Experimental arguments for employing a client-focused therapeutic approach in nicotine addiction

Mihaela-Alexandra Gherman[1], Daniela Muntele Hendreş[1], Laura Arhiri[1]

Initial receipt: 29.09.2013 Final revision received: 30.10.2013 Accepted: 04.11.2013

Abstract. This paper is comprised of four studies that aim to offer empirical support to Freudian and Lacanian theories on addictions on samples of female nicotine addicts. The two authors argue (as summarized by Loose in 2002) that the individuals who had relational issues with their main caregiver in their preverbal stages of development did not acquire the ability to obtain satisfaction in social interactions due to their poor relational skills; this increases their propensity toward becoming addicts, because addiction is seen as a manner of circumventing the other in the process of obtaining satisfaction. Our results support these theoretical claims regarding nicotine addiction in women. The implications of our findings suggest that therapeutic interventions for nicotine addicts should be focused on the individual rather than the object of the addiction itself, as the individual etiology of nicotine addiction seems to vary from one addict to another according to their previous experiences in attachment relationships.
Keywords: socio-moral disgust, core disgust, stage-matched interventions, nicotine addiction, attachment

Introduction

One of the most surprising aspects of tobacco addiction is the apparent never ending diversity of the stimuli that elicit the craving for a cigarette. Addicts smoke in order to feel both a state of psychological / physical stimulation (when they feel tired, sad or depressed) and a state of inhibition (when they are angry, overstimulated, anxious or emotional), because the chemical effects of nicotine on brain activity are both stimulant and depressant (American Lung Association, 1989; Ashton, Millman, Telford, & Thompson, 1973; Levinthal, 2010). This is probably why smokers described cigarettes as "the perfect drug" (Dichter, 1947) and the most difficult one to quit (Hughes, Keely, & Naud, 2004). These statements are supported by both the low percentages of people who were successful in quitting smoking and by the high and steady attrition rates found among the ones that managed to quit, with or without professional support (Mendelsohn, 2011). Given the high prevalence of this type of addiction in Romania (Global Adult Tobacco Survey, 2011) and the difficulties faced by nicotine addicts when trying to both quit smoking and remain non-smokers, the purpose of our research is to investigate the efficiency of an alternative

[1] Alexandru Ioan Cuza University, Iasi Department of Psychology
Corresponding author email: dhendres@psih.uaic.ro

approach to the type of counseling currently available to nicotine addicts in order to try to increase the rate of success among smokers who choose to be professionally assisted when giving up this health risk behaviour.

Psychoanalytical theories on addiction

In 2002, Rik Loose published an extensive theoretical analysis of Sigmund Freud's and Jacques Lacan's theoretical assumptions on the etiology and treatment of addictions. His volume comprises exhaustive presentations of both authors' work on this topic, which will be briefly summarized in this paper. The Freudian theory argues that the use of drugs is meant to replace the satisfaction people derive from social interactions; basically, addiction isolates the individual from the necessary legitimate addiction to The Other, from whom the subject is supposed to obtain healthy validation and confirmation of the self. The difference between the enjoyment one feels as a result of a social interaction and the enjoyment administered through the use of a drug lies within the nature of the gratification felt by the subject. Thus, relating to The Other is unpredictable; it requires personal investment and may engender consequences outside the subject's foreseeable control area. This happens because the success of a communication exchange depends on the reactions of The Other, whereas drugs are silent allies, which offer instant satisfaction without asking for anything in return. However, the addicts know they will pay for this gratification with their own lives. So how come the fear of dying, inherent to all human beings, does not motivate one to quit smoking?

In Freud's opinion, being a part of the human society comes at a cost: the loss of the total pleasure the instant when castration separates the baby from its mother, replacing that absolute satisfaction felt by the baby when all its needs are catered to by its caregiver (conceptualized as the union with the mother) with the limited type we are all used to feeling. Addiction creates the illusion that one can reach that level of absolute pleasure again because the enjoyment offered by drugs is similar to the one felt before castration: just like the infant who was not supposed to do anything to feel the satisfaction engendered by receiving the caregiver's affections and instrumental support, the addict receives unconditional pleasure from consuming his/her drug(s) of choice (Freud, 1912). Hence, addictions are psychologically detrimental because they are used to preserve the condition of being a child by employing fantasies that conciliate the pleasure principle and the reality principle (Nunber & Federn, 1962-1975). This is why Freud recommends treating *the drive* to use substances and not *the use* itself – if people were able to accept the reality of themselves and their lives, they would not need any substitute of parental protection (the idealization of a person or a doctrine, drugs, etc.) to help them conciliate the pleasure principle and the reality principle (Freud, 1898).

Lacanian theory on addiction

In agreement with Freud, Lacan also believes addiction to be the subject's search for an object that can be administered according to his/her own liking in order to satisfy their desire and to regulate the juissance while circumventing The Other. Lacan's concept of *juissance* can be explained in relation with Freud's concept of *pleasure*. Thus, the pleasure principle states that pleasure is obtained by decreasing the psyche's level of stimulation to a bearable one; Lacan regards pleasure as a type of juissance (he calls it "phallic juissance" in his early work, a term that will be used in our paper as well in order to avoid confusion in the methodological sections of this paper). This can be attained through unifying the subject with the lost other – the mother. There are several types of juissance, although when using this term, Lacan is mainly referring to the death drive (negative therapeutic reactions, the compulsion to repetition, nightmares, masochism etc. - Freud, 1920). This type of juissance does not bring pleasure – it is the opposite of that – but the subject is linked to it through his/her repetition compulsion (Loose, 2002). These two main types of juissance were divided from the original juissance when the language had been incorporated in the infant's life (Lacan, Fink, Fink, & Grigg, 2006). Language and signifiers (the others) are said to bring death in the life of the subject. At the beginning of life, the infant feels absolute juissance, absolute pleasure, as it does not have a representation of its body and of the inherent limitations of it. Once The Other, the signifier, teaches the infant to express him/herself through language, the sole concrete ways in which it had previously experienced its physiology are translated in a mental representation of the body. The infant possesses this representation, but it does not belong to it, because it is not the one who constructed it: it has been induced to it by The Other. Hence, the body itself belongs to The Other. In order to obtain pleasure from its erogenous zones, the subject needs to borrow parts of The Other's body, with which the subject will never again feel united. Sexual pleasure becomes partial and is placed outside the subject; this is *castration*, the symbolic act of making transactions with The Other's body in order to obtain pleasure (Lacan, Fink, Fink, & Grigg, 2006).

Language phallicizes the body by transforming the original juissance into phallic juissance, which is directed at obtaining pleasure through the sexual act (Lacan, Fink, Fink, & Grigg, 2006). The sexual act is limited in time, which is why the subject is always frustrated within the phallic juissance: he/she seeks to get from The Other an amount of pleasure that The Other cannot offer. Moreover, the externalization of the juissance in erogenous parts of the body (which happened by the act of attaching verbal tags to them and thus bringing the act of obtaining pleasure into consciousness) leaves behind a certain part of the original juissance that got

"lost in translation" (Loose, 2002). The residual juissance is called the juissance of the body or the juissance of the real, because it stems from the real of the body (somatic sources) and its reason for existing is the inability of language to properly express and, thus, transmit every single need or desire of the subject. This juissance of the real (or of the body) is not sexual, as it has not been phallicized by language, so it cannot be satisfied by The Other. Therefore, it can be compared and even considered equivalent to Freud's death drive, as it most certainly opposes the phallic juissance (the pleasure principle). It thus becomes apparent how this type of juissance can be the object of addiction, as drugs do circumvent The Other in their attempt to satisfy the subject. This is why Lacan said that "there is no other definition for drugs than this one: it is what permits us to break the marriage to the little Willie" (Lacan, 1975, pp. 263-270). We do use language, but language uses us right back; when the subjects wish to liberate themselves from this dominance (with its limits and restrictions), they find themselves in the realm of the death drive, which can be satisfied by drugs, not only because they circumvent The Other, but also because they create the illusion of choice. By using drugs, an individual appears to be controlling both live and death: drugs bring pleasure, hence individuals feel that by using drugs, they can both control their life and that they can control death, by speeding it up. Therefore, when an addict uses a drug, it seems to him/her as if they choose death, thus alleviating the trauma of the unpredictability of death we all have to face. All in all, since drugs cater to a whole range of conflicts between the subject's psyche and reality, the conclusion of Loose (2002) when reviewing the Lacanian theories is that the cause (and the treatment) of addictions lie in the subject himself/herself, as the economy of juissance varies from one individual to another, according to their own life experiences.

Attachment and symbiosis

Mahler (1975) used the concept of *symbiosis* as an ontological construct that depicts the phenomenological realm of childhood: the sensory and mental representation of the infant's ego in the context of an environment made up by a variety of egos experienced as identical with the others. Being guided by Mahler's tradition, the current psychoanalytical use of the term "symbiosis" restricts it to the psychological natural condition of a two or three month old infant that is perceptively aware of the presence of others around him/her and thus continuously seeks to obtain from them social orientation and commitment, although the infant does not yet possess a representation of their separate existence (Horner, 1992). However, Mead (1934) and Pine (1990) have a different theoretical approach on the symbiotic phase, stating that even if the symbiotic mother-infant bond may appear and fully develop at an early age, before the acquisition of language,

it does not necessarily constitute a developmental phase. There is a constellation of moments in which the interaction between the infant and its mother is symbiotic (Pine, 1989) that spreads all throughout the child's life in the form of either a symbiotic wish or entertaining schizoid relationships (Horner, 1992).

If the theory of symbiosis/separation is ontological in nature, Mahler's concept of symbiosis being only quasi socio-biological, Bowlby's theory of attachment is truly socio-biological when it comes to depicting the symbiotic mother-infant bond (Horner, 1992). Thus, the attachment theory "posits systems of specific proximity- and contact-seeking/sustaining behaviors between offspring and parent (and parent-surrogates) which augment and promote, through their inherently protective, guiding, and affiliative servomechanisms, the development of comfortable autonomy and self-reliance." (Horner, 1992, p. 34). Classical psychoanalytic theory regarding the theory of symbiosis/separation presents these two fundamental characteristics of human relationships as two terrible extremes that people feel compelled to choose from: *the loss of the other* (separation) and the *loss of the self* (in the symbiosis with the other). Horner (1992) suggests a change in perspective in order to increase the credibility of this theory: the alternation between a complete union and utter loss could be viewed as the natural alternation of *closeness and intimacy with the othe*r (which sometimes translates into an absolute union) and *solitude and autonomy* (which sometimes manifest as being and feeling completely alone).

Stern (1985; 1983; Stern & Sander, 1980), while describing the subjective constituents of attachment relationships, has provided significant associations between biological and phenomenological states of symbiosis. If the attachment formation subsumes the symbiotic phase, which reaches its climax before the acquisition of language, this means that the infant's experiences in the symbiotic stage will impact the development of his/her attachment style, as Horner's 1992 literature review suggests. Lacan's preverbal juissance (the original juissance) is said to exist during a time of complete union between mother and child that precedes the integration of language (the Law of the Father), which coincides with the description of the symbiotic phase, both chronologically and phenomenologically (Mahler, 1975). Hence, the division of juissance occurs toward the end of the symbiotic phase and / or at the beginning of the separation phase. Lacan proposes that the individual's failures in managing the two types of juissance (the phallic juissance and the juissance of the real) make him/her more likely to circumvent The Other when trying to reach pleasure, as he / she is unable to feel enjoyment with the other due to poor relationship functioning. An insecure style of attachment has been shown to strongly predict relationship functioning (Carnelley, Pietromonaco, & Jaffe, 1994), and it has also been

shown that smokers are more insecurely attached as compared to non-smokers (Kassel, Wardle, & Roberts, 2007). Moreover, the subliminal activation of the symbiotic fantasy was revealed to be efficient in determining people to quit smoking (Palmatier & Bornstein, 1980). In conclusion, people addicted to smoking are more insecurely attached than non-smokers (Kassel, Wardle, & Roberts, 2007) and they seem to have been exposed to traumatic events in the symbiotic stage of development (Palmatier & Bornstein, 1980), thus supporting Lacan's assumptions on addiction. However, the integration of the symbiotic phase in the stages of attachment formation proposed by Horner in 1992 has not been empirically tested yet.

Disgust and juissance

"Society is grounded in disgust", which plays an important role, according to Kristeva (1982), in the differentiation of the infant from its mother which occurs when language penetrates the infant's communication to the mother. The mother-child unity in the symbiotic stage is defined by the lack of differentiation between the subject (the infant) and the object (the mother), the desire for which needs to be repudiated in the interests of the incest taboo through establishing firm boundaries between the subject and the object in the realm of the language (Menninghaus, 2003). In order for the infant to accept the separation from the mother in its struggle for autonomy, it needs to overcome the undifferentiated economy of fluidities and consonant dispositions by rejecting the mother on the grounds of uncleanliness; this rejection is expressed through the affect of disgust (Kristeva, 1982).

The unitary connection between the mother and the child in the symbiotic stage, which translates in the original juissance for the child, is of a corporeal nature, as the mother feeds the infant through her own body; therefore, in order to become autonomous, the child starts to feel disgusted by what links it to the mother, which is food (Menninghaus, 2003). Since the abandoned symbiosis with the mother is both rejected and wanted at different times (Mead, 1934; Pine, 1980), the nature of the disgust is paradoxical, as its objects elicit upon the subject both aversion and an imposed attraction (Kolnai, Korsmeyer, & Smith, 2004). The infant uses disgust to defend him/herself against the desire to merge with the mother – hence, the function of disgust is both preserving and shattering the identity of the subject. This is why Kristeva argues that disgust toward the physical accompanies the division of the original jouissance into phallic juissance and the juissance of the real (Kristeva, 1982). This supports Freud's analysis on disgust from 1930 where he posits that disgust is *a reaction formation*, in which the subjects' unconscious desires are being repressed, the feeling of disgust being a mental mechanism to convince one that what he/she feels to

be attractive is actually repulsive.

The initial disgust felt by the infant when its original jouissance is divided is followed by pre and post-oedipal forms of disgust which occur whenever the child unconsciously seeks to merge with the mother, that is when the phallic juissance prevails against the reality principle introduced by language (the Law of the Father), and "thus entails the danger of a psychotic disintegration of ego and (paternal) world" (Menninghaus, 2003, p. 375). These subsequent forms of disgust are located in the symbolic order (in the realm of the language), from which they "burrow" their social nature, as they are directed toward social transgressions that corrupt (Kristeva, 1982). The function of disgust is to conciliate the phallic juissance with the juissance of the real, as it comprises the two by its paradoxical nature of desiring and rejecting its object, with the purpose of helping the subject to abide by the reality principle (Mennighaus, 2003). The function of disgust is thus similar to the one of addiction; hence, we may conclude that when disgust fails in protecting the individuals, they may use drugs in order to defend their psychological integrity.

Research has shown that the universal taxonomy of objects of disgust includes physical objects, which elicit *sensory / visceral / core disgust* and moral objects, which elicit socio-*moral / moral disgust* (Haidt, Rozin, McCauley, & Imada, 1997). Socio-moral disgust is triggered by threats to social order, such as *moral transgressions (*Rozin, Haidt, & McCauley, 1993), while the objects of core disgust are threats to *physiological integrity* (Rozin, Haidt, & McCauley, 2008). Kristeva's pre- and post-oedipal forms of disgust are therefore covered by the concept of *socio-moral disgust.*

Current research

The main goal of the research we conducted was to bring some empirical support for the employment of a client-focused approach in treating nicotine addiction. To this end, we devised four studies based on the theoretical assumptions stated in the previous sections of this article, studies which aim both at revising and filling gaps in the existing research on nicotine addiction. The individual goals of the studies and their respective hypotheses are presented for each study individually.

Study 1

The aim of this study is to investigate whether a person's attachment style is influenced by his/her symbiotic experiences with the maternal figure, which mainly trace back to early childhood (Mahler & Elkisch 1953), but also occur over one's entire life span (Pine, 1995; Horner, 1992; Stern, Beebe, & Lachmann, 1989; Meissner, 2009). According to Silverman's

theory (1987), people who have had traumatic experiences with their mother figure during the symbiotic and separation phases will harbor unconscious fantasies of symbolically merging with their mothers throughout their lifetime; the subliminal activation of these fantasies was shown to have temporary positive results on the consequences that the traumatic experiences during the symbiotic stage had upon the subject (e.g. Bryant-Tuckett & Silverman, 1984; Silverman, Martin, Ungaro, & Mendelsohn, 1978; Silverman, 1978). Horner's theory provides several arguments for the legitimacy of integrating the traumatic symbiotic experiences as contributing factors to the formation of the attachment style (Horner, 1992). Therefore, we will use the subliminal activation of the symbiotic fantasy to empirically support Horner's theoretical integration of the symbiotic phase in the stages of attachment formation by investigating the following hypotheses: *H1*- The level of attachment-related anxiety will decrease after subliminally activating the symbiotic fantasy of merging with the maternal figure. *H2* - The level of attachment-related avoidance will decrease after subliminally activating the symbiotic fantasy of merging with the maternal figure .

Method

Participants

Our sample of participants consisted of 62 female nonsmoker participants, 17 of which were 20 years old, 12 - 21 years old, 22 - 23 years old and 11 – 25 years old. The participants were enrolled in graduate and postgraduate studies at "Alexandru Ioan Cuza" University of Iaşi, Romania.

Instruments

a. *The attachment style* of the participants was established by their scores on the Experience in Close Relationships – Revised questionnaire (ECR-R; Fraley, Waller, & Brennan, 2000), translated in Romanian by Rotaru & Rusu (in press). ECR-R was devised based on the theoretical model proposed by Bartholomew and Horowitz in 1991. The questionnaire evaluates individual differences across two dimensions: attachment-related anxiety (the degree to which individuals are insecure / secure about the availability and responsiveness of their romantic companions) and attachment-related avoidance (the degree to which individuals find it difficult / easy to be close to others and to depend on them). The adaptation of this instrument to the Romanian language and population was performed by Rotaru & Rusu (in press). This version of the questionnaire is comprised of 24 items, two of which form a Lie Scale, as they are used to point out if the person who fills in the questionnaire has been truthful when answering items 7 and 10. Twelve items measure attachment-related anxiety, while the

remaining ten are focused on assessing attachment-related avoidance. All of the items are rated on a 0 (strongly disagree) to 5 (strongly agree) Likert-type scale and were phrased to be applicable to romantic relationships. This version of the ECR-R that was adapted to the Romanian Language was shown to have good internal consistency with a Cronbach's Alpha of 0.91 for *the anxiety scale* and 0.85 for *the avoidance scale* (Rotaru & Rusu, *in press),* which was confirmed by our statistical analyses, which rendered a Cronbach's Alpha of 0.95 for *the anxiety scale* and 0.96 for *the avoidance scale.*

b. Subliminal activation of symbiotic fantasies. The participants were positioned relatively 100 cm from a 15 inch Samsung (R538) laptop screen where the stimuli were shown on a full screen using the DMDX 4.0.6.0. software. They were first asked to press the key ‘‘Space’’, after which they were exposed to a blank screen with a single black spot in the center for 200 ms. The blank image was followed by the prime stimulus, which was presented for 32 ms and subsequently masked by an image depicting 24 single-spaced rows of 42 black X letters, with no spaces between them, on top of which was a black doodle. The participants were exposed to this mask for 100 ms, after which they were shown a blank image for 100 ms. The prime image was adapted to fit the criteria of the actual stimulus used in the classical studies on subliminal activation of the symbiotic fantasy (Silverman, Martin, Ungaro, & Mendelsohn, 1978), as the original image could not be retrieved. This prime image depicted the outline of a mother holding her baby in her arms in black an white, without any borders between their bodies, to suggest that the mother and the baby were merged in the same entity; at the bottom of the image, the sentence ‘‘MOMMY AND I ARE ONE’’ was written (Silverman et al., 1978). The masks and the priming procedure were adapted according to the mask and procedure used by Coulthard, Rudd and Husain in 2007. The code for the program was written by the experimenter. To ensure the prime had been properly masked, all the participants were asked to describe what they had seen after the blank image with a single black spot in its center and if they had seen anything else except for the masks that followed the prime stimulus. None of the participants reported identifying the prime image.

Procedure

In the first phase of the research, the participants were asked to fill in the ECR-R questionnaire. They were gathered in the library of the C2 dorm in the Târguşor Copou campus and filled in the questionnaires individually**.** Three weeks later, all the initial participants were contacted individually by the same experimenter in their dorm rooms, and each of them was subliminally exposed to the stimulus activating the symbiotic

fantasy of merging with the maternal figure, with the use of the DMDX computer program, which ran on the experimenter's personal laptop (Samsung R538). After the priming, participants' task was to report what they had seen, in order to check whether any participant's visual threshold allowed him/her to see the subliminally presented images. The participants' reports all stated that none of them conscientiously recorded the subliminal stimulus. Finally, the participants were asked to fill in the ECR-R again. The debriefing consisted of informing the participants that the aim of the research was to measure the visual threshold in the perception of certain types of stimuli. Also, the participants were assured of the confidentiality of their personal data. They were not rewarded for their participation in this research.

Results

In order to assess our hypotheses, two Paired Samples T Tests were performed on the collected data in SPSS 17.0. On average, the participants experienced significantly lower attachment-related anxiety after the subliminal activation of their symbiotic fantasies (M = 25.79, SD = 11.28) than before (M = 28.94, SD = 15.53), t(61) = 4.19, $p < .001$, thus confirming the first hypothesis of the study: *H1*- The level of attachment-related anxiety will decrease after subliminally activating the symbiotic fantasy of merging with the maternal figure.

On average, the participants experienced significantly lower attachment-related avoidance after the subliminal activation of their symbiotic fantasies (M = 17.92, SD = 9.60) than before (M = 21.27, SD = 13.53), $t(61) = 5.37$, $p < .001$, thus confirming the second hypothesis of the study: *H2* - The level of attachment-related avoidance will decrease after subliminally activating the symbiotic fantasy of merging with the maternal figure.

Study 2

The goal of this study is to investigate whether individuals addicted to smoking are more insecurely attached than nonsmokers. The very foundation of attachment is given by the participant's degrees of avoidance and anxiety in relation to others (Brennan et al., 1998), and these stem from the patterns that the person has learned to apply in his/her primary relationships (the ones that he/she repeatedly played out in their family): *internal working models of social relationships* (Main, Kaplan, & Cassidy, 1985). The person with insecure attachment learned from his/her early interactions with others that, if he/she relies on others, they will not provide the comfort or gratification needed (Bowlby, 1998). In this context, the object of the addiction becomes crucial in maintaining the illusion that, in fact, the subject does not need satisfaction within social relationships once

he/she has learned to self-gratify via addiction. Thus, the insecure person's attachment-related anxiety could stem from his/her impossibility of controlling the others, namely their actions and their potential effects on the subject, while the attachment-related avoidance could be a behavioral pattern adopted out of cautiousness - the person's attempt to shield himself/herself from the interpersonal contexts in which they could get hurt. In order to investigate these assumptions, we proposed the following hypotheses: *H1* - Smokers have higher levels of attachment-related anxiety as compared to non-smokers. *H2* - Smokers have higher levels of attachment-related avoidance as compared to non-smokers.

Method

Participants

The sample investigated consisted of 60 female participants, 30 smokers and 30 non-smokers. 15 of the participants were 20 years old, 4 participants were 21 years old, 16 participants were 22 years old, 9 were 25 and 11 were also 25. The participants were enrolled in graduate and postgraduate studies at Alexandru Ioan Cuza University of Iaşi, Romania and recruited on the university campuses.

Instruments

a. the participants' *attachment styles* were measured as described in Study 1.

b. The participants labeled as *"non-smokers"* have never smoked up to the commencement of the study, nor throughout its duration, according to their statements. The ones considered to be *addicted to smoking* were individuals who smoke more than 10 cigarettes a day and who had started smoking at least 6 months prior to their participation to this present study. Our criteria regarding the definition of the smoker matched those proposed by Piper et al., 2010.

Procedure

Upon their recruitment for this research, the participants were asked whether they had ever smoked a cigarette, whether they were smoking at that time, when they had started to smoke and, respectively, how many cigarettes a day they usually consumed. The ones that fit our criteria were labeled as *non-smokers* and *people addicted to smoking* by the experimenter (they were not made aware of being labels as such, because the scope of our study did not include such a diagnosis). They were then handed in a copy of the ECR-R and asked to fill it in. The participants that were labeled as being addicted to smoking filled in their questionnaires individually in their places of

recruitment, which were the designated smoking areas in the Târguşor Copou campus. Non-smokers filled in their questionnaires individually in their places of recruitment, which were mainly the socializing areas on the same campus. The debriefing consisted in informing the participants what the true aim of the research was. They were not rewarded for their participation in this research.

Results

In order to assess our hypotheses, two Independent Samples T Tests were performed on the collected data in SPSS 17.0. On average, the smokers experienced a significantly higher level of anxiety in interpersonal relationships (M = 39.17, SD = 18.03) than the nonsmokers (M = 17.57, SD = 8.67), $t(58) = 5.91$, $p < .001$, thus confirming the first hypothesis of this study *H1* - Smokers have higher levels of attachment-related anxiety as compared to non-smokers.

On average, the smokers experienced a significantly higher level of avoidance in interpersonal relationships (M = 30.60, SD = 15.54) than the nonsmokers (M = 11.83, SD = 5.33), $t(58) = 6.26$, $p < .001$, thus confirming the second hypothesis of this study *H2* - Smokers have higher levels of attachment-related avoidance as compared to non-smokers.

In conclusion, the smokers were found to have significantly higher levels of attachment-related anxiety and avoidance as compared to the nonsmokers, which indicates that smokers are more insecurely attached than nonsmokers.

Study 3

The aim of this study is to investigate whether socio-moral disgust will increase a smokers' craving for a cigarette more than core disgust, as the socio-moral disgust is argued to be representative of their individual ability to manage the economies of their juissance, according to Kristeva, 1982 and Menninghaus, 2003. Seeing as socio-moral disgust is elicited as a defense mechanisms against threats to social order, such as moral offenses *(*Rozin, Haidt, & McCauley, 1993), while core disgust is elicited as a defense against threats to the subject's physiological integrity (Rozin, Haidt, & McCauley, 2008), craving for a cigarette more after feeling morally disgusted as compared to after being physically disgusted could be further proof that the professional assistance for nicotine addicts should not be focused on the symptom and its negative consequences on the subject's body. Socio-moral disgust fails to protect the individual against psychological threats, hence he / she needs further help which they find in smoking; interventions focused on physical symptoms and behaviors fail to tackle the underlining psychological issues that actually cause the individual to smoke. In order to

provide empirical support for these theoretical claims, we devised the following hypotheses: *H1* - The initial intensity of craving for a cigarette will increase significantly after they experience socio-moral disgust. *H2* - The initial intensity of the craving for a cigarette will decrease after they experience core disgust. *H3* - The intensity of the craving for a cigarette will be lower for smokers who experienced core disgust as compared to smokers who experienced socio-moral disgust.

Experimental Design

To test these hypotheses, we used a 2 x 2 mixed experimental design, having as independent variables *the moment of measuring the intensity of the craving for a cigarette* (within subjects variable, with two levels: moment 1- before exposing the participants to objects meant to elicit disgust, moment 2- after exposing the participants to objects meant to elicit disgust) and *the type of objects meant to elicit disgust* (between subjects variable, with two levels: physical objects meant to elicit core disgust and psychological objects, meant to elicit socio-moral disgust), and as dependent variable, *the intensity of the craving for a cigarette.*

Participants

The sample investigated consisted of 60 female participants, all smokers, who smoked more than 10 cigarettes a day and who had started smoking at least 6 months before the research (criteria used by Piper et al., 2010 to select their sample of nicotine addicts). 7 participants were 20 years old, 14 participants were 21 years old, 22 participants were 23 years old, 2 were 24 and 15 were 25. The participants were enrolled in graduate and postgraduate studies at Alexandru Ioan Cuza University of Iaşi, Romania.

Instruments

a. Although the *intensity of craving* for a drug has received various definitions over the years, scholars generally agree that it represents the conscious desire to use a drug (Kassel & Shiffman, 1992; Sayette et al., 2000). The duration of the craving after the ingestion of the drug varies by the type of drug used. For example, in the case of smokers who quit, cravings subside after 6 to 12 months, but they randomly reappear from time to time over the course of the person's lifespan (Weinstein, 1999). To assess *craving intensity*, we chose to use the one-item six point scale (0 - no craving, 1 - almost no craving, 2 - craving of a fairly low intensity 3 - some craving, 4 - craving of a fairly high intensity, 5 - craving of a high intensity) because previous research (West & Ussher, 2009) has shown that there are no significant differences in measuring the intensity of craving between the 10 item scales, the 2 item scales, the 16 item scales and the 28 item scales

(West & Ussher, 2009).

b. The *type of disgust-inducing stimuli* (physical objects versus psychological objects) to which our participants were presented were tested in four pilot studies conducted on 15 participants each who possessed social-demographic characteristics similar to the ones of the participants in our study. The pilot studies presented the participants with an image meant to elicit socio-moral disgust by depicting mother-daughter incest, an image meant to elicit socio-moral disgust by depicting hypocrisy, another image meant to elicit physical disgust by depicting insects and, respectively, an image meant to elicit physical disgust by showing vomit and excrement. Each image was followed by two items: the first item asked the respondent to choose the main emotion felt as a reaction to the picture from the 8 primary emotions stated by Tomkins (1963): *interest, pleasure, surprise, distress, fear, anger, shame* and *disgust,* while the second item asked the participants to rate on a scale from 0 to 6 the intensity of that emotion. All of the participants chose *disgust* as their main emotional response to socio-moral disgust-inducing stimuli; the average mean of their self-reported disgust intensity was 5.8 for the image depicting hypocrisy and 6 for the image depicting mother-daughter incest. In what concerns the physical disgust-inducing stimuli, the average mean for the insects' picture was 6, and the average mean of the excrement and vomit pictures was also 6. All of the participants chose disgust as the primary emotion felt as a reaction to the proposed images.

The type of *disgust-inducing pictures* (physical objects versus psychological objects) were chosen according to previous results on the powerful triggers for socio-moral disgust and, respectively, for core / physical disgust. Regarding socio-moral disgust, Rozin and Nemeroff, 1990 and Haidt et al., 1993, identified *incest* and *hypocrisy in the context of cheating on one's spouse* to be among the most morally disgusting objects; regarding core disgust, in 1994 Haidt revealed *insects and bugs, bodily fluids* and *excrements* to be among the most physically disgusting objects.

Thus, we chose to elicit the socio-moral disgust of the participants of this study by presenting them with two pictures that reveal the hypocrisy of a spouse and, respectively, the mother-daughter incest (seeing as all our participants were females). The rationale behind using both images to elicit moral disgust was the distinction made by Kolnai et al., 2004 between the two forms of life likely to elicit disgust: the overabundant life and the decaying, putrefying one. In order to cover both these extremes, we have chosen hypocrisy to represent the moral decay of the woman in the picture (lack of moral character, betrayal, lies) and incest to represent futile overabundance, the excess of life.

The images depicting socio-moral disgust were accompanied by

short descriptions meant to augment the effect of the images upon the respondents. The image depicting incest was accompanied by a text that suggested the mother and the daughter were engaged in an exclusive sexual relationship (neither of the two had other sexual partners). Another purpose of the description was its being the conscious analog of the unconscious symbiotic fantasy of merging with the mother, which is argued to have been the context for the smokers' relational issues; it was these that drove them to addiction when they first appeared (Loose, 2002). The source of the image depicting incest is <www.xvideos.com> and the source of the image depicting the hypocrisy of a cheating spouse is <www.peteava.ro.>; none of these pictures is protected by copyright. However, in order to protect the identity of the characters in the pictures, their eyes were covered with a black stripe. The "hypocrisy" image was also accompanied by a written description meant to augment disgust by emphasizing the fact that the woman who was already sleeping with someone other than her husband would engage in sexual activities with the husband as well, as soon as her lover left the house. The description also stressed *lying* as a trigger of moral disgust by implying that the wife told her husband that her sexy outfit was actually meant to arouse him instead of the lover.

Based on the data gathered by Haidt (1994) and on the theory of Kolnai et al., 2004, the stimuli used in this study to elicit physical disgust were two images representing human contamination and, respectively, the excesses of life in the animal world (the futile redundancy of life). Following the model of the moral disgust stimuli, the picture of human contamination represented the decaying, putrid life forms and the picture with bugs - overabundant life. To enhance the intensity of disgust in the participants, the pictures shown were paired with pathogen cues in colors which reminded them of bodily fluids, as Curtis, Aungher and Rabie (2004) suggested that the presence of pathogen cues amplified disgust. The pictures used were obtained from the websites <www.windowtraveler.blogspot.com> and <www.ratemyvomit.com> and were not protected by copyright laws.

Procedure

The participants were asked to wake up at 06:00 AM on a Saturday morning, in order to naturally crave for a cigarette due to the effects of the morning craving (Shiffman et al., 2000). They were asked to immediately come to the designated smoking areas in their dorms, where the experimenter was expecting them – they arrived at about 06:05 AM. The participants arrived at the location in groups of six so as they could fit into the designated smoking area. Due to the reasons for which we chose to test them on a Saturday morning (they did not have any classes that day and were less likely to stay up late and smoke on a Friday night) and to the

spatial limitations, the experiment extended for a period of ten weeks.

Upon arrival at the smoking area, the participants were asked when they had had their last cigarette; their answers indicated that they had slept for at least five hours, during which time they had not smoked. Each of them were then offered a cigarette, each with the same concentration of tar and nicotine (Tar: 10 mg, Nicotine: 0.9 mg, Carbon Dioxide: 10 mg). Afterward, their craving intensity was measured individually on a 6-point scale. We then exposed half of the participants (three in the groups of six that were tested each Saturday) to the morally disgusting visual stimuli, and the other half - to the physically disgusting visual stimuli. They were assigned to the two experimental conditions randomly, by alphabetical order of their first names (the first three were exposed to the stimuli eliciting socio-moral disgust, and the last three were exposed to the stimuli eliciting physical disgust). A set of printed pictures was given to each participant individually; their task after seeing the pictures was to describe in writing what they saw in the pictures and then the emotions they had experienced, in order to amplify their disgust. They were told they had five minutes to complete the task; they were allowed to look at the images while writing about them. Five minutes later, the intensity of their cravings to smoke a cigarette was measured again on the same 6 point scale. Overall, the experiment lasted less than 10 minutes. The participants had been instructed not to smoke or drink coffee prior to their participation to this research, and the purpose of this study as declared to them was the impact of waking up early on processing visual stimuli.

Results

In order to assess the data gathered from the participants, we used a Mixed Design Analysis of Variance (Mixed Design ANOVA), followed by post-hoc Independent Samples T Tests and, respectively, Paired Samples T Tests. A between subjects effects analysis was performed to analyze the effect of the type of disgust on the intensity of craving for a cigarette, and the results indicated a significant effect, F (1, 58) = 107.05, $p < .001$. On average the participants who felt core disgust (M = 0.61, SD = 0.59) had a significantly lower craving intensity than the participants who felt socio-moral disgust (M = 2.35, SD = 0.69).

A within subjects effects analysis was performed to analyze the differences induced by the two moments of measurement of the intensity of craving for a cigarette, and the results indicated a significant effect, F (1,58) = 94.21, $p < .001$. On average, the intensity of the craving for a cigarette after being exposed to stimuli that elicited disgust (M = 2.15, SD = 2.12) was significantly higher than before being exposed to this type of stimuli (M = 0.81, SD = 0.89), t (59) = -4.25, $p < .001$.

A statistically significant interaction effect of *type of disgust-eliciting stimuli* and *moment of measuring the intensity of the craving for a cigarette* on *intensity of craving for a cigarette* was also revealed, $F(1,58) = 248.78$, $p < .001$.

An Independent Samples T-Test was performed to compare the scores of the participants who were exposed to stimuli that elicited socio-moral disgust to the scores of the participants who were exposed to stimuli that elicited core disgust on their first measurement of their nicotine craving intensity. There were no significant differences between participants who were exposed to stimuli that elicited socio-moral disgust ($M = 0.60$, $SD = 0.72$) as compared to the participants who were exposed to stimuli that elicited core disgust ($M = 1.03$, $SD = 0.99$) on the first measurement of their nicotine craving intensity, $t(58) = -1.92$, $p = 0.059$.

We conducted a Paired Samples T-Test to compare the craving intensity of the participants who were exposed to stimuli that elicited socio-moral disgust on the first measurement to their nicotine craving intensity on the second measurement. The difference was significant, $t(29) = -16.42$, $p < .001$. On average, participants who were exposed to stimuli that elicited socio-moral disgust had a significantly higher nicotine craving intensity on the on the second measurement ($M = 4.1$, $SD = 1.06$) than on the first measurement ($M = 0.6$, $SD = 0.72$).

We conducted a Paired Samples T-Test to compare the nicotine craving intensity of the participants who were exposed to stimuli that elicited core disgust on the first measurement to their nicotine craving intensity on the second measurement. The difference was significant, $t(29) = 4.08$, $p < .001$. On average, the participants who were exposed to stimuli that elicited core disgust had a significantly lower nicotine craving intensity on the second measurement ($M = 0.20$, $SD = 0.40$) than on the first measurement ($M = 1.03$, $SD = 0.99$).

Another Independent Samples T-Test was performed to compare the scores of the participants who were exposed to stimuli that elicited socio-moral disgust to those of the participants who were exposed to stimuli that elicited core disgust on their second measurement of their nicotine craving intensity. The difference was significant, $t(58) = 18.78$, $p<.001$. On average, the participants who were exposed to stimuli that elicited socio-moral disgust ($M = 4.10$, $SD = 1.06$) had a significantly higher nicotine craving intensity as compared to the participants who were exposed to stimuli that elicited core disgust ($M = 0.20$, $SD = 0.40$).

The aforementioned results confirm all three of our hypotheses, as craving for a cigarette was shown to fluctuate according to the type of disgust induced to the participants in the sense that it was lower for the participants who experienced core disgust as compared to those who

experienced socio-moral disgust.

Study 4

The aim of this study is to investigate whether the motivational counseling and therapeutic techniques used in the current approaches to aiding nicotine addicts in order to quit smoking could be improved by shifting the direction of the counselor's / therapist's motivational speech. Research has shown that the current motivational approaches used to help smokers to quit focus on the physical risks of smoking and on physical benefits of quitting (e.g. Herman, & Sofuoglu, 2010; Hughes, 2003; Young, Hopkins, Smith, & Hogarth, 2010). However, nicotine addicts' motivation to smoke is of a psychological nature (as shown in our previous studies); therefore, the purpose of this study is to compare the short-term efficiency of the aforementioned two different motivational approaches on diminishing a smoker's craving for a cigarette. Our hypotheses are: *H1* - The cognitive intervention of informing the participants of the risks of smoking to psychological health will reduce nicotine craving as efficiently as the cognitive intervention of informing them of the risks of smoking to physical health. *H2:* The participants in both experimental interventions will have significantly lower cravings after undergoing the interventions as compared to the participants in the control group. *H3* - The cognitive intervention of informing the participants of the risks of smoking to their psychological health will significantly decrease nicotine craving.

Experimental design

To test these hypotheses, we used a 2 x 3 mixed experimental design, having as independent variables *the moment of measuring the intensity of the craving for a cigarette* (within subjects variable, with two levels: moment 1- before exposing the participants to interventions, moment 2- after exposing the participants to interventions) and *the type of experimental intervention* (between subjects variable, with three levels: intervention of cognitive regulation of craving intensity by informing the participants of the risks of smoking to physical integrity, intervention of cognitive regulation of craving intensity by informing the participants on the risks of smoking to psychological integrity and control group), and as dependent variable, *the intensity of the craving for a cigarette.*

Participants

The sample investigated consisted of 90 female participants, all smokers, who smoked more than 10 cigarettes a day and who had started smoking at least 6 months before the research. 19 participants were 20 years old, 11 - 21 years old, 18 - 22 years old, 10 were 23 and 6 were 25. The participants were enrolled in graduate and postgraduate studies at Alexandru

Ioan Cuza University of Iaşi, Romania and were recruited from the Târguşor Copou campus, in order for them to live in proximity to the C2 dorm.

Instruments

a. *Intervention of cognitive regulation of craving intensity by informing the participants on the risks of smoking to physical integrity.* This intervention was successfully used in decreasing nicotine craving (e.g. Kober, Kross, Mischel, Hart, & Ochsner, 2009), and it consisted in the participants' focusing on the long-term consequences of smoking. The intervention in this study adjusted the original procedure by introducing multiple levels of information, each one describing a major long term health risk of smoking (*lung cancer, cardiovascular diseases, cancer of the mouth, larynx and throat and osteoporosis*). These four physical afflictions were briefly described in the materials given to the participants (Orwing, 2005), which were followed for 15 minutes with the tasks of describing in writing how these ailments would impact participants' lives, in order for them to internalize the information and also to avoid smokers' optimism bias (Arnett, 2000). They were asked to make this description in the first person singular, to mainly use verbs in the present tense (e.g. *"When I suffer from lung cancer, I have increased difficulty in breathing (...) etc"*), and to use the information which they previously read while applying the presented consequences of the illnesses to their own lives.

b. Intervention of cognitive regulation of craving by informing the participants on the risks of smoking to psychological integrity. This intervention had the same format as the previously described intervention, only that instead of presenting physical afflictions that could arise from nicotine use, psychological ailments were described. Thus, the participants in this condition were informed that according to very recent research, smoking could cause: schizophrenia, Alzheimer's disease as a form of dementia, amnestic disorder and delirium. The material they received listed these four types of ailments together with their descriptions from the DSM IV-R (APA, 2000). The participants were asked to carefully read the material, after which they were given 15 minutes to describe in writing how having these diseases would impact their lives, in a manner identical to the one used for the other experimental group.

c. The intervention applied to the control group consisted of a neutral task; the participants were given a description of the life and work of Henri Coandă, their task being to read the text once and then summarize its content in writing for 15 minutes.

Procedure

The participants were asked to wake up at 06:00 AM on a Saturday morning, in order to naturally crave for a cigarette due to the effects of morning craving (Shiffman et al., 2000). They were asked to immediately come to the library in the C2 dorm, where the experimenter was expecting them – they arrived at about 06:10 AM. The participants arrived at the location in groups of thirty, so they could fit into the library in C2. Due to the reasons for which we chose to test them on a Saturday morning (they did not have any classes that day and were less likely to stay up late and smoke on Friday night) and to the spatial limitations of the library, which could not accommodate more than 30 participants at a time, the experiment extended over a period of three weeks. Upon the participants' arrival, they were randomly assigned to one of the three experimental groups by drawing lots. Thirty pieces of folded paper were placed in a box; ten of them had the letter A written on them which stood for the control group, ten had the letter B written on them, which stood for the intervention of cognitive regulation of craving intensity by informing the participants on the risks of smoking to psychological integrity, and the last ten had the letter C written on them, which stood for the intervention of cognitive regulation of craving intensity by informing the participants on the risks of smoking to psychological integrity. Then, they were handed by the experimenter a leaflet that corresponded to the intervention indicated by the letter they drew from the box, a leaflet which comprised four pages. On the first page, the participants were asked to rate their nicotine craving intensity on a six point scale. The second page contained the informative parts of the interventions described in the Instrument's section, while the third page was left blank in order for them to provide the subjective description of how the information they had just read would impact their lives. Finally, the last page of the leaflet asked them to rate their craving for a cigarette again on another 6 point scale. Overall, the experiment itself lasted for approximately 25 minutes.

The second pages of the leaflets handed out to the two experimental groups contained information about the aim of the study, which was said to be testing the participants' knowledge on the dangers of smoking. All the participants were orally debriefed at the end of the experiment regarding the true aim of the study as well as the accurateness of the information they were offered.

Results

In order to assess the data gathered from the participants, we used a Mixed Design Analysis of Variance (Mixed Design ANOVA), followed by post-hoc Independent Samples T Tests and, respectively, Paired Samples T Tests. A between subjects effects analysis was performed to analyze the

effect of the *type of intervention* on *craving for a cigarette*, and the results indicated a significant effect, $F(2,58) = 205.41$, $p<.001$, the mean of craving intensity for the participants who were subjected to the cognitive intervention aimed at decreasing nicotine craving by informing the participants on the dangers of smoking on physical health being 2.57 (SD = 0.49), the mean of craving intensity for the participants who were subjected to the cognitive intervention aimed at decreasing nicotine craving by informing the participants of the dangers of smoking on psychological health being 2.37 (SD = 0.57), and the mean of craving intensity of the participants in the control group being 4.75, (SD = 0.45). The differences between intensity of craving for all three groups are statistically significant. The participants in the control group experienced a significantly higher craving intensity than both groups of participants who were subjected to the cognitive intervention-information on the dangers of physical health (p < .001), and the participants who were subjected to the cognitive intervention-information on the dangers of smoking on psychological health (p < .001). No significant differences were found between the effectiveness of the two experimental conditions, p = 0,387.

A within subject's effect analysis was performed to analyze the differences induced by the two moments of measurement on craving intensity, and the results indicated a significant effect, F (1,87) = 1140.85, p < .001. On average, craving intensity on the second measurement (M = 1.88, SD = 2.16) was significantly lower than the craving intensity on the first measurement (M = 4.58, SD = 0.69), t (89) = 12.04, p < .001.

The analysis of the combined effect of *type of intervention* and *moment of measurement* on *the intensity of craving for a cigarette* revealed a significant interaction effect between the two variables, F (2, 87) = 306.78, p < .001. On the first measurement of craving intensity, the mean of craving for the participants who received physical threat warnings was M = 4.60 (SD = 0.62), the mean of craving for the participants who received the psychological threat warnings was M = 4.43 (SD = 0.86), and the mean of craving for the participants in the control condition was M = 4.70 (SD = 0.54).

A One Way Analysis of Variance was performed to analyze the differences in craving intensity between the physical threat condition, the psychological threat condition and, respectively, the control condition on the first measurement. There were no significant differences between the groups, F (2,87) = 1.16, p = 0.319.

A One Way Analysis of Variance was performed to analyze the differences in craving intensity between the physical threat condition, the psychological threat condition and, respectively, the control condition on the second measurement; the results revealed significant differences between the

groups, F (2,87) = 586.4, $p < .001$. On average, the control group (M = 4.8, SD = 0.41) experienced a significantly higher craving intensity ($p < .001$) as compared to both the physical threat intervention group (M = 0.53, SD = 0.73) and the psychological threat intervention group (M = 0.3, SD = 0.54); there were no significant differences in craving intensity between the physical threat intervention group and the psychological threat intervention group (p =.387).

A Paired Samples T-Test was performed to compare the craving intensity of the participants from the physical threat condition on the first measurement to their craving intensity on the second measurement. The difference was significant, t (29) = 23.58, $p < .001$. On average, the participants from the physical threat condition had a significantly lower craving intensity on the second measurement (M = 0.53, SD = 0.73) than on the first measurement (M = 4.6, SD = 0.62).

A Paired Sample T-Test was conducted to compare the craving intensity of the participants from the psychological threat condition on the first measurement to their craving intensity on the second measurement. The difference was significant, t(29) = 26.31, $p < .001$. On average, the participants from the psychological threat condition had a significantly lower craving on the second measurement (M = 0.3, SD = 0.54) than on the first measurement (M = 4.43, SD = 0.86).

For the participants in the control condition, no significant differences were revealed t(29) = -1.8, p = .083 in craving intensity from the first measurement (M = 4.7, SD = 0.56) to the second one (M = 4.8, SD = 0.41).

These results confirm all three of our hypotheses - a strategy of inducing fear of psychological disintegration is just as efficient in decreasing nicotine craving as a traditional strategy of inducing fear of consequences on physical health.

Discussion

In the attempt to support a client-focused approach in the treatment of addictions, Rik Loose (2002) extensively analyzed all the theoretical claims both Sigmund Freud and Jacques Lacan made on the etiology and treatment of addictions. Based on his theoretical analysis, he argued that addiction is a coping strategy used by smokers to self-regulate their phallic juissance as well as their juissance of the real; their intensities and ways of manifestation in the human psyche are different from one individual to another – hence, the addiction cannot be treated outside of the subject. It is solely the subject's speech that can offer the therapist the insights necessary to adequately address his / her addiction.

The goal of our research was to provide a starting point for setting the empirical foundations of this theory by empirically testing its main assumptions. Freud (1891; 1897) and Lacan (1975) proposed a developmental view on substance abuse, which argues that addicts are more vulnerable to using drugs due to their higher dependency needs that can be traced back to their early years, namely to their experiences with their caregivers during their symbiotic stage. Palmatier and Bornstein (1980) showed that nicotine addicts who were primed with merging fantasies of "the good mother" from early childhood were more likely to quit smoking, which suggests that experiencing "the bad mother" in early childhood (in other words, traumatic experiences with the maternal figure) may have a significant influence on the individual's likelihood of becoming addicted to smoking. Our assumption was that the traumatic experiences from the symbiotic stage impacted the formation of the attachment style in making it more insecure, since smokers were shown to be more insecurely attached as compared to non-smokers (Kassel et al., 2007). However, the link between the ontological concept of symbiosis and the socio-biological concept of attachment was not empirically tested to date. Hence, our first study investigated whether priming the participants with merging fantasies of "the good mother" from early childhood would make them feel more securely attached. Our results confirmed our hypotheses, thus offering empirical support for the potential contribution of traumatic experiences in the symbiotic stage to the attachment formation. In addition to this, we tested the results obtained by Kassel et al. (2007) on a sample of nicotine addicts, in order to see if people who were addicted to smoking (and not occasional smokers) were more likely to be insecurely attached as compared to non-addicts. Our results were in line with the ones presented by Kassel et al. in 2007. All in all, the individual propensity toward developing an addiction to smoking cigarettes may have been partially caused by traumatic experiences with their maternal figure in their symbiotic stage via the formation of their attachment styles.

Lacan's theory (1975) was that drugs are used as personal aids in the individual's effort to manage the economies of both their phallic juissance and their juissance of the real. People's inability to manage their juissance is traced back to the issues they experienced upon the division of their original juissance, during the acquisition of language. Kristeva (1982) suggested that the original division of juissance was mediated by disgust; when language is introduced in the communication of the infant to its mother, the infant is forced to use words (which he / she does not yet master well) in order to convey needs or wishes to the mother. Even when the mother understands the child's desire, she encourages him / her to verbalize it, which breaks the absolute union between the two (Loose, 2002). Hence, in order to accept this

separation from the mother, the child starts feeling disgusted by the nourishment she provides, while not rejecting it completely; disgust is thus employed by the child to defend him/herself against both the desire to merge with the mother, which stems from phallic jouissance, and against the desire to be completely autonomous, which stems from the jouissance of the real (Kristeva, 1982). This initial disgust is argued to develop into socio-moral disgust, which is later used as a defense mechanism against psychological threats (Kristeva, 1982; Haidt, et al., 1993). Since addiction is also argued to be used for this purpose (Lacan, 1975), our third study hypothesized that exposure to stimuli eliciting socio-moral disgust would increase our participants' cravings for a cigarette. This hypothesis was confirmed by our results, which suggests that smokers may be using addiction for purposes which coincide to those of socio-moral disgust, that is to preserve psychological integrity by helping the subject to manage the economies of his / her juissance. The other hypotheses of our third study investigated if the cravings for a cigarette felt by the participants who were exposed to stimuli eliciting socio-moral disgust were more intense as compared to the cravings of the participants exposed to stimuli eliciting core disgust in order to see which type of disgust is associated with higher cravings for a cigarette. Our results showed that socio-moral disgust increases the initial cravings for a cigarette, while core disgust decreases the participants' initial cravings for a cigarette. Since core disgust is a defense mechanism against physical threats, whereas socio-moral disgust protects the individual from psychological threats, our results suggest that nicotine addicts are motivated to smoke when they need to protect their psychological integrity. These findings are also relevant to the therapeutic context of treating nicotine addiction, as they reveal that the therapist or the counselor should focus on the psychological aspects of their clients' addiction more than on physiological aspects. For instance, the current motivational techniques used to help smokers to quit are centered on the physical risks of smoking and on physical benefits of quitting (e.g. Herman, & Sofuoglu, 2010; Hughes, 2003; Young, Hopkins, Smith, & Hogarth, 2010). Our results suggest that a more efficient approach would be to focus on socio-psychological motivational factors, an assumption which we tested in our last study.

Seeing as the main contributors to a person's propensity to becoming addicted were shown to be of a psychological nature, our fourth study compared the efficiency of two therapeutic techniques (one focused on physiological aspects and one focused on psychological aspects) to a control group in reducing the craving for a cigarette. These interventions were adapted from the intervention of cognitive regulation of craving intensity successfully used in decreasing nicotine craving by Kober et al. in 2009. The first intervention used physical risks as the threat meant to decrease the

craving for a cigarette, while the second intervention used psychological risks to decrease the craving for a cigarette. Our results showed that, as compared to the control group, the interventions focused on psychological threats significantly decreased smokers' cravings for a cigarette, which suggests that the short-term effects of our proposed approach are optimal. Future research should focus on comparing the long term effects of a similar intervention in order to reveal whether it is more efficient than the one focused on physiological threats.

One limit of our research is the demographic characteristics of our sample; we conducted all our studies on young female participants because the experimental material used in Study 3 had to be personalized according to the gender of the participant. Future research should test our hypotheses on samples of participants extracted from different populations.

A second limit of our study could be that we did not choose to use control groups in Study 1 and Study 3. We chose this procedure for Study 1 due to the fact that the experimental procedure for a control group would have consisted in the participants' filling in the ECR-R questionnaire twice, three weeks apart. We considered that this would have been indicative of the psychometric properties of the questionnaire – namely, its temporal reliability – which was beyond the scope of our current research. Regarding Study 3, previous research has shown that after smoking a cigarette, the physical craving for another is felt after at least 20 minutes (Levinthal, 2010). Given that our experiment only lasted for 10 minutes, the craving for a cigarette should not have been felt by the participants due to physiological withdrawal. However, future studies should verify our findings while also employing a control group.

Another limit could be the fact that we did not assess whether the participants thought the scenarios presented in Study 3 were realistic, which may have influenced their answers. Future research should check for this variable and maybe use alternative stimuli as well.

One final limit of our fourth study was the fact that some of the participants in our sample were recruited from students at the Faculty of Psychology and Education Sciences. Given their academic background in Psychology, they may have a specific view of psychological pathologies and may have not believed that nicotine addiction could engender psychiatric disorders. Future studies should replicate our findings on a different population.

Reference List

American Lung Association. (1989). The American Tobacco Industry. *American Journal of Respiratory Care Medicine*, 152, 77-89, 1990.

Arnett, J. J. (2000). Optimistic bias in adolescent and adult smokers and nonsmokers. *Addictive behaviors*, 25(4), 625-632.

Ashton, H., Millman, J. E., Telford, R., & Thompson, J. W. (1973). Stimulant and depressant effects of cigarette smoking on brain activity in man. *British Journal of Pharmacology*, 48(4), 715-717.

Bartholomew, K. & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four category model. *Journal of Personality and Social Psychology*, 61(2), 226-244.

Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development.* New York: Basic Books.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). *Self-report measurement of adult attachment: An integrative overview.* In J. A. Simpson & W. S. Rholes (Eds.), Attachment theory and close relationships (pp. 46–76). New York: Guilford.

Bryant-Tuckett, R., & Silverman, L. H. (1984). Effects of the subliminal stimulation of symbiotic fantasies on the academic performance of emotionally handicapped students. *Journal of Counseling Psychology*, 31(3), 295.

Carnelley, K. B., Pietromonaco, P. R., & Jaffe, K. (1994). Depression, working models of others, and relationship functioning. *Journal of personality and social psychology*, 66(1), 127.

Coulthard, E., Rudd, A. & Husain, M. (2007). Motor neglect associated with loss of action inhibition. Journal *of Neurosurgical Psychiatry,* 79(12): 1401-1404.

Curtis, V., Aunger, R., & Rabie, T. (2004). Evidence that disgust evolved to protect from risk of disease. *Proceedings of the Royal Society of London. Series B: Biological Sciences*, *271*(Suppl 4), S131-S133.

Dichter, E. (1947). *The psychology of everyday living*. Barnes & Noble, inc..

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, 78, 350–365.

Freud, Sigmund. (1891d). Hypnosis. *SE*, 1: 103-114.

Freud, S. (1897). Draft K. *The neuroses of defence.* În J. F. Manson (Ed. & Trans.). The Complete Letters of Sigmund Freud to Wilhelm Fliess 1887-1904. Cambridge: Harvard University Press, 1985.

Freud, S. (1898). *Sexuality in the aetiology of the neuroses.* In S.E., III, London: The Hogarth Press.

Freud, S. (1912). *Contributions to a Discussion on Masturbation*. In S.E. XII. London: The Hogarth Press.

Freud, S. (1920). *Beyond the Pleasure Principle*. Standard Edition, 18.

Freud, S. (1930). *Civilization and its discontents* (J. Riviere, Trans.). London: Hogarth Press.

Haidt, J., McCauley, C. & Rozin, P. (1993). The nature of disgust and a scale to measure it. *Psychology and Developing Societies*, 9(1).

Haidt, J., McCauley, C. R., & Rozin, P. (1994)[a]. A scale to measure disgust sensitivity. *Personality and Individual Differences*, 16, 701-713.

Haidt, J., McCauley, C., & Rozin, P. (1994)[b]. Individual differences in sensitivity to disgust: A scale sampling seven domains of disgust elicitors. *Personality and Individual Differences*, 4, 701–713.

Haidt, J., Rozin, P., McCauley, C. R., & Imada, S. (1997). Body, psyche, and culture:

The relationship between disgust and morality. *Psychology and Developing Societies*, 9, 107-131.

Herman, A. I., & Sofuoglu, M. (2010). Comparison of available treatments for tobacco addiction. *Current psychiatry reports*, *12*(5), 433-440.

Horner, T. M. (1992). The Origin of the Symbiotic Wish. *Psychoanalytic Psychology*, 9(1); 25-48.

Hughes, J. R. (2003). Motivating and helping smokers to stop smoking. *Journal of general internal medicine*, *18*(12), 1053-1057.

Hughes, J. R., Keely, J., & Naud, S. (2004). Shape of the relapse curve and long-term abstinence among untreated smokers. *Addiction*, *99*(1), 29-38.

Kassel, J. D., & Shiffman, S. (1992). What can hunger teach us about drug craving? A comparative analysis of the two constructs. *Advances in Behavioural Research and Therapy*, 14, 141-167.

Kassel, J. D., Wardle, M., & Roberts, J. E. (2007). Adult attachment security and college student substance use. *Addictive behaviors*, *32*(6), 1164-1176.

Kober, H., Mende-Siedlecki, P., Kross, E. F., Weber, J., Mischel, W., Hart, C. L., & Ochsner, K. N. (2010). Prefrontal–striatal pathway underlies cognitive regulation of craving. *Proceedings of the National Academy of Sciences*, 107(33), 14811-14816.

Kolnai A., Korsmeyer C., Smith B. 2004. *On disgust.* Chicago, IL: Open Court Publishing Company.

Kristeva, J. (1982). Powers of Horror: An Essay on Abjection. *Trans. Leon S. Roudiez. New York: Columbia UP*.

Lacan, J. (1975). *Culture aux journees d'etudes des cartels*. In Lettres De L'Ecole Freudienne de Paris; 18.

Lacan, J., Fink, B. T., Fink, H. C., & Grigg, R. C. (2006). *Écrits: The first complete edition in English*. WW Norton & Co.

Loose, R. (2002). *The Subject of Addiction: Psychoanalysis and the Administration of Enjoyment*. H Karnac Books Ltd., New York.

Levinthal, C. F., (2010), *Drugs, Behavior, and Modern Society*, 7/E, Hofstra University, ISBN-10: 0205037267 .

Mahler, M. & Elkisch, P. (1953). Some observations on disturbances of the ego in a case of infantile psychosis. *International Journal of Psychoanalysis*, 252-261.

Mahler, M. S., Pine, F., & Bergman, A. (1975). *The psychological birth of the infant.* New York: Basic.

Mahler, M. S. (1968). On Human Symbiosis and the Vicissitudes of Individuation. *Infantile Psychosis, 1968, 1.*

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the society for research in child development*, 66-104.

Meade, G. H. (1934). *Mind, Self and Society.* Ed. C. Morris. Chicago: The University of Chicago Press.

Meissner, W.W. (2009). The Genesis of the Self II: The Developmental Progression from Infancy to Rapprochement. *Psychoanalytic Review,* 2009; 96; 2, p. 219.

Mendelsohn, C. (2011). Nicotine dependence: why is it so hard to quit?. *Medicine Today*, 12(10).

Menninghaus, W. (2003). *Disgust. Theory and History of a Strong Sensation*. New York: State University of New York, Albany.

Nunber, H. & Federn, E. (Eds.). (1962-1975). *Minutes of the Vienna Psychoanalytic Society*. Vol. 1-4. New York: International Universities Press.

Owing, J. H. (Ed.). (2005). *Smoking and health: new research*. Nova Publishers.

Palmatier, J. R. & Bornstein, P. (1980). Effects of subliminal stimulation of symbiotic merging fantasies on behavioral treatment of smokers. *Journal of Mental & Nervous Disease*. 168; 12: 709-783.

Pine, F. (1985). *Developmental theory and clinical process.* New Haven, CT: Yale University Press.

Pine, F. (1989). *On history and psychoanalysis*. Psychoanalytic Psychology, 6(2), 121-135 .

Pine, F. (1995). *One psychoanalysis composed of many*. Unpublished paper presented at a workshop sponsored by the Toronto Institute For Contemporary Psychoanalysis, March 4, 1995.

Romania Ministry of Health. (2011) : *Global Adult Tobacco Survey*, Ministry of Health Romania, 2011. Retrieved from http://www.ms.gov.ro/documente/Global%20Adult%20Tobacco%20Survey%20Romania%202011_9425_7779.pdf

Rotaru, T.S., Rusu, A. (in press) Psychometric Properties of the Romanian Version of Experiences in Close Relationships-Revised Questionnaire (ECR-R) in Procedia - Social and Behavioral Sciences. [ISI Proceeding]

Rozin, P. & Nemeroff, C. (1990). The contagion concept in adult thinking in the United States: transmission of germs and interpersonal influence. *Ethos*, 22(2): 158-186.

Rozin, P., Haidt, J., & McCauley, C.(1993). *Disgust: The body and soul emotion.* In T. Dalgleish & M. Power (Eds.). Handbook of cognition and emotion. Chichester, UK: Wiley

Rozin, P., Haidt, J., & McCauley, C. (2008). *Disgust.* In M. Lewis & J. Haviland (Eds.) Handbook of emotions, 2nd edition, (pp. 757-776). New York: Guilford Press.

Sayette, M. A., Shiffman, S., Tifanny, T. S., Raymond, S. N., Christopher, M. S. & Shadel, W. G. (2000). The measurement of drug craving. *Addiction*, 95(Supl. 2): S189- 210.

Shiffman, S., Elash, C. A., Paton, S. M., Gwaltney, C. J., Paty, J. A., & Clark, D. B. (2000). Comparative efficacy of 24-hour and 16-hour transdermal nicotine patches for relief of morning craving. *Addiction*, *95*(8), 1185-1195.

Shiffman, S., Patty, J. A. Gnys, M, Kassel, J. A. & Hickox, M. (1996). First lapses to smoking: Within subject analysis of real time reports. *Journal of Consulting and Clinical Psychology*, Vol. 64(2), 366-379.

Silverman, L. H. (1978). Unconscious symbiotic fantasy: a ubiquitous therapeutic agent. *International journal of psychoanalytic psychotherapy*, *7*, 562.

Silverman, L. H., Martin, A., Ungaro, B., & Mendelsohn, E. (1978). Effect of subliminal stimulation of symbiotic fantasies on behavior modification

treatment of obesity. *Journal of Consulting and Clinical Psychology*, 46, 432-441.

Stern, D. B. & Sandler, L. (1980). New knowledge about the infant from current research: Implications for psychoanalysis. *Journal of the American Psychoanalytic Association*, 28, 181-198.

Stern, D. B. (1983). *The early development of schemas of self, other, and 'self with '*. In Reflections on Self Psychology, ed. J. Lichtenberg and S. Kaplan. Hillsdale, NJ: Analytic Press, pp. 49–84.

Stern, D. B. (1985). *The interpersonal world of the infant: A view from psychoanalysis and developmental psychology*. New York: Basic Books.

Stern, D. B., Beebe, B. & Lachmann, F. (1989). Representation and Internalization in Infancy: Three Principles of Salience. *Psychoanalytic Psychology*. 11, 127-165.

Tomkins, S. S. (1963). *Affect, imagery, consciousness*. Vol. 2, The negative affects. New York: Springer.

Weinstein, I.B. (1999). Cancer. Addiction to oncogenes–The Achilles heal of cancer. *Science* 297, 63–64.

West, R. & Ussher, M. (2009). Is the ten-item Questionnaire of Smoking Urges (QSU-brief) more sensitive to abstinence than shorter craving measures? . *Psychopharmacology* , 3, 502-511.

Young, R. P., Hopkins, R. J., Smith, M., & Hogarth, D. K. (2010). Smoking cessation: the potential role of risk assessment tools as motivational triggers. *Postgraduate medical journal*, *86*(1011), 26-33.