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A Qualitative Study Exploring the Application of Clinical Hypnosis to Decondition Cue Reactivity in Smokers

This dissertation is being submitted in part fulfillment of a Master's Degree in Clinical Hypnosis for the University of West London

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My Parents.

For whom mere words are not enough.

Abstract

A large body of research evidence shows that cue reactivity plays an important role in the development and maintenance of tobacco smoking. A review of this research identified a gap where clinical hypnosis had yet to be applied in attempting to decondition this cue reactivity. A method was therefore designed that incorporated the use hypnosis with an anchoring technique to decondition the cue reactivity to extinction. The technique was standardised as far as possible to allow for reproducibility. Ethical clearance was granted by the University of West London.

A group of 4 participants (2 male and 2 female) aged between 33 and 38 were selected from the researchers private practice. Any gender variances on quit rates were to be examined along with the impact the menstrual cycle may have on smoking, cessation and cue reactivity.

A qualitative research method was used to analyse the subsequent data retrieved from semi structured interviews taken 4 weeks post treatment with Thematic Analysis being employed to develop 5 strong themes. 4 weeks post treatment, 3 participants had remained abstinent and 1 participant had relapsed after 3 days on exposure to a cue. The development of the themes resulting from the data showed a strong influence of the locus of control in determining whether the individuals remained abstinent and also impacted the subsequent themes. No meaningful data on gender differences or the impact of the menstrual cycle were found. Further research is recommended with emphasis on the standardisation of techniques.

List of Abbreviations

CBT: Cognitive Behavioural Therapy

CET: Cue exposure Therapy

DA: Discourse Analysis

DSM: Diagnostic and Statistical Manual of Mental Disorders

EMDR: Eye Movement Desensitisation and Reprocessing

FMRI: Functional Magnetic Resonance Imaging

IPA: Interpretative Phenomenological Analysis

LOC: Locus of Control

MC: Menstrual Cycle

NA: Negative Affect

NRT: Nicotine Replacement Therapy

NHS: National Health Service

RCT: Randomised Controlled Trials

REBT: Rational Emotive Behaviour Therapy

SHSS: Stanford Hypnotic Susceptibility Scale

TA: Thematic Analysis

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Chapter 1.
Introduction

1.1 Background

The World Health Organisation estimates there are 1.3 billion smokers worldwide and that smoking causes around 5 million deaths globally and is the cause of 1 in 3 cancer deaths (WHO, 2011). These facts, along with their projections that the number of deaths is set to rise by a further 3 million a year, tobacco smoking can be seen in pandemic proportions. Education on public health along with smoking bans coming into force in some U.S and European areas has resulted in a decline in smoking in wealthier countries but is increasing globally, especially in developing countries (Hoorn, 2005).

Smoking related disease treatment costs the UK National Health Service (NHS) approximately £2.7 billion a year (Callum, 2010), whilst one study puts the total cost to society as high as £13.74 billion (Allender, 2009). Revenue from tobacco tax earned the UK Government £12.3 billion in the 2012-13 financial year , while expenditure on direct smoking cessation treatment was £87.4m, down by 0.5 million on the previous year's figure of 88.2 million (ASH, 2014). The cost of each individual cessation treatment in the same year was £235, although this figure does not include pharmacotherapy expenditure **(**HSCIC, 2013).

Of those using NHS smoking cessation services, 56% quit without any pharmacotherapy intervention. (HSCIC, 2013). Most smokers report that they want to stop and engage in several quit attempts (CDC, 2011) but abstinence rates are only 20–33% six months after quitting (Fiore et al., 2008), with relapses sometimes happening years after the cessation attempt (Turner et al., 2013).

1.2 Current Interventions

Smoking cessation treatment in the UK targets nicotine addiction as the main cause of smoking and as such is based on pharmacotherapy interventions (NHS, 2012). Medications such as Zyban (Bupropion) and Champix (Varenicline) are said to double the quit rate compared to no treatment although the former has been linked to seizures and suicidal thoughts while the latter has shown side effects of hallucinations and heart attacks (NHS, 2012). The primary focus of NHS treatment is Nicotine Replacement Therapy (NRT) (NHS, 2012) and although there is strong empirical support of NRT in smoking cessation (Silagy et al., 2004), the question would have to be asked as to the impartiality of studies that lend their weight to this support. In a meta analysis of the impact of pharmaceutical company funding of NRT Radonomised Controlled Trials (RCT), results showed that over half of the trials published were supported in some way by

NRT manufacturers (Etter et al., 2007) and also found that in RCTs supported by the NRT industry, significantly more positive results were likely to occur.

There are currently no NHS treatments that solely target the psychological component of smoking behaviour (NHS, 2012) yet compelling arguments such as Piper et al., (2004) research make the point for targeting effective behavioral and psychological mechanisms in developing new smoking cessation treatments. In their research into brain reactivity to smoking cues Janes et al., (2010) argue that constructing a better comprehension of the neurobiological mechanisms that underlie smoking cue reactivity could lead to more effective new treatments. Researchers in Israel argue that nicotine is not addictive in the physical sense in the way that drugs such as heroin are, which causes true biological based withdrawal symptoms (AFTAU, 2010)

1.3 Aims

Research shows that smokers are sensitized to smoking related cues and that this influences relapse rates (Engelmann, 2012). Functional magnetic resonance imaging (fMRI) research into cue reactivity in smokers has found blood oxygen level increases in response to smoking cues in brain regions that are associated with emotional and salient stimuli (McClernon et al., 2009). These findings suggest that smoking-related cues sensitise the smokers' attention. Research by Shiffman (2009), suggests that the effects of NRT interventions in combating these environmental cues are mixed. As Kroger, (1977) comments that conditioning is more rapid in hypnosis, the point could be made that in trance, deconditioning could be equally as rapid. This point along with Shiffman's (2002) research that suggests external environmental cues increase the likelihood of smoking led to the hypothesis that clinical hypnosis can decondition these cues and that hypnosis is ideally placed to treat cue reactivity in smokers.

The aim of the research is to design a mechanism to examine whether personal, individual smoking cues can be deconditioned to extinction with clinical hypnosis. One restriction of the study is that a small sample number of 4 (2 males and 2 females) is to be used which does not lend itself to statistical validity. However, a qualitative approach with Thematic Analysis (TA) will be used to analyse the data which could explore the deeper psychological components that may impact smoking behaviour and cessation outcomes that would not be possible with a quantitative approach.

1.4 Hypnosis

The medical use of hypnosis was approved by the British Medical Association in 1892 (BMA, 1892) and reinforced again in 1955 (BMA, 1955). The American Medical Association followed with it's approval in 1958 (AMA, 1958). The efficacy of hypnosis in the treatment of various issues such as irritable bowel syndrome (Whitehead, 2006), temporomandibular disorders (Simon, 2000) and migraines (Hammond,

2007), is well documented. Despite this, the evidence for the efficacy of hypnosis in the application of smoking cessation is currently weak (Johnson, 2011).

A Cochrane review in 1998 showed extreme variations of success in treating smoking with hypnosis, with some results very low and some very high (Abbot et al., 1998). A meta analysis of smoking cessation and hypnosis in 1992 found what at first appeared to be impressive results in that hypnosis showed a 36% higher success rate than other interventions such as NRT (Viswesvaran & Shmidt, 1992). However, on closer examination there was a large variation in the techniques used in the studies ranging from relaxation, simple suggestions and complex imagery with some of the reports failing to describe the techniques used in detail at all. A further Meta analysis in 2000 found that within the 59 studies examined, many failed to include control groups and the analysis concluded that hypnosis was comparable to treatments that did not use hypnotic interventions (Green & Lynn, 2000). With this wide variance of techniques and research methods used, it becomes clear that standardisation of any approach must be key if hypnosis studies are to stand up to rigorous scrutiny. This study therefore, will attempt to allow reproducibility of the techniques used with the aim of future research should the outcomes be positive. However, it must be noted that due to the nature of hypnosis, no one experiment will ever be 100% reproducible. The individualistic aspect of hypnosis it could be said is its strength, but when it applies to research that can be replicated, it is its inherent weakness as well. The personal style of each individual hypnotist plays a large part in therapy, with the tone, inflection of the voice and delivery of suggestions all varying between therapist regardless of standardisation of script or technique.

1.5 Conclusion

Despite extensive research no studies could be found where hypnosis had been used to treat the cue reactivity/smoking relationship, so as far as can be ascertained, this is the first research project in the world to explore this area. This dissertation will proceed chronologically beginning with a review of the literature relevant to the question including research studies, journals and relevant theories. The research design and methods to be used will be introduced and justified using the philosophy and research that underpins them. The results of the TA stemming from the interviews and subsequent data will be displayed but with only brief comment. The discussion will critically analyse and appraise these findings, comparing outcomes with the theories grounded in the literature review. Any criticisms or failings of the research design that may become apparent will be addressed here. A summary will review and compare the original intentions and aims of the research question to the results and findings.

Chapter 2
Literature Review

2.1 Introduction

Research evidence is increasing that cues contribute to smoking and that attenuating these cues could help in the cessation of smoking (Santa Ana et al., 2009) although knowledge of the factors that modulate cue reactivity is incomplete (Jasinska, et al., 2013). Studies into cue exposure and smoking show that cues can not only induce craving but demonstrate how smokers react in different ways when responding to the cues showing the complex and individualistic nature of smoking (Ferguson & Shiffman, 2009). There is a wealth of clinical reports on the use of hypnosis in the treatment of smoking, but there is almost no good evidence from research studies that point to the efficacy in this field (Johnson, 2011). Furthermore, no research could be found where hypnosis has been used to treat cue reactivity in smokers. Hypnosis is an approach that is widely used as a smoking cessation therapy, and as Lyn (2010) comments, the evaluation of clinical findings in this area is of vital importance. The reviewed literature identifies a gap where hypnosis could play an important role in deconditioning the cue reactivity that maintains smoking behaviour.

2.2 Measurement of craving

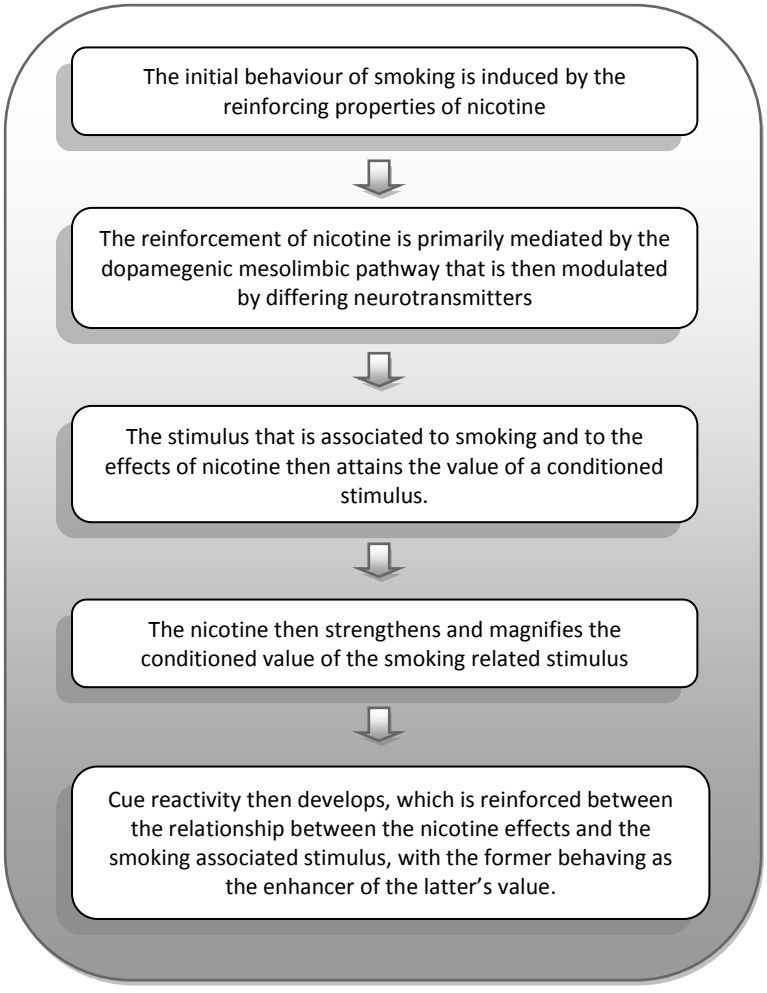
Research by Carpenter et al., (2009) makes the point that the definition of cue reactivity in smokers is an important conceptual issue and ask whether it should be measured in isolation to a specific cue alone, relative to an independent neutral control cue, or relative to a baseline control, for example a pre/post assessment. This is a valid point and defining how it should be measured can create a more scientific, measurable framework for future research into cue reactivity in smokers and could move towards a more standardised ideal. This argument is strengthened further if their findings answer the question of whether craving due to cues can predict smoking behaviour with a qualified yes, but with the caveat being exactly how the cravings are measured. Their research also showed that the level of dependency on nicotine may moderate the inter-relationship that exists between the cue and the smoking behaviour, so that the relationship is not as strong among high dependency smokers as among those with low nicotine dependency. Although other research studies concur with these findings, (Rehme et al., 2009, Vollstädt-Klein et al., 2011), Smolka et al., (2006) found the opposite to be the case where smokers with high dependency were found to be more reactive to cues.

It is uncertain why the above differences appear and show conflicting results between the studies although there are considerable variations in the methods used in the various examples, ranging from self reporting in Carpenter's (2009) research to psychophysiological assessments such as blood flow level in Vollstädt-Klein's work. Commenting on these discrepancies further Cui et al., (2012) point to other sampling characteristics such as race and sex along with the duration of smoking deprivation that may have impacted the relationship

of cue reactivity and dependency and made it more complicated. These points could suggest that cue reactivity may not reflect how much an individual smokes, but rather a marker of stimulus control, the amount to which craving is triggered by environmental cues.

Most research studying craving amongst smokers tends to concentrate on background craving, that is to say the craving that is relatively steady after quitting lasting for hours to days, rising and falling at a slow rate. Research by Ferguson et al., (2006) show that the intensity of background craving can actually predict relapse in smokers. In conjunction with background craving is episodic craving. These sporadic moments of high intensity craving are triggered by cigarette related stimuli (Ferguson & Shiffman, 2009). Research by Carter & Tiffany (1999) shows that smoking stimuli produces more intense episodic craving than those addicted to alcohol or opiates and that just as background craving can predict relapse, so too can episodic craving with individuals who demonstrate high cue reactivity to smoking stimuli being less likely to make a successful quit attempt. The incentive salience system model of cue related craving developed by Robinson & Berridge (1993) suggests that motivational value from perceptual representations are attached to the dopaminergic reward system. This results in items that are smoking related obtaining high motivational value compared to neutral items. The development of the smoker's relationship with nicotine and cue reactivity (Chiamulera, 2004) is shown below.

2.3 *Fig.1* The multiple action model of cue reactivity



If this model is viable, then when NRT is used as a singular approach to smoking cessation, a vital component (cue reactivity) of the smoking problem is being missed, thus strengthening the argument that treating the cues could yield more positive cessation and abstinence rates.

A study in Tel Aviv argues that cigarette craving has more to do with the psychosocial element of smoking than the physiologically addictive properties of nicotine alone (Dar, 2010). The research, across 2 studies, examined the smoking behaviour of male and female flight attendants on both long and short haul flights, varying in duration between 3 and 13 hours. Craving levels were measured using a questionnaire. The results showed that the length of the flight had no impact on the level of craving but craving was significantly higher at the end of flights suggesting that craving increased in anticipation of the aircraft landing. This is indeed borne out by research conducted by Mahler and De Wit (2010) that shows there is evidence of smokers susceptible to craving after periods of abstinence elicited by stimuli but not by cigarette withdrawal alone. There is also evidence that the above mentioned anti-smoking posters can often work in the reverse manner intended. In a report on cue exposure in smokers it was found that one anti smoking advertisement showing just a burning cigarette with no human figures presented was found to elicit smoking urges (Sayette and Hufford, 1994). Dar (2010), makes the point that the craving is cue reactivity as opposed to nicotine and its physiological effects. In his earlier research Dar (2010), interviewed religious Jews regarding their craving when prohibited to smoke on Sabbath days. The subsequent findings showed that craving levels were low in the mornings and were high towards the end of the day as anticipation grew as the end of the Sabbath grew near. Craving on days when smoking was not forbidden was the same level as the Sabbath, suggesting that nicotine deprivation plays a very small role in craving. On the results of these 2 studies Dar (2010) comments: *"These findings might not be popular with advocates of the nicotine addiction theory, because they undermine the physiological role of nicotine and emphasise mind over matter when it comes to smoking,"* He concludes that future treatment will be enhanced if smokers understand their behaviour as a habit and not an addiction. The above research strengthens the argument that cue reactivity is a strong component of the smoking problem.

2.4 Cue Reactivity and the Brain

There is research that shows brain reactivity to images associated with smoking is higher in individuals who relapse after a short period of abstinence after quitting with NRT (Janes et al., 2010). Using functional magnetic resonance imaging (fMRI), the research involved 21 women (who met the DSM IV criteria for nicotine dependence) undergoing neuroimgaing before taking part in a smoking cessation trial. Results suggests that these relapsed individuals may be less able to regulate emotional responding to smoking cues and have more attentional bias to words associated with smoking. The study used a neuroanatomic model to examine the effects of smoking cue reactivity on certain regions of the brain. The insula area of the brain was focused upon as it is responsive to cue reactivity (Naqvi & Bechara, 2009), and could attenuate craving

induced by cue reactivity (Gray & Critchley, 2007). It is also thought to be critical in the maintenance of nicotine dependence (Naqvi et al., 2010) and is the site of interoceptive awareness, being active during subjective feeling states (Craig, 2009). This last point furthers the argument for applying clinical hypnosis to smoking cue reactivity as hypnosis intensifies the perceptual and cognitive factors in feeling states, to bring about behavioural changes (Kroger et al., 1976). The researchers concluded that fMRI can predict outcomes in short term smoking cessation, which could lead to targeting those that could benefit from a more personalised approach that attempts to change insula reactivity to smoking cues. It could be argued that the research was limited by the fact that only women were selected for the trial and so cannot generalise to men. No control was used for the menstrual cycle to measure any influence these factors may have had on the results.

In contrast to the above research, another fMRI study into cue reactivity in smokers focused on the ventral striatum area of the brain (David, et al., 2005). In this study, believed to be the first of its kind to explore activation of the ventral striatum due to smoking cues, 26 participants were presented with smoking related and neutral images while undergoing fMRI. The results demonstrated that the smoking participants, but not the non smoking control, showed activation in the ventral striatum to smoking related images as opposed to the neutral images. The research puts forward the idea that the activation of the ventral striatum could be as a result of neuroplasticity within the mesoaccumbens dopamine system in long term smokers. This, they argue may be mediating smoking cue reactivity and as such, ventral striatum activation could indicate dopaminergic dysfunction. These last two points it must be said, are only speculative as the researchers did not have positron emission tomography data to examine dopamine receptor D2 binding in the participants.

The argument for tailoring smoking cessation programs to an individual's genetics is made in one fMRI study where the relationship between the CYP2A6 genotype (which mediates nicotine metabolism) and smoking cue reactivity was explored (Tang et al., 2012). The study involved 169 smokers who were screened for the CYP2A6 genotype and their rate of nicotine metabolism. 31 smokers were then selected with the slowest and fastest rates of metabolism for fMRI. The results showed that the fast nicotine metabolisers by genotype or phenotype demonstrated far greater responses to smoking cues than those in the group that metabolized nicotine at a slower rate. The results showed this reactivity taking place in not only the insula and the ventral striatum as in the above two studies but also across the ingulate cortex, the hippocampus and the amygdala. One research study showed that that these fast nicotine metabolisers have lower cessation rates than fast metabolisers (Schnoll et al., 2009). 568 participants took part in the research that used counselling and a 21mg transdermal nicotine patch for 8 weeks with controls in place for nicotine dependence, age, race and sex. One criticism that could be made of the study is that no placebo was used. After 8 weeks, the fast metabolisers were 50% less successful at quitting than the fast metabolisers. The study was not exploring cue reactivity in smokers, but differing pharmacological interventions tailored to the rate of metabolism in individuals. The point could be made though, that as the previous study shows that fast

metabolisers are more sensitised to smoking cues, and that focusing purely on nicotine and neglecting to treat the cue reactivity could be omitting an important component that maintains smoking behaviour.

Research by Bloom et al., (2013) concurs with targeting smoking cessation treatment towards the personality of the individual. They comment that a better understanding of the personality, neural and cognitive elements that maintain nicotine dependence, could contribute to better interventions, such as improved targeting of treatments that match the personal characteristics of individual smokers.

A meta analysis of fMRI research into smoking cue reactivity carried out by Engleman et al., (2012) came to some surprising findings not least being the discovery of cue reactivity in the precuneus, which is not normally associated with areas of the brain that maintain addiction. The research sought to address the issue of why studies suggest numerous regions of the brain are being activated in cue reactivity by using likelihood estimation meta analysis from different fMRI studies. Statistical maps were then created to identify the brain regions that are consistently cue reactive, with the definition of reactivity being the difference between responses of neutral and cigarette related cues. Clusters of cue reactivity to smoking/non smoking stimuli under fMRI were extracted using the likelihood estimation analysis and were found to involve 44 regions of the brain being activated. Most of these clusters were found in the extended visual system, suggesting that a smoker's attention becomes biased towards visual smoking related cues by increasing activation in the extended visual system. The researchers make the point that future smoking cue reactivity research and treatment should place importance on the role that the extended visual system plays in maintaining smoking behaviour. Hypnotherapy may have a role play in future application to practice as Kroger (1977) points out that hypnosis greatly facilitates imagery and so it could be said is ideally placed in changing the mechanisms that activate the extended visual system and attention bias of smokers. Limitations to the above meta analysis are that in the literature selection, 25 of the 36 studies were eventually excluded as not being suitable. It could be said that other areas of the brain are activated during cue reactivity but due to the small sample size the results may not have reflected this.

2.5 Gender Differences

As the research involves two males and two females, any differences in the data between the genders will be examined and the role that the menstrual cycle (MC) plays, if any, in cessation outcomes and if it impacts cue reactivity. Smoking produces the same physiological effects for both genders, such as skin temperature decrease, blood pressure increase, and heart rate increase but studies suggest that males experience stronger positive reinforcement from the effects of nicotine than females (Cepeda-Benito et al., 2004).

The subjective effects of smoking, such as the social situations in which they associate with smoking appear to effect females to a greater degree than males (Xu et al., 2009). These findings may point to why females find it harder to quit that males (Perkins & Scott, 2008), and NRT has more successful cessation outcomes amongst males than females (Xu et al., 2009).

Evidence is in increasing that points to the MC affecting craving and that timing the quit date with specific phases of the MC may impact the success rates of cessation attempts. One study involved 34 women between the ages of 18-40 who were given 2 counselling sessions and a transdermal nicotine patch (Carpenter et al., 2008). The participants were in two groups, 19 were in the luteal phase (premenstrual) and 25 in the follicular (preovulatory) of the MC. Two weeks post treatment, 32% of the follicular phase group were abstinent as opposed to 19% in the luteal phase group.

Research by Franklin et al., (2009) concurs with the above study in suggesting that treatment should be scheduled with the follicular phase to achieve better cessation outcomes. Their study examined 31 women over an 8 week treatment plan incorporating NRT and behavioural interventions with participants split into follicular and luteal groups. Post treatment, 71% of the follicular group were not smoking compared to 29% of the luteal group.

Contrary to the above studies, research by Allen et al., (2009) suggests the opposite in that attempting to stop in the follicular phase produces worse cessation outcomes compared to stopping in the luteal phase. It is unclear as to why the opposite outcomes were found in the previous two studies, however the fact that the latter research was far longer with participants being followed up regularly throughout 26 weeks may have been a factor. In the initial two weeks post treatment the results showed that the follicular group had higher abstinence rates than in the luteal group. The argument could be made for standardising post treatment analysis in future studies.

As cue reactivity and smoking is the primary focus of this study it is important to note that research suggests the MC influences this relationship. A study carried out by Franklin et al., (2004) among 17 follicular and 24 luteal phase females found that the follicular group showed significantly less craving when presented with smoking related stimuli. Contrasting results were found in research by Gray et al., (2009) where results suggest more craving when exposed to in vivo smoking cues in the follicular phase as opposed to the luteal phase. The point could be made that the MC does affect smoking cessation rates and cue reactivity, and although research is scarce and knowledge of the relationship poor, it only serves to reinforce the argument for personalising cessation treatments, especially for females who may have made several quit attempts but failed.

2.6 Treatment of Cue Reactivity

Relatively few studies could be found that have concentrated on treating the cues that induce craving and smoking behaviour. Because the cue reactivity/smoking relationship is believed to be as a result of classical conditioning, Behavioural Therapy and Cue Exposure Therapy (CET) would appear to be the most obvious choice of therapy in extinguishing the conditioned response but despite this, only a small body of research has systematically evaluated exposure therapy relationship in regards to the addiction of nicotine. Exploring the treatment of cue-induced cravings in cigarette smoking Ferguson & Shiffman (2009), question the efficacy of CET in the application of cigarette smoking. However, questions could be asked of this assumption as their main findings were based only based on one controlled study by Niaura et al., (1999). The research involved 129 smoking participants being assigned to 4 different treatment groups comprising of 1 treatment session of either; 1. Cognitive behavioural therapy, 2. Nicotine chewing gum combined with cognitive behavioural therapy, 3. CET and cognitive behavioural therapy, 4. CET, nicotine chewing gum and cognitive behavioural therapy. The results showed no significant differences between the groups in the point-prevalence abstinence rates at the 1, 3, 6 and 12 monthly follow up post treatment. They concluded that the findings called into question the efficacy of CET in preventing smoking relapse. The point could be made here that if no significant difference was found between the groups then the efficacy of the cognitive behavioural therapy and nicotine chewing gum could also be called into question. Ferguson & Shiffman, (2009) conclude their analysis of cue reactivity treatment with the comments that they found no evidence that CET attenuates craving or is an effective approach in tobacco addiction.

In contrast to their comments, research by Unrod et al., (2013) took a different approach in employing a 6 session CET approach amongst 159 smoking participants and came to a more positive conclusion. Highly personalised cues were used by asking the participants to take photographs of stimuli associated with their smoking habits which were then played back on a computer screen without pairing the image with a cigarette. These personal cues, it could be said, are far more powerful than using stock images such as an ashtray or a burning cigarette which whilst could induce craving, would not have the same impact as a personal cue. Across the sessions, their findings showed a progressive decline in cue reactivity until extinction was achieved. The researchers concluded that CET can indeed cause cue reactive cigarette craving to become extinct under laboratory conditions. Their research goes someway to strengthening the point made earlier that staging the therapy over several sessions (in this case 6) could prove to be more powerful than a single session. Two criticisms of the approach could be levelled at the above research. The first being the fairly high rate of attrition as only 100 of the 159 participants completed the therapy due to the staging of the sessions. The second is that using such laboratory conditions to measure cue reactivity could, as Field & Duka, (2001) argue, influence the measurements by any bias the participants may have due to the perceived demands of the research study.

The past decade has seen increasing research into, and the application of mindfulness in the treatment of various psychological issues, including a recent growth in the area of addiction disorders along with several pilot studies into the use of mindfulness for smoking cessation (Bowen & Enkema, 2013). There is evidence that there could be 2 possible neural pathways that connect mindful attention to attenuated craving. One comprises of down-regulation of areas such as the amygdala and the other being up regulation of prefrontal areas such as dorsolateral region (Heatherton &Wagner, 2011).

Research by Bowen & Marlatt (2013) into the application of mindfulness and cue induced craving assigned participants to 2 groups one who received mindfulness training and one where no training was given. Seven days post treatment, the mindfulness group reported significant decreases in smoking behaviour compared to the non mindfulness group.

Westbrook et al., (2013) studied 47 participants who had been given mindfulness training and were given instructions that smoking cues were to be viewed using either mindfulness or with passive attention. The former produced results that showed a reduction in the self reporting of craving due to cues. The participants were also studied under fMRI. This showed that when mindfulness was practiced, not only was an area related to craving in the subgenual anterior cingulate cortex reduced, but also showed a reduced connectivity between that and other areas of the brain associated with craving. This suggests a type of 'decoupling' takes place between neurocircuitry when viewing cue related images with mindful attention as opposed to viewing with passive attention. This, the researchers argue may describe a bottom up attention to how a present moment is experienced and may help in subjective and neural cue reactivity in smokers.

Research by Rogojanski et al., (2011) found that some interesting benefits arose as result of their study into mindfulness and smoking cessation. The 61 participants were assigned into 2 groups, one where coping skills were taught to suppress craving and another where mindfulness was taught. One week post treatment, not only was nicotine dependence reported to be reduced, but reductions in Negative Affect (NA) symptoms such as anger, anxiety and sadness were also reported. This side effect of the mindfulness training not only has benefits for the individual's mental wellbeing but could actually assist in a smoking cessation attempts as NA can be an important component in smoking behaviour. Studies point to NA not only playing a role in the conversion from experimenting with cigarettes to nicotine dependence but also playing a part in maintaining smoking as the NA individual smokes in an attempt to reduce or avoid the symptoms associated with NA (Carmody et al., 2007).

One study examining the role of NA on smoking cessation using the smoking cue reactivity paradigm involved a massed extinction method (Collins et al., 2011). The results pointed to both men and women with low NA demonstrating significant decreases in reactivity over time, where as those with high NA demonstrated resistance or delay in reduction of reactivity. In pointing to the limitations to their own

research, Collins (2011), comments that the extinction studies were carried out over one long session and suggests that future research may be better with multiple spaced trials.

If mindfulness can help cue reactivity in smokers then this could strengthen the argument for the application of clinical hypnosis in this area, for despite the lack of good research in hypnosis and smoking cue reactivity, Holyroyd, (2003) writing in the American Journal of Clinical Hypnosis draws parallels between mindfulness and hypnosis. He makes the point that in both mindfulness and hypnosis that the concentrated focus leads to similar changes in the mental state as cortical inhibition, as shown by very slow EEG theta waves. This inhibition it is argued, explains the lack of emotions, unwanted thoughts and lack of body awareness that can occur in both mindfulness and hypnosis. The internal focus of attention that results from the attentional resources and processes are common to both hypnosis and mindfulness. Lynn et al., (2014) argue that during both practices the individual becomes non judgmental and receptive to either the practitioners voice in hypnosis, or to their own internal feelings and emotions in an accepting way in mindfulness. They go on to make the point that both mindfulness and hypnosis are portable in that they can each be activated in everyday situations to stop unwanted habits or behaviour. This last point could prove to be powerful in attenuating any cue reactive craving in smokers that may arise post treatment.

2.7 Conclusion

The wealth of literature that explores the cue reactivity/smoking relationship would appear to suggest that it is indeed a powerful component in maintaining smoking behaviour but remains poorly understood. The fMRI scans show many different areas of the brain being activated during reactivity and even include some that were not previously associated with reactivity or addiction. Cue reactivity also appears to have a highly complex relationship with, and is influenced by, peripheral issues such as the menstrual cycle and negative affect.

Opinion on the type of treatment that should be administered for smokers is polarised. Treatments ranging from NRT in the belief that nicotine is the main component, through to behavioural therapies believing it to be habitual, and mindfulness which shows a decoupling between brain areas that maintain cue reactivity. All would appear to have their strengths and weakness.

One strong theme that runs through the literature is that smoking is a highly personalised behaviour that varies between gender, age and emotional and environmental factors. With this in mind, the point could be made that future therapies should take this into account and begin to look at the individual as a whole before prescribing one approach or the other. Indeed some individuals may benefit from a multi disciplined approach such as combining NRT with mindfulness or behaviour therapy. The gap in the literature is the lack of empirical studies on hypnosis in treating smoking even though it as widely used as a therapy for the

problem. Hypnotherapy is a personalised approach and could be ideally placed to treat not only cue reactivity in smokers but also the satellite issues such as NA that have been shown to influence smoking behaviour. With strong evidence pointing to cues being an important component in smoking coupled with the lack of hypnosis research in this area, the logical step is to design a method that uses clinical hypnosis to decondition cue reactivity in smokers.

Chapter 3
Methodology

3.1 Introduction

To examine and test the question of whether hypnosis can decondition cue reactivity in smokers, a design using clinical hypnosis will be employed incorporating an anchoring technique. A qualitative approach to the research is to be used with semi structured interviews (Appendix A4) being designed to elicit the participants' experiences pre and post treatment. TA will be the method used to analyse and extract specific themes from the data.

The research design will incorporate the recruitment of 4 participants from the researcher's private practice presenting for smoking cessation. All selected participants will take part of their own free will and be given a patient information sheet (Appendix A3) a patient consent form (Appendix A2) and free to ask any questions they may have before, during and post treatment. They will also be informed that they are free to withdraw at anytime without giving a reason. Confidentiality and anonymity will be assured by changing names or altering any information that could identify the participant. Ethics clearance has been granted by the University of West London (Appendix A1).

3.2 Participant Selection Criteria

To examine any differences that may exist between the genders in relation to cue reactivity and smoking, 2 males and 2 females are to be selected. The small number selected to be studied is purely down to time constraints to carry out the research, transcribe the interviews and analyse the subsequent data. Research has shown that females have more difficulty giving up than males (Perkins & Scott, 2008) and in addition to this, a wealth of research suggests that various stages of the MC phase can influence the cue reactivity smoking relationship and that more intense cue induced cravings were often experienced. For the above reasons, women who are peri/post menopausal, pregnant or those within the 6 week postpartum period are to be excluded from the study. To minimise any variables that age differences may suggest, participants will be selected between the ages of 33 and 38. Further exclusions of participants will be those:

- On any type of medication, to rule out any impact that it may have on cue reactivity.

- Suffering from, or have had any history of epilepsy, which is contraindicated for hypnotherapy.

- Suffering from or have had any history of any history of psychosis, which is contraindicated by hypnotherapy.

- Suffering from, or have had any history of schizophrenia which is contraindicated by hypnotherapy.

- Suffering from or have had any history of substance abuse disorder as the drug cue reactivity could influence cigarette cue reactivity.

- Currently suffering from any form of depression so as to rule out any effect this may have on cue reactivity.

- Suffering from any eye problems that may cause discomfort while focusing on an object for a period time as an eye gaze hypnotic induction is to be used.

3.3 Treatment

Each session is to be recorded on 2 independent audio recorders to guard against mechanical failure. The recordings for the treatment sessions are to be only partially transcribed. The rationale for this is that a large amount of the session will be the researcher explaining hypnosis, hypnotherapy and cue reactivity along with explanations of how nicotine works. A full transcription would be very large with a very small amount of data being of any worth. Therefore a partial transcription will be undertaken that will detail the participant's case history, their reasons for smoking, their attitude to smoking and their smoking cues. Non verbal communication will be observed to note any congruency which may add weight to certain phrases expressed or any incongruence which may be in conflict with what is said.

A thorough case history will be taken to gain as much background information as possible from each participant. This will be done in a flowing conversational style to put them at ease and so begin to build rapport and a meaningful interaction between therapist and participant and help to establish the idea that the relationship is, as Yapko (2003), puts it, one of mutual inter-dependence, each following the others leads.

An introduction to the cue reactivity/smoking relationship will be presented to each participant in a personalised way using some of their specific cues as for example the morning coffee so as to help them relate on an individual level to what some could find a highly complex subject. Each participant's cues will then be elicited by asking them to describe their smoking behaviour throughout a working day, the weekend, during recreational activities and socialising.

An explanation of hypnosis will be given by asking the participants what, if anything they understand about hypnosis. Any fears or miscomprehension about hypnosis will be addressed at this point and a thorough explanation given of what will happen. This can help set the participant up with positive expectation which can, as Waxman (1989), points out, help to influence the success of the induction. An explanation will also be given of what will not happen such as loss of will or surrender of control. This, it could be said, may help to negate any resistance that may be present on the part of the participant, and as Kroger (1977), comments, by mentioning that only suggestions compatible with the subject's wishes will be followed that rapport can be increased. Indeed, on this point there is evidence from research carried out at the Faculté de Médecine, in Switzerland that suggests a therapeutic alliance established early on can have a profound effect on the outcome of therapy by breaking down any defence mechanisms of a patient which may be present (Despland et al., 2001). Taking this into account and noting the point Vaillant (1992) makes when he says that intermediate-level defences, such as rationalisation, reaction-formation, and intellectualisation, may interfere with an individual's capacity to engage in self-exploration, the critical importance of rapport can be seen in deconstructing any of these defensive barriers that may exist before any attempt is made to start therapy. Empirical literature even goes so far as to suggest that strong therapeutic relationships with strong rapport existing accounts for more of the variability in psychotherapeutic outcomes than the therapy itself (Wampold, 2001, Norcross, 2002). Having said this however, one must be reminded of the caution that Ellis gave when he warned against being overly warm with clients which he thought could hinder the therapeutic process (Dryden 1985).

Permission to touch the participant on the upper and lower arm will be asked for and granted before hypnosis is induced as an anchoring technique is to be used in trance. This point raises important ethical issues and the decision to touch should be discussed beforehand and permission obtained (Brann et al., 2012). In certain cultures or religions, the touch of an opposite member of sex may be prohibited and in these cases the proposed technique would have to be considered contra-indicated. The point could be made that rapport could also be impacted as personal space is invaded when an individual is touched. Furthermore, it could be said that this issue goes beyond a question of ethics as in some states of America it is actually illegal for a hypnotherapist to touch a client unless they hold a massage licence (LeBay, 2003). In the application of this technique then, it is imperative that local laws are conformed with, the use of touch is explained and that permission is sought and granted.

The Stanford hypnotic technique of eye closure/gaze is to be used for the hypnotic induction. Kroger (1977), on the subject of induction argues that it is the means for initiating the grounds for successful therapy. Many therapists claim that induction is eye closure and once this has been achieved that the individual is in hypnosis and sufficient depth of trance has been reached for simple treatment (Waxman1989). If this has indeed led to the induction of the light trance state (evidenced by slower breathing, rapid eye movement, and relaxed facial features etc.) further deepening of the trance can be achieved by deepening techniques. The Stanford progressive relaxation and count from 1-20 to will be used as a deepener to move the participants to

a medium level of trance (noted by observing certain characteristics such as the body sinking into the chair, head sinking towards chest, jaw slackening). The anchoring technique to be used will not require a deep level of hypnosis (characterised by slumping deeply in the chair, being slow to respond to suggestions and the ability to walk and talk in trance). This is beneficial as 70-90% of the population are able to achieve a light to medium level of trance as opposed to the roughly 10% that can achieve deep trance (Waxman 1989). The depth of hypnosis is often difficult to objectively measure (Kroger, 1977) and as Waxman (1989), comments, there is no absolute dividing line between the levels of hypnosis, although it could be said that the experienced hypnotist can make a close approximation by observing various hypnotic phenomena in the participant.

Assessing hypnotisability in research is an issue that involves controversy. Advocates for assessment such as Kessler et al., (2002) argue that clinical work is improved while those against argue that trance depth is not correlated to treatment outcomes (Jensen et al., 2005). Waxman (1989), believes that unless hypnoanaltyical techniques or analgesia is aimed for then the light to medium levels of trance are perfectly sufficient for most clinical applications of hypnosis.

The Stanford techniques chosen form part of the wider Stanford Hypnotic Susceptibility Scale (SHSS) developed by Weitzenhoffer & Hillgard (1959), to measure how susceptible a person is to hypnosis. Opinion on the validity of the SHSS is split amongst clinicians (Kroger, 1977) with some insisting that the testing is a valuable tool for conditioning an individual and deciding on a appropriate induction, and those who insist it is obsolete because an individual's response to arbitrary instructions will have little or no bearing on how they would respond to therapeutic suggestions in trance that are meaningful to them on a personal level. Interestingly, Weitzenhoffer himself who dedicated most of his career to hypnotic susceptibility testing, conceded later in his life that the tests offer little to the experienced hypnotist that they could not find out by more practical means (Yapko, 2003). The rationale for deciding upon the Stanford induction and deepeners was for their relative reproducibility. The point could be made that as there is lack of good empirical research using hypnosis to treat smoking (Johnson, 2011) then if things are to move forward in this field, then the standardisation of inductions and deepeners that can be reproduced as much as possible could go some way to research studies being more accepted in the scientific field.

A safe place technique will be utilised and established in vitro. Shapiro (1995), first developed the safe/calm place exercise as part of the preparation phase of eye movement de sensitisation and reprocessing (EMDR) and involves the participant experiencing a place, real or imagined, where they are safe and calm in case of an abreaction being experienced. An abreaction can be defined as the weakening or elimination of anxiety by the 'reliving' of the original tension-evoking experience. 'Reliving' can refer to an imaginal or emotional re-experience as well as to an actual one (Reber 1995). Emotions expressed can include tears, laughter, shouting, contorted facial expressions or shaking. Psychophysiology of memory and emotional processes during traumatic recall induced by the abreactive process strongly suggest that successful therapeutic work

with a dissociative state helps the individual both psychologically and physiologically and that measurable physiology is related to these changes induced by the psychotherapeutic process (Bob, 2007).

It is hypothesised that smoking cues gain their conditioning value from Pavlovian conditioned pairing with the unconditioned effects of the drug, that is to say with its' reinforcing effects, be they positive and/or negative (Chiamulera, 2005). The goal of the deconditioning in hypnosis then, will be to break the pairing of the cue with the resultant smoking behaviour. This will be done using an anchoring technique. Lankton (1980), describes an anchor as *"any stimulus that evokes a consistent response pattern from a person",* whilst Brann (2012,) suggests that anchors are based on the right hemisphere state linked memory and are best summarised in the equation:

Memory = Event + Emotion attached to it.

The rationale behind the use of anchoring is that if cues are responsible for maintaining the smoking behaviour, more powerful cues will be installed via the anchors, which will inhibit the smoking cues. Anchors will be set by asking the participant to think of a positive time in their life where they were confident and happy. Individuals suffering from any form of depression were rejected for this study on the grounds that they may have difficulty accessing such memories. Indeed one research study shows that depressed individuals demonstrated a worsening of their mood after the recall of such positive memories (Joormann, 2007).

Verification that the participant has accessed such a memory will be gained by the means of a head nod. These memories and all the associated feelings will then be anchored on the inside of the lower right arm by touching the flexor carpi radialis muscle on the right arm and giving suggestions that anytime that the touch was felt that the positive feelings identified earlier would be experienced. The participant will then be asked to access a negative experience and after verification this will be anchored on the right arm by touching the deltoid muscle on the right arm. Anchoring is to be reinforced by repeatedly touching the relevant muscles with suggestions that utilise all the senses associated with each memory. Observation of the participant will verify that the anchors are indeed firing off the desired memories and emotions. The positive anchor when fired should show deeper breathing and facial muscles relaxing, with the negative anchor showing a breathing rate increase and tautening of the facial muscles. The importance of building a powerful image and the associated emotions are commented upon by Kroger (1977) who made the point that the stronger the image is in the participants mind, the more effective the technique is and the more they can generalise to reality.

With the anchors in place, the participants smoking cues are to be paired one by one with the positive anchor by firing the anchor and giving the direct suggestion *"this is you, with your morning coffee* (or other cue),

calm, relaxed and with no desire to smoke". The negative anchor will then be fired whilst giving direct suggestions that the negative feelings would be fired if they smoked in cue situations. It will be suggested that they have a choice to make in which anchor one they would like to apply to their life. Both anchors were then fired simultaneously but with more physical pressure on the positive one and the suggestion given that *"I know, that you know, do you not, which one you want to choose"*. The rational for the using the last suggestion which on the face of it can seem confusing, is to utilise the unconscious minds' inability to process the negative so that only positive suggestion remains (Battino and South 2005). Research shows that it is up 30% more difficult to comprehend a sentence with a linguistic negative in it than it is to understand a positive sentence and affirmation of something must happen before it can be negated, therefore a participant must accept a suggestion before they can negate it (Carpenter, 1999).

After anchoring, post hypnotic suggestions are to be given for each cue that there is now *"no desire to smoke and no cravings"* when exposed to the cue. The suggestions given at this point will be direct and authoritarian. The sessions are to move between indirect/permissive and direct/authoritarian in technique. Yapko (2003), comments that it is impossible and indeed undesirable to conduct a hypnotic procedure in solely one style and advocates using an authoritarian approach sparingly unless good rapport exists as he feels it limits personal choice and does not show respect for the persons needs. It could be argued that use of an authoritarian technique where resistance exists in the form of defiance of authority, the technique could fail and any rapport being carefully built could be eroded. Indeed Waxman (1989), goes further and says that negative feelings could be directed to the therapist and any rapport could be destroyed completely. However, the point could be made that there are some who benefit from an authoritarian technique, want to be told what to do and so respond more readily than to it than a more ambiguous, permissive approach.

Pseudo Orientation in Time (Erickson, 1992) is to be used to enable the participant to see themselves in cue situations with no cravings or desire to smoke thus further weakening the cue pairing. It could be said that Pseudo Orientation in Time could not only help the individual to view a positive outcome to the issue but there is research that suggests that it could actually go some way to deconstructing the presenting issue itself without using a formal technique that directly addresses the problem (Dreiker & Pollack 1954).

The participants are to be woken using the Stanford awakening script and suggestions will be given to remove any numbness or tiredness in limbs, and also given to reintegrate and reassociate should any dissociation have occurred. Dissociation or splitting of the mind lends itself to the dissociation theory of hypnosis first put forward by Janet (2010), and expanded upon later by Hilgard in his Neo Dissociation Theory which suggests that the multiple cognitive systems can function autonomously in hypnosis (Yapko, 2003). It could be said that a vital component of a hypnosis session is reintegration if Janet's (2010) comments of dissociation are taken into consideration where he describes as a process that is automatic and

does not fit into a current cognitive scheme and without successful reintegration remains dissociated (Bob, 2007).

4 weeks post treatment the participants will take part in audio recorded interviews. The equipment used will be the same as in the treatment session. The rationale for 4 weeks is that the NHS gathers its smoking statistics 4 weeks after the start of their cessation programs (NHS, 2012). A full verbatim transcription is to be undertaken of each interview.

3.4 Interviews

The decision to use a qualitative research design as opposed to a quantitative approach is rooted in the literature review where the underlying theme that came through repeatedly was the personalisation of smoking behaviour, be it from specific cues through to the impact of NA and the MC. A quantitative approach, it was felt, would not give the richness of detail and understanding of how the participants felt about:-

- Their reasons for starting to smoke and continuing to smoke.
- How they felt smoking was benefitting them.
- Their underlying reasons and motivations for attempting to stop.
- How they felt in former cue situations if the therapy was successful.
- How they felt in cue situations if it was unsuccessful.

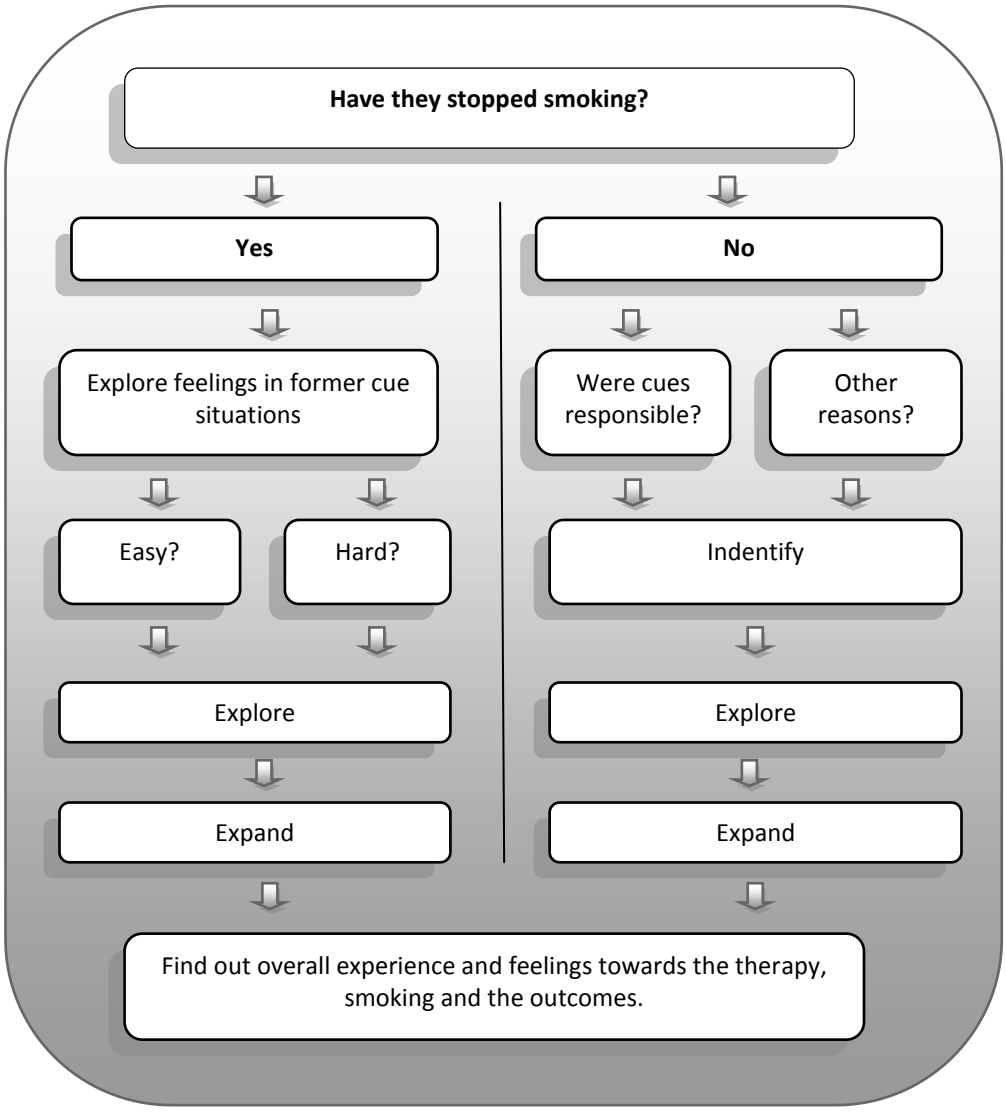
This last point, that even if the therapy fails and the participant relapses, the interviews could still provide rich information to explore exactly what caused the relapse be it cues or other reasons in a way that a quantitative approach for example, may not. As the main point underpinning the research is the cue reactivity/smoking relationship and the personalised nature of such, the research and thoughts of one of the founders of modern psychology William Wundt, who drew parallels between psychology and philosophy could be taken into consideration here. Quantitative research he argued, did not sufficiently explain the emotions, beliefs and thoughts of the human mind as qualitative research was able to do (Wertz, 2011). However, the point could be made that the qualitative research is limiting this study as it cannot generalise to other smokers beyond this group of participants or generate any hard statistical data on smoking cues or cessation. Having said that, due to the small sample size, the worth and validity of any statistical data gathered in a quantitative approach would have to be questioned.

The decision to use semi structured interviews is for their flexibility. King (2010), comments that this approach affords the researcher the ability to respond to issues that emerge in the course of the interview in

order to see the perspective of the interviewee which would be impossible with the fixed, rigid, structured interview. Rapport is, as Opie (2004), comments, a vital component in the semi structured interview and if lacking can lead to what Denscombe (2007), describes as the 'interviewer effect' where the participant can react negatively and fail to divulge information which may prove important. The fact that good rapport will be established with all 4 participants before the therapy sessions begin adds further weight to the decision to use semi structured interviews.

The diagram in *fig.2* shows the multiple routes that the interviews could take given the responses by the participants being dependant on whether they have remained abstinent, whether they found it hard or easy or indeed if they have relapsed and if cues or other issues were responsible. These possible routes of enquiry further strengthened the decision to use the semi structured interview for its flexibility.

3.5 *Fig.2* The multiple routes of the semi structured interviews.



The use of hypnotic suggestion in the initial therapy will mean extra care is to be taken in formulating the questions to elicit the required information, for as Gratton (2013), comments, the participant develops faith in the ability of the therapist and is therefore conditioned to more readily accept future instructions. With this in mind, the questions will be constructed so as not to suggest that any particular answer is expected. This is not simply avoiding any leading questions, but also to omit seemingly neutral questions that may cause confusion at an unconscious level to a participant who is suggestible to the therapist's words. For example, *"have you had any cravings since I last saw you"* may appear neutral but if the participant has had no cravings because directions were given in hypnosis and readily accepted, doubt and confusion could arise as to why this question was even being asked. Questions are to be formulated such as *"could you describe your morning routine as you have your tea?"*. If the answers are short or somewhat vague, elaboration probes will be used to encourage further expansion on the subject. A simple *"could you expand on that a little please?",* could be all that would be needed to glean the information required. Clarification probes will be used to seek explanation if an answer is not understood or ambiguous, for example: *"Could you explain to me what you mean by you felt something was missing please?*" If a participant leaves an explanation unfinished where the researcher feels it could provide more information of value, completion probes can be used, for example; *"And after that happened, what where your feelings about that?"*. Non verbal communication will also be noted for any congruence/incongruence with answers. Those observations are to be noted with the time so as to correlate with the recording and future transcriptions.

The interviews therefore, will use the framework in *fig.2* one as a guide where the questions will have the freedom to move with the answers given but within the structure to extract the required information which will form the basis of the data to be analysed.

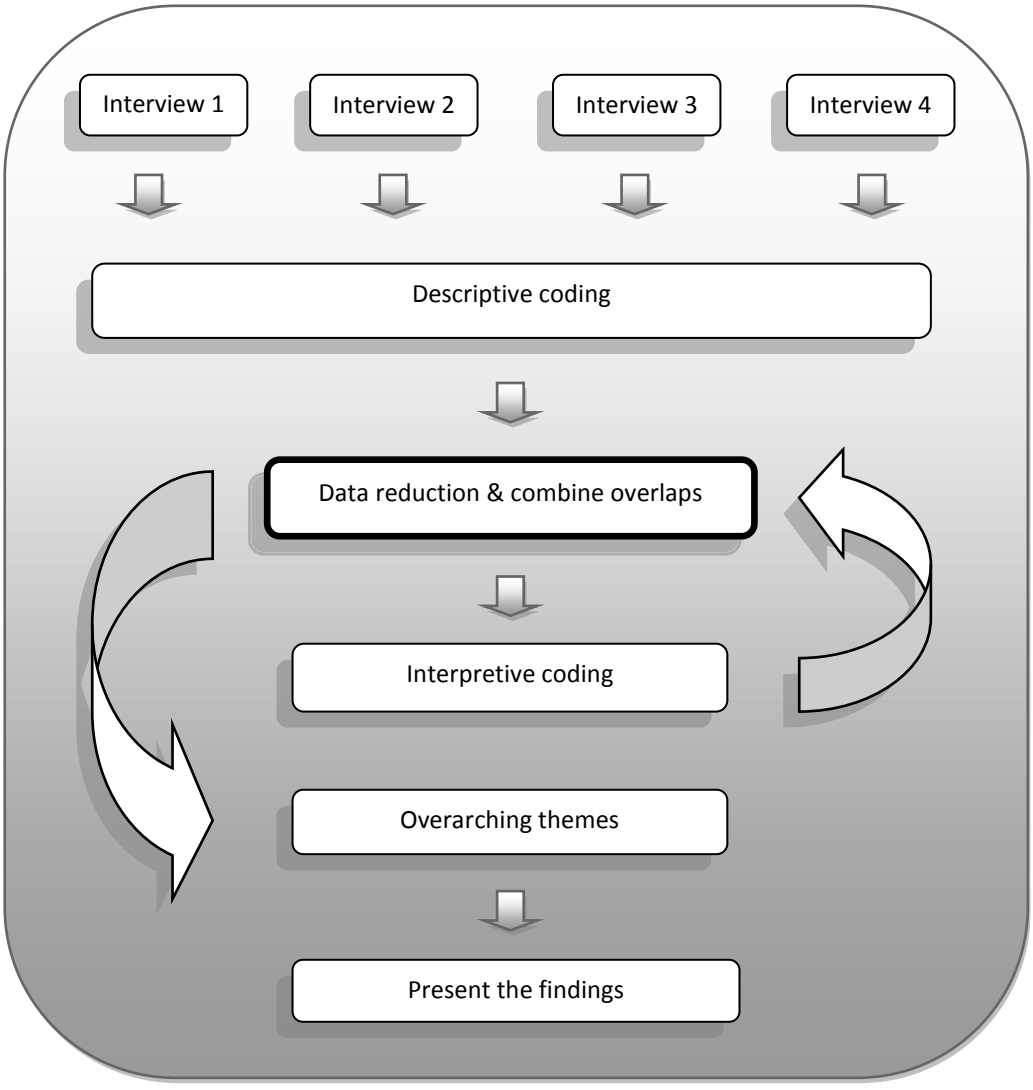
3.6 Data Analysis

Thematic Analysis was decided upon for its flexibility and ability to be applied to a diverse range of research questions and epistemologies (Braun & Clarke, 2012). Interpretative Phenomenological Analysis (IPA) although similar to TA in many respects, was rejected as an approach because of its' rather more structured framework. IPA, it was felt, may hinder the flexibility of the analysis and subsequent themes given the wide range of the data, such as have the participants stopped smoking, did cues or the MC have a significant effect on the outcomes etc. Similarly, Discourse Analysis (DA) was not chosen as an approach, and again both DA and TA both are very similar in methods (Braun & Clarke, 2012), but it was not thought necessary to micro analyse the language patterns as used in DA for this study.

TA has been described as a process to be used within the framework of other analytic methods such as Grounded Theory (GA) rather than a standalone approach (Ryan & Bernard, 2000), although Braun &

Clarke (2012) strongly argue that TA is indeed a method is its own right citing its flexibility as one of its strongest attributes. Within this theoretical freedom they argue, TA is able to provide a research tool which is both useful and flexible, which in turn can yield rich accounts of the data being studied. This flexibility of TA, Frith & Gleeson (2004), argue, makes it applicable to be used in both deductive and inductive approaches. Fig 3 shows the process of the TA process to be used.

3.7 *Fig.3* The thematic analysis process



The process of analysis will begin by reading and re-reading through each of the partial transcripts from the therapy session and the full transcripts from the semi structured interviews. The goal at this stage is familiarisation with the data. Braun & Clarke (2012), argue that this immersion in the data at the early stages of TA by re-reading the data is vital for good analysis. Their comments on bad analysis where researchers talk of themes emerging as if waiting to be discovered rather than actually analysing the data are noted and

no attempt will be made to look for themes but to simply make preliminary notes and comments for the coding. Bogdan & Biklen (2007), make the point that the data needs to be read at least twice so a deeper understanding of the text is gained by the researcher.

Descriptive coding is to be started by reading back through the preliminary notes and highlighting words or phrases that related to the research question. These will then be reduced down to keep the focus narrow and any overlapping ideas will be combined into single codes.

The initial descriptive codes will then be moved into interpretive coding by grouping the descriptive codes that appear to share a common theme. No attempt will be made to attach any theoretical concepts to the themes at this stage for as Landridge (2009), warns, this could lead to the researcher being blinkered by trying to make the data fit in with the theory and thus miss some themes which could prove important. Themes will be established across the across both the full set of data, and within each participant's case. The point could be made that whatever form of thematic analysis is used, in-case and cross-case analysis need to be applied. Indeed King (2010), argues that if themes from the within-case data is neglected then the themes become in effect, abstract ideas and treated as variables in the positivist tradition, detached from personal experience. Having said that, if the cross-case data is neglected then a fragmented group of case studies may ensue which may fail to answer the research question being asked. A balance in establishing the themes between in-case and cross-case analysis is therefore the goal. The themes are then to be re-examined, refined, and any overlapping ideas are to be combined or deleted to keep the focus narrowed to the research question.

The third stage of analysis will be to develop the previous interpretative themes into overarching themes that identify key concepts relating to the research question. Theoretical ideas on cue reactivity will be used at this point to help formulate the themes, which are to be re-examined and refined once again before being prepared to report the findings.

3.8 Conclusion

The research methods to be used in the study are designed to decondition the cue reactivity/smoking relationship and to explore the participant's experiences and reactions to the treatment. Participant safety and ethical practice is paramount. Mechanisms will to be in place to guard against abreaction and all participants will be reminded of their complete anonymity and their freedom to choose whether to continue at each stage of the research. An underlying goal throughout the methods to be used is reproducibility. Given the lack of research into treating cue reactivity/smoking relationship with hypnosis, the hypnotic protocol, interviews, and analysis are all to be standardised as much as possible to aid in the expansion of future research in this area. The results of this study and the subsequent analysis of the data will determine whether future research is needed.

Chapter 4
Results

4.1 Introduction

The research design used to examine whether cue reactivity in smokers can be deconditioned with clinical hypnosis was completed as proposed. All 4 participants took part in the pre treatment talk, the hypnotic intervention to decondition the cues, and the 4 week post treatment interviews. At each stage of the research, each participant was again informed that they were free to withdraw at any time without having to give any reason. Adequate time was provided for any questions to be answered that they may have had and it was restated that complete confidentiality was assured. No money was offered to any participant to take part. No abreactions were experienced by any participant. The transcribed semi structured interviews were analysed using thematic analysis, initially moving from descriptive coding, through to interpretative coding and finally leading to the development of 5 distinct overarching themes. It would appear that one of these themes seemingly has the potential to impact on the other 4 as a determining factor as to whether deconditioning takes place. The results and themes are presented here with only brief comment as they will analysed and discussed at depth in the next chapter. The table below shows the participants and their personal cues.

4.2 *Fig.4* The participants and their respective cues

	Participant 1	Participant 2	Participant 3	Participant 4
Gender	female	male	female	male
Age	33	38	35	33
Occupation	P.A	investment Banker	producer	personal Trainer
Reasons for Smoking	time out waste time time to think	company of others bonding time to relax de stress	time out of work distraction from stress	to relax de stress time out between clients
Reasons for Stopping	money health	wife health	health skin	money health work
Personal Cues	morning coffee walk to tube outside work breaks after meals journey home red wine pms in car socialising red wine on phone back door before bed	morning coffee driving to work outside work breaks after meals driving home meetings on phone playing golf socialising on the computer on the phone outside before bed	morning coffee being driven to work outside work on phone breaks after meals presentations screenings meetings socialising being driven home news at ten in kitchen before bed	protein shake web cast before client after client in car at airport meetings rows with wife watching television before training after training outside back door before bed

4.3 Results

In the pre treatment interviews, the personal cues of each participant showed some remarkable similarities between the individuals. Regardless of the small variances, for example type of drink in the morning or mode of transport to work, the cues were similar across the four participants. All four had smoking cues associated with:

- The morning beverage
- Leaving to go to work
- Arriving at work
- Breaks from work
- After meals
- Journey home from work
- On the phone
- After stressful events
- Car journeys
- Before bed

The above information, demonstrated that although cue reactivity at first appears to be highly personalised at a macro level, it is now shown to be far more uniform on the larger scale than first considered at the literature review stage of this study. The reasons given for smoking also strengthen the argument that cue reactivity plays a powerful role in maintaining smoking behaviour as opposed to smoking itself given the lack of answers naming the inhalation of smoke as a motivating factor.

Four weeks post treatment, Participants 1, 3 and 4 (P1, P3 and P4) had remained abstinent and Participant 2 (P2) had relapsed after three days of abstinence on being exposed to the cue of a golf course. The development of the overarching themes expose a complex network of psychological processes that are not only impacting deconditioning but also playing a part in the maintenance of the very smoking behaviour itself. The development of these processes would not have been possible without the qualitative approach used in this study which gave the ability to extract a far deeper understanding of the psychology of smoking and of deconditioning. No meaningful data could be extracted on gender differences, the menstrual cycle or the impact that either may play in cue reactivity and smoking.

4.4 The influence of the Locus of Control.

One aspect of the language within the abstinent group was the participants taking responsibility for their success as opposed to any role the therapist may have played. P1's comments that *"I've done really really well*" and *"I'm so proud of myself"* echoed P3's words of *"how good am I?"*and *"I'm pleased with myself how well I've done".* P4 similarly remarked *"I'm pretty chuffed with myself"* and *"I feel proud of what I have achieved".* This apparent responsibility for their abstinence, would appear to contrast markedly with the relapse of P2 where he comments *"...it failed"* in response to questions on the success of the therapy, along with observations that *"every one of them has failed"* when talking about other interventions in the past and ending the interview with *"I'm sorry it didn't work for you".*

The abstinent group talked of *"taking control" along* with thoughts of positive changes that could be made as a consequence of stopping smoking. P2's words seemed to almost abdicate his power by declaring that *"I cannot see myself making any future quit attempts"* along with blaming his wife for making him attempt to stop and commenting *"something has been taken away from me".*

These language patterns were coded, sorted into interpretive codes and then developed into the overarching theme of the "Influence of the Locus of Control". The locus of control (LOC) is the extent that an individual believes that they are in control of events that impact their lives (Rotter, 1966). An individual with an internal LOC will have a sense that much is under their influence where conversely an external LOC individual would view events as beyond their control. It would appear from the analysis of the transcripts that the abstinent group were holding an internal LOC whilst P2 was demonstrating an external LOC.

4.5 Empowerment Through Education

Early coding of the data across all 4 participants established language patterns where each participant referred to the information they had been given prior to treatment about cue reactivity vs. addiction. P1 one commented; *"...as you explained, it was just a conditioned response, and looking back I had just associated the situation with smoking"*, while P3 made the point; *"I understand the mechanics of smoking and that it's not much of an addiction and is something under my control"* Reflecting on his cessation, P4 said that *"...the addiction part is so small, if I had have known that before, if somebody had of just explained it to me in the way you did, I think I would have found it far easier to stop in the past"*. P2, even though relapsed, makes reference to "*The talk you gave me about cue reactivity and addiction was very interesting and that may in some way help me in the future."*

Developing the above using TA, an overarching theme of Empowerment through Education was developed. It is interesting to note that all of the participants touched upon this, regardless of whether they had remained abstinent or not. One could make the point here that the individual's LOC, whether internal or external, may play an important role in how they choose to use this educational information that they are provided with.

4.6 Generalised Personal Growth

While coding for the previous theme a large amount of data was reduced but certain strands of data which at first appeared to belong to the LOC theme were seen to be different and thus developed into its own separate, coherent theme. P1 commented; "*I was thinking about changing jobs and that has only really come about since I stopped smoking and I had not really thought about that before but it seems now I can make changes that will make me happier".*

P3 makes similar points; *"It has given me a bigger sense of self control over my destiny if you like, that probably sounds quite dramatic when all I have done is given up the fags (laughs) but it feels quite a major lifestyle choice for me what I have done, I didn't think it would impact me in quite this way".* Along with; *"It's my choice to do that; it's my mind I never felt that way before".* P4 similarly makes the point on dealing with stress that; *"I don't feel the need to use any sort of coping mechanism anymore"*. These comments show a change taking place post treatment. The data was developed into the overarching theme of Generalised Personal Growth

P2's comments on his relapse with language that shows no such Generalised Personal Growth has taken place with comments such as *"nothing seems to be able to help me so maybe I should just carry on"*. The LOC could have an impact in this theme in that its influence over cessation would determine whether a process of personal growth occurs or not.

4.7 Dissociation as a Coping Mechanism.

The 4th theme was once again developed from patterns within the data across all 4 participants. P1 commented that smoking *"allowed me the time, gave me the time to get away from things, but I can do that now without cigarettes"*. P3 makes a similar point with *"I can see now how the fags were a bit of a prop for me really. As soon as I had a fag in my hand I was nobody's property, I could disappear just have time to daydream and think for a while."* P4 comments along the same lines of *"in between clients, the smoking used to give me the excuse to make time for myself, to just be, just to sit for five minutes."* The relapsed P4 makes the point that *"smoking just stops me for a while, stops me obsessing over things that may go wrong or have gone wrong."*

The above comments along with the reasons all participants gave as to the reason for smoking such as gave them time to think, distracted them from work or gave them an excuse to leave certain situations suggests that there is a need to stop and step outside of the situation, to dissociate from the situation. The overarching theme that was developed here is Dissociation as a Coping Mechanism. The cigarettes are enabling this by giving the individual the excuse when they physically escape as they go outside and then psychologically as they dissociate. The LOC could as with the previous themes hold an influence here.

4.8 Residual Unconscious Behaviour

The 5th theme established was developed through the coding of language patterns that appeared across all 4 participants' data. In her comments on how she felt in certain former cue situations. P1 said that *"I go to reach for cigarettes in my bag and then suddenly realised that I don't smoke, it's almost like an automatic response."* P3 experienced similar responses: *"when someone says let's have a break, I have found myself looking for a lighter for a split second on my desk and then I remember I don't smoke and it passes."* P4 makes comments along the same lines: *"I had finished the meal I automatically stood up as if to go for a cigarette it was quite weird really, there were no cravings no desire to smoke and I had been smoked free for around three weeks it was like a response that I pushed the chair up and thought I was going for a cigarette. I came to my senses, (laughs). I just sat down again but it was weird as I say how I automatically stood up and shows how I was programmed to smoke even though there would be no desire, cravings or withdrawal symptoms whatsoever I still stood up to up as if to smoke."* P2 describes similar feelings but experiences them in a more profound way. *"...I was smoke free for 3 days but I never felt as if it left me, it was always there. I was always looking for my cigarettes or lighter, I would go to walk into shops where I used to buy cigarettes."* Analysing these words, themes and behaviour, an overarching theme of Residual Unconscious Behaviour was established. This theme appears to show behaviour that has almost become separate from the smoking in that there are no cravings yet the behavioural element in certain situations seems to still be in evidence. The LOC once again could impact on this theme.

4.9 Conclusion

The overarching themes developed from the post treatment interviews therefore are;

- The Influence of the Locus of Control
- Empowerment through Education
- Dissociation as a Coping Mechanism
- Generalised Personal Growth
- Residual Unconscious Behaviour

The LOC would appear to be the most dominant of the 5 themes and for reasons discussed in the next chapter, its influence could determine the outcomes of any deconditioning attempts. The data derived from the interviews and subsequent qualitative analysis provided rich information which enabled the exploration of the thoughts, feelings, beliefs and behaviours of the participants at a far deeper level than that of a quantitative approach. The point could be made that even with a far larger number or participants where the latter design would be more applicable, without exploring and examining the emotions behind smoking behaviour, then a large part of equation is missing. The establishment of the apparent importance of the LOC and the relapse of P2 warrants further investigation and could influence the future of cue reactivity/smoking research. The results, themes and the corresponding theories will be discussed at length in the subsequent chapter.

Chapter 5
Discussion

5.1 Introduction

In the early stages of coding, the data from the results at first appeared to suggest that more questions were being asked than answered which seemed to confuse the original research question surrounding hypnosis, smoking and deconditioning. However, the development of the overarching themes revealed an underlying set of mechanisms that were not anticipated, yet go some way to explaining the wide variance of quit rates amongst smokers and the complexity of the underlying psychology and resultant behaviour.

In analysing the results from the data, the 5 overarching themes that were developed not only show 5 individual components of smoking behaviour but also the psychological aspects that underpin it. The themes also show the deep change that took place post treatment as a result of the hypnotic intervention and the position of the all 4 participants LOC. It is shown that LOC has the potential to influence the 4 remaining themes and whether deconditioning and the resulting abstinence takes place.

5.2 Deconditioning in hypnosis

The 3 participants that remained abstinent experienced no cravings or withdrawal symptoms in their former cue related situations. It can be said with a reasonable degree of certainty then that deconditioning has taken place and that hypnosis was integral to the change that led to the extinction of the conditioned responses. Taking the Pavlovian view that maladaptive behaviour and faulty conditioning are learned responses (Pavlov, 1921) and that behaviour modification utilises the principles of learning theory (Abraham, 1968), then the point can be made that as hypnosis enhances the operation of these principles (Kroger, 1977) it is ideally placed to decondition and modify unwanted behaviour. Having said that, Utlee et al., (2002) found that in vivo desensitisation is more successful than its in vitro counterpart. This does not weigh against the efficacy of hypnosis but rather find in its' favour as Cautela's research (1966) shows that a stimulus presented in hypnosis can produce the same responses as one presented in reality. Indeed it could be said that an individual is in a state of virtual reality (or virtual in vivo) as hypnosis greatly facilitates imagery, and enhances the senses (Kroger 1977). A study carried out at University College London in (Walters, 2003) expands on this virtual reality concept. Interventions conducted in hypnosis included cue-controlled relaxation and covert desensitization in which the individual reframed her fears and transformed fear-related images into benign stimuli. These interventions were experienced by the client as having an "as real" quality and were successful in reducing her long-standing fears to a normal level within three sessions.

A complex picture of processes working unconsciously and simultaneously that work to decondition, ties in with the research shown earlier which appears to show multiple areas of the brain at work as opposed to one in isolation responsible for the conditioning in the first place. If the participants smoking behaviour was indeed unconscious conditioning and hypnosis facilitated unconscious deconditioning, then Barber's (2006) comments, on hypnosis and learning theory are accurate where he says that: *"The very capacity that lends itself to developing the problem is the same that lends itself to solving it."* The data shows that the deconditioning that took place in the abstinent group did not take place in isolation but several factors were influencing the outcome. The theme with most influence is the LOC.

5.3 The Influence of the LOC

The data shows that the LOC is impacting the remaining four themes where it acts as a type of 'filter' which influences and may predict the abstinence or relapse rates. For example, in an individual with an internal LOC the cue reactivity information provided pre treatment (leading to the theme of Empowerment Through Education) could be viewed as something to be internalised, used and applied to their own lives. Contrastingly, an external individual may view the information as interesting, but remote and beyond their power to harness.

Deeper questioning pre treatment would establish whether an individual is predisposed to an excessive external locus of control using either the Health LOC Scale or the Multidimensional LOC Scale (Wallston, 1978). The latter takes the hypothetical view that an individual's health may be directly linked to whether they believe internal factors are responsible for their health, whether powerful others (such as health professionals) are responsible or whether it is purely down to luck. The last one being the most difficult individual to treat due to their fatalistic view of situations (Wallston et al., 1978). On this last point it can clearly be seen see how this type of individual could find it difficult in a smoking cessation attempt. In an earlier paper, Wallston (1973), made the point that tailoring a smoking cessation program that takes into consideration the LOC beliefs of the individual could prove to be beneficial, whereas as research by Stuart, (1994) found that an internal LOC was positively related to the success of cessation attempts.

If an intervention pre treatment was to used to shift the locus of control to a more internalised ideal then Hartland's (Waxman 1989) ego strengthening would prove beneficial in that this approach can have profound effects on an individual, especially if one takes into consideration that deep trance is not essential in its use (Waxman 1989). Indeed, Waxman gives an example of a patient who failed to respond to analytical techniques as sufficient depth of trance could not be reached but responded to ego strengthening alone over a number of sessions. However, despite the assertion that ego strengthening can be given to almost all patients (Waxman 1989), the technique is not without its critics. Heap (1985), questions the generality of suggestions

and lack of image evoking suggestions. He argues that the patient is not given instructions as to exactly how they will *"begin to think more clearly"* for example. Having said that, the point could be argued that the unconscious mind merely needs to see the goal, the end result, and will then find the resources to fill in the gaps and achieve the aim.

There is evidence that suggests that those with an internal LOC demonstrate more health related information seeking than those with an external position (Wallston, et al 1981). If the former do indeed seek out more information on the health issues that concern them, this would show a direct link between the LOC influencing the Empowerment Through Education theme.

5.4 Empowerment through Education

If theme of Empowerment Through Education as evidenced above is indeed influenced by the LOC, then this discovery can help to explore the mechanisms that led to the relapse of one of the participants. If P2 was holding an external LOC position, then his choice of using the information provided would appear to be in contrast to the abstinent group who talked of empowerment through the information. Funnell et al (1991), comment how the empowerment of patients can provide them with skills and the responsibility to effect their own change. It could be argued here that in an individual with external LOC, the notion of responsibility is lacking and the ability to affect change is therefore diminished. Studies show that providing information about a presenting issue impacts treatment or the patient's own involvement with their treatment. Research carried out at Guy's Hospital in London suggests that patients become very actively involved with their treatment when given relatively detailed information about procedures. The study provided clear evidence of patients' requests for more information and of the efficacy of written information for increasing their knowledge and adherence with treatment (Weinman, 1990).

If an individual chooses to use provided information for their own benefit then it is fair to say that they believe at some level that they are able to affect change in their own lives as opposed to relying on outside influences. This belief in the self and taking responsibility for one's own well-being is central in bringing about change and Yapko (2005), argues that encouraging an individual to become self reliant should be the ultimate aim for all responsible therapy. This self belief in affecting change is evidenced in the Generalised Personal Growth theme.

5.5 Generalised Personal Growth

It becomes clear by analysing the words of the abstinent group that a deep personal change has taken place occurring as a result of the treatment. P3's words of *"...it has given me a bigger sense of self control over my destiny"* and *"It's my choice to do that; it's my mind, I never felt that way before"*, along with P1's comments

of *"...it seems now I can make changes that will make me happier "*, reveal a global shift in the belief of their own autonomy and the future choices they make.

Whether these changes have taken place at a cognitive level or whether a deeper fundamental change has taken place at an unconscious level is difficult to determine and worthy of further study. If the former is the case, it could be as a result of further empowerment (as witnessed by the previous theme), this time by their own achievement of stopping smoking. This argument is strengthened with the fact that P2's relapse has not resulted in the development of Generalised Personal Growth. P2's comments of "*I'm not sure where I'll go from here in regards to quitting"* and *"my job is probably going to get more and more stressful in the future"* are comments that evidence the fact that no such change has taken place. Contrasting the cognitive argument is the fact that hypnosis works with the unconscious and it is therefore entirely possible that the change has taken place at an unconscious level. However, this would then pose the question of why P2 has not experienced the development of Generalised Personal Growth. The logical conclusion would have to be that the changes are as a result of the cessation regardless of whether they are at a conscious or uncounscious level. The view could be taken that the unconscious and the conscious minds should not be seen as separate entities for although the conscious and unconscious have differing sets of functions, they also share numerous functions between them (Kihlstrom, 1990). Indeed Yapko (2003), believes that to more accurately reflect the dynamic nature of mental functioning one should speak more of unconscious and conscious processes. Given the fact that throughout this study numerous mechanisms are at work in cue reactivity and smoking behaviour, it naturally follows that several processes, conscious and unconscious, could be responsible for bringing about the generalised personal growth as a consequence of cessation.

The question would have to be asked whether the abstinent group already held the same degree of belief in their own autonomy before the treatment, given that it has been established that they all held internal LOC positions. Analysing the language shows this not to be the case and that the generalised personal growth has developed post treatment. For example P1, when talking of implementing changes says *"... I had not really thought about that before"* and P3 when talking of talking control of her destiny says: *"... I didn't think it would impact me in quite this way "and "I never felt that way before"* while P4 says *"I've got so many things I want to do, so many plans going round in my head"*. These statements show surprise in the participants at their own change and clearly evidence the point that personal growth has taken place as a result of treatment and that they were not exhibiting this prior to treatment. This, coupled with the fact that P2 relapsed, would again suggest that the change is a process occurring as result of cessation. The point can be made that if an individual undergoes generalised personal growth as a process after cessation then they become empowered and are less likely to be reliant on old behaviours such using the theme of Dissociation as a Coping Mechanism.

5.6 Dissociation as a coping mechanism

The psychobiological mechanisms of dissociation are hard to define and there is much debate over whether the phenomenon is a defence, a process, or a symptom (Ellert et al., 2011). Regardless of this however, the participants in their Dissociation as a Coping Mechanism theme were displaying the fundamental behaviour that underlies smoking. When interviewed pre treatment on their reasons for smoking all four gave similar answers in that they named almost "peripheral" motivations for smoking as opposed to directly naming the pleasure of smoking the cigarette itself as a driving factor. For example, all four indicated (using differing language) that it gave them time to think, distracted them from work or gave them an excuse to leave certain situations. Cigarette smoking is unique in this aspect, for if a heroin or cocaine addict were asked their reasons for taking the respective drugs their answers would probably relate to the direct effects of the substances and how it makes them feel. This was completely absent in all the smokers responses making the point that the actual smoking of the cigarette is not the motivation. The participants were unaware that the reasons they gave for smoking were nothing to do with the actual administration of the drug until it was pointed out to them. This discovery is an important finding in that it shows the complex unconscious nature of smoking as a coping mechanism and exposes the weaknesses of using conscious willpower in any quit attempt.

When asked pre treatment what was pleasurable about smoking P2 replied; *"nothing really, I hate it actually"* Similarly, P4 answered; *"when I light up it's actually disgusting"*. These comments show the cigarette as a powerful enabler of dissociation, for where the smoker finds the actual act of smoking unpleasant, by simply taking their mind off the physical dislike of the cigarette dissociation takes place and allows the psychological escape that it affords. This demonstrates how powerful the cues can become when they are related to this coping mechanism in that they take on a role that signals to the individual that relief can be achieved through dissociation via the act of lighting a cigarette. This theme shows that the cues are not solely linked to the administration of nicotine as suggested in some studies in the literature review, but demonstrate a far deeper reward system at work than simply the effects of the drug. This positive reinforcement as Skinner (1938), called it shows why many smokers find it hard to stop. If their behaviour is linked to such powerful, positive reinforcements such as the dissociation aspect, then these powerful stimuli easily override any punishment in the form of the wealth of information of how smoking can cause a slow lingering death from cancer for example. The positive reinforcement may have been turned in on itself in hypnosis with suggestions of becoming fitter, stronger and wealthier each time a cigarette is not smoked. The benefits of promoting the positive aspects of stop smoking can be seen, for as Skinner (1938), argued, positive reinforcement is far more powerful than punishment because punishment he maintained can only make certain responses less likely to occur. Having said that however, Campbell and Church (1969) put forward the argument that punishment is a more powerful influence than that of positive reward. It is here that the positive and negative reinforcement divide becomes blurred. Baron and Galizio (2005), argue that the distinction between the two is confusing, ambiguous and that no evidence exists that allows reliable

classification between Skinner's positive and negative reinforcement and as such the distinction between the two should be abandoned. The technique in the study used these negative attributes which were used to create a new pairing of smoking and negativity along with a positive anchor of feeling calm and in control when not smoking, served to cover both bases in the debate of whether positive reinforcement or punishment are the predominant force.

The Dissociation as Coping Mechanism theme may also feel the influence of the LOC insomuch as it could determine whether the individual takes control and can dissociate in former cue situations without smoking (internal LOC), or believes that this level of autonomy is beyond them and needs an outside force (the cigarette) as an enabler to make them dissociate (external LOC). And important discovery of this study was that even if the coping mechanism of dissociation is no longer needed, some Residual Unconscious Behaviour remains.

5.7 Residual Unconscious Behaviour

The theme of Residual Unconscious Behaviour shows the separation of the cue related craving and the behavioural aspect of smoking post treatment. After deconditioning, the cue no longer has the potential to fire off cravings but the behavioural element has been left behind. This discovery is similar to the results found by Westbrook et al., (2013) mentioned earlier in the literature review where fMRI scans show a type of 'decoupling' taking place between neurocircuitry when viewing cue related images after treatment. However, it could be asked whether the unconscious behaviour was ever part of the cue reactivity in the first place or whether it was an independent mechanism that developed as cue reactivity is created. Given that Hilgard, (1977), expanding upon Janet's (1965), dissociation theory of hypnosis, argued in his Neo Dissociation Theory that the multiple cognitive systems can function autonomously and given the multitude of processes that are active in cue reactivity, then it is entirely possible that this is the case. Indeed, research suggests that laboratory induced craving is not related to dependence on nicotine (Dunbar, 2012). The study concluded with the recommendation that future research should examine the cue reactivity/behaviour relationship as they may well be functioning independently from one another or working synergistically to maintain the habit. Their findings tie in precisely with the findings of the Residual Unconscious Behaviour theme and further expose the complexities and mechanisms involved in smoking. The LOC, as with the others themes would appear to hold some influence here in whether the participant viewed the residual behaviour as something outside of their control, acted on it and smoked or whether they internalised it, and remained abstinent. With the development of this theme an argument could be made for using post hypnotic suggestions to not act upon this behaviour and to also use pseudo orientation in time to reinforce the suggestions to guard against relapse.

5.8 *Fig.5* The influence of the locus of control over the developed themes

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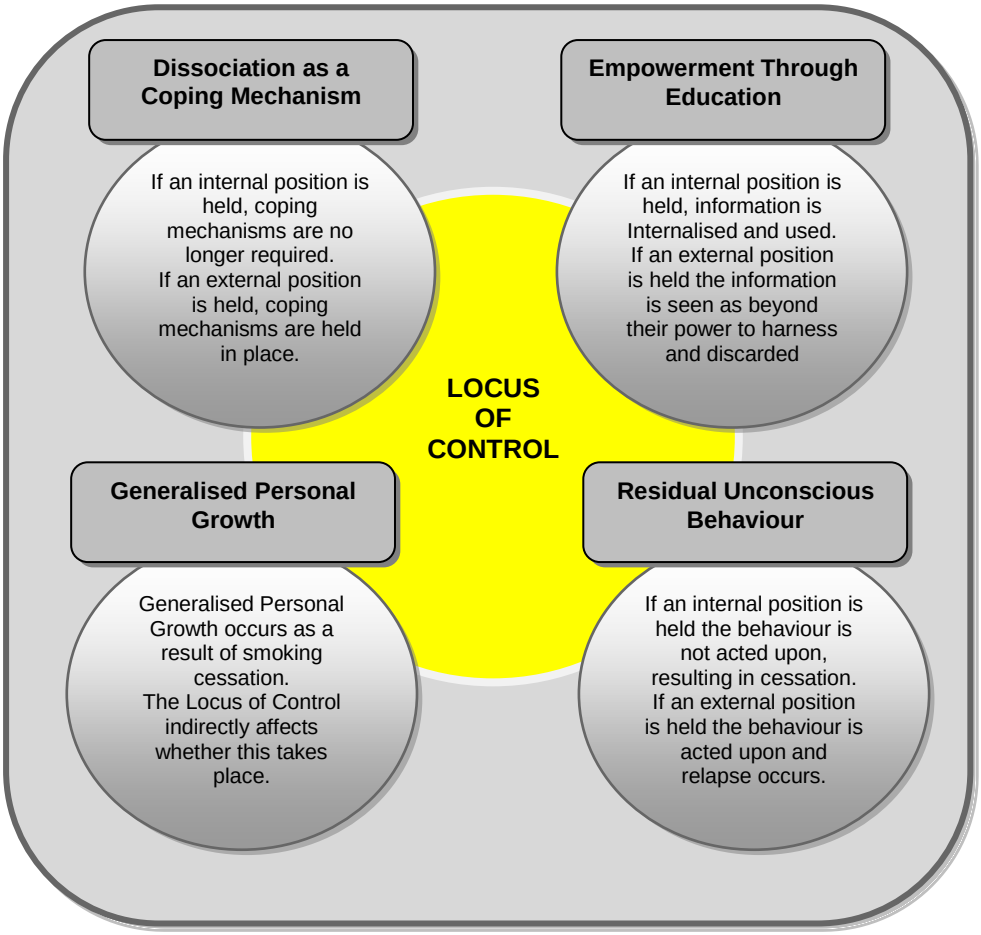

5.9 Relapse

P2's case is interesting in the fact that several factors were involved in his relapse. His comments of *"I think with the benefit of hindsight I suppose I was really doing it for my wife more than me, I wasn't motivated to stop"* would lead to questions being asked of his determination in making a serious attempt at cessation. On this point, there is research that shows a relation between smoking cessation following an intervention using hypnosis and self reported motivation to stop smoking (Perry et.al., 1979). Indeed they found that the relationship predicted the outcome for over two thirds (67.39%) of individuals treated with hypnosis. This, coupled with the fact that the findings were reproduced in a second study, could make the argument for more probing questions pre treatment to ascertain the level of commitment to stop smoking. Having said that, this point raises an ethical question of whether an individual should be challenged on their commitment to stop smoking if such questioning uncovers what appears to be a lack of motivation. If an individual were challenged then extreme tact would have to be used to guard against any rapport being eroded or even destroyed if they felt they are being labeled as dishonest in their answers. It could be said that lack of commitment could actually be unconscious resistance that the individual is completely unaware of at a

conscious level. Indeed, on this point Siedman (1999), comments that ‘hidden’ resistance to quitting is *“transformed adolescent defiance, now with adult empowerment"*. He goes further to say that a relapsed smoker with unconscious resistance enjoys each repeated failure as they see this as a ‘triumph’ over the therapist who is viewed as attacking what is defended as enjoyment. P2's comments of *"I resented the fact that I couldn’t smoke, it was like my toy had been taken away from me, my support mechanism if you like has been taken away from me, to a certain extent part of my personality"* are compatible with the above theory. The mention of the "toy being taken away" also agrees with the adolescent (or in this case even younger) defiance theory. In challenging this form of unconscious resistance then, not only does tact have to be used but it could be extremely difficult to detect in the first place and may only become apparent after relapse and subsequent questioning.

In addition to P2 holding an external LOC position which could have impacted de conditioning, another factor may have contributed to his relapse, the phenomenon of spontaneous recovery. This conclusion could be drawn given how he reverted immediately to smoking the same amount of cigarettes after exposure to the specific environmental cue of the golf course. Pavlov’s (1927), experiments demonstrated spontaneous recovery where a dog that has undergone extinction salivates once again when food is paired with the ringing of the bell. Extinction (which Pavlov paradoxically argued is not forever) is a complex phenomenon and there is much dispute as to how it leads to the mechanisms that inhibit a conditioned response. In Bouton's (2004) review of the literature on Pavlovian conditioning and extinction he argues that original learning is not destroyed or unlearnt, but rather when extinction occurs, the original conditioned stimuli, when paired with new alternatives now has two available meanings where the brain can choose between the most appropriate one. Contrasting this theory, research involving honeybees conditioned to associate an odour stimulus to a sucrose reward and then to extinction, came to a different conclusion. When re-exposing the bees to the stimulus and the reward, it was found that the spontaneous recovery was weakened over time and repeated exposures. They concluded that extinction actually destroys memory substrates (Sandoz & Delègue, 2004). The former theory that the original conditioned response has been saved somewhere and not destroyed, could lead to a new understanding of why some smokers return to smoking after just one cigarette. The question could be asked if the original conditioned response is reawakened after being paired once again with a cigarette thus leading to spontaneous recovery and the resultant smoking behaviour. Bouton (2004), makes the point that pairing the original conditioned stimulus with a new inhibitory one is highly dependent on the context for its activation or renewal. This renewal effect suggests that conditioned stimuli are capable of taking on ambiguous roles after extinction has occurred when the stimuli is experienced in a context that differs from which the extinction originally took place. It would appear that the conditioned stimuli acquire an excitatory role during conditioning as opposed to an inhibitory one during extinction.

Hammersley (1992,) suggests one such solution to prevent against spontaneous recovery could be to administer cue exposure therapy at staged intervals of therapy. This approach it could be said may be beneficial to individuals who are highly reactive to cues who experience the phenomena of the renewal effect or those that have relapsed after previous cessation attempts in the past. The point could be made that in hypnosis direct suggestion could be employed to prevent the stimuli taking on a new role and reawakening the conditioned response.

If P2's relapse was due to a need to dissociate as a coping mechanism then mindfulness training would have a role to play here if he sought future cessation treatment. This would serve as a coping mechanism without the enabler of the cigarette and without the need to dissociate. An RCT to explore the efficacy of mindfulness as a stop smoking intervention came to the conclusion that programs using mindfulness may show benefits greater than standard treatments such as the Freedom From Smoking technique (FFS) which use a mixture of psychological and pharmacological interventions (Brewer et al., 2011). In the study, 33 participants received mindfulness training and 32 the FFS treatment. The mindfulness group showed a greater reduction in cigarette smoking than the FFS group and maintained these treatment gains during the follow-up period 17 weeks later. As mentioned earlier in the literature review, there are parallels between mindfulnes and hypnosis and so it could be said that this further strengthens the argument for hypnosis being used in future smoking cessation programmes. If mindfulness training enables the person to become present and so not seek to dissociate, then this further adds weight to arguement that cigarettes are often used a coping mechanism through dissociation.

5.10 Limitations to the Research

It could be said that deep probing questions were somewhat lacking which may have uncovered any lack of commitment to cessation or uncovered an external LOC. Having said that, whether these issues should be broached or not, if uncovered raises ethical concerns.

Further criticism could be leveled at the fact that no measure of hypnotisability was used pre treatment. There is evidence that shows highly hypnotisable individuals have a higher abstinence rate when compared to low hypnotisables (Holyroyd 1991). However, all individuals in this study displayed hypnotic phenomena and so it can be said no participant could be considered a low hypnotisable.

The quantitative design employed in this study allowed the use of a small sample number. Although rich data was extracted, a larger sample would perhaps prove beneficial in any future research.

5.11 Recommendations for future research

Further to the above, if a larger sample is to be used for statistical validity then it is recommended that an element of qualitative analysis is maintained and a possible mixed methods approach is used. The reason for this being that the data that was elicited from the interviews that led to the themes served to provide a rich insight into some of the possible mechanisms that may allow or prevent cessation.

The overarching theme of the LOC control and its possible influence over the 4 remaining themes and consequently impacting the outcomes, could be taken into consideration before proceeding with any cessation program. One of the Health Locus of Control Scales could be utilised in this respect. An argument could be actually made here for separate research on the influence that the LOC may or may not have on smoking psychology, smoking behaviour and cessation attempts.

The theme of Residual Unconscious Behaviour may make the point for employing more than one session where this is dealt with if and when it arises. A multi session approach could also guard against spontaneous recovery. Alternatively, post hypnotic suggestions could be employed in the single session to guard against any behaviour that may be experienced or to prevent spontaneous recovery.

It is recommended that the information provided pre treatment regarding the cue reactivity/smoking relationship versus that of addiction, is maintained as a vital part of the approach and possibly expanded to include the Dissociation as a Coping Mechanism and Residual Unconscious Behaviour themes. These two themes may warrant further study in their own right in examining their relationship with smoking.

5.12 Summary

This study completed the research that was proposed in full without deviation and as far as can be ascertained is the first empirical study in the world to examine hypnosis in deconditioning cue reactivity in smokers. The data developed into an exposure of the difficulty of compartmentalising the treatment of smoking if treated solely as nicotine dependence whilst neglecting cue reactivity. All 5 themes show important aspects of smoking behaviour, its psychology and its treatment. The development of Generalised Personal Growth post treatment shows change at a deep level taking place and is worthy of further exploration. The development of Dissociation as a Coping Mechanism is an important theme in that it undermines the argument of nicotine as the underlying cause of smoking. The decoupling of the Residual Unconscious Behaviour from the cues shows how various components that maintain smoking behaviour can

work autonomously. The Empowerment Through Education theme demonstrates that individuals do well to receive such information but also that they have a choice in how they use that information. The LOC would impact on this last point and is shown to have varying degrees of influence over all of the remaining themes.

The fact that one participant relapsed was a determining factor in the development of the themes in that contrasting P2's experiences with the abstinent group led to insights that perhaps would not have been possible if the all four participants had remained abstinent. The fact that no meaningful data could be extracted pertaining to gender differences or the impact of the menstrual cycle would suggest that a greater sample number would be needed to test any hypothesis in this area.

5.13 Conclusion

Cue reactivity in smokers is shown throughout this research to be highly a complex process which as yet, is not fully understood. Multiple regions of the brain and the sensory organs, along with psychological relationships that impact one another, all combine to create cue reactivity but appear to be at some level, working independently. This study exposes the relationships' interactivity with the discovery of certain mechanisms that may not only influence the strength of the cue reactivity but also have an influence on the success of the deconditioning and resulting extinction. As a result of this study, clinical hypnosis is shown to be ideally placed to treat the cue reactivity/smoking relationship and the psychological aspects that surround it. The original question of whether clinical hypnosis can decondition cue reactivity in smokers can be answered with a tentative yes, with the caveat being the small sample number. The data extracted and the subsequent themes that were developed could lead to far more focused, individualistic approaches to smoking cessation that could increase abstinence rates. The discovery of the importance of the LOC in smoking behaviour and quit attempts could predict relapse rates and so warrants further investigation. The further promotion of clinical hypnosis in treating the cue reactivity/smoking relationship would rely on, as far as possible, the standardisation of the techniques and reproducibility to allow for rigorous statistical analysis and validity. While future research is needed and recommended, the promotion of clinical hypnosis in this area can now be seen as a credible alternative or as an adjunct to treatments that focus purely on nicotine addiction alone and neglect to attenuate the cue reactivity and psychological aspects that this study shows are strong components in maintaining smoking behaviour.

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Appendices

A1

UNIVERSITY OF WEST LONDON

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Matt Jacobs
80 Farm Road
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Middlesex
HA8 9LT

21 March 2014

Dear Matt

Re: Application for Ethical Approval No. CRSEC04 1314

Thank you for sending in your application for approval. **The Committee has considered this and approved the research without amendment.**

If the research does not progress, or if you make any changes to your research proposal or methodology can you please inform the Committee in writing as this may entail the need for additional review. It is your responsibility, as the principal investigator, to submit a report on the progress/completion of the research twelve months from the date of this letter, or on completion of the research, whichever is the sooner. Please find attached a blank report form to be completed by March 2015.

The Committee wish you well with the research and look forward to receiving your report.

Yours sincerely

Professor Heather Loveday
Principal Lecturer (Research)
Chair, College Research Scrutiny & Ethics Sub-committee

A2

UNIVERSITY OF
WEST LONDON

Participant Consent Form

Title of Project

A qualitative case study exploring the application of clinical hypnosis to decondition cue reactivity in smokers

Name of Investigator: Matt Jacobs

Please Initial Boxes

1.	*I have read and understood the participant information sheet dated _____ for the above study and have had the chance to ask questions and had any questions answered satisfactorily.*	☐
2.	*I understand that my responses will be audio recorded.*	☐
3.	*I understand that participation is voluntary and I am free to withdraw at any time without giving a reason.*	☐
4.	*I agree to take part in the study.*	☐

Name of Participant	Date	Signature

Name of Researcher	Date	Signature

A3

UNIVERSITY OF
WEST LONDON

A qualitative case study exploring the application
of clinical hypnosis to decondition cue reactivity in smokers

Participant Information Sheet

You are being invited to take part in the above study. You are under no obligation to take part and it is important before making a decision that you understand what the study will involve and why it is being carried out. Please take the time to read the following information carefully and discuss it with others if you wish.
If there is anything you are unclear on or if you require further information please ask the researcher for clarification.
Please take your time to decide whether you wish to take part

What is the purpose of this study?

There is a wealth of research that points to "cues" such as a boiling kettle in the morning or a photograph of an ash tray for example can induce feelings of needing to smoke. The study will attempt to find out whether hypnosis can "decondition" these cues.

Why have I been chosen for this study?

You have been asked to participate because you fit the criteria that has been decided on for the selection of participants. This criteria is based on a number of factors including age and sex.

Do I have to take part?

Absolutely not. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at anytime without giving a reason.

What will I be asked to do if I do take part?

You will be part of a group of 4 participants (two males and two females) although you will not meet the others individuals being studied. A hypnotic stop smoking protocol designed be the researcher will be used to decondition you to smoking cues. The session will be audio taped to recall and review your responses to questions at a later date.
After 4 weeks you will be interviewed regarding your experiences since the session. The interview will be taped. The audio recordings and subsequent transcriptions will be securely locked in safe to which only the researcher will have access. Your identity will not be revealed in the research papers and you be referred to as a letter, for example "Participant A". Any information that could identify you such as specific cues you mention that are unique will be changed to protect anonymity.

What will happen to the results of the research study?

The results of the interviews between the 4 participants will be analyzed and used in a dissertation to provide clarity on deconditioning cue reactivity in smokers using clinical hypnosis. Copies of the completed research will be available to you on request.

Who is organizing and funding the research?

Matt Jacobs of London Hypnosis is organizing and funding the research under the auspices of the University of West London and the London College of Clinical Hypnosis.

Who has reviewed this study?

This study has been reviewed by the University of West London.

Contact for further information

If you would like any further information please contact the researcher:
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If you have any complaints about the conduct of this research project and you wish to discuss them with someone other than the researchers, please contact:

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A qualitative case study exploring the application of clinical hypnosis to decondition cue reactivity in smokers

Participant Interview Questions

Introduction

Due to the nature of the research design with hypnotic suggestion being used, the interviews will have to elicit the required data whilst avoiding certain direct questions such as *"can you rate your cravings",* as this may suggest there are cravings where none may exist. The interview questions will be unfolding as information gathered during the initial treatment will be specific to each participant's cues. Questions will have to adapt to the treatment outcomes depending on whether participants have stopped smoking or not.

The interviews will open with a neutral conversational question such as: *"So, how have you been since I last saw you?"*

If the participant volunteers the information that they have not smoked since the treatment then questions can then take a more direct approach to elicit information to the specific cues but without using leading questions. If a morning coffee was a cue for the first cigarette an example could be: *"so how is your morning coffee now?"* Probes will be used to gauge if there are any cravings or if they are completely absent.

If a participant does not immediately volunteer the information as to whether they have smoked then questioning will take the line of: *"Would you please describe your routine before you leave for work?"* Questions will continue along these lines using *elaboration* or *clarification* probes should the answers be ambiguous.

If a participant reveals that they have smoked, questioning will move towards exploring which specific cue caused them to light up, for example *"what situation were you in when you smoked the first cigarette?"* Probes and prompts will be used if a cue is not apparent at first.

If a female participant has smoked questioning will move to explore any impact the menstrual cycle, if any has played in cue reactivity. Questions such *as "would you please tell me where in you menstrual cycle you were when you first smoked?"*

Regardless of sex, if a participant has smoked, the cue that triggered the smoking behaviour will have to be found to establish any themes that may emerge or indeed a cue may not have been mentioned in the initial treatment and thus not extinguished.

Summary

In summary then, the questioning will have to be fluid and unfolding depending on the outcomes of the treatment and the openness of the participants' responses. The goal will be to elicit the reactions to the cues that will then lead to emerging themes in the subsequent analysis.