mental health and depression remained unchanged, while self-esteem increased only in the non-intervention group. It is noteworthy that social support (satisfaction from relationships) decreased in the intervention group.

Interestingly, this study provided an indication that emotional capabilities may not easy to be trained in clinical populations such as substance users, and interventions should be designed to meet "special" needs. There is, however, little empirical work that directly assesses training in clinical populations.

Another issue is the utilization of the various measures to assess change in the third, intervention, study we adopted measures of trait EI and generic measures of personality traits may not be the best tools to monitor and promote change at a more basic level, that involving emotion in the self and in specific situations. This observation is also coherent with the findings that widely used self-report measures of trait EI do not readily discriminate between EI abilities and personality traits (Brackett & Mayer, 2003; Kafetsios et al., 2009). Certainly, the results from this study pointed to the need for self-report measures that not only involve self-identity related emotion questions but also tap situational aspects of emotion in clinical populations.

A further explanation could be that substance users, being aware of their emotions might not help to improve emotion perception, as long as according to our findings, emotion awareness managed to decrease emotion appraisal, related to emotion perception. In a recent study Kafetsios & Lopes (under review), found that high ability or tendency to decode others' emotions experience less positive affect in everyday interpersonal interactions than less perceptive individuals.

At this point one could raise the question whether being aware of one's own emotions and trying to improve one's emotion perception could help us to improve our psychological well-being.

Another possible explanation, from a socio-cognitive perspective, would be that substance users in the intervention group may actually have a richer informational base that acts as an availability heuristic in judging their emotion self efficacy (e.g., Schwarz, et al., 1991). The possibility that a wider EI cognitive base is biasing the judgment of general emotionality self-efficacy (and the particular components responsible for this) could be the subject of future research.

The main objective of this research project was to directly examine the distal and proximal relationship factors for substance users. Summing up the findings of the studies presented in this dissertation indicated that child abuse experiences and insecure attachment were predicted substance users' psychological health and well-being and furthermore their effect was mediated by emotional intelligence capabilities.

Our findings reaffirm the existing literature that insecure attachment has generally been associated with negative affect (Mikulincer & Florian, 1998) and substance use is seen as an attempt to cope with the emotional distress caused by physical or sexual abuse (Clark, et al., 1997; Sullivan & Farrell, 2002). Furthermore, the present findings by investigated the link among child abuse, insecure attachment and emotional mediators suggested some possible explanations related to the aetiology of substance users' psychological health and well-being.

In this part, we will discuss some of the challenges and problems that arise when studying relational and emotional processes in substance users in order to arrive at a better understanding of our findings and to offer a perspective for future research.

## THEORETICAL IMPLICATIONS AND BROADER CONSIDERATIONS

The set of studies conducted as part of the present thesis support the argument that distal relational factors (child abuse experiences) and proximal relational factors (insecure attachment and social support) are important predictors of psychological health of substance users. Moreover, the findings suggested that certain aspects of emotional capabilities may be both distinctive and useful mediators and predictors of their own right of the psychological health of substance users. The present set of findings I believe, have important implications for understanding links among interpersonal and intrapersonal processes and psychological health and well-being of substance users. For example, use of emotion, emotion regulation and appraisal of emotions or emotion perception were found as significant mediators of the association of child abuse and insecure attachment with substance users' psychological health. If future research can confirm and extend these findings, then it may be worthwhile for addiction treatment programs to consider teaching substance users emotion intelligence capabilities as they were found to work as protective factors to improve their psychological health.

Perhaps one of the most intriguing implication of our results is that some aspects of emotion appraisal (both own and others') and self-esteem of the intervention group decreased, that is emotionally aware individuals may be more vulnerable to their self-concept and their personal idea of psychological well-being. More specifically, the present research project was designed to measure emotion intelligence traits, according to self-reported measures were used, and not abilities and the results pointed to the limitations that trait EI measures related to emotion change. Trait EI assessments focus on self-knowledge and beliefs about emotional abilities, and it is not clear whether the reported changes in the trait EI literature concern an increase in the available 'cognitive basis', or influences of an affective

nature. If the former assumption is true (and further research is needed that will examine more established measures of EI), the direct implication is that trait measures may not be suitable for monitoring change of an emotional nature.

The results of this study could also be helpful in redesigning training programs that are currently based solely on instructional methods. This point is particularly relevant for training programs that aim to increase and improve emotional and social skills.

**Limitations and future directions**

There are several limitations of the present studies that need to be discussed and deserve further research. First, these studies used self-report measures to assess abuse history. Self-report and retrospective measures are subject to potential biases, including selective remembering and distortion of events. An improved methodology would include a prospective method where high-risk adults would be followed longitudinally. Second, the sample was selected on the basis of specific risk factors. Our sample consisted of drug dependent, opiate-using adults in addiction treatment centers. Our results need to be compared and replicated to other samples of substance users, to other clinical groups and non-clinical controls. Further research should examine other clinical groups and non-clinical groups to determine if similar processes related to problems of psychological health would be found. Third, although the current sample was limited in number and geographically restricted, the high response rates obtained suggest that the data are not affected substantially by self-selection. Future studies should utilize a larger sample size and more dispersed sample in order to verify the generalizability of these findings.

Another potential limitation is that the EI variables in this study might significantly overlap with other variables not included in the studies, which would suggest that EI is perhaps not distinctive.

Finally, we had no reliable way of checking whether the observed change in abilities and competencies was due to the instructional and/or the implicit part of the self-administered training program or which aspect of the program was more influential. Therefore, future work is needed (perhaps using experimental methodologies) to provide an answer to this question.

**General Conclusion**

The thesis approaches the psychological health component of substance use and misuse from an attachment organization and affect regulation framework, which could shed light to the significance of distal and proximal relationship factors for substance users' psychological health and well-being. It is widely agreed that two independent dimensions (i.e., avoidant and anxious attachment) underlie individual differences in attachment. Both dimensions have been associated with distinct regulatory strategies (i.e., hyperactivating and deactivating). The findings from two studies demonstrated that anxiety, and to an extent avoidant attachment, are powerful predictors of substance users' psychological health, in many instances constituting significant mediators also of distal relational factors that have to do with recollected child abusive experiences. The findings also brought forward evidence of some emotional capabilities (emotion perception, emotion regulation and emotion use) influencing substance users' psychological health and in some (albeit limited) instances to act as partial mediators of insecure attachment effects on psychological health.

Throughout this general discussion, we have put forward some theoretical and empirical concerns that may account for this complexity. Most importantly, we have suggested that future research could extend this line of research by designing training methods, which would meet clinical population needs and be consistent with their psychological profiles. Furthermore, the results of this study could be helpful in redesigning training programs that are currently based solely on instructional methods. This point is particularly relevant for training programs that aim to increase and improve emotional and social skills.

Besides numerous limitations raised in this and the previous chapters, it is felt that the current studies extend meaningfully research in the scientific field of Personal Relationships (Duck, 1995) by using key relational and related emotional theories to better comprehend psychosocial aspects of substance use.

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**APPENDIX A:**

**Questionnaires of the 1st and 2nd study (all questionnaires were used in Greek version)**

| 1st study | | 2nd study | |
|---|---|---|---|
| **1.** | Mayer, Salovey & Caruso Emotional intelligence test (MSCEIT) | **1.** | *Experiences in Close Relationships Inventory Revised* (G-ECR_R, Fraley, Waller, & Brennan, 2000; Tsagarakis, Kafetsios, & Stalikas, 2007). |
| **2.** | *Experiences in Close Relationships Inventory Revised* (G-ECR_R, Fraley, Waller, & Brennan, 2000; Tsagarakis, Kafetsios, & Stalikas, 2007). | **2.** | *The Emotion Regulation Questionnaire (ERQ) (Gross & John, 2003).* |
| **3.** | *Rosenberg self-esteem scale* (Rosenberg, 1965). | **3.** | *Emotional intelligence self-report.* (WLEIS, Wong & Law, 2002). |
| **4.** | *Center for Epidemiological Studies-Depression Scale (CES-D)* (Radloff, 1977; Fountoulakis et al., 2001) | **4.** | *Positive and Negative Affect Schedule* (Watson, Clark & Tellegen, 1988). |
| **5.** | *General Health Questionnaire* (GHQ, Goldberg, 1978) | **5.** | *Rosenberg self-esteem scale* (Rosenberg, 1965). |
| **6.** | *The Child Abuse & Trauma Scale (CATS)* (Sanders & Becker-Lausen, 1995) | **6.** | *Center for Epidemiological Studies-Depression Scale (CES-D)* (Radloff, 1977; Fountoulakis et al., 2001) |
| **7.** | *Social support questionnaire* (SSQ6 Sarason, Sarason, Shearin, & Pierce, 1987). | **7.** | *General Health Questionnaire* (GHQ, Goldberg, 1978) |
| **8.** | *Treatment Demand Indicator (TDI)* (EMCDDA, Standard Protocol 2.0, 2000). | **8.** | *The Child Abuse & Trauma Scale (CATS)* (Sanders & Becker-Lausen, 1995) |
| | | **9.** | *Social support questionnaire* (SSQ6 Sarason, Sarason, Shearin, & Pierce, 1987). |
| | | **10.** | *Treatment Demand Indicator (TDI)* (EMCDDA, Standard Protocol 2.0, 2000). |

**APPENDIX B:**

Items which were used to measure emotion recgnition from Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT): User's manual. Toronto, Canada: MultiHealth Systems, Inc.

Identify emotions

Faces

1. Happiness

| Not at all | | | | Very much |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

2. Fear

| Not at all | | | | Very much |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

3. Surprise

| Not at all | | | | Very much |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

4. Disgust

| Not at all | | | | Very much |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

5. Enthusiasm

| Not at all | | | | Very much |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

Pictures

1. Happiness

| Not at all | | | | Very much |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

2. Sadness

| Not at all | | | | Very much |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

3. Fear

| Not at all | | | | Very much |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

Anger

| Not at all | | | | Very much |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

Detestation

| Not at all | | | | Very much |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

Items which were used to measure attachment organization dimensions from Experiences in Close Relationships Inventory Revised (ECR_R, Fraley, Waller, & Brennan, 2000).

**The following statements concern how you feel in romantic relationships. We are interested in how you <u>generally experience relationships</u>, not just in what is happening in a current relationship. Respond to each statement by indicating how much you agree or disagree with it. Write the number in the space provided, using the following rating scale:**

| Disagree Strongly | Disagree | Neutral/ Mixed | Agree | Agree Strongly |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

Anxiety Items

1. I'm afraid I will lose my partner's love.
2. I often worry that my partner will not want to stay with me.
3. I often worry that my partner doesn't really love me.
4. I worry that romantic partners won't care about me as much as I care about them.
5. I often wish that my partner's feelings for me were as strong as mine for him or her.
6. I worry a lot about my relationships.
7. When my partner is out of sight, I worry that he or she might become interested in someone else.
8. When I show my feelings for romantic partners, I'm afraid that they will not feel the same about me.
9. I rarely worry about my partner leaving me.
10. My romantic partner makes me doubt myself.
11. I do not often worry about being abandoned.
12. I find that my partner(s) don't want to get as close as I would like.
13. Sometimes romantic partners change their feelings about me for no apparent reason.
14. My desire to be very close sometimes scares people away.
15. I'm afraid that once a romantic partner gets to know me, he or she won't like who

I really am.

16. It makes me mad that I don't get the affection and support I need from my partner.
17. I worry that I won't measure up to other people.
18. My partner only seems to notice me when I'm angry.

Avoidance items

1. I prefer not to show a partner how I feel deep down.
2. I feel comfortable sharing my private thoughts and feelings with my partner.
3. I find it difficult to allow myself to depend on romantic partners.
4. I am very comfortable being close to romantic partners.
5. I don't feel comfortable opening up to romantic partners.
6. I prefer not to be too close to romantic partners.
7. I get uncomfortable when a romantic partner wants to be very close.
8. I find it relatively easy to get close to my partner.
9. It's not difficult for me to get close to my partner.
10. I usually discuss my problems and concerns with my partner.
11. It helps to turn to my romantic partner in times of need.
12. I tell my partner just about everything.
13. I talk things over with my partner.
14. I am nervous when partners get too close to me.
15. I feel comfortable depending on romantic partners.
16. I find it easy to depend on romantic partners.
17. It's easy for me to be affectionate with my partner.
18. My partner really understands me and my needs.

Items which were used to measure emotion regulation from The Emotion Regulation Questionnaire (ERQ) (Gross and John, 2003).

For each item, please answer using the following scale:

**1----------2----------3----------4----------5----------6----------7**

**agree strongly neutral strongly disagree**

1. ____ When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.
2. ____ I keep my emotions to myself.
3. ____ When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.
4. ____ When I am feeling *positive* emotions, I am careful not to express them.
5. ____ When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.
6. ____ I control my emotions by *not expressing them*.
7. ____ When I want to feel more *positive* emotion, I *change the way I'm thinking* about the situation.
8. ____ I control my emotions by *changing the way I think* about the situation I'm in.
9. ____ When I am feeling *negative* emotions, I make sure not to express them.
10. ____ When I want to feel less *negative* emotion, I *change the way I'm thinking* about the situation.

Items which were used to measure emotion intelligence from Wong Law Emotional Intelligence Scale (WLEIS, Wong & Law, 2002).

A.1. Emotional intelligence items

Self-emotion appraisal (SEA)

1. I have a good sense of why I have certain feelings most of the time.
2. I have good understanding of my own emotions.
3. I really understand what I feel.
3. I always know whether or not I am happy.

Others' emotion appraisal (OEA)

5. I always know my friends' emotions from their behavior.
6. I am a good observer of others' emotions.
7. I am sensitive to the feelings and emotions of others.
8. I have good understanding of the emotions of people around me.

Use of emotion (UOE)

9. I always set goals for myself and then try my best to achieve them.
10. I always tell myself I am a competent person.
11. I am a self-motivated person.
12. I would always encourage myself to try my best.

Regulation of emotion (ROE)

13. I am able to control my temper and handle difficulties rationally.
14. I am quite capable of controlling my own emotions.
15. I can always calm down quickly when I am very angry.
16. I have good control of my own emotions.

Items which were used to measure positive and negative emotions/ affect from Positive and Negative Affect Schedule (Watson, Clark & Tellegen, 1988).

Use the following scale to record your answers:
1 2 3 4 5
very slightly a little moderately quite a bit extremely or not at all

_____ interested
_____ attentive
_____ alert
_____ enthusiastic
_____ excited
_____ inspired
_____ proud
_____ determined
_____ strong
_____ energetic
_____ downhearted
_____ dissatisfied
_____ hostile
_____ irritable
_____ afraid
_____ frightened
_____ ashamed
_____ guilty
_____ distressed
_____ shaky

Items which were used to measure self-esteem from Rosenberg self-esteem scale (Rosenberg, 1965).

**Each of the ten statements below is followed by a series of possible responses**

**SA=strongly agree**
**A=Agree**
**D=Disagree**
**SD=Strongly Disagree**

**Read each statement and decide which response best describes how you feel about yourself at the moment; then circle the corresponding response.**

1.I feel that I'm a person of worth, at least on an equal plane with others

| SA | A | D | SD |
|---|---|---|---|
| 4 | 3 | 2 | 1 |

2. I fell that I have a number of good qualities

| SA | A | D | SD |
|---|---|---|---|
| 4 | 3 | 2 | 1 |

3. All in all, I am inclined to feel that I am a failure

| SA | A | D | SD |
|---|---|---|---|
| 4 | 3 | 2 | 1 |

4. I am able to do things as well as most other people

| SA | A | D | SD |
|---|---|---|---|
| 4 | 3 | 2 | 1 |

5. I feel I do not have much to be proud of

| SA | A | D | SD |
|---|---|---|---|
| 4 | 3 | 2 | 1 |

6. I take a positive attitude toward myself

| SA | A | D | SD |
|---|---|---|---|
| 4 | 3 | 2 | 1 |

7. On the whole, I am satisfied with myself

| SA | A | D | SD |
|---|---|---|---|
| 4 | 3 | 2 | 1 |

8. I wish I could have more respect for myself

| SA | A | D | SD |
|---|---|---|---|
| 4 | 3 | 2 | 1 |

9. I certainly feel useless at times

| SA | A | D | SD |
|---|---|---|---|
| 4 | 3 | 2 | 1 |

10. At times I think I am no good at all

| SA | A | D | SD |
|---|---|---|---|
| 4 | 3 | 2 | 1 |

Items which were used to measure to measure depression Center for Epidemiological Studies-Depression Scale (CES-D) (Radloff, 1977).

1. I was bothered by things that usually don't bother me
2. I did not feel like eating; my appetite was poor
3. I felt that I could not shake off the blues even with help from my family or friends
4. I felt that I was just as good as other people
5. I had trouble keeping my mind on what I was doing
6. I felt depressed
7. I felt that everything I did was an effort
8. I felt hopeful about the future
9. I thought my life had been a failure
10. I felt fearful
11. My sleep was restless
12. I was happy
13. I talked less than usual
14. I felt lonely
15. People were unfriendly
16. I enjoyed life
17. I had crying spells
18. I felt sad 2.25 1.13 0.58
19. I felt that people disliked me
20. I could not get "going"

Items which were used to measure low mental health from General Health Questionnaire (GHQ, Goldberg, 1978).

HAVE YOU RECENTLY:

1 — been able to concentrate on whatever you're doing?

2 — lost much sleep over worry?

3 — been managing to keep yourself busy and occupied?

4 — been getting out of the house as much as usual?

5 — been managing as well as most people would in your shoes?

6 — felt on the whole you were doing things well?

7— been satisfied with the way you've carried out your task?

8— felt capable of making decisions about things?

9 — felt constantly under strain?

10 — felt you couldn't overcome your difficulties?

11— been able to enjoy your normal day-today activities?

12— been taking things hard?

13— been able to face up to your problems?

14— been finding life a struggle all the time?

15— been feeling unhappy and depressed?

16 — been losing confidence in yourself?

17 — found everything getting on top of you?

18— been feeling reasonably happy, all things considered?

19— been feeling nervous and strung-up all the time?

20 — found at times you couldn't do anything because your nerves were too bad?

Items which were used to measure child abuse from The Child Abuse & Trauma Scale (CATS), (Sanders & Becker-Lausen (1995).

| | | |
|---|---|---|
| | 1. | Did your parents ridicule you? |
| NEG | 2. | Did you ever seek outside help or guidance because of problems in your home? |
| NEG | 3. | Did your parents verbally abuse each other? |
| PUN | 4. | Were you expected to follow a strict code of behaviour in your home? |
| R- PUN | 5. | When you were punished as a child or teenager, did you understand the reason you were punished? |
| PUN | 6. | When you didn't follow the rules, how often you were severely punished? |
| NEG | 7. | As a child did you unwanted or emotionally neglected? |
| | 8. | Did your parents insult you or call you names? |
| SA | 9. | Before you were 14, did you engage in any sexual activity with an adult? |
| NEG | 10. | Were your parents unhappy with each other? |
| NEG | 11. | Were your parents unwilling to attend any of your school-related activities? |
| | 12. | As a child were you punished in unusual ways? |
| SA | 13. | Were there traumatic or upsetting any sexual experiences when you were a child or teenager that you couldn't speak to adults about? |
| NEG | 14. | Did you ever think you wanted to leave your family and live with another family? |
| SA | 15. | Did you ever witness the sexual mistreatment of another family member? |
| NEG | 16. | Did you ever think seriously about running away from home? |
| | 17. | Did you ever witness the physical mistreatment of another family member? |
| R-PUN | 18. | When you were punished as a child or teenager, did you feel the punishment was deserved? |
| NEG | 19. | As a child or teenager, did you feel disliked by either of your parents? |
| | 20. | How often did your parents feel really angry with you? |
| | 21. | As a child did you feel that your home was charged with the possibility of unpredictable physical violence? |
| R | 22. | Did you feel comfortable bringing friends home to visit? |
| R | 23. | Did you feel safe living at home? |
| R- PUN | 24. | When you were punished as a child or teenager, did you feel "the punishment fit the crime?" |
| | 25. | Did your parents verbally lash out at you when you did not expect it? |
| SA | 26. | Did you have traumatic sexual experiences as a child or teenager? |
| NEG | 27. | Were you lonely as a child? |
| | 28. | Did your parents yell at you? |
| SA | 29. | When either of your parents was intoxicated, were ever afraid of being sexual mistreated? |
| NEG | 30. | Did you ever wish for a friend to share your life? |
| NEG | 31. | How often were you left at home alone as a child? |
| | 32. | Did your parents blame you for things you didn't do? |

| | | |
|---|---|---|
| NEG | 33. | To what extend did either of your parents drink heavily or abuse drugs? |
| PUN | 34. | Did your parents ever hit or beat you when you did not expect it? |
| SA | 35. | Did your relationship with your parents ever involve a sexual experience? |
| NEG | 36. | As a child, did you have to take care of yourself before you were old enough? |
| | 37. | Were you physically mistreated as a child or teenager? |
| NEG | 38. | Was your childhood stressful? |

SA = Sexual Abuse Subscale Item

PUN = Punishment Subscale Item

NEG = Neglect/Negative Home Atmosphere Subscale Item

R = Reverse-scored item

Items which were used to measure social support from Social support questionnaire (SSQ6 Sarason, Sarason, Shearin, & Pierce, 1987).

1. To whom can you really count on to distract you from worries when you feel under stress

(a) number of persons

(b) how satisfied

2. Whom can you really count on to help you feel more relaxed when you are under pressure or tense?

(a) number of persons

(b) how satisfied

3. Who accepts you totally, including both your worst and best points

(a) number of persons

(b) how satisfied

4. Whom can you really count on to care about you regardless of what is happening to you?

(a) number of persons

(c) how satisfied

5. Whom can you really count to help you feel better when you are feeling generally down-in-dumps?

(a) number of persons

(d) how satisfied

6. Whom you count on to console you when you are very upset?

(a) number of persons

(b) how satisfied

Items which were used to measure substance use from Treatment Demand Indicator (TDI) (EMCDDA, Standard Protocol 2.0, 2000)

## Substance abuse

| | Substance (α) | Route administration (β) | Last month frequency (γ) | Initiation year (δ) | Length of use (years) (ε) |
|---|---|---|---|---|---|
| 1. main substance | | | | | |
| 2. other substance-1 | | | xxxxxxxxxxxxxxx | Xxxxxxxxx | xxxxxxxxx |
| 3. other substance -2 | | | xxxxxxxxxxxxxxx | Xxxxxxxxx | xxxxxxxxx |
| 4. other substance -3 | | | xxxxxxxxxxxxxxx | Xxxxxxxxx | xxxxxxxxx |
| 5. other substance -4 | | | xxxxxxxxxxxxxxx | Xxxxxxxxx | xxxxxxxxx |
| | | 1.inject<br>2.smoke/ inhale<br>3.eat/ drink<br>4.sniff<br>5.other<br>9. not known/ missing | 1. 0-1 once/ week<br>2. 2-6 times/ week<br>3. daily<br>8. not used in past month<br>9. not known/ missing | | |

| | |
|---|---|
| 6. (α) Primary substance | |
| (β) Initiation year of the above substance | |

**APPENDIX C:**

**The 3rd study – intervention in Engish**

# TRAINING OF EMOTIONAL AND INTERPERSONAL SKILLS AT WORK

## Introduction

Many people think that they are adequate or even proficient in the emotional and interpersonal spheres. That is, in understanding their own and their mates' and colleagues emotions, in communicating with people in everyday life and at work, and in behaving appropriately in situations that involve stress management or conflicts. And these are only some of the example where good emotional and interpersonal skills can be used. However, when we are ACTUALLY confronted with such situations then we might realize that we may lack the ability to manage our emotions, to communication appropriately with other people at work.

## Improving your skills

The aim of this set of exercises is exactly to try and **make you aware** of areas in these abilities you may be lacking and areas for which you are strong. By raising your awareness about these aspects of those skills, and by applying those at work, you will be able to improve them.

## Time and place

Each set of exercises does not take more than half an hour to complete on the average. You should find a quiet place where you are not going to be distracted while you do the exercise. However, we advise you to take all the time you need to fill-in the section, and also to repeat those exercises that are related to skills that you wish to improve. At the end of each exercise please remember to indicate how many times you have repeated that task.

## The tasks

The kind of tasks you are going to find in this booklet include memory tasks, mental exercises, and tasks based on photographic material. In some cases we ask you to answer questions, whereas in other parts that ask you to freely write down own experiences and emotions you had have at work and, finally other parts require you to do small exercises.

# About Emotion and Interpersonal Skills at work

**Here you can find some information about the kind of things that this project is targeting. Please read carefully the information and then proceed to TASK 2**

## Emotion

Emotion is very important in organizing self and other behaviors. Emotion guides people's behaviors and perceptions of self and other in everyday life. Ever since the time it has been necessary for humans to work together to complete a task of some sort or another, emotional skills have played a critical role. Thus, it is hard to imagine hunter-gatherers being effective at what they did without some form of interpersonal communication – despite the fact it may have been limited to nods and grunts!

Generally, we distinguish between basic emotions and not so basic emotions. There are six basic emotions (anger, happiness, disgust, fear, sadness, surprise). These emotions are important because they have to do with automatic reactions in our body and in our mind, reactions that most of the time we are not aware of. There are also a number of more social emotions, emotions which are more controllable and which have more to do with the social situation and with what other people and the society expect from us. In this project we will deal with both kinds of emotions.

Of course, emotions are important in interpersonal exchanges and work. For example, how well we control our anxiety, or whether we communicate clearly with others have an impact in our work life. Here follow some more specific examples.

SCRIPTORIUM MONK AT WORK. (From *Lacroix.*)

## Emotion at work

Let us examine more closely the role that emotions play in the workplace. Consider an hypothetical example of how fear, anxiety or worry might influence work life. There is a new management in your workplace that requires people to work harder, with a higher output. The management has decided to arrange it so that people process their tasks in a shorter time space. If the management increases the amount of work

to a degree that is difficult for you to cope with this may create stress and anxiety over the ability to cope with it. You may worry of making mistakes under the new regime.

Or another example: In most of our working days we interact and collaborate with different people (colleagues, supervisor, customers etc.). There are times when we have to deal with difficult situations: to express our disagreement to others, or to make delicate maneuvers with others. Also some of our colleagues may have 'difficult' personalities and this makes it difficult sometime to communicate. In such times, the appropriate use of 'emotional tactics' is crucial for good communication. For instance, we may need to handle a range of emotions so as to respond appropriately to challenging situations and not express our annoyance. This is an example of emotional management.

## Emotional Intelligence

Emotional intelligence may mean different things to different people. Some people may think that the term itself is an oxymoron. How can emotions be intelligent, or make us intelligent?

However, recent theory in many areas of scientific research has shown that effective thinking is linked with effective feeling. It is about the *ability to perceive emotions, to generate emotions so as to help us think more clearly to understand emotions, and to manage emotions in self and others*.

- **Perceiving emotions:** the ability to correctly identify how people are feeling.
- **Using emotions:** the ability to create emotions an to use them to help you in the way you think
- **Understanding emotions:** the ability to understand what causes this or that emotions
- **Managing emotions:** the ability to figure out effective startegies to help you achieve a goal, not to be carried out by emotions.

# PART A

## Exercise A1: Diary

Reflect on a situation at work that involved yourself and other person (e.g. colleagues / customer / supervisor etc.). It could be something either positive or negative that had an emotional impact on you (angry, happy, etc.)

**Write down:**

1. What happened?

_____
_____
_____
_____

2. How did you feel?

_____
_____
_____
_____

3. How did this make the other person/s feel?

_____
_____
_____
_____

4. How could you have reacted differently?

_____
_____
_____
_____

| **I FELT:** | Not at all | | | | Very much | **THE OTHER PERSON FELT:** | Not at all | | | | Very much |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Angry** | 1 | 2 | 3 | 4 | 5 | **Angry** | 1 | 2 | 3 | 4 | 5 |
| **Satisfied** | 1 | 2 | 3 | 4 | 5 | **Satisfied** | 1 | 2 | 3 | 4 | 5 |
| **Happy** | 1 | 2 | 3 | 4 | 5 | **Happy** | 1 | 2 | 3 | 4 | 5 |
| **Rejected** | 1 | 2 | 3 | 4 | 5 | **Rejected** | 1 | 2 | 3 | 4 | 5 |
| **Sad** | 1 | 2 | 3 | 4 | 5 | **Sad** | 1 | 2 | 3 | 4 | 5 |
| **Other** _____ | 1 | 2 | 3 | 4 | 5 | **Other** _____ | 1 | 2 | 3 | 4 | 5 |

## Exercise A2: How I see myself

1 Working **alone**, write on each card a different statement of how you see yourself.

The aim of this exercise is to develop a greater sense of awareness of who you are and how this influences how you behave towards others. You can do this exercise by yourself but there are advantages to be gained from doing it with somebody else. The need to present your thoughts to somebody else can help you clarify your thinking. The other person may also be able to offer an alternative way of viewing the information you present about yourself and may challenge some of your taken-for-granted assumptions.

***"Focus on those things which are really central to your sense of yourself-things that, if you lost them, would make a radical difference to your identity and to the meaning of life for you. Be honest, describe yourself as you think you really are, not as you think you should be".***

There are no constraints on the form these statements might take. For example, some people see themselves in terms of:

a. Roles (student, sister, manager, career).
b. Group membership (Australian, working class, Rotarian, member of first team).
c. Beliefs (Christian, pacifist, superior to others - for example, men superior to women).
d. Qualities (extrovert, honest, confident).
e. Styles or patterns of behavior (passive, autocratic, demanding).
f. Needs (to be in control, win, belong, etc.). Typically lists contain more than one type of statement.

2 **Still** working **alone,** consider each item in turn on your list of 'Who you are'. Try to imagine how it would be if that particular item were no longer true of you.

*For example, if 'student' or 'employee' is one of the items, what would the loss of this role mean to you? How would it feel? What would you do? What would your life be like then?*

3 After you have gone through all ten statements reviewing them in this way, the next step is to **arrange them in rank order**.

The first or highest ranked card should be the one which names the aspect of self (for example, role or pattern of behaviour) which you find is most essential to your sense of self - the one which, if lost, would require the greatest adjustment. The rest of the statements should be ranked **in descending order of difficulty in adjusting to the loss**. The end result should be the list ranked on grounds of what is essential to your sense of being yourself.

*"Avoid the trap of using desirability as the basis for your ranking. Some of your statements may refer to aspects of yourself that do not fit with your concept of 'ideal self'. For example, you may describe yourself as shy and unassuming but have a preferred image of self as assertive and outgoing. This does not mean that this kind of less desired aspect of self automatically falls towards the lower end of the ranking. The* ***rank ordering*** *you do is to be based on how big an adjustment you would have to make if you lost it. Sometimes it is the aspects of our self that we most dislike (heavy smoker) that we find hardest to give up".*

4 Still working alone, look at how you have s ranked the cards. Do they fall into any groupings? What comes next to what? How do you feel about these groupings, and about the ranking? Take some time to think over it.

5 Please copy here the list of the 10 self-description you gave, arranged by rank order.

1. _____. 6. _____
2. _____. 7. _____
3. _____. 8. _____
4. _____. 9. _____
5. _____. 10._____

## EMOTIONAL LITERACY / LABELING

One of the main elements of Emotional Intelligence is the *ability to recognize and label ones own emotions*. Being able to recognize one's own emotions means to describe precisely emotions with respect either to their components, or using the correct defining label. Recognizing one's own emotions permits to foretell their consequences, giving us the possibility to be in command of them.

Our dictionary is full of emotional words and clichés but we often tend to use a little amount of them, excluding all the emotional nuances that the dictionary actually permits to express.

### Exercise A4: Emotions and our experiences

Below you find several emotion words, you need to try to briefly describe, behind each of them, an episode of your life in which you felt, you dealt with or you have seen the expression of each emotion. This exercise will help you to improve your ability to think over your emotions, learning to actually label them. Recalling events that we lived, or that we attended as bystanders, is a useful exercise to improve our ability to recognize our emotions and to properly elaborate them.

| **Emotion, Feeling, Sensation** | **Event of your own life** | **Emotion, Feeling, Sensation.** | **Event of your own life** |
|---|---|---|---|
| *1. Sadness* | | *2. Happiness* | |
| *3. Surprise* | | *4. Fear* | |

| | | | |
|---|---|---|---|
| *5. Disgust* | | *6. Anger* | |

Emotion words are very many, and they are useful to properly describe emotions with respect to their nuances and from different points of view.

## EMOTIONAL INVALIDATION: Some tactics

"Emotion invalidation" means *refusing, ignoring, denying, judging and diminishing our interlocutor's emotions*. When we invalidate our interlocutor's emotions, besides rejecting him/her, we are saying to our interlocutor that he/she is dissimilar from us. As a consequence, we are making our interlocutor to feel "different". When we invalidate our interlocutor's emotions we are breaking our empathy link with him/her, we are undermining the level of closeness that exists between us, we are "killing" his/her individuality.

**When do we invalidate others' emotions?**

- "Ordering" our interlocutor to feel differently ("Smile!" – "Be happy!" – Cheer up!"- "Let over it" – "Don't cry!" – "Don't worry!" – "Stop laughing!" – "Don't get angry!" – "Forget about it!" – "Don't be so dramatic!" – "Stop being so emotional!" – "Stop taking everything so personally!" – etc…).
- "Ordering" our interlocutor to *look* differently ("Don't look so sad!" – "Don't look so smug!" – "Don't look so down!" – "Don't look like that!" – "Don't make that face!" – "Don't look so serious!" – "Don't look so proud of yourself!" – etc…)
- Denying our own real sensations/perceptions ("But of course I respect you!" – "But I do listen to you!" – "That is ridiculous..!" – "I was only kidding!" – etc…).
- Trying to seem guilty ("I tried to help you, but…!" – "At least I was not able to..!" – etc…)
- Trying to isolate our interlocutor with his/her emotions/sensations ("You are the only one who feels that way!" – "It doesn't bother anyone else, why should it bother you?" – etc…)
- Minimizing our interlocutor's feelings ("You must be kidding!" – "You can't be serious!" – "You can't be that bad!" – "You are just in a bad mood!" – "It's nothing to get upset over!" – etc…)
- Appealing to reason in order to invalidate our interlocutor's emotions ("There's no reason to get upset!" – " You are not being rational!" – "Let's look at the facts!" – "Let's stick to the facts!" – etc…)
- Debating/Discussing ("I don't always do that!" – "It's not that bad/dangerous!" – etc…)

- Judging and labelling the interlocutor ("You are a cry baby"! – "You have a problem!" – "You are too senritive!" -. "You are an insensitive jerk!" – "You are impossible to talk to!" – "You are impossible!" – etc…)

- Turning the problem around ("You are making a big deal out of nothing!" – etc…)

- Trying to get the interlocutor to question himself ("What is your problem?" – "What's wrong with you?" – "Why can't you just get over it?" – "Why do you always have to…?" – "Don't you think you are beign a little dramatic?" – "Do you think that crying over it is going to help anything?" – etc…)

- Telling the interlocutor how he should feel ("You should be excited/scared/etc…!" – "You shouldn't worry so much!" – "You shouldn't say that about…!" – "You should do…!" – etc…)

- Defending other people involved ("Maybe they were just having a bad day!" – "I'm sure he didn't mean it like that!" – "You just took it wrong!" – etc…)

- Denying, confounding opinions ("Now you know that isn't true!" – "You know you love…!" – "You don't' really mean that…!" – "You were just…!" – etc…)

- Using sarcasm or mocking ("Oh, you poor thing. Did I hurt your little feelings?" – "What did you think? The world was created to serve you?" – etc…)

- Laying the fault over the interlocutor ("Don't you ever think of anyone but yourself!" – etc…)

- Philosophising or using clichés ("Time heals all wounds!" – "Life is full of pain and pleasure!" – "In time you'll understand this!" – "You are just going through a bad period!" – etc…)

- Talking about him while he can ear it ("He is impossible to talk to…!" – "You can't say anything to him!" – "I'm tired of his moaning!" – etc…)

- Showing intolerance ("You are getting real pathetic!" – "This is getting real old, I'm tire of it!" – etc…)

## Exercise A6: Situations

In this part you find several events that deal with on-the-job or real life situations, and several behaviours/responses (A, B, C, …) that one could produce/enact in that situation. You are asked to identify with the story protagonist, and to rate each behaviour/response in terms of its adequacy for the situation, by assigning a score between 0 and 5, in which 0 means "totally inadequate/inappropriate" and 5 means "absolutely adequate/appropriate". At the end of this part you will find the correct interpretations of the behaviours/responses.

1. *"It's lunch time, you just got back home. Your brother is getting back home exactly in that moment too. You ask him to describe how things went on at school. He answers: "Not so good!". How would answer?*

| Behaviors/responses: | Totally inadequate | | | | | Absolutely adequate |
|---|---|---|---|---|---|---|
| A20 "Don't get upset over it, I'm sure everything was great!" | 0 | 1 | 2 | 3 | 4 | 5 |
| A21. "Really? Why? What happened?" | 0 | 1 | 2 | 3 | 4 | 5 |
| A22. "I tried to explain to you how to behave if anyone is hurting you, do you rememebr?" | 0 | 1 | 2 | 3 | 4 | 5 |

2. *"You are on an aeroplane that suddenly begins rocking from side to side because of a bad turbulence. Your neighbour, a man with whom you pleasantly spoke till that moment, seems really upset and looks scared at you. Suddenly he states: "I'm terribly frightened! I can't believe how you can remain so calm!". How would you respond?"*

| Behaviors/responses: | Totally inadequate | | | | | Absolutely adequate |
|---|---|---|---|---|---|---|
| A23. "There's no reason to be scared. If there is a real emergency the crew would inform us immediately!". | 0 | 1 | 2 | 3 | 4 | 5 |
| A24. "You should try to calm down and think about something else. Perhaps you could think about your wife or to anything else that would help you feel calm." | 0 | 1 | 2 | 3 | 4 | 5 |
| A25. "You are really very upset! May I help you? ; May I do something to make you fell better?" | 0 | 1 | 2 | 3 | 4 | 5 |

## Exercise A7: Situations

Below you find several events that deal with on-the-job or real life situations, and several behaviours/responses (…) that one could produce/enact in that situation. You are asked to identify with the story protagonist, and to rate each behaviour/response in terms of its adequacy for the situation, by assigning a score between 0 and 5, in which 0 means "totally inadequate/inappropriate" and 5 means "absolutely adequate/appropriate". At the end of this part you will find the correct interpretations of the behaviours/responses.

3. "Family situation. Your mother is out for work, your brother is waking up exactly in that moment. When you look at him you immediately understand that he is sad, because mum is not there. Below is the dialogue".

a) *Max*: "I want Mummy!"– sulks Max, somehow accusing you for being the wrong parent.

| Behaviours / Responses | Totally inadequate | | | | | Absolutely adequate |
|---|---|---|---|---|---|---|
| A26. "Well, she is not here but I am here, so please don't begin whimpering as you usually do, Max!" | 0 | 1 | 2 | 3 | 4 | 5 |
| A27"You really want mama, don't you?". | 0 | 1 | 2 | 3 | 4 | 5 |
| A28. "Mama is out now Max, but she'll be back early!" | 0 | 1 | 2 | 3 | 4 | 5 |

b) *Max*: "I want Mummy!" – replies a slightly less vexed Max.

| Behaviours / Responses | Totally inadequate | | | | | Absolutely adequate |
|---|---|---|---|---|---|---|
| A29. "I'm sorry she is not here Maxie, but I'll snuggle with you!". | 0 | 1 | 2 | 3 | 4 | 5 |
| A30. "Cheer up Max, get over it, a good breakfast will heals all wounds!". | 0 | 1 | 2 | 3 | 4 | 5 |
| A31. "I really miss her too! It's sad when she's not home!" | 0 | 1 | 2 | 3 | 4 | 5 |

4. "Your colleague Charles is telling you about his weekend. It sounds like he is particularly involved in what he did. Below is the dialogue"

a) *Charles*: "Well, it was a wonderful weekend, the sun, the sea. I played windsurf, I had dinner with friends in a fantastic restaurant. I was really in need of that!"

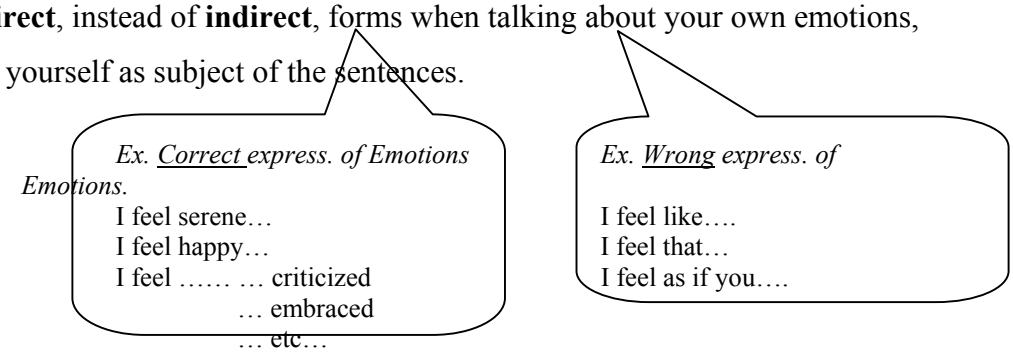
| Behaviours / Responses | Totally inadequate | | | | | Absolutely adequate |
|---|---|---|---|---|---|---|
| A32. "Mmm, that sounds really amusing….". | 0 | 1 | 2 | 3 | 4 | 5 |
| A33. "You enjoyed very much, did you?". | 0 | 1 | 2 | 3 | 4 | 5 |
| A34. "That's a typical weekend at the sea…" | 0 | 1 | 2 | 3 | 4 | 5 |

b) *Charles*: "Yes, I was really in need of that, my sentimental story with Elena is going through a bad phase, and I was really in need of getting all of this!"

| Behaviours / Responses | Totally inadequate | | | | | Absolutely adequate |
|---|---|---|---|---|---|---|
| A35. "That must be a difficult situation ….". | 0 | 1 | 2 | 3 | 4 | 5 |
| A36. "I can understand how you feel". | 0 | 1 | 2 | 3 | 4 | 5 |
| A37. "I'm really sorry for this…" | 0 | 1 | 2 | 3 | 4 | 5 |

**EMOTIONAL EXPRESSION: Example strategies**

Once having learned to identify and to quantify your own emotions and feelings by using the correct instruments/words, you need to learn to use the **direct**, instead of **indirect**, forms when talking about your own emotions, using yourself as subject of the sentences.




It is often unacceptable to express your own emotions directly, because we are too worried to offend someone, seem inadequate or unpleasant, and we are worried about social acceptance. So, instead of communicating clearly and directly, we prefer to use several strategies. How do we try to hide or change our emotions' language?:

- Masking our own emotions.
  There are several strategies by which to hide one's own emotions. Sometimes we simply lie: for instance when someone tells us that "he/she is right" when it is actually clear that he/she is worried or upset. At other times, we replace a feeling with another, for instance in a situation in which you say "I hope it doesn't rain", when it is actually clear that you are unhappy knowing that it is probably going to rain.

- Inconsistency.
  Our voice tone and our body language are often inconsistent with our words. None of us has the ability to totally control or hide his/her emotions, because, we lost most of our ability to control body language. Some of us, especially those live his/her feelings only superficially, are able to modify his true tone of voice in order to improve social acceptance.
  It is important to remember that we cannot totally hide our body language, made of postures, hand positions, ways of gazing and more.

- Overuse.
  A simple and often used method by which we modify the weigh of emotion words is overuse of terms. Let's think about the world "love". We say that we love chocolate, that we love our mum's tart, that we love our girl/boyfriends, our parents, but loving a girl or a parent is clearly different from loving a tart, or meat.

- Exaggeration.
  Exaggerating the strength of a feeling is a strategy often automatically used in order to receive more attention (people who usually enact such a strategy may have received too little attention to their emotions, and find this strategy useful to receive attention from parents).

- Minimization.
  Minimizing an emotion or feeling, especially if it is a negative emotion, is a strategy useful to hide one's own emotion (people who usually enact such strategy may have not much confidence in the possibility to share their emotions with others). By using statement like "I'm ok!", "I will be ok, don't worry!", and "I said that I'm ok!" a person wants to protect his/her own privacy avoiding to share his/her emotions with the others.

Exercise A8: Situations

In this part you find several events that deal with on-the-job or real life situations, and several behaviours/responses (A, B, C, …) that one could produce/enact in that situation. You are asked to identify with the story protagonist, and to rate each behaviour/response in terms of its adequacy for the situation, by assigning a score between 0 and 5, in which 0 means "totally inadequate/inappropriate" and 5 means "absolutely adequate/appropriate". At the end of this part you will find the correct interpretations of the behaviours/responses.

***5. "You are in front of your customer's door. He is one of your best client but you don't tolerate his manners. You can't tolerate his sarcastic laugh, and he behaves as if he were superior to you. How do you behave, in order to avoid disclosing your actual feelings, and at least avoid loosing an excellent costumer?"***

| Behaviors/responses: | Totally inadequate | | | | Absolutely adequate | |
|---|---|---|---|---|---|---|
| A38. You try to give vent to your feelings cursing aside and kicking something before ringing his bell. By using these strategies, when you'll ring his bell, you will be calmer. | 0 | 1 | 2 | 3 | 4 | 5 |
| A 39. You try to do a breathing exercise (typical of autogenous training) before ringing his bell. You try to calm down and to became more serene. | 0 | 1 | 2 | 3 | 4 | 5 |
| A 40. You clear your voice and you try to control its tone, in order to make it As serene as possible before ringing his bell.. | 0 | 1 | 2 | 3 | 4 | 5 |
| A 41. You try to shift your attention on a pleasant detail of his, an interesting Detail on which you will focus your attention during your dialogue. | 0 | 1 | 2 | 3 | 4 | 5 |

***6."You are worried: your boss Paul once more entrusted a task to your colleague Charles, and you know how Charles is unqualified to do it. Probably he will mistake as usual most of the work and you and the other colleagues will suffer the consequences. How do you behave?***

| Behaviors/responses: | Totally inadequate | | | | Absolutely adequate | |
|---|---|---|---|---|---|---|
| A 42. You take him aside explaining that some of your colleagues feel that he Is going to make mistakes in the task. You offer for your help. | 0 | 1 | 2 | 3 | 4 | 5 |
| A 43. You meet him in front of all the others colleagues at the office, explaining that you don't want as usual to find a remedy to his mistakes once more. | 0 | 1 | 2 | 3 | 4 | 5 |
| A 44. You take him aside explaining that you are happy about his improvements, but that you are still worried with respect to some of his lacunae. You persuade him to explain to you his difficulties, offering for your help. | 0 | 1 | 2 | 3 | 4 | 5 |
| A 45. You take him aside expressing your esteem and appreciation. You make him feel capable in his work, and than you offer for your help. | 0 | 1 | 2 | 3 | 4 | 5 |

***7."You are absent-mindedly running through your office's corridor, when you bang against your colleague Charles, causing his documents to fall down. How do you behave?"***

| Behaviors/responses: | Totally inadequate | | | | Absolutely adequate | |
|---|---|---|---|---|---|---|
| A 46. You realize that you harmed him but you pretend that nothings happened. You remember to him that you will meet within 15 minutes as scheduled, in order to discuss about job matters. | 0 | 1 | 2 | 3 | 4 | 5 |
| A 47. You help Charles to pick up his documents from the ground but you pretend you didn't see you harmed him, you smile and you go away. | 0 | 1 | 2 | 3 | 4 | 5 |
| A 48. You apologize. You say that you are mortified and that it must have been a big hit. You ask him if you have actually harmed him and offer your help. | 0 | 1 | 2 | 3 | 4 | 5 |

***8. "You had a serious family trouble and for several days you have had difficulty concentrating in your work. You have just delivered an important job to Paul, your boss, but he seems very dissatisfied with it. How do you behave?"***

| Behaviors/responses: | Totally inadequate | | | | Absolutely adequate | |
|---|---|---|---|---|---|---|
| A 49. You accept Paul's critiques because you know you are wrong. You don't say anything about your problems and immediately start working again. It's no good to talk about your own personal problems. | 0 | 1 | 2 | 3 | 4 | 5 |
| A 50. You understand that you are wrong. You explain to Paul that you are passing through a bad phase, that you find it difficult to deal with your problems and don't know what to do. You prefer being honest, and end up crying as if you were with a dear friend. | 0 | 1 | 2 | 3 | 4 | 5 |
| A 51. You try to minimize the problem, you ask Paul more time to correct your mistakes and you begin immediately to work. | 0 | 1 | 2 | 3 | 4 | 5 |
| A 52. You explain to Paul what are your feelings and which events caused them. You ask him to give you few days to make up for the time lost explaining that you are passing through really a bad phase. | 0 | 1 | 2 | 3 | 4 | 5 |

# PART B

## Exercise B3: Emotion Words (producing basic emotional equivalents)

**In the following exercise you need to go back to the so-called basic emotion evocated by each terms, starting from the given emotion terms, (see the example)**

| Sensation/ emotion | Basic emotion evocated |
|---|---|
| • Repentance | → Guilt |

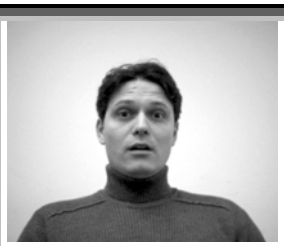
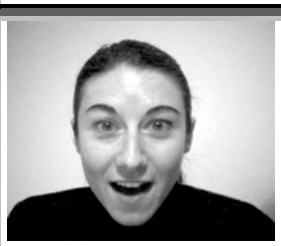
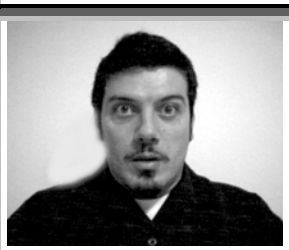
**Example**

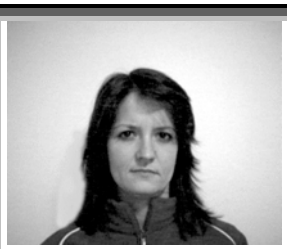
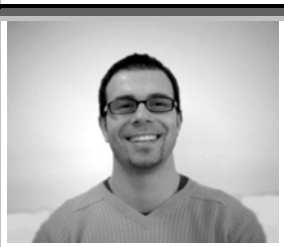
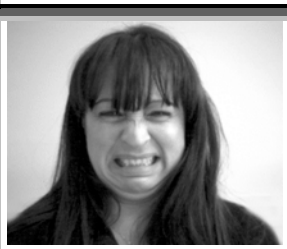
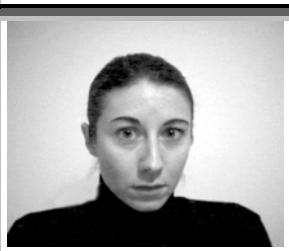
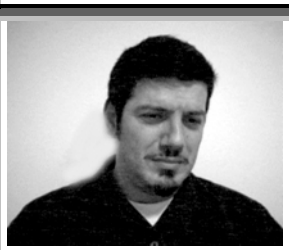
**Your Task**

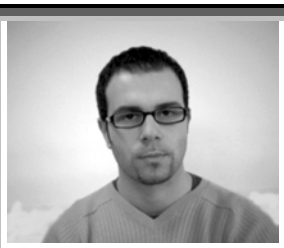
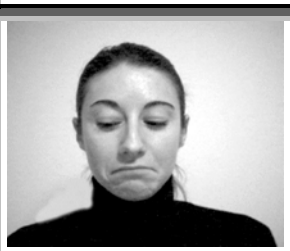
| Sensation/ emotion | Basic emotion evocated | Sensation/ emotion | Basic emotion evocated |
|---|---|---|---|
| B7. Deglight | → _____ | B16. Grudge | → _____ |
| B8. Unhappy | → _____ | B17. Astonished | → _____ |
| B9. Jitteryness | → _____ | B18. Bewildered | → _____ |
| B10. Aversion | → _____ | B19. Impassible | → _____ |
| B11. Dissatisfaction | → _____ | B20. Baffled | → _____ |
| B12. Quiet | → _____ | B21. Repulsion | → _____ |
| B13. Caring | → _____ | B22. Affliction | → _____ |
| B14. Jubilation | → _____ | B23. Perplexed | → _____ |
| B15. Suspicious | → _____ | B24. Liking | → _____ |

Exercise B7: Recognizing emotions in some faces

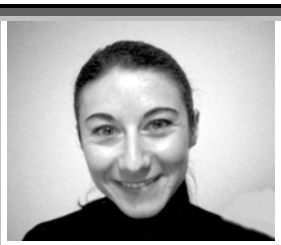
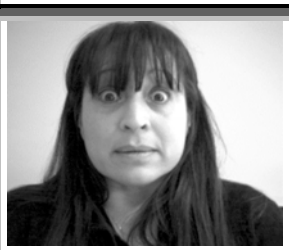
1. How much does each face shown below express the emotion listed in the scale reported?

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
|  **F1-5** | **B69-Fear** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 very much |
| | **B70-Surprise** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 very much |
|  F2-42 | **B71-Happiness** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 very much |
| | **B72-Surprise** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 very much |
|  F3-30 | **B73-Anger** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 very much |
| | **B74-Disgust** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 very much |
|  F4-112 | **B75-Anger** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 very much |
| | **B76-Surprise** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 very much |
|  F5-66 | **B77-Anger** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 very much |
| | **B78-Surprise** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 very much |

| | |
|---|---|
|  F6-9 | **B79-Anger** Not at all 0 1 2 3 4 5 very much<br>**B80-Neutrality** Not at all 0 1 2 3 4 5 very much |
|  F7-18 | **B81-Happiness** Not at all 0 1 2 3 4 5 very much |
|  F8-76 | **B82-Disgust** Not at all 0 1 2 3 4 5 very much |
|  F9-27 | **B83-Fear** Not at all 0 1 2 3 4 5 very much |
|  F10-41 | **B84-Sadness** Not at all 0 1 2 3 4 5 very much |
|  F11-108 | **B85-Anger** Not at all 0 1 2 3 4 5 very much |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
|  F12-73 | **B86-Anger** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 | very much |
| | **B87-Disgust** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 | very much |
| | **B88-Fear** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 | very much |
|  F13-57 | **B89-Sadness** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 | very much |
| | **B90-Anger** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 | very much |
| | **B91-Disgust** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 | very much |
| | **B92-Fear** | Not at all | 0 | 1 | 2 | 3 | 4 | 5 | very much |

2. What emotion is expressed by this face?

| | |
|---|---|
|  F14-52 | **B93:** Write here the emotion you think is expressed |
|  F15-89 | **B94:** Write here the emotion you think is expressed |
|  F16-91 | **B95:** Write here the emotion you think is expressed |

## Exercise C5: Emotion words (put in order the terms with respect to their duration)

Your task is now to assign a score between 1 and 10 with respect of the duration of each listed emotion term, by following the instruction in each box. 1 means "it lasts increasingly less", and 10 means "it lasts increasingly longer". Terms clustered in each group refer all to the same basic emotion. We remind you that the terms clustered in each group could also express a similar temporal gradient

| Judge the **duration** of the emotions. | | | |
|---|---|---|---|
| Cluster 1 | **Cluster 2** | **Cluster 3** | **Cluster 4** |
| **a)** Affection ☐ | **a)** Seren ☐ | **a)** Sheepish ☐ | **a)** Hostility ☐ |
| **b)** Liking ☐ | **b)** Relief ☐ | **b)** Shame ☐ | **b)** Grudge ☐ |
| **c)** Love ☐ | **c)** Quiet ☐ | **c)** Embarassed ☐ | **c)** Dislike ☐ |
| **d)** Interest ☐ | **d)** Calm ☐ | **d)** Shy ☐ | **d)** Irritation ☐ |
| Cluster 5 | **Cluster 6** | **Cluster 7** | **Cluster 8** |
| **a)** Worry ☐ | **a)** Exultation ☐ | **a)** Depression ☐ | **a)** Fright ☐ |
| **b)** Tension ☐ | **b)** Enthusiasm ☐ | **b)** Sadness ☐ | **b)** Fear ☐ |
| **c)** Nervous ☐ | **c)** Euphoria ☐ | **c)** Hopelessnes ☐ | **c)** Shock ☐ |
| **d)** Jitteryness ☐ | **d)** Triumph ☐ | **d)** Desolation ☐ | |
| Cluster 9 | **Cluster 10** | **Cluster 11** | **Cluster 12** |
| **a)** Love ☐ | **a)** Doubt ☐ | **a)** Vengefulnes ☐ | **a)** Melancholy ☐ |
| **b)** Infatuation ☐ | **b)** Insecurity ☐ | **b)** Anger ☐ | **b)** Remorse ☐ |
| **c)** Desire ☐ | **c)** Confusion ☐ | **c)** Hate ☐ | **c)** Guilt ☐ |
| **d)** Attacted ☐ | **d)** Hesitation ☐ | **d)** Grudge ☐ | **d)** Homesick ☐ |

## Exercise C7: Emotion words (put in order the terms with respect to their pleasantness)

Your task is now to assign a score between 1 and 10 with respect of the pleasantness of each listed emotion terms, by following the instruction in each box. 1 means "extremely unpleasant" or, and 10 means "extremely pleasant". Terms clustered in each group refer all to the same basic emotion. We remind you that the terms clustered in each group could also express a similar pleasant gradient

Judge the **pleasantness** of the emotions.

| Cluster 13 | **Cluster 14** | **Cluster 15** | **Cluster 16** |
|---|---|---|---|
| **a)** Pity ☐ | **a)** Surprise ☐ | **a)** Worry ☐ | **a)** Scared ☐ |
| **b)** Compassion ☐ | **b)** Startle ☐ | **b)** Tension ☐ | **b)** Fear ☐ |
| **c)** Touched ☐ | **c)** Amazed ☐ | **c)** Nervous ☐ | **c)** Shock ☐ |
| **d)** Understandin ☐ | **d)** Astonishmer ☐ | **d)** Jitteryness ☐ | |
| **Cluster 17** | **Cluster 18** | **Cluster 19** | **Cluster 20** |
| **a)** Derspair ☐ | **a)** Disgust ☐ | **a)** Apathy ☐ | **a)** Mortified ☐ |
| **b)** Tormento ☐ | **b)** Repulsion ☐ | **b)** Boredom ☐ | **b)** Humiliation ☐ |
| **c)** Sorrow ☐ | **c)** Annoyance ☐ | **c)** Indifferent ☐ | **c)** Rejected ☐ |
| **d)** Heart broker ☐ | **d)** Nauseous ☐ | **d)** Impassible ☐ | **d)** Neglected ☐ |

## Exercise C8: Emotion words (put in order the terms with respect to their intensity)

Your task is now to assign a score between 1 and 10 with respect of the intensity of each listed emotion terms, by following the instruction in each box. 1 means "extremely less intense", and 10 means "extremely intense". Terms clustered in each group refer all to the same basic emotion. We remind you that the terms clustered in each group could also express a similar intensity gradient

Judge the **intensity** of the emotions.

| Cluster 21 | Cluster 22 | Cluster 23 | Cluster Cluster 24 |
|---|---|---|---|
| **a)** Affection ☐ | **a)** Sheepish ☐ | **a)** Hostility ☐ | **a)** Enchanted ☐ |
| **b)** Liking ☐ | **b)** Shame ☐ | **b)** Grudge ☐ | **b)** Adoration ☐ |
| **c)** Love ☐ | **c)** Embarassed ☐ | **c)** Dislike ☐ | **c)** Ecstasied ☐ |
| **d)** Interest ☐ | **d)** Shy ☐ | **d)** Irritation ☐ | **d)** Veneration ☐ |
| **Cluster 25** | **Cluster 26** | **Cluster 27** | **Cluster 28** |
| **a)** Surprise ☐ | **a)** Worry ☐ | **a)** Despaire ☐ | **a)** Depression ☐ |
| **b)** Startle ☐ | **b)** Tension ☐ | **b)** Tormento ☐ | **b)** Sadness ☐ |
| **c)** Amazed ☐ | **c)** Nervous ☐ | **c)** Sorrow ☐ | **c)** Hoplessness ☐ |
| **d)** Astonishmer ☐ | **d)** Jitteryness ☐ | **d)** Heart broker ☐ | **d)** Desolatione ☐ |
| **Cluster 29** | **Cluster 30** | **Cluster 31** | **Cluster 32** |
| **a)** Scared ☐ | **a)** Disgust ☐ | **a)** Impatient ☐ | **a)** Love ☐ |
| **b)** Fear ☐ | **b)** Repulsion ☐ | **b)** Frenzy ☐ | **b)** Infatuation ☐ |
| **c)** Shock ☐ | **c)** Annoyance ☐ | **c)** Longing ☐ | **c)** Desire ☐ |
| | **d)** Nauseous ☐ | to… | **d)** Attacted ☐ |
| | | **d)** Excitement ☐ | |
| **Cluster 33** | **Cluster 34** | **Cluster 35** | |
| **a)** Carefree ☐ | **a)** Apathy ☐ | **a)** Mortified ☐ | |
| **b)** Happiness ☐ | **b)** Boredom ☐ | **b)** Humilliation ☐ | |
| **c)** Joy ☐ | **c)** Indifferent ☐ | **c)** Rejected ☐ | |
| **d)** Amused ☐ | **d)** Impassible ☐ | **d)** Neglected ☐ | |

**APPENDIX D:**

**Publications (Conferences' Annals)**

Maka, Z. & Kafetsios, K. (2006). Interpersonal Relationships, Emotions and Mental Health of Individuals in Therapeutic Programs. *Annals of the 10th European Conference on rehabilitation and drug policy, Chersonissos, Crete, 10-14 May 2005,* pp 308-319.

Maka, Z. & Kafetsios, K. (2006). Childhood maltreatment experiences, interpersonal relationships and emotions of substance users in addiction treatment programs. *Annals of the 2nd National Conference on Sexual abuse confrontation. Hellenic Association of Research and Prevention of Sexual Abuse. Hellenic American Union, 25-27 November 2005.* Publ. Hellenic Grammata, pp. 43-54.

**Conferences**

Maka Z. & Kafetsios K. (2004) Relational and Emotional Dynamics in Methadone Maintenance Patients and Their Partners. *The International Association for Relationship Research Conference. Madison, Wisconsin USA, July 22 – 25, 2004*

Maka, Z. & Kafetsios, K. (2005). Interpersonal Relationships, Emotions and Mental Health of Individuals in Therapeutic Programs. *10th European Conference on rehabilitation and drug policy, Chersonissos, Crete, 10-14 May 2005*.

Maka, Z. & Kafetsios, K. (2006). Childhood maltreatment experiences, interpersonal relationships and emotions of substance users in addiction treatment programs. *2nd National Conference on Sexual abuse confrontation. Hellenic Association of Research and Prevention of Sexual Abuse. Hellenic American Union, 25-27 November 2005.*

Maka, Z. (2008). *Psychological characteristics and interpersonal relationships of substance users in addiction treatment programs.* 20o National Conference of Psychiatry, Creta Maris, Chersonissos, Crete, 14-18 May 2008.