Jealousy in Romantic Relationships, Self-Esteem and Ego Defenses

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Abstract

Despite the theoretical link between jealousy and self-esteem, research has yielded inconsistent results with regard to this relationship (review: White & Mullen, 1989). Although defenses such as projection, denial and repression have been linked with jealousy (Freud, 1922), there has been no research to date exploring this relationship. This quantitative study used self-report questionnaires, and aimed to contribute to previous research on jealousy and self-esteem, and defenses and self-esteem, and to explore the relationship between jealousy and defenses. Participants consisted of a convenience sample of 188 individuals aged from 20 to 81 years (M = 38.3, SD = 15.47), and included 73 men and 112 women. Measures included a brief demographic questionnaire, an 8-item dispositional jealousy measure (Melamed, 1991), the Rosenberg Self-Esteem Scale (Rosenberg, 1965), and the Defense Style Questionnaire (DSQ-40; Andrews, Singh & Bond, 1993). The hypothesis that jealousy and self-esteem would be negatively correlated was supported for the overall sample (r = -.31, p = .005), however when split by gender there was a correlation for women (r = -.37, p = .0005), but not for men. The findings supported the hypothesis that jealousy would be positively correlated with immature defenses (r = .34, p = .0005) and negatively correlated with mature defenses (r = -.32, p = .0005). Jealousy was also positively correlated with the individual defenses of undoing, projection, passive aggression, acting out, devaluation, autistic fantasy, displacement, splitting, and somatization. Jealousy was negatively correlated with the individual defenses of sublimation, humor and suppression. The relationship between jealousy and defenses was often considerably stronger for men than for women. It was concluded that a relationship between jealousy and self-esteem did indeed exist, however this was only

the case for women. For men, jealousy was found to be particularly associated with use of defenses.

Student Declaration

I, Sabrina Adams, declare that the Doctor of Psychology (Clinical) thesis entitled "Jealousy in Romantic Relationships, Self-Esteem and Ego-Defenses" is no more than 40,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signature: Date:

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Chapter 1: Introduction

1.1 Jealousy

1.1.1 Definitions of Jealousy

Jealousy is a complex experience and has been defined in many ways. Almost a century ago, Freud (1922) defined jealousy as follows:

> It is easy to see that essentially it is compounded of grief, the pain caused by the thought of losing the loved object, and of the narcissistic wound, in so far as this is distinguishable from the other wound; further, of feelings of enmity against the successful rival, and of greater or lesser amount of self-criticism which tries to hold the subject's own ego accountable for his loss. (p. 223)

Jealousy is often described as an emotion or blend of emotions. Freud's (1922) definition includes feelings of grief and enmity. Other theorists have included anger, aggression, hatred, rage, envy, revenge, fear, apprehension, anxiety, panic, suspicion, mistrust, expectancy, distress, depression, self-pity, guilt, love, and sexual arousal (White & Mullen, 1989).

Anger is often recognised as a central emotion in the experience of jealousy (Lazarus, 1991; Sharpsteen, 1991). Indeed, Bryson (1991) includes anger as a separate factor when writing about a reaction to jealousy he calls "emotional devastation", which includes feeling helpless, insecure, inadequate, fearful, anxious,

depressed, and exploited. Fear is another emotion that is prominent in the experience of jealousy. Guerrero and Anderson (1998) describe jealous fear as stemming from fear of abandonment and relational loss (White & Mullen, 1989) and uncertainty about the state of the relationship (Bringle, 1981). Sadness is an emotion not often identified in jealousy. White and Mullen (1989) suggest this might be because "jealousy is primarily a state of excitement and activation that is directed at the future and at changing that future, rather than a state of passive and sad acceptance" (p.180). Sharpsteen (1991) identifies sadness as more likely to follow jealousy rather than accompany it. Factor-analyses of emotions involved in the experience of jealousy have revealed common factors of anger, sadness, fear, envy, sexual arousal, and guilt (e.g., Mathes, Adams & Davies, 1985; Salovey & Rodin, 1986; Tipton, Benedictson, Mahoney & Hartnett, 1978). Parrott (1991) points out that there are so many different emotions felt in the experience of jealousy that such a broad definition can be confusing. He suggests defining jealousy more narrowly as "anxious insecurity".

White and Mullen (1989) reviewed previous definitions of jealousy, dividing them into those that emphasise threat to self-esteem; threat to the relationship; exclusivity, possessiveness and rivalry; and instinctual reactions. They criticise these definitions, and those defining jealousy as an emotion or blend of emotions, as limited and incomplete. They conceptualise jealousy in the following way:

> Romantic jealousy is a complex of thoughts, emotions, and actions that follows loss of or threat to self-esteem and/or the existence or quality of the romantic relationship. The perceived loss or threat is generated by the

> perception of a real or potential romantic attraction between one's partner and a (perhaps imaginary) rival. (p. 9)

The advantage of this definition is its inclusiveness of many aspects of jealousy, and allowance of the differences inherent in each particular instance of jealousy.

Parrott (1991) draws attention to the…

> … variety of cognitive symptoms that characterize the jealous person, including suspiciousness, inability to concentrate on other matters, ruminations and preoccupations, fantasies of the partner and rival enjoying a wonderful relationship, and an oversensitivity to sleights or hints of dissatisfaction by the partner. (p. 19)

Social-cognitive theories such as that of Lazarus (1991) emphasise these cognitive, as well as the social and motivational, aspects of emotion. We can see, then, that jealousy is indeed not a homogenous thing.

Something can be learned from each attempt to describe the complex phenomenon of jealousy. For the purposes of this thesis, jealousy will be described as an emotion elicited in response to a perceived threat to a romantic relationship, characterised predominantly by anger, fear and sadness, that includes conscious and unconscious thoughts and accompanying behaviours.

It may be useful at this point to briefly address the difference between jealousy and envy, which is often discussed in the literature. Lazarus (1991) puts it succinctly when he suggests that one of the differences is thus: "The core relational theme for *envy* is *wanting what someone else has*. The core relational theme for *jealousy* is *resenting a third party for loss or threat to another's affection*" (p.254). Although people sometimes use the two emotions interchangeably, a study examining conceptions of jealousy and envy showed that people did distinguish between them with regard to situations that caused the emotions and the feelings involved (Smith, Kim, & Parrott, 1988).

1.1.2 Origin and Types of Jealousy

Psychoanalysis points to the origin of jealousy in the triangulation of the Oedipus or Electra complex (Freud, 1922). Put very simply, Freud (1922) suggested that children direct their sexual urges to the parent of the opposite sex, and are ultimately defeated by the parent of the same sex. This conflict is repressed and the child identifies with the parent of the same sex to resolve it. In Freud's view, adults unconsciously relive the emotions associated with this loss when they feel what he calls "competitive" or "normal" jealousy. This view lives on in contemporary psychoanalytic theory, and accounts for the vast complexity and intensity of the emotion of jealousy, tied as it is to childhood desire and disappointment. Perhaps for this reason, Freud suggests, jealousy is not completely rational, proportionate to the real situation, or under our conscious control. Freud thought that a certain amount of jealousy was normal, and that a complete lack of it in inferred defensive processes such as repression of childhood conflicts, which would then be even more powerful in

the unconscious. Individuals who are frequently jealous in relationships are seen in psychoanalytic terms to have had difficulties in successfully resolving the Oedipus complex; these individuals unconsciously attempt to work through these difficulties via the compulsion to repeat early patterns of relating (Klein & Riviere, 1937).

Jealousy can sometimes be justified, however Lazarus (1991) points out that when it is not based in reality but is rather part of an individual's character, it is inappropriate and the person is often insatiable. This exaggerated, neurotic need for love is seen by Klein (1957) as rooted in infantile greed as a response to fear of loss. Lazarus and Lazarus (1994) draw attention to jealous individuals' propensity to interpret events in a way that influences their meaning, in that they are more likely to assume there is something to be jealous about. It has been theorised that individuals with narcissistic character pathology turn their sexual impulses onto themselves, impairing their ability to master the Oedipal phase and resulting in an exaggerated need for love to support a fragile sense of self and self-worth (Kernberg, 1975; Wollheim, 1971). Neurotic and narcissistic individuals may therefore be predisposed to feeling jealousy.

Sibling jealousy has also been theorised to have a major influence on personality development (e.g., Klein, 1957; Winnicott, 1977), and laterborns have been found to experience more jealousy in adulthood than firstborns (Buunk, 1997). Adult jealousy has been related to child-rearing strategies of parents, supporting psychoanalytic theories of development (Hindy, Schwarz & Brodsky, 1989). It has also been found that parents' dispositional jealousy has an effect on the dispositional jealousy of their children (Bringle & Williams, 1979). However, a study looking at

the developmental correlates of jealousy found no association between adult jealousy and childhood conflicts with siblings, separations and losses during childhood, harshness of parental discipline, quality of early parent-child relations, or emotional support from peers in childhood (Clanton & Kosins, 1991).

In addition to normal jealousy, Freud (1922) described "projection" jealousy, in which individuals project unfaithfulness, or impulses towards it, onto their partner. Freud also described "delusional", or abnormally intense, jealousy which includes the predominance of projections and delusions (Freud, 1922), a description extended by Ellis (1972) who emphasised the presence of irrational beliefs in pathological jealousy. In this conceptualisation, guilt and a particularly harsh superego results in the utilisation of defenses such as projection, denial and repression. Instead of recognising their own impulses, individuals using projection may attack their partner, or identify with their partner and focus on dealing with their partner's attraction towards others (Klein & Riviere, 1964).

Different types of jealousy have been identified in recent research exploring the multidimensionality of jealousy (Marazziti, Consoli, Albanese, Laquidara et al., 2010). The factors identified were self-esteem/depressive jealousy, paranoid jealousy, obsessive jealousy, separation anxiety-related jealousy, and interpersonal sensitivity or passionate jealousy. Clanton and Kosins (1991) suggest that most jealousy is not pathological. They advocate that attention should be turned away from jealousy itself and towards personality and context, and suggest that jealousy is more often a relationship problem rather than a problem of the individual. This is clearly illustrated

by the distinction between jealousy where the threat is suspected, and jealousy where the threat is known to be real (Parrot, 1991).

1.1.3 Jealousy, Evolution and Culture

The common misconception that emotions are irrational and not adaptive is challenged by the more holistic view that "emotion cannot be divorced from cognitive, motivation, adaptation, and physiological activity" (Lazarus, 1991; p. 6). The myriad of human emotions that have evolved aid us in navigating complex situations, allowing us to perceive and react to subtle cues, especially when dealing with interpersonal relationships.

From an evolutionary perspective, the emotion of jealousy probably evolved to give individuals an advantage by motivating them to protect their relationship, and therefore their chances of successfully producing and rearing offspring. Buss (2000) draws attention to the adaptive benefits of jealousy, such as warding off rivals, increased vigilance, increased affection, and communication of commitment. White and Mullen (1989) detail the sociobiological theory of jealousy, which explains gender differences in jealousy, however warn against inappropriate generalization to and from other species, failure to consider other means of securing paternity confidence, and failure to consider the impact of culture.

Culture has been shown to influence the ways in which jealousy is experienced within a society (Daly & Wilson, 1983; Davis, 1998). Clanton and Smith (1998) draw attention to the shifting attitude towards jealousy in the US, and Clanton

(1989) found that after the sexual revolution of the 1970s, jealousy was no longer seen as protective or proof of love, but rather as a personality defect that was linked to low self-esteem, insecurity and paranoia.

1.1.4 Measuring Jealousy

Jealousy is difficult to measure for several reasons. Experimental research is hindered by the private nature of jealousy and ethical difficulties, studies that use hypothetical situations may not accurately reflect real situations, self-report is problematic because people have different definitions of jealousy or might have little insight into or lie about their feelings, and people often repress or deny feelings of jealousy (Clanton & Smith, 1998).

Research into dispositional jealousy has shown that a self-report jealousy scale which assessed how jealous the person might be in situations of relationships, work, family and school, was moderately correlated with self-report of being jealous, and predictions of jealousy in hypothetical situations (Bringle, Renner, Terry & Davis, 1983). This cross-validation lends support to self-report measures of jealousy.

A self-report jealousy measure that has often been used in research is the Interpersonal Jealousy Scale (IJS; Mathes & Severa, 1981). The IJS is a 28-item single factor scale which measures the domains of infidelity, popularity, untrustworthiness, past relationships, and indifference, with relation to jealousy. It demonstrated good internal consistency and was found to be positively correlated with romantic love, insecurity and low self-esteem (Mathes & Severa, 1981). Some

other jealousy scales used in research include the Self-Report Jealousy Scale (Bringle, Roach, Andler & Evenbeck, 1979), the Romantic Jealousy Scale (Hupka & Bachelor, 1979), the Romantic Jealousy Scale (White, 1981a), the Jealousy Scale (Buunk, 1981).

A few scales measure different dimensions of jealousy. Tipton et al.'s (1978) jealousy scale revealed five factors: need for loyalty, need for intimacy, moodiness, self-confidence, and envy. The Multidimensional Jealousy scale (MJS; Pfeiffer & Wong, 1989), is a 24-item self-report measure with three subscales pertaining to cognitive jealousy, emotional jealousy, and behavioural jealousy. Another jealousy measure that focuses on the multidimensionality of jealousy, but from a different perspective, is the "Questionario della Gelosia" or Jealousy Questionnaire (QUEGE; Marazziti, Consoli, Albanese, Laquidara, et al., 2010). This self-report instrument consists of 30 items and explores feelings and behaviours related to five dimensions of jealousy: self-esteem, paranoia, obsessionality, separation anxiety, and interpersonal sensitivity.

The jealousy measure used in the current study was adapted by Melamed (1991) from a questionnaire designed by Pines and Aaronson (1983). The adapted questionnaire only includes questions about jealousy prevalence, however the original also included attitudes and feelings, elicitors and effects, ways of coping with, and reasons for jealousy. The advantage of the adapted questionnaire is its brevity and the obtainment of a single jealousy score for simplicity in analysis. For a detailed description of the jealousy measure used, please see the methods section of the current study.

1.1.5 Jealousy and Demographics

Research is not consistent in finding gender differences in self-report of jealousy. Most studies have found no difference in level of jealousy in men and women, and those that have, have yielded inconsistent results (e.g., Bringle & Buunk, 1985; Jourard, 1964; White, 1984). However, gender differences have been found when looking at different aspects of jealousy; women have been shown to feel more threatened by emotional infidelity, and men by sexual infidelity (e.g., Buss 2000; Glass & Wright, 1997; Pines, 1998; Whitaker, 2006). When jealous, men have been found to focus on the sexual aspects of the rival relationship, whereas women focused on the emotional aspects of the rival relationship and fear of loss of the primary relationship (e.g., Bringle & Buunk, 1985; White, 1981a). This makes sense from an evolutionary perspective because men need women to be sexually faithful to guarantee paternity of offspring, and women need men to be emotionally faithful to guarantee protection and provision. This "evolutionary theory" of jealousy has been challenged by evidence from studies suggesting that sex-differences of this kind are only found when using a forced-choice response format and are therefore an artifact of measurement (e.g. DeSteno & Salovey, 1996; DeSteno, Bartlett & Salovey, 2002). Several studies have found that both men and women are more affected by sexual infidelity (e.g. Harris 2002, Wiederman & Allgeier, 1993; De Steno et al., 2002) and a study looking at emotions related to each type of infidelity found that both genders expressed more anger and blame as a result of sexual infidelity, however were more hurt due to emotional infidelity (Green & Sabini, 2006). Harris (2003) reviewed evidence of sex differences in jealousy, including self-report data,

psychophysiological data, murder statistics, spousal abuse and pathological jealousy. She found little support for the theory, and drew attention to possible alternative evolutionary mechanisms. She suggests that when it comes to natural selection, the sexes may be more similar than different, and looks to the social-cognitive theory of jealousy to explain differences between men and women.

Relationship status and duration have been related to jealousy inconsistently in research (White & Mullen, 1989). Mathes (1986) found that the more jealous people were, the more likely they were to stay together. Melamed (1991) found that people in more stable relationships were less likely to feel jealous regardless of their self-esteem, whereas those in less stable relationships were more likely to feel jealous if they had low self-esteem. White and Mullen (1989) maintain that it is not useful to concentrate on relationship status or duration, but instead on the factors causing relationships to persevere.

Much of the research on jealousy has used student samples and consequently the relationship between jealousy and age has not often been examined. Studies using samples with a broader age range often do not specifically focus on or report the relationship between jealousy and age. Pines and Aaronson (1983) found that age was significantly negatively correlated with jealousy, that is, jealousy decreased with age.

1.1.6 Jealousy, Personality and Psychopathology

Experimental research on jealousy has typically presented people with hypothetical jealousy-arousing situations. This kind of research has investigated how

the intensity and quality of jealousy may vary depending on aspects of the situation such as degree and quality of threat (e.g., Bush, Bush & Jennings 1988). Correlations between personality trait measures and jealousy are generally low, however jealousy has found to be associated with anxiety and neuroticism, the tendency to screen out environmental complexity, an external locus of control, dogmatism and insecurity (review: White & Mullen, 1989).

In an investigation of dispositional jealousy, experimental research has shown that individuals are more likely to experience jealousy if they are unhappy, anxious, and externally controlled (Bringle, 1981). A study using four jealousy scales (Xiaojun, 2002) found a significant correlation between jealousy and neuroticism, as well as significant relationships between jealousy and anxiety, self-consciousness, positive emotions and trust. Buunk (1997) also found a correlation between three types of jealousy and neuroticism, social anxiety, rigidity and hostility. Hindy, Schwarz, and Brodsky (1989) found sex-differences in correlations between jealousy and personality traits measured by three personality inventories. One study found that jealousy was related not only to neuroticism, but also to psychoticism, however the sample was a small number of adolescent males (Mahanta, 1983).

In normal populations jealousy has been found to be related to borderline personality disorder (Dutton, Van Ginkel & Landolt, 1996), and morbid or pathological jealousy has been linked with personality disturbances, particularly hysterical personality characters (Vauhkonen, 1968). Jealousy is also one of the criteria in the diagnosis of paranoid personality disorder (Diagnostic and Statistical Manual of Mental Disorders- Text Revised; DSM-IV-TR).

Research has demonstrated a relationship between self-report of jealousy and anger. Anger has been associated with jealousy more than other basic emotions (Shaver, Schwartz, Kirson & O'Connor, 1987), and was found to be expected in scenarios of affairs (Hupka & Eshett, 1988). Authors have acknowledged desire for retaliation as a common element in jealousy. Bryson (1991) put forward the concept of "reactive retribution" which includes a variety of retaliation behaviours. Strategies for retaliation may include anger and arguing, threatening to end the relationship, and breaking off communication (Buss, 1998; Guerrero & Afifi, 1998).

Jealousy has been found to be highly correlated with an aggressive conflict style (Schaap, Buunk & Kerkstra, 1998) and hostility (Buunk, 1997). Jealousy and dominance have also been found to be predictors of physical and verbal aggression, and anger (Archer & Webb, 2006). Reviews of literature have emphasised the contribution of jealousy in spousal homicides (Hansen, 1991), and identified it as one of the key antecedents of violence in the USA and Great Britain, alongside money and alcohol (Delgado & Bond, 1993).

1.1.7 Jealousy, Love and Relationships

Clanton and Smith (1998) capture the experience of idealised love well:

> Romantic love promises to re-create the all-encompassing one-to-one relationship that obtained between the infant and the mother. Once again the world is shut out; once again the demands of others can be ignored. Romantic

> love as described in song and story suggests that two lovers depend on one another to the exclusion of all others, that they fulfil one another totally, and that, if deprived of one another, they will die- or, at least, be very unhappy forever. (p. 109)

Freud (1905b) suggested that the success of our adult romances depends on how well our childhood complexes have been resolved. Psychology tends to see love as a result of the unfulfilled needs, dissatisfaction and deficiencies of the individual, and that as well as experiencing positive emotions, negative emotions result from growing dependency on the other (e.g., Reik, 1944; Klein & Riviere, 1937). Johnson (2010) identifies intense negative feelings involved in love "such as jealousy and possessiveness, greed, rage, sadism and masochism, rivalry and competition, and extremes of idealization and denigration" (p. 3).

Love has been found to be related to level of jealousy in studies that measure anticipated jealousy rather than current jealousy (e.g., Bush et al., 1988; Mathes & Severa, 1981; White, 1984). Lee (1977) suggests six styles of love, each with a different relationship to jealousy; love that was correlated with current jealousy was characterised by attraction, committed attachment, or intense romantic love.

Jealousy has been found to be associated with relational dissatisfaction (Anderson et al., 1995; Guerrero & Eloy, 1991). However, research has shown that jealousy is not always destructive. Although expression of negative emotions has been found to result in relational dissatisfaction when accompanied by "distributive communication" (shouting) or distancing/avoidance, when emotions were expressed

through “integrative communication”, such as disclosing jealous feelings, questioning without accusing, and discussion of the future of the relationship, relation satisfaction was high (Anderson, Eloy, Guerrero & Spitzberg, 1995).

Some responses to jealousy aim to protect and improve the self or the relationship, and communicative responses to jealousy have been associated with goals such as relationship maintenance, self-esteem preservation and uncertainty reduction (Guerrero & Affifi, 1998). Pines (1992) argues that jealousy can make people re-assess their relationships, encourage them not to take their partners for granted, and increase passion and commitment in relationships. However, if the behaviours are seen as desperate attempts to get the partner back they tend to be counter-productive and associated with low self-esteem (Guerrero, Andersen, Jorgensen, Spitzberg & Eloy, 1995).

One of the most common reasons couples seek therapy is because of infidelity (Glass, 2003; Glass & Wright, 1997). Firestone, Firestone and Catlett (2005) suggest that deception and betrayal of trust is more damaging than the infidelity itself. Jealousy is a major issue in such situations, and consequently of great clinical interest for couples therapy.

1.1.8 Jealousy, Attachment and Insecurity

According to attachment theory, infants form an emotional bond with attachment figures who provide a secure base for exploration (Bowlby, 1969). Early attachment experiences with caregivers provide a template for future relationships,

including strategies for dealing with emotions, called "internal working models" (Bowlby, 1969). Patterns of attachment can be divided into three categories; secure, insecure anxious/avoidant, and insecure anxious/ambivalent (Ainsworth, Blehar, Waters & Wall, 1978). Bowlby (1973) suggested that the anxiously attached person remains "excessively sensitive to the possibility of separation or loss of love" (p. 28).

There has been evidence to suggest that securely attached individuals report less jealousy than insecurely attached individuals (Holtzworth-Munroa, Sutart & Hutchinson, 1997). Hazan and Shaver (1987) found that secure lovers reported least self-reported jealousy, followed by anxious/avoidant partners, and anxious/ambivalent reported most jealousy. However, in a study looking at developmental correlates of jealousy, attachment history was not found to be associated with adult jealousy (Clanton & Kosins, 1991). A study using the QUEGE (Marazziti, Consoli, Albanese, Catena Dell'Osso, & Baroni, 2010) showed that the dimensions of self-esteem, paranoia, obsessionality, separation anxiety and interpersonal sensitivity were all related to anxiety and avoidance on a measure of romantic attachment. Authors of this study suggest that romantic attachment and jealousy are intertwined, sharing some characteristics such as being triggered by separation and involving the emotions of fear, anger and sadness.

Firestone et al. (2005) describe couples who have developed what they call a "fantasy bond" as having given up their independence to maintain an illusion of fusion, increasing feelings of insecurity and dependence. Studies have shown that individuals that are highly dependent in a relationship are more likely to be jealous (e.g., Buunk, 1982; Mathes & Severa, 1981). Individuals who are more insecure about

their relationships have also been shown to have higher levels of jealousy (Marelich, Gaines & Banzet, 2003).

In a study looking at dependency and insecurity in romantic relationships, Fei & Berscheid (1976; cited in Berscheid & Fei, 1998) found that individuals in love were likely to be highly dependent, but there was no relationship between dependency and insecurity. For individuals not in love, the more dependent they were on the other, the more insecure they were. They theorised that dependency and insecurity are both necessary conditions for sexual jealousy, and individuals who experience both are most likely to feel jealous.

1.2 Self-Esteem

1.2.1 Definitions of Self-Esteem

The concept of self-esteem was introduced over a century ago (James, 1890) and rose to the academic forefront in the 1960s when Rosenberg (1965) developed a self-report measure that was used in much subsequent research (Rosenberg Self-Esteem Scale). Since then it has been researched by psychologists and sociologists alike, being as it is on the boundary between these two social sciences.

Two components of self-esteem are present in definitions of self-esteem: "competence" and "worthiness". James (1890) describes self-esteem as a feeling that is dependent on the effectiveness of one's actions; this description focuses on competence. Robert White (1963) draws attention to the developmental importance of

the infant's feeling of "efficacy", which results from repeated success or failure of attempts to get what it needs, and eventually develops into a sense of competence and identity. Worthiness, in Rosenberg's (1965) definition of self-esteem, is an attitude towards the self: "The individual simply feels that he is a person of worth; he respects himself for what he is, but he does not stand in awe of himself nor does he expect others to stand in awe of him" (p. 30). Coopersmith (1967) also focused on worthiness and thought that self-esteem was expressed through verbal attitudes and behaviour.

Some authors (Branden, 1969; Gecas, 1971) focus on both competence and worthiness, and the relationship between them. Mruk (1999) emphasises the importance of both aspects of self-esteem in complete definition that he thinks should guide research. However, the view of self-esteem as a global attitude towards the self is supported by factor analyses (Fleming & Courtney, 1984) and by studies using the Rosenberg Self-Esteem Scale (Corwyn, 2000).

Social scientists have described self-esteem in terms of a relationship between attitudes; the discrepancy between the "ideal self" and "perceived self" (Pope, McHale, & Craighead, 1988). This definition is interesting from a psychodynamic point of view as it seems to relate to the "ego" and the "ego ideal". Self-esteem is often seen as defensive or protective of the self or identity (Coopersmith, 1967; Newman & Newman, 1987). Conceptualising self-esteem in this way links it with defense mechanisms, which protect the ego or self from unpleasant thoughts and emotions.

1.2.2 Measuring Self-Esteem

Psychology focuses on the individual and the situation; for this reason, measurement of self-esteem by psychologists has been carried out by methods such as case studies, interviews and experiments. These methods often focus on competence because behaviour, personal goals and achievements can be observed. Sociology, on the other hand, focuses on larger groups, and measures self-esteem with surveys or by social class comparisons. These methods often focus on worthiness, and ask about attitudes and social influences. Social scientists can therefore study self-esteem more empirically.

As with jealousy, for practical and ethical reasons it is difficult to study self-esteem directly. Wells and Marwell (1989) discuss the methodological diversity in the area of self-esteem research at length. Among the methods used are introspection (Epstein, 1979), case studies and interviews (e.g., Branden, 1969; Pope et al., 1988), surveys (Rosenberg, 1965), and experiments (Coopersmith, 1967). Each of these methods has its limitations.

Most instruments measuring self-esteem fail to differentiate between competence and worthiness, even if they incorporate both. Mruk (1999) names this as one of the reasons relationships between self-esteem and other variables are inconsistent and often insignificant. The question of whether self-esteem is global or situational is also important; recent significant life-events, such as losing a job or relationship, could change an individual's self-esteem, and most instruments do not take situational factors such as this into account.

Coopersmith's Self-Esteem Inventory (SEI; 1975, 1981) is a 25 item self-report questionnaire that measures global self-esteem, originally developed for children and adapted for adults. This measure focuses more on worthiness than competence. The self-esteem score is in terms of range; high, medium or low. The Multidimensional Self-Esteem Inventory (MSEI; O'Brien & Epstein, 1983, 1988) is another self-report measure that has 116 forced-choice questions and is scored and interpreted according to eleven scales. Although this questionnaire is more expensive and time-consuming to administer, it has the advantage of addressing global/situational self-esteem and defensiveness. The MMPI-2's self-esteem subscale (Hathaway & McKinley, 1989) has also been used in research as a measure of self-esteem.

The Rosenberg Self-Esteem Scale (1965) is a 10 item self-report measure that focuses on worthiness. This self-report questionnaire has been used in thousands of empirical studies of self-esteem in sociology and psychology. For more details about this measure, please see the methods section of this thesis.

1.2.3 Self-Esteem and Demographics

In a review of the literature, Wylie (1974) found that self-esteem does not change with age, however research since then has called this conclusion into question. Robins, Trzesniewski, Tracy, Gosling and Potter (2002) used cross-sectional data to show that self-esteem was high in childhood, dropped in adolescence, rose gradually throughout adulthood and dropped sharply in old age. This is presumably because of

changes in roles, relationships, and physical functioning (Robins et al., 2002). Similarly, in a longitudinal study, Orth, Trzesniewski and Robins (2010) found that self-esteem increased during young and middle adulthood, reached a peak at 60 years, and declined in old age. In another longitudinal study, Shaw, Liang and Karuse (2010) also found increases in self-esteem in younger adults and decreases in self-esteem in older adults.

In a review of gender differences in global self-esteem, Skaalvik (1986) found that males had higher global self-esteem than females as measured by context-free instruments. Again, in a meta-analysis of gender differences in self-esteem, men were found to score higher (Kling, Hyde, Showers & Buswell, 1999).

1.2.4 Self-Esteem, Personality and Psychopathology

In the late 1980s and early 1990s, low self-esteem was linked with various psychological and social problems; this trend has continued in current literature. For example, self-esteem has been associated with negative affect (Moreland & Sweeney, 1984), negative focus (Wells & Marwell, 1976), anxiety (review: Skager & Kerst, 1989), compulsive behaviour (Battle, 1982), depression (review: Bernet, Ingram & Johnson, 1993), loneliness (Ginter & Dwinell, 1994; Tzonichaki, Kleftaras, Malikiosi, 1998) and shame (Yelsma, Brown & Elison, 2002). In longitudinal studies, low self-esteem has been found to predict poorer health, worse economic prospects, and criminal behaviour (Trzesniewski et al., 2006), and subsequent depressive symptoms (Ulrich, Robins, Trzesniewski, Maes & Schmitt 2009).

High self-esteem has been found to be correlated with ego strength (Davis, Bremer, Anderson & Tramill 1983), good adjustment (Sappington, 1989), job satisfaction and performance and life satisfaction (Judge & Bono, 2003), individual autonomy (Bednar, Wells, & Peterson, 1989; Coopersmith, 1967) and happiness (Cheng & Furnham, 2004). Wells and Marwell (1976), however, suggest that high self-esteem may have its limits in terms of lack of sensitivity to the limitations of others, resulting in interpersonal problems.

Research has revealed that psychiatric patients have lower self-esteem than non-clinical samples (Murphy & Murphy, 2006). In clinical populations, low self-esteem has been linked with depression (review: Tennen & Affleck, 1993), suicide (e.g., Bhar, Ghahramanlou-Holloway, Brown & Beck, 2008; Chatard, Selimbegovic & Konan, 2009), psychosis (Roe, 2003), and personality disorders (e.g., Watson, 1998; Lynum, Wilberg & Karterud, 2008). More recently, research has focused on variability in self-esteem. For example, unstable self-esteem has been found to mediate the relationship between negative events and depressive symptoms (Auerbach, Abela, Moon-Ho, McWhinney, & Czaikowska, 2010), and to trigger maladaptive responses in people with narcissistic personalities and eating disorders (Tennen & Affleck, 1993).

Despite the plethora of correlations between self-esteem and behaviour, there is weak evidence for a causal correlation. However, the more likely reciprocal relationship between self-esteem and behaviour (Coopersmith, 1967) fits with the idea that people are more likely to accept information from the environment that is consistent with the beliefs they have about themselves (Campbell & Lavalee, 1993).

1.2.5 Different Types of Self-Esteem

Criticism of the concept of self-esteem in the late 1990s (Johnson, 1998; Leo, 1998) called into question the usefulness of the construct, and research suggested that high self-esteem was linked with undesirable behaviour such as egotism, narcissism, and violence (Baumeister, Smart, & Boden, 1996; Raskin, Novacek & Hogan, 1991). This was later challenged with the finding that narcissism, as distinct from high self-esteem, was related to violence (Bushman & Baumeister, 1998; Bushman et al., 2009). However, a study by Donnellan, Trzesniewski, Robins, Moffitt and Caspi (2005) found a relationship between global self-esteem and externalizing problems such as aggression, independent of narcissism.

It seems important, at this point, to differentiate between high self-esteem and narcissism. Robert White (1963) sheds some light on this distinction by defining feelings of competence as different from narcissism in that they are based on reality. Some confusion stems, as Rosenthal and Hooley (2010) point out, from the overlap in measures of narcissism, usually the Narcissistic Personality Inventory (NPI; Raskin & Hall 1979), and self-esteem, leading some researchers to link narcissism and psychological health.

There seem to be two ways to respond to the vulnerability of low self-esteem; with a desire for self-protection, or a desire for self-enhancement (Mruk, 1999). The former gives the picture of classical low self-esteem, involving negative feelings of unworthiness and insecurity, and the latter a quite different picture. Some individuals

seem to compensate for low self-esteem by behaving in an over-confident or aggressive way; these individuals appear to have high self-esteem on the surface, however have deeper problems with self-esteem. This has been noted by several authors who use different terms for the phenomenon, however it is often referred to as "fragile high self-esteem" (review: Kernis & Paradise, 2002).

Zeigler-Hill (2006) differentiates secure high self-esteem and fragile high self-esteem in the following way:

> Secure high self-esteem… reflects positive attitudes toward the self that are realistic, well-anchored, and resistant to threat. Fragile high self-esteem, on the other hand, reflects feelings of self-worth that are vulnerable to challenge, need constant validation, and frequently require some degree of self-deception. (p. 120)

Secure high self-esteem has been associated with psychological health and successful relationships, whereas fragile high self-esteem has been associated with poor psychological health, antisocial behaviour and aggression (e.g., Tracy, Cheng, Robins, & Trzesniewski, 2009).

Self-esteem can be divided into explicit self-esteem, which refers to conscious feelings of self-worth, and implicit self-esteem, which is unconscious; differences in these two types of self-esteem result in "discrepant self-esteem" (review: Kernis & Paradise, 2002). Ziegler-Hill (2006) found that discrepant high self-esteem, characterised by high explicit self-esteem and low implicit self-esteem, was

associated with the highest levels of narcissism, and also with instability of explicit self-esteem. This fits with the classic view of narcissism (e.g., Kernberg, 1970; Kohut, 1971) and has also been linked with borderline personality disorder (Vater, Schroder-Abe, Schutz, Lammers, & Roepke, 2010). Unstable or fluctuating self-esteem (Kernis, 2003), has been linked with mood variability and intensity (Rhodewalt, Madrian, & Cheney, 1998), anger and hostility (Kernis et al., 1989).

1.2.6 Jealousy and Self-Esteem

Freud (1922) includes the term "self-criticism" in his definition of jealousy. The link between jealousy and self-esteem is widely accepted; it seems reasonable to assume that a jealous individual has low self-worth if they believe their partner would leave them for a rival. Tov-Ruach (1980) conceptualises jealousy as a loss of attention that reinforces self-concept, so that the threat of loss of the relationships involves the threat of loss of the self. For White and Mullen (1989), self-esteem is intrinsically embedded in the relationship and the experience of jealousy; they see the jealousy situation as threatening to self-esteem and self-concept, which are an important part of the meaning and value of the relationship. Lazarus and Lazarus (1994) maintain that although jealousy is sometimes reasonable, low self-esteem can be the basis for jealousy in the absence of genuine provocation.

Despite the theoretical link between jealousy and self-esteem, research has yielded inconsistent results. In a review of the literature, White and Mullen (1989) cited eight studies that found no correlation between self-esteem and jealousy (e.g., Shettel-Neuber et al., 1978; White 1981b), and ten studies that reported modest

negative correlations (e.g. de-Moja, 1986; Tipton, Benedictson, Mahoney & Hartnett, 1978; White 1981c). Hansen (1985) also cites one study that found a negative relationship for men and women (Bringle & Evenbeck, 1979), one that found a negative relationship for men (White, 1981d), three that found no relationship (Buunk, 1981; Hansen, 1982; Mathes & Severa, 1981), and his own study, which found a positive relationship for women but not men. However, these studies don't often measure dispositional jealousy, but rather use hypothetical jealousy-inducing situations. In addition, many of the studies use young adults, often college students, as their sample. In a more recent study using three measures of dispositional jealousy, there was a negative correlation between jealousy and self-esteem, and also jealousy and self-efficacy (Hu, Zhang, & Li, 2005), however participants in the study were Chinese college students.

White and Mullen (1989) criticise global self-esteem on the grounds that there are different aspects of the self that may be under evaluation, depending on the person's personality or the situation. When looking at self-esteem in relation to jealousy, they argue, relationship-related self-esteem should be measured. Perceived inadequacy as a partner has indeed been found to be correlated with chronic jealousy in research, as has dependence on one's partner for self-esteem (White, 1981b, 1981c, 1981d).

Jealousy, as well as envy, shame and guilt, have been conceptualised as "ego-relevant" emotions, as they involve threat to the self (Tangney & Salovey, 2010). Some definitions of jealousy cite threat to self-esteem as a cause, however threat to self-esteem and low self-esteem are distinct from each other. It is possible for

someone with high or low self-esteem to feel that their self-esteem is threatened. It may seem logical that individuals with low self-esteem would be more vulnerable to self-esteem threat, however in fact those with high self-esteem may be more susceptible to self-esteem threat (Berscheid & Fei, 1998; Bringle, 1981). Bush et al. (1988) found that perception of inadequacy increased after imagining a situation that provoked jealousy.

In a study using hypothetical jealousy-arousing situations, White's (1981d) theory that jealousy causes loss of relationship rewards and loss of self-esteem was supported (Mathes et al., 1985). Additionally, in experimental study focusing on context demonstrated that threatened self-esteem functions as a principal mediator of jealousy (DeSteno, Valdesolo, & Bartlett, 2006). Looking more closely at specific emotions aroused by threat to self-esteem, Buunk and colleagues (1984) found that individuals reporting high self-esteem threat were more likely to feel ashamed, fearful and powerless, and there was a correlation between anger and self-esteem threat for women.

1.3 Defenses

1.3.1 Defenses: Freud and Beyond

In Freud's conceptualisation (1905a, 1926), defenses are unconscious processes somewhere between physiological reflexes and learned behaviours, which the ego uses to control impulse expression, in order to protect the individual from being overwhelmed by anxiety resulting from the conscious recognition of

unacceptable impulses. Freud (1937) acknowledged that the developing ego could not do without defenses, however that use of defenses could become problematic.

The first defense mechanism, repression, was described by Freud in 1896. Repression was described as a defense against distress arising from an idea that opposed the patient's ego, and as a cause for the symptoms of neuroses. In 1905 (1905a) he added humor, suppression, distortion, displacement, phantasy and isolation. Freud discovered many other individual defenses, without overting them as such, including denial, projection, splitting, hypochondriasis, passive aggression, dissociation, undoing, reaction formation and sublimation (review: Vaillant, 1992). Freud's daughter, Anna Freud, produced a formal taxonomy of defenses in her book "The Ego and the Mechanisms of Defense" (1936). Vaillant (1992) suggests that a possible reason for Freud's lack of interest in this task may have been that Freud's theories came from the study of psychiatric patients, and this would have limited his appreciation of healthy ego functioning. Anna Freud (1936) and Fenichel (1945) saw the function of defenses as warding off anxiety and guilt, among other emotions.

Although defenses were linked with psychopathology in early psychoanalytic literature, since the 1930s they have been considered a normal part of the human psyche (e.g., A. Freud, 1936; Lampl-de Groot, 1957; Loewenstein, 1967; Van der Leeuw, 1971). Defenses are now understood as part of normal development, and as used by all individuals to some extent, however they become pathological when they are intense/excessive (A. Freud, 1936), or age-inappropriate (Cramer, 1991b). It is possible to order defenses based on a dimension of maturity (Vaillant, 1976, 1977, 1994) or on a developmental continuum (Cramer, 1987, 1991b, 1997a).

The development of defense mechanisms in childhood results in different patterns of defensive function in adult individuals. Winnicott (1965) and Miller (1981) both theorised that the infant represses emotions or impulses that arouse a negative reaction in their caregiver, in order to protect the relationship, resulting in the development of what they call a "false self". In this way, Cramer (1991b) further theorised, and also through instruction or observation (coping strategies), children learn to protect their sense of self and self-esteem and control expression of negative emotions like anger, jealousy and sadness.

Cramer (1991b) presented a theory that ordered the defense mechanisms in chronological order of development, and supported this with empirical evidence. She suggested that denial becomes predominant in early childhood, followed by projection in late childhood, and identification in adolescence. For a review of studies of defenses in childhood and how they are related to stress and psychopathology, see Cramer (1991b, 2006). In summary, studies show that in children, defense use increases at times of stress, and that temporary stress is associated with increase of age-appropriate defenses, however long-term stress is associated with higher use of immature, and lower use of mature, defenses. This is adaptive in the short term, however in the long-term distorts the child's perception of reality and interferes with relationships. Ongoing use of immature defenses is associated with psychological problems.

1.3.2 Definitions of Defense Mechanisms

The definition of and difference between the concepts of defense mechanisms and coping strategies has often been confused in the literature (review: Cramer, 1998a). Cramer (1998a) sees coping and defense as different types of adaptive mechanisms used in response to adversity. According to Cramer, coping strategies are conscious and purposeful, while defense mechanisms are unconscious and unintentional. Both decrease negative affect/anxiety, and both restore a comfortable level of functioning. Whereas coping strategies function to solve a problem, defenses change internal states; they don't effect external reality, however may result in distortion in perception of reality.

Vaillant (1992) defines ego mechanisms of defense against other forms of coping in that:

> 1) they are relatively unconscious, 2) they often form the building blocks of psychopathology, 3) in the service of healing they often effect creative mental synthesis, and 4) they repress, deny, and distort internal and external reality and thus often appear *odd* or irrational to observers. (p. 45)

Vaillant details purposes of defenses as keeping affects bearable when there is a change in emotional life, biological drives, self-image or self-schemata, or managing unresolvable conflict. Bond (1992) describes defenses as "not only unconscious intrapsychic process but also behaviour that is either consciously or unconsciously designed to reconcile internal drives with external demands" (p. 130). Defenses are

often seen as related to psychopathology, and coping strategies are often seen as part of normal psychological functioning. However, defense mechanisms are not only part of normal development, but also different defenses and different types of defenses have been found to be related to both psychopathology and psychological health.

Reading through the literature on defenses, one is struck by the variability in defense styles, and individual defenses they are comprised of. Ihilevich and Gleser (1986) and Cramer (1991b) provide reviews of the psychological literature on defenses and coping. In trying to produce a common language for defenses, Vaillant (1971) compiled a list of eighteen defenses derived from other psychoanalytic writers, and outlined the relationship of each defense to Freud's models of the mind. Vaillant's hierarchy groups defenses into psychotic, immature, neurotic, and mature factors. Other authors have developed alternative hierarchies of defense styles (Haan, 1969; Haan, Stroud & Holstein, 1973; Semrad, Grinspoon & Feinberg, 1973; Shapiro, 1965).

In Vaillant's glossary of defenses (1992), psychotic defenses alter reality for the user, and appear "crazy" to others; immature defenses often guard against distress associated with interpersonal intimacy or its loss, and appear socially undesirable to others; neurotic defenses alter private feelings or instincts, and are seen by others as quirks or hang-ups; mature defenses "integrate reality, interpersonal relationships, and private feelings" (p. 247), and are seen as personal virtues. Psychotic defenses are common in individuals with psychiatric disorders, immature defenses in normal individuals and those with character disorder, neurotic defenses in normal individuals

and those with neurotic disorder or under stress, and mature defenses are found in normal, healthy individuals.

For a list of defenses included in the defense measure used in the current study (DSQ-40), items for each defense, definitions from the Diagnostic and Statistical Manual of Mental Disorders III- Revised (DSM-III-R) glossary and some offered by Vaillant (1992), please see table 2.01 in the methods section of this study.

1.3.3 Measuring Defenses

Cramer (1991b) identifies 58 different empirical methods for assessing defenses. In her more recent review of the literature, Cramer (2006) criticises other self-report measures (e.g. Byrne, 1961; Gleser & Ilhevich, 1969; Haan, 1965; Joffee & Naditch, 1977) for being limited by conceptual and psychometric problems. Differences between measures, such as the individual defenses measured and categories and sub-categories of defenses, should be kept in mind when interpreting and comparing results of research.

The Defense Mechanism Manual (DMM; Cramer, 1991b) assesses defenses by coding narrative material gathered from the TAT and clinical interviews. The DMM yields scores for the defenses of denial, projection, and identification, each composed of several subscales.

The Defense Mechanism Rating Scale (DMRS; Perry, 2001) assesses defenses by coding information from clinical interviews, and yields scores for seven defense

levels, comprising twenty-seven individual defenses. The seven defense levels are: mature, obsessional, other neurotic, minor image-distorting, disavowal, major image-distorting, and action defenses. The DMRS is similar to the method Vaillant (1976, 1977, 1993) used in longitudinal studies of defenses.

The Defense Style Questionnaire (DSQ; Bond, 1992; Andrews, Singh, & Bond, 1993) assesses defenses via a self-report questionnaire. There are several different versions of the DSQ (review: Cramer, 2006), which include different numbers of defenses, however they are generally divided into immature, neurotic, and mature defense factors. For more information about this measure, please see section 1.3.10 and 2.3.2 of the current study.

Other measures worth mentioning include the Defense Mechanisms Inventory (DMI; Gleser & Ihlevich, 1969), which uses self-report to test response to conflict and includes five defensive categories, and the Life Style Index (LSI; Conte & Apter, 1995). Haan (1965) developed a set of Q statements for assessing defenses and also developed a self-report technique using scales from MMPI, however this was not cross-validated.

Factor analysis of measures of defenses often reveals three or four underlying factors which have adequate reliability, and predict pathology and other aspects of behaviour. For this reason, caution should be used when interpreting findings related to individual defenses (Cramer, 2006). Anna Freud's point is relevant in that when looking at defenses "one should not look at them microscopically, but

macroscopically… you have to take your glasses off to look at them, not put them on" (Sandler, 1985; p. 176).

Measuring defenses by observational methods such as standard prompts and clinical interviews (e.g., DMM, DMRS) takes time and requires training and clinical sensitivity, and some defenses are not coded often (Cramer, 2006). The advantages of a self-report measure, according to Bond (1992), is that takes less time and training, and there are no inter-rater reliability problems. Bond points out that self-report measures are limited by motivation, openness and self-awareness; in addition, questionnaires may not include enough questions to measure each defense accurately.

An issue in the measurement of defenses by self-report is that it may not detect an unconscious process (Vaillant, 1992). Someone who reports behaviours associated with denial is also likely to report not feeling anxious because they use denial to defend against their anxiety, potentially leading us to conclude that people who use denial are psychologically healthier, when in fact they are not. Self-report measures assume that individuals can report defensive behaviours without being aware of their purpose (Bond, 1992).

1.3.4 Defenses and Demoraphics

Studies using the DMM with young adults found have found that, as expected, denial was used less frequently than projection, however identification was also used less frequently than projection (Cramer, 1997b, 2003, 2004; Cramer & Block, 1998). A longitudinal study (Cramer, 1998b) showed that identification was particularly high

during adolescence but then dropped off in adulthood. A longitudinal study (Vaillant, 1990, 1993) showed a decrease in immature defenses after 35 years, except denial, and an increase in mature defenses. However, in another longitudinal study using the DMI, Diehl, Coyle, and Labouvie-Vief (1996) found an increase in immature defenses with age.

Studies using various versions of the DSQ have found that older people use immature defenses less (Andrews et al., 1993; Bond, Perry, Gautier, Goldenberg et al., 1989; Costa, Zonderman, & McCrae, 1991), with the biggest change occurring between adolescence and early adulthood (Romans, Martin, Morris, & Herbison, 1999; Steiner et al., 2001; Whitty, 2003). Mature defenses, on the other hand, were found either to increase with age (Costa et al., 1991; Romans et al., 1999), not to differ with age (Andrews et al., 1993), only to differ between adolescence and early adulthood (Whitty, 2003), or some to increase and some to decrease (Steiner, Araujo, & Koopman, 2001). Vaillant (1997) theorised that the tendency for immature defenses to decrease with age is a result of less reality-distortion, however Cramer (2006) suggests it could also be the result of differences in life stage stresses, or cohort differences.

Gender differences have been found in the use of defenses. Studies using the DMM have found that men use internalising defenses and projection more than females, and women use externalising defenses and denial, reaction formation and reversal, more than males (review: Cramer, 1991b, 2006). Most studies using the DSQ have found no gender differences. In studies using adolescent samples, females were found to score higher on neurotic defenses than males (Muris, Winands, &

Horselenberg, 2003; Tuulio-Henriksson, Poikolainen, Aalto-Setala, & Lonnqvist, 1997). A sample of college students were found to differ on some individual defenses using the DSQ-40 (Watson & Sinha, 1998); men were found to score higher in their use of suppression and isolation, and women higher in their use of pseudo-altruism. Men have also scored higher on mature and immature defense factors using the DSQ-40 (Watson & Sinha, 1998), and the DSQ-36 (Spinhoven & Kooiman, 1997). Using the REM-71, Steiner et al. (2001) found differences in individual defenses between genders. Females used higher levels of somatization, splitting, sublimation, undoing, altruism, idealization and reaction formation than men, and men used higher levels of omnipotence, passive aggression, repression, denial/isolation, intellectualization and suppression.

1.3.5 Defenses and Self-Esteem

Defenses have been conceptualised as protecting a sense of self and self-esteem (e.g., Kohut, 1977). Evidence shows that use of defenses increases when self-esteem is threatened. Theoretically this can be understood in the following terms: stress or threat to self-esteem or self-concept increases anxiety, precipitating the use of defenses, which protect self-esteem by removing disturbing or unwanted thoughts and emotions from consciousness.

Cramer (1991a) found that challenge to creativity resulted in an increase in projection and identification, challenge to intellectual capacity resulted in an increase in denial, projection, and identification (Tuller, 2002), and when sex-role orientation was challenged (Cramer, 1998c), identification increased. In another experimental

study where subjects were exposed to threats involving gender identity, racism and social rejection, Rudman, Dohn, Matthew, and Fairchild (2007) did not find an effect on explicit self-esteem, however found high scores on implicit self-esteem, demonstrating what they call “implicit self-esteem compensation”.

Experimental research has shown that defense use, specifically projection, increases when personal identity is challenged by attributing hostility to subjects (Schimel, Greenberg, & Martens, 2003), and that individuals who were given the opportunity to project were less likely to express hostility. Newman, Duff, and Baumeister (1997) also found that individuals who were more generally defensive were more likely to use projection. It was theorised that these individuals were protecting their self-esteem or self-concept by perceiveing their own unwanted traits in others.

The abovementioned studies used an experimental design to examine the relationship between threat to self-esteem and use of defenses. They did not, however, measure self-esteem itself, assuming that the experimental conditions threatened self-esteem, and that defenses were mobilised to protect self-esteem. The results of the studies suggest that when self-esteem is threatened at a particular moment in response to a particular threat, use of defenses increases. These results tell us nothing about the relationship between an individual’s level of global self-esteem and the amount or type of defenses they typically use to protect themselves from negative thoughts and emotions in real, everyday situations.

Looking at the relationship between global self-esteem and defense use shifts the focus from the individual instances of experimental research to more enduring patterns of feeling, thinking and behaving. Mruk (1999) suggests that people can use overcompensation, displacement, sublimation and discharge as ways of defending against low self-esteem. Using the DSQ-36, Whitty (2003) found a negative correlation between immature defenses and self-esteem, but no relationship between mature defenses and self-esteem. However, using the DSQ-40, Romans et al. (1999) found that not only immature but also neurotic defenses were negatively correlated with self-esteem, and mature defenses were positively correlated, in a sample of women.

Perry and Cooper (1986), using the DMRS, found that the narcissistic defenses of omnipotence, primitive idealization, devaluation and mood-incongruent denial were associated with the report of antisocial symptoms. They suggested that these defenses "primarily help the individual with difficulty in regulating self-esteem by focusing on overvalued or undervalued aspects of experience, oneself, and others" (p. 213). Vaillant and Drake (1985) noted that narcissistic and antisocial personality disorders share the immature defenses of acting out, dissociation, projection and passive aggression, and suggested that problems in regulation of self-esteem may underlie both.

Self-esteem instability has also been associated with use of immature defenses (Zeigler-Hill, Chadha, & Osterman, 2008). Higher levels of intermediate and mature defense styles were associated with less self-esteem instability among those with low

self-esteem. Zeigler-Hill et al. (2008) conceptualise defenses as automatic psychological processes that maintain and enhance self-esteem.

1.3.6 Defenses, Personality and Ego Maturity

Research on defenses has focused on relating specific defenses to specific personality or psychosocial dispositions (review: Cramer, 1991b, 2006; Ihilevich & Gleser, 1986; Vaillant, 1977, 1993). Generally, research shows that use of immature defenses is associated with unfavourable aspects of personality.

Using the DMM with samples of young adults, Block and Block (1980) found that denial was associated with unpredictable, unconventional, rebellious and narcissistic behaviour, and also with lack of clear thinking and anxiety. Cramer (2006) found that denial was related to immaturity of personality. In both of these studies, projection was related to negative personality traits and anxiety and depression for men, however in women it was related to positive personality traits. Identification was related to social competency for women, and to low self-esteem and low ego control for men. It is interesting to note that use of these defenses were found to be advantageous for women but not for men. Some of these results were repeated in a studies by Hibbard and colleagues (Hibbard & Porcerelli, 1998; Hibbard et al., 2000).

Studies using the DSQ have found relationships between defense factors and personality traits or dimensions. Whitty (2003) found that mature defenses correlated positively with internal locus of control and immature defenses correlated with

external locus of control. Mulder, Joyce, Sellman, Sullivan, and Cloninger (1996) found that immature defenses were associated with low self-directedness and cooperativeness, neurotic defenses were associated with low self-directedness and novelty seeking, and mature defenses were associated with ability to accept uncertainty and global identification. Studies using the Adaptive Defense Profile (ADP) found that mature defenses were related to positive personality characteristics such as empathy, competence, lower hostility and optimism (Davidson, MacGregor, Johnson, Woody, & Chaplin, 2004; Macgregor, Davidson, Rowan, Barksdale, & MacLean, 2003).

The Big Five factors of personality (John & Srivastava, 1999; McCrae & Costa, 1999) have been found to relate to defenses. Cramer (2003) found that denial was not related to personality factors, however projection was. Soldz, Budman, Demby and Merry (1995) assessed defenses using the DSQ-88 and found that the immature defense scale predicted unfavourable traits such as low agreeableness, low conscientionsess and high neuroticism, mature defenses predicted extraversion, openness, and low neuroticism, and the withdrawal scale predicted low extraversion and openness.

According to Loevinger (1976), the way in which the ego controls impulse expression defines level of ego development. The process by which the ego controls impulse expression is by the utilisation of defense mechanisms. The relationship between defense use and ego level has been demonstrated to be curvilinear, and stronger defense use at higher ego levels has been related to lower IQ (Block & Block, 1980; Cramer 1999a).

Ego strength and maturity have been found to be negatively related to the individual defenses of projection, passive aggression, dissociation and acting out, and positively related to humor, suppression and sublimation, as measured by the DSQ (Bond, Gardner, Christian, & Sigal, 1983). A relationship between mature defenses and ego maturity, and immature defenses and lower levels of ego functioning, has been supported by research (e.g., Battista, 1982; Haan, 1963, 1977; Jacobson, Beardslee, Hauser et al., 1986). Cramer (1997b) also found a linear relationship between degree of identity crisis and defenses in young adults.

1.3.7 Defenses and Mental Health in Normal Populations

In non-clinical samples, mature defenses are associated with psychological health, and immature defenses are associated with psychopathology. Research has suggested a link between defenses and depression; immature defenses have been found to predict level of depression, mature defenses have been found to be negatively related to depression, and neurotic defenses to be unrelated (Kwon, 2000; Kwon & Lemon, 2002). Similarly, a positive correlation between immature defenses and depression has been found in research (Davidson et al., 2004; Flannery & Perry, 1990; MacGregor et al., 2003; Nishimura, 1998). More specifically, the individual defenses of projection, displacement, autistic fantasy, somatization, and acting out were found to be the strongest predictors of symptoms of psychiatric disorders (Watson, 2002).

Immature defenses have also been found to be correlated with anxiety and impulsive anger (Nishimura, 1998), pathological symptoms, neuroticism and phobic tendencies (Muris & Merkelbach, 1996). Neurotic defenses have been related to anxiety (Nishimura, 1998), and mature defenses have been found to be either unrelated (Nishimura, 1998), or negatively correlated (Muris & Merkelbach, 1996), with psychopathology.

Use of particular defenses has been implicated in pathological aggression. DMM assessment of defenses has revealed a relationship between denial and violence (Kim, 2001: cited in Cramer, 2006), and a relationship between the defenses of denial and projection, and violence (Porcerelli, Cogan, Kamoo, & Leitman, 2004), whereas identification was negatively related to violence. DSQ scales, however, were not found to differentiate between violent and non-violent individuals (Kim, 2001; cited in Cramer, 2006). Another study, which compared parents who abused their children with parents with anxiety disorders and a non-clinical group of parents, found that abusive parents used more projection and denial than other groups (Brennan, Andrews, Morris-Yates, & Pollock, 1990).

In terms of development and life outcomes, psychological disturbance in childhood has been shown to predict immature defense use in later childhood and adulthood (Cramer, 2006). Women who were sexually abused as children were also found to use more immature and less mature defenses than controls (Romans et al., 1999). Vaillant (1976) found that for college men, there was a significant positive correlation between maturity of defenses and adult adjustment. More specifically, good adjustment was related to the use of suppression and anticipation, and negatively

related to denial in fantasy, projection, passive-aggression, and acting out. Maturity of defense use was also related to marital success, happiness, and objective physical health, and negatively correlated with psychopathology.

In longitudinal studies, it was found that defense maturity predicted mental health, psychosocial adjustment, life satisfaction and self-reported physical functioning later in life (Vaillant, 1993; Vaillant & Vaillant, 1990), and that immature, neurotic and mature defenses were associated with successful functioning with increasing strength (Soldz & Vaillant, 1998). Similarly, Haan (1963, 1977) found that coping (healthy) was correlated with measures of positive life outcomes, whereas defending (pathological) was negatively correlated. Studies looking at different kinds of life stress have also found a correlation with immature defenses (Conte & Apter, 1995; Ungerer, Waters, Barnett, & Dolby, 1977).

There is a dearth of research into defense mechanisms and attachment. In a study looking at attachment style and defense mechanisms in parents who abuse their children, Cramer and Kelly (2010) found that these parents used a high amount of denial, particularly if they had a fearful attachment style. Also, it was found that use of identification was characteristic of those with a preoccupied attachment style. Hahn (1995) found that secure attachment style was related to denial, repression and negation. Several recent dissertations explore the relationship between attachement and defenses, one finding that immature defenses were related to insecure attachment (Hoffman, 2007), and most finding a relationship between immature defenses and insecure attachment, and mature defenses and secure aattachment (Small, 2003; Muderrisoglu, 1999; Napolitano, 2003). One study found that attachment was a

significant predictor of defense mechanisms for women but not men (Biernbaum, 1999). These relationhips highlight the potential role of attachment in the development of defenses. However, a study using the DSQ found no significant relationships between attachment and defenses (Paliouras, 2009).

1.3.8 Defenses and Personality Disorders in Normal Populations

In non-clinical samples, personality disorders have been found to correspond with different defenses and defense styles. Cramer (1999b) conducted a study examining the relationship between DMM defenses and personality disorders. Findings indicated that borderline personality disorder was associated with denial, and that antisocial, narcissistic and histrionic personality disorders were associated with denial and projection. Identification was not related to any of the personality disorders. Hibbard and Porcerelli (1998) also found that borderline personality disorder was positively related to denial, and negatively related to identification.

The relationship between DSM personality disorders and defense maturity was investigated by Johnson, Bornstein, and Krutonis (1992) using the DSQ-88. There was a relationship between the (immature) image-distorting defenses and narcissistic, antisocial, passive-aggressive and schizotypal personality disorder scales. The self-sacrificing defenses (neurotic) were related to the dependent personality disorder scale. The adaptive (mature) defenses were negatively related to the histrionic, passive-aggressive and dependent personality disorder scales, and positively related to the schizoid personality disorder scale.

In a study using the DSQ-40 to assess defenses, Sinha and Watson (1999) found relationships with three different measures of personality disorders. The immature defense factor scale predicted all three measures for avoidant, antisocial, passive-aggressive, borderline and paranoid personality disorders, and two of three measures on dependent, narcissistic, obsessive-compulsive and schizotypal personality disorders. The neurotic scale predicted all three measures of dependent personality disorder. The mature scale negatively predicted all three measures for borderline and passive-aggressive personality disorders, and two measures of dependent personality disorder. Again, one measure of schizoid personality was positively related to the mature defense factor scale.

Looking at the relationship between individual defenses and diagnoses, Vaillant and colleagues (Vaillant, 1994; Vaillant & McCullough, 1998), found that paranoia was associated with projection, antisocial personality disorder was associated with acting out and denial, and narcissistic personality disorder was associated with dissociation/denial and projection.

1.3.9 Defenses and Psychiatric Diagnosis

Research shows that psychiatric patients use more immature defenses and less mature defenses than nonpatients (review: Cramer, 2006). This result has been found in studies using the DSQ (e.g., Bond, 1992; Bond & Vaillant, 1986; Simeon, Guralnik, Knutelska, & Schmeidler, 2002). Some studies have found that there was no difference between patients and controls on the neurotic scale (Sammallahti & Aalberg, 1995; Sammallahti, Aalberg & Pentinsaari, 1994), and some have found that

patients scored higher (Andrews, Pollock, & Stewart, 1989; Simeon et al., 2002). A study by Andrews et al. (1989) found that patients in some sub-categories of anxiety disorders differed from non-patients in their use of defenses assessed by the DSQ-36. This study found that individuals with anxiety disorders were more likely than controls to use reaction formation, projection, displacement, somatization, devaluation, and less likely to use mature defenses of humor, suppression and sublimation.

In psychiatric populations, immature defenses are associated with more symptoms and mature defenses are associated with less. Studies have found that use of immature defenses was related to personality disorders (Soldz et al., 1995), depression and anxiety (Lingiardi et al., 1999; Perry & Cooper, 1989). In a meta-analysis of the research, Calati, Oasi, De Ronchi and Seretty (2010) found that patients with depression reported significantly lower levels of mature defenses, and those with depression and panic disorder reported higher levels of immature and neurotic defenses than controls. More broadly, psychiatric illness (Vaillant, 1976) has been positively correlated with immature defenses and negatively with mature defenses, conversely to psychological functioning (Perry & Cooper, 1989).

Different defenses do seem to be related to different symptoms. However, people with the same diagnosis may use different defense styles, and therefore these may be two independent dimensions of psychopathology (Bond, 1992). Bond (1992) describes the distinction between defenses and diagnosis well:

> Linking defense with specific illness can create confusion. The term *defense* should refer to a style of dealing with conflict or stress, whereas the term *diagnosis* should refer to a constellation of symptoms and signs… The use of that style would also reveal something about the level of psychosocial development. (p. 130)

Vaillant (1992) draws attention to the importance of identifying psychiatric patents' dominant defense mechanisms in clinical formulation. He believes that there is much to be learned by turning attention from symptoms to underlying dynamic psychopathology.

In a review of the literature, Cramer (2006) concluded that there was inconsistent evidence to support the relationship between defense style and diagnosis. Defense style apparently tells us something about ego functioning independent of diagnosis, providing clinicians with more information to understand and treat psychological problems, and can shed light on why certain people develop pathology and others do not. A Defensive Rating Scale was included in the DSM-IV, however the unconscious nature of defenses and disagreement about their definition and number has hindered efforts to include a proposed sixth axis for the diagnosis of psychological disorders (Skodol & Perry, 1993).

1.3.10 Defense Style Questionnaire

Bond (1992) is clear when he states that the DSQ does not measure defense mechanisms, but rather self-appraisals of defense styles. He states that the DSQ was

"designed to elicit manifestations of a subject's characteristic style of dealing with conflict, either conscious or unconscious, based on the assumption that persons can accurately comment on their behaviour from a distance" (p. 131). He also maintans that it is impossible to conclude anything about individual defense mechanisms from the DSQ, but that rather, one should examine defense style.

In the first version of the DSQ (DSQ-81; Bond et al., 1983) factor analysis was used to cut an original list of 24 defenses down to 14 defenses, and revealed four factors in a patient, non-patient, and combined group. Bond named the different styles of defenses according to clusters of self-perceptions that are characteristic of defenses, and the commonalities between them:

1) Defense style 1 "maladaptive action patterns" (DSQ-40 immature): withdrawal, regression, acting out, inhibition, passive aggression, projection.

2) Defense style 2 "image-distorting" (DSQ-40 immature): omnipotence, splitting, primitive idealization.

3) Defense style 3 "self-sacrificing" (DSQ-40 neurotic): reaction formation, pseudoaltruism.

4) Defense style 4 (DSQ-40 mature) "adaptive": suppression, sublimation, humor.

Validity of the questionnaire was supported by several findings. Bond (1992) found that immature defenses had a negative correlation with mature defenses. Ego strength and ego development had a high negative correlation with style 1, a lower correlation with style 2 and 3, and a positive correlation with style 4, placing them in a hierarchy of maturity/adaptation. Bond also found that defense styles 1-3 were used more by patients and style 4 was used more by nonpatinets. Internal consistency of

the measure was demonstrated by significant item total correlations on the questions and defenses they were supposed to represent. The DSQ has been cross-validated with both the DMRS (Bond et al., 1989), and with clinical assessment (Vaillant & Vaillant, 1992), providing mutual support for these methods.

Bond (1992) describes the difficulties inherent in using the different defense styles and how they are arranged in a hierarchy of maturity:

> The least mature people have behaviour problems. Those in the image-distorting group have a problem in realistically viewing themselves and others, which lends itself to relationship problems. The self-sacrificing persons have more stable relationships but cannot fulfil their creative potential. The adaptive defenses reflect less preoccupation with relationships and allow more creative expression of one's inner self. Thus, the defense styles reflect a shift from preoccupation with control of raw impulses, to preoccupation with all-important others, to creative expression of oneself. (p. 141)

There are several different versions of the DSQ (review: Cramer 2006). The DSQ-81 was modified, and the DSQ-88 (Bond et al., 1989) included lie items and six additional defenses, and measured 20 defenses and four defense styles. The DSQ-88 was modified to correspond with the DSM-III-R glossary of defense mechanisms, and Andrews et al. (1989) created the DSQ-72 and a shortened version, the DSQ-26, both of which yielded three factors. Andrews et al. (1993) then modified the DSQ to include 20 defenses, each represented by two items, rather than defenses varying in item number as in other versions, yielding three factors. Following this, the DSQ-78

was created for use with adolescents (Nasserbakht, Araujo & Steiner, 1996) and the REM-71 (Steiner et al., 2001) was based on the DSQ-78, however its factor structures differed from previous versions.

In a discussion of the DSQ, Cramer (2006) raises the issue that interpreting results from studies is difficult because different versions of the DSQ have different numbers of and types of defenses, and that even when using the same version of the DSQ defense factor structure may vary, making comparison difficult. Cramer recommends that factor structure for each sample should be determined before using defense factor scales.

1.3.11 Jealousy and Defenses

The relationship between jealousy and defenses has been neglected in research. In the absence of empirical data, we must look elsewhere for an indication of the nature of this relationship.

In terms of theory, defenses such as projection, denial and repression have been implicated in pathological jealousy (Freud, 1922; Klein & Riviere, 1964). Freud (1922) thought that projected jealousy was quite common; a result of denial and projection of impulses to be unfaithful. It is possible that use of these defenses may also be present in normal jealousy.

Freud (1922) maintained that:

> Jealousy is one of those affective states, like grief, that may be regarded as normal. If anyone appears to be without it, the inference is justified that it has undergone severe repression and consequently plays all the greater part in his unconscious mental life. (p. 223)

That is, if an individual typically uses a defense such as repression to unconsciously manage distressing thoughts and feelings associated with jealousy, they may no longer feel, or appear, jealous. It is unclear, therefore, how defense use may relate to self-report of jealousy, because the defenses used might have an impact on the level of jealousy reported.

Research into jealousy and coping provides us with another inroad to understanding the relationship between jealousy and defenses. The lack of a clear conceptual distinction between coping strategies and defense mechanisms has led to some overlap in the literature. For example, White and Mullen (1989) call humor, projection and fantasy 'cognitive strategies', and suggest they can be conscious or unconscious.

White and Mullen (1989) suggest strategies for coping with jealousy that involve a range of thoughts and behaviours, however the strategy of "denial/avoidance" is of particular interest in that denial is a defense mechanism. The purpose of denial, as they see it, is the management of negative emotion following a perceived threat, and includes a range of processes from rationalization to psychotic distortion of reality, and avoidance is the process of removing one's attention from a

threat. Schaap et al. (1988) found a correlation between jealousy and avoidant conflict style, which involves withdrawal and unwillingness to discuss relationship problems.

Lazarus and Lazarus (1994) suggest that insecure people in particular disguise the expression of anger because they fear retaliation or are distressed by the resulting guilt. They underline the weakness of avoidance as a coping strategy in that it is temporary, and problems remain until they are confronted and resolved. In a factor analysis of styles of coping with extramarital relations, Buunk (1982) found that avoidance was especially common in women with low self-esteem. Afifi and Reichert (1996) similarly found that individuals who were jealous and uncertain tended to avoid communicating with their partners. Guerrero and Afifi (1998, 1999) found that in jealousy situations individuals who were motivated to maintain self-esteem were more likely to use manipulation strategies similar to projection and avoidance/denial, avoiding communication that might threaten the self of the relationship.

Firestone, Firestone, and Catlett (2005) suggest that the main problem in sexual rivalries is the fear and guilt that stops people from acknowledging their competitive feelings and pursuing their goals. Denial of jealous feelings is something that Clanton (1996) warns against:

> It is widely believed that jealousy should be repressed and denied… In fact, jealousy should be acknowledged, expressed, and analysed in the context of negotiations aimed at improving relationship quality… one's goal ought to be *appropriate* jealousy, *constructively* expressed. (p. 188)

An interesting coping strategy to note is that of catharsis. Clanton and Smith (1998) see catharsis as reducing the anxiety of feeling jealousy by experiencing and expressing it, making destructive expression of jealousy less likely. White and Mullen (1989) describe "support/catharsis" as a coping strategy that reduces unpleasant affect through discharge, however they distinguish this from acting out.

Gender differences in research on coping with jealousy have been reviewed by White and Mullen (1989). Females tend to be more concerned with solving relationship problems and directly expressing emotions, and men tend towards developing alternative sources of rewards and esteem or indirectly managing their emotions. These differences are also reflected in the research on gender differences in defense use, however not specifically with relation to jealousy.

A final way of increasing our understanding of the relationship between jealousy and defenses is to examine overlapping areas of research. The following comparisons are taken from research discussed in previous sections of the introduction of this study.

Research on anger and related behaviours may provide a link between defenses and jealousy. Violence has been linked with jealousy (Delago & Bond, 1993; Hansen, 1991), as have the immature defenses of denial and projection as measured by the DMM (Kim, 2001, cited in Cramer, 2006; Percerelli et al., 2004). Similarly, hostility has been related to jealousy (Buunk, 1997), and mature defenses have been related to lower hostility (Davidson et al., 2004). Jealousy has also been

related to aggressive conflict style (Schaap et al., 1988), and immature defenses have been linked with impulsive anger (Nishimura, 1998).

Personality research reveals that trait anxiety has been linked with jealousy (Bringle, 1981; Buunk, 1997; Hindy et al., 1989; Xiaojun, 2002), and the immature defense of projection as measured by the DMM (Block & Block, 1980; Cramer, 2006). Neuroticism has also been linked with jealousy (Xiaojun, 2002; Buunk, 1997; Mahanta, 1983), and the immature defense of projection as measured by the DMM (Cramer, 2003). Neuroticism was predicted by immature defenses, and mature defenses predicted low neuroticism as measured by the DSQ (Soldz et al., 1995). Jealous individuals have been shown to be more likely to have an external locus of control (Bringle, 1981), as have those who use a high level of immature defenses as measured by the DSQ, and mature defenses were found to have a positive correlation with internal locus of control (Whitty, 2003).

Research into psychopathology, and in particular personality disorders, has demonstrated a link between borderline personality disorder and jealousy (Dutton et al., 1996). Immature defenses as measured with the DSQ have been shown to predict, and mature defenses to negatively predict, borderline personality disorder (Sinha & Watson, 1999). Jealousy is one of the criteria for the diagnosis of paranoid personality disorder (DSM-IV-TR), which immature defenses as measured with the DSQ have been found to predict (Sinha & Watson, 1999).

Attachment research has shown that insecurely attached individuals were more jealous than securely attached individuals (Hazan & Shaver, 1987; Holzworth-

Munroa et al., 1997). Insecure attachment has also been found to be related to immature defenses (Hoffman, 2007; Muderrisoglu, 1999; Napolitano, 2003; Small, 2003), while mature defenses were associated with secure attachment (Small, 2003; Muderrisoglu, 1999; Napolitano, 2003).

From these areas of research, it can be inferred that jealous individuals may use more immature defenses and less mature defenses than non-jealous individuals.

1.4 Rationale for the current study

In his description of jealousy, Freud (1922) used the terms “narcissistic wound” and “self-criticism”. The link between jealousy and self-esteem already exists in this early psychoanalytic description of jealousy. It is unclear how exactly this relates to our current understanding of the concept of self-esteem because although it was introduced over a century ago (James, 1890), theoretical elucidation, rigorous research and extensive colloquial use of the term have shaped it much more finely. Rosenberg (1965) defines it, quite simply, as a feeling of worth. At around the same time as self-esteem rose to the academic forefront, jealousy was no longer seen as protective and proof of love, but rather as a personal defect (Clanton, 1989). Jealousy became the focus of psychological research in the 1980s, however the widely-held view that jealous individuals had low self-esteem was not consistently supported (review: White & Mullen, 1989). This suggests that the relationship between jealousy and self-esteem may be more complex than originally theorised.

There are several reasons to question the link between jealousy and self-esteem. In addition to inconsistent findings, studies that did find negative correlations do not imply causation, in that low self-esteem may not cause jealousy, but rather jealousy may cause low self-esteem. Indeed, experimental research using hypothetical jealousy-arousing situations has shown that jealousy causes loss of self-esteem (Mathes et al., 1985). Another reason to question the link is that jealousy is the same in psychiatric populations (Kosins, 1983), whereas self-esteem has been linked to a range of psychopathology (e.g., Roe, 2003; Tennen & Affleck, 1993). Jealousy also is not universal in that it plays little or no role in some cultures (Hupka, 1981). A final reason to question the link between jealousy and self-esteem is the discrepancy between the picture of somebody with classic low self-esteem, who sees themselves as worthless and incompetent, and the emotion of jealousy, which is characterised by anger and action.

Ego mechanisms of defense, or defenses, are conceptualised as protecting the self and self-esteem (Kohut, 1977). Experimental research has shown that defenses increase when self-esteem or identity is threatened (e.g., Cramer, 1991a; Schmiel et al., 2003), and that the use of defenses reduces likelihood of expressing negative affect (Schimel et al., 2003). Self-report of global self-esteem has been found to correlate negatively with immature defenses and neurotic defenses, and positively with mature defenses (Romans et al., 1999; Whitty, 2003). Mature defenses can therefore be understood as more successful in protecting self-esteem than immature defenses.

Although defenses such as projection, denial and repression have been implicated in pathological jealousy (Freud, 1922; Klein & Riviere, 1964), there has been no research to date exploring the relationship between jealousy and defenses. Research into jealousy and coping provides a connection, by linking jealousy and coping strategies similar to the defenses of denial/avoidance and projection (Affifi & Reichart, 1996; Buunk, 1982; Guerrero & Afifi, 1998, 1999; Schaap et al., 1988). Overlapping areas of research in relation to jealousy and defenses include anger and related behaviours, personality traits, psychopathology and attachment. These studies point to a potential positive relationship between jealousy and immature defenses, and a negative relationship between jealousy and mature defenses (review: section 1.3.11, current study).

In experimental research, then, jealousy has been shown to cause loss of self-esteem, threat to self-esteem has been shown to increase use of defenses, and use of defenses has been shown to decrease negative affect. The relationship between dispositional jealousy and global self-esteem is less clear, and that between jealousy and defenses even less so. The current study seeks to clarify these relationships and reconcile them with theory. Understanding more about jealous individuals and the defenses they tend to use, and where self-esteem fits into the picture, will shed light on an issue that can cause serious problems in relationships. As such, jealousy is of clinical interest, and clinicians will benefit from another dimension to inform therapeutic interventions.

1.5 Aims and Hypotheses

The current study aimed to expolore the relationship between jealousy and defenses, and contribute to previous research of the relationship between jealousy and self-esteem, and defenses and self-esteem. For this purpose, a quantitative study was undertaken, using a self-report questionnaire to evaluate correlational and predictive relationships between jealousy, self-esteem and defenses, and demographic and relationship variables. In addition to individual defense scores and defense factor scores, a global defense score and overall defense score was calculated, and four jealousy/self-esteem groups were created, to explore the relationship between jealousy and defenses further.

The primary hypotheses suggested that individuals who have a high level of jealousy would be likely to have low self-esteem, and also to use high levels of immature defenses, low levels of mature defenses, and high levels of the individual defenses of denial and projection. The secondary hypothesis suggested that individuals with low self-esteem would be more likely to use high levels of immature and neurotic defenses, and low levels of mature defenses.

Based on previous research, subsidiary hypotheses were as follows:

- There would be a negative correlation between jealousy and age.
- There would be a positive correlation between jealousy and love.
- There would be a positive correlation between self-esteem and age.
- Men would have higher self-esteem than women.
- There would be a negative correlation between immature defenses and age.

Based on inconsistent results in research, the study aimed to explore relationships between the following variables:

- Jealousy and gender.
- Jealousy and relationship status.
- Jealousy and relationship duration.
- Mature defenses and age.
- Neurotic defenses and age.
- Defense factors (immature, neurotic, mature) and gender.
- Individual defenses and gender.

Additional exploratory aims were to explore the relationships between the following variables:

- Jealousy and global defenses.
- Self-esteem and global defenses.
- Jealousy and overall defenses.
- Self-esteem and overall defenses.
- Overall defenses and age.
- Individual defenses and age.
- Jealousy and neurotic defenses.
- Jealousy and number of relationships.
- Defense factors (immature, neurotic, mature).
- Global defenses and defense factors.

And also:

- To explore gender differences in the relationship of jealousy and self-esteem with overall defenses, defense factors and individual defenses.
- To explore the differences in overall defenses and defense factors in four jealousy/self-esteem groups
- To explore which variables predicted jealousy and self-esteem.

Chapter 2: Method

2.1 Research Design

The design of the current study was quantitative, and employed self-report questionnaires to measure jealousy, self-esteem and defenses. Jealousy and self-esteem yielded one score, and defenses yielded three factor scores and a score for each individual defense. In addition, a global defense score and an overall defense score were calculated. Participants were also divided into four groups based on their levels of jealousy and self-esteem.

2.2 Participants

Data were obtained for 188 participants, ensuring statistical power (Worthington & Whittaker, 2006). Seventy three of these were men (38.8%) and 112 were women (59.6%), and three were missing as they did not specify gender (1.6%). The participants were aged from 20 to 81 years, and their mean age was 38.3 years

(*SD* = 15.47). Participants had been involved in between 1 and 20 relationships (*M* = 4.17, *SD* = 3.49) during their lives.

The current relationship status of the participants was as follows: 73 were married (38.8%), 4 were separated (2.1%), 6 were divorced (3.2 %), 37 were single (19.7%), 42 were in a relationship, but not living together (22.3%), and 25 were in a relationship and living together (13.3%). Relationship duration varied from 2 months to 50 years (*M*=13.89, *SD*=14.79). Of the participants who reported being in a relationship, 66% reported being in love and 7.4% reported not being in love.

2.3 Procedure

2.3.1 Sampling Procedure

Participants were recruited via a convenience sampling methodology. Questionnaires were distributed to family and friends of the doctoral student to fill in and distribute at their workplaces, including hospitals, mental health services, and various companies. Questionnaires were also distributed to students and staff at Victoria University by approaching participants at canteens on the St. Albans and Footscray campuses. Lastly, questionnaires were distributed to staff and customers at shops in the Melbourne Metropolitan Area. Inclusion criteria were that the individuals must have had at least one romantic relationship during their lives.

Participants were informed that participation was voluntary and that information provided by them would remain confidential. They were provided with a

questionnaire booklet in an addressed reply-paid envelope, and were given the choice to complete the questionnaire on the spot, or at their leisure to return by post.

The researcher's contact details were provided on the front of the questionnaire booklet should participants have any questions about the study. Consent forms were not included because completion and return of the questionnaire was taken to indicate consent. 250 questionnaires were distributed and 188 were returned; this constitutes a 75.2% response rate.

2.3.2 Measures

Participants were provided with a self-report questionnaire booklet consisting of a demographics section, and sections designed to measure jealousy, self-esteem and defenses. The time required to complete the questionnaire booklet was approximately 15 minutes. Please see Appendix A for a copy of the questionnaire booklet. Participants were also provided with an information sheet with details of the study (Appendix B). The measures included in the questionnaire booklet are described as follows:

Demographic information. Participants were asked report their date of birth, age in years, gender, relationship status, duration of current relationship, whether they were in love with their partner, and how many relationships they had previously been involved in during their lifetime.

Jealousy measure. Jealousy was measured by an 8-item self-report scale adapted by Melamed (1991) from a previous study by Pines and Aronson (1983). The items were scored on a 7-point Likert scale ranging from 1 (*never*) to 7 (*always*). Items were as follows: How often are you troubled by jealous thoughts? How often do you experience mild jealousy in your relationship? Whenever your partner goes out without you, do you worry that he or she will be unfaithful to you? How often are arguments with your partner brought on by your jealousy? Do people you have been intimate with consider you a jealous person? Would you consider yourself a jealous person? Do people you know consider you a jealous person? The jealousy score was the mean of the eight items. In Melamed's (1991) study, split-half reliability showed a correlation of r = .84, and entire item reliability yielded a Cronbach's alpha of .87.

Rosenberg Self-Esteem Scale (RSE; Rosenberg 1965). The RSE is a 10-item scale that measures global self-esteem via self-report. Five of the statements are worded negatively and five are worded positively, and positive and negative statements are alternated to control for response bias. Each item has a choice of four responses: *strongly agree, agree, disagree, strongly disagree*. The scores for positive statements were inverted in the analysis and scored from 1 to 4, creating a scale that ranges from 10 to 40, where a higher score indicates higher self-esteem (Rosenberg, 1979; 1989). Rosenberg obtained high test-retest reliability (.92) and a good overall reliability (.72), and subsequent research has supported the high reliability and the validity of the test (Bleiler et al., 2001).

Defense Style Questionnaire (DSQ-40; Andrews et al., 1993). The DSQ is a 40-item self-report questionnaire that measures 20 defenses, each assessed by two

items. Defenses are grouped into three factors of immature, neurotic, and mature defenses. The immature defense factor comprises the defenses of projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, rationalization, and somatization. The neurotic factor is made up of the defenses of undoing, pseudo-altruism, idealization, and reaction formation. The mature defense factor includes defenses of sublimation, humor, anticipation and suppression. Scoring is as follows: individual defense scores are the average of the two items for that defense, and factor scores are the average of defense scores contributing to that factor.

Andrews et al. (1993) demonstrated adequate temporal stability by four-week test-retest correlations ranging from .75 to .85 for defense factors, and .38 to .80 for individual defenses, and 18-month test-retest correlations of .71 for the mature factor and .60 for the immature factor. Internal consistency was demonstrated by coefficient alphas between .58 and .80 for defense factors, and -.01 to .89 for individual defenses.

The construct validity of the DSQ-40 is supported by high correlations with the original 82-item DSQ and its ability to significantly discriminate between a normal control group and anxiety patients and child-abusing parents, and child-abusing parents and anxiety patients (Andrews et al., 1993). The defenses in the DSQ-40 are largely consistent with the glossary of defense mechanisms developed for the DSM-III-R (see Table 2.01 below).

Table 2.01

DSQ-40 Defenses and Corresponding DSQ-40 Items and Descriptions of Defense from the DSM-III-R Glossary of Defenses

DSQ-40 Defenses	**DSQ-40 Items**	**Description of Defense (DSM-III-R)**
Mature Factor		
Sublimation	3. I work out my anxiety through doing something constructive and creative like painting or wood-work 38. Sticking to the task at hand keeps me from feeling depressed or anxious	Not included. "Indirect or attenuated expression of instincts without adverse consequence or marked loss of pleasure" (Vaillant, 1992; p. 248).
Humor	5. I'm able to laugh at myself pretty easily 26. I'm usually able to see the funny side of an otherwise painful predicament	Not included. "Overt expression of feelings without individual discomfort or immobilization and without unpleasant effect on others" (Vaillant, 1992; p. 247).
Anticipation	30. When I have to face a difficult situation I try to imagine what it will be like and plan ways to cope with it 35. If I can predict that I'm going to be sad ahead of time, I can cope better	Not included. "Realistic anticipation of or planning for future inner discomfort" (Vaillant, 1992; p. 247).
Suppression	2. I'm able to keep a problem out of my mind until I have time to deal with it 25. I can keep the lid on my feelings if letting them out would interfere with what I'm doing	A mechanism in which the person intentionally avoids thinking about disturbing problems, desires, feelings, or experiences.
Neurotic Factor		
Undoing	32. After I fight for my rights, I tend to apologize for my assertiveness 40. If I have an aggressive thought, I feel the need to do	A mechanism in which the person engages in behaviour designed to symbolically make amends for or negate previous thoughts, feelings, or actions.

	something to compensate for it	
Pseudo-Altruism	1. I get satisfaction from helping others and if this were taken away from me I would get depressed 39. If I were in a crisis, I would seek out another person who had the same problem	Not included. A definition of pseudo-altruism could not be found. However, Vaillant (1992) defines altruism (a mature defense) in the following way: "Vicarious but constructive and instinctually gratifying service to others" (p. 247).
Idealization	21. I always feel that someone I know is like a guardian angel 24. There is someone I know who can do anything and who is absolutely fair and just	A mechanism in which the person attributes exaggeratedly positive qualities to self or others.
Reaction Formation	7. If someone mugged me and stole my money, I'd rather he be helped than punished 28. I often find myself being very nice to people who by all rights I should be angry at	A mechanism in which the person substitutes behaviour, thoughts, or feelings that are diametrically opposed to his or her own unacceptable ones.
Immature Factor		
Projection	6. People tend to mistreat me 29. I am sure I get a raw deal from life	A mechanism in which the person falsely attributes his or her own unacknowledged feelings, impulses, or thoughts to others.
Passive Aggression	23. If my boss bugged me, I might make a mistake in my work or work more slowly so as to get back at him 36. No matter how much I complain, I never get a satisfactory response	A mechanism in which the person indirectly and unassertively expresses aggression toward others.
Acting Out	11. I often act impulsively when something is bothering me 20. I get openly aggressive when I feel hurt	A mechanism in which the person acts without reflection or apparent regard for negative consequences.
Isolation	34. I'm often told that I don't show my feelings 37. Often I find that I don't feel anything when the situation would	A mechanism in which the person is unable to experience simultaneously the cognitive and affective components of an

	seem to warrant strong emotions	experience because the affect is kept from consciousness.
Devaluation	10. I pride myself on my ability to cut people down to size 13. I'm a very inhibited person	A mechanism in which the person attributes exaggeratedly negative qualities to self or others.
Autistic Fantasy	14. I get more satisfaction from my fantasies than from my real life 17. I work more things out in my daydreams than in my real life	A mechanism in which the person substitutes excessive daydreaming for the pursuit of human relationships, more direct and effective action, or problem solving.
Denial	8. People say I tend to ignore unpleasant facts as if they didn't exist 18. I fear nothing	A mechanism in which the person fails to acknowledge some aspect of external reality that would be apparent to others.
Displacement	31. Doctors never really understand what is wrong with me 33. When I'm depressed or anxious, eating makes me feel better	A mechanism in which the person generalizes or redirects a feeling about an object or a response to an object onto another, usually less threatening, object.
Dissociation	9. I ignore danger as if I was Superman 15. I've special talents that allow me to go through life with no problems	A mechanism in which the person sustains a temporary alteration in the integrative functions of consciousness or identity.
Splitting	19. Sometimes I think I'm an angel and other times I think I'm a devil 22. As far as I'm concerned, people are either good or bad	A mechanism in which the person views himself or herself or others as all good or all bad, failing to integrate the positive and the negative qualities of self and others into cohesive images; often the person alternately idealizes and devalues the same person.
Rationalization	4. I am able to find good reasons for everything I do 16. There are always good reasons when things don't work out for me	A mechanism in which the person devises reassuring or self-serving, but incorrect, explanations for his or her own or others' behaviour.
Somatization	12. I get physically ill when things aren't going well for me	A mechanism in which the person becomes preoccupied with

	27. I get a headache when I have to do something I don't like	physical symptoms disproportionate to any actual physical disturbance.
Not Included		
		Intellectualization: A mechanism in which the person engages in excessive abstract thinking to avoid experiencing disturbing feelings.
		Repression: A mechanism in which the person is unable to remember or to be cognitively aware of disturbing wishes, feelings, thoughts, or experiences.

The DSM-III-R glossary of defenses, relating as it does to psychopathology, does not include the mature defenses of sublimation, humor and anticipation. The DSQ does not include repression because the researchers deemed it unable to be tapped, or intellectualization because a consensus about appropriate items could not be reached (Andrews et al., 1989). Pseudo-altruism is also a defense that is included in the DSQ, but not in the glossary.

2.3.3 Data Handling

Raw data was entered into the Statistical Package for the Social Sciences (SPSS Version 17.0). After data input was completed, each measure was coded and scored according to the procedures outlined in section 2.3.2 and 2.4 of the current study.

2.4 Variables

(1) Jealousy

The jealousy score was derived by summing the scores for the 9 items on Melamed's (1991) jealousy measure and calculating the mean.

(2) Self-Esteem

The self-esteem score was computed by recoding each item on the Rosenberg Self-Esteem Scale (RSE; Rosenberg 1965) and then summing the scores for the 10 items.

(3) Global Defenses

The global defense score was obtained by summing the scores for the 40 items on the Defense Style Questionnaire (DSQ-40; Andrews et al. 1993) and then calculating the mean.

(4) Individual Defenses

The score for each individual defense was arrived at by summing the two items for each defense and calculating the mean. There were 20 individual defenses: sublimation, humor, anticipation, suppression, undoing, pseudo-altruism, idealization, reaction formation, projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, rationalization, and somatization.

(5) Defense Factors

Defense factor scores were calculated by summing scores for individual defenses belonging to each factor, and calculating the mean, yielding scores for mature defenses (Mature D), neurotic defenses (Neurotic D), and immature defenses (Immature D).

Mature D = (sublimation + humor + anticipation + suppression)/4

Neurotic D = (undoing + pseudo-altruism + idealization + reaction formation)/4

Immature D = (projection + passive aggression + acting out + isolation + devaluation + autistic fantasy + denial + displacement + dissociation + splitting + rationalization + somatization)/12

(6) Combined Defense Scores

Combined defense scores were calculated by pairing defense factor scores and adding them; neurotic defenses (Neurotic D) and immature defenses (Immature D); neurotic defenses (Neurotic D) and mature defenses (Mature D); mature defenses (Mature D) and immature defenses (Immature D).

N + I = Neurotic D + Immature D

N + M = Neurotic D + Mature D

M + I = Mature D + Immature D

(7) Overall Defense Scores

An overall defense score (M - I) was calculated by subtracting immature defenses (Immature D) from mature defenses (Mature D), giving a score that reflects the difference between the level of mature defenses used and the level of immature defenses used.

M - I = Mature D – Immature D

An overall defense score (M / I) was calculated by dividing mature defenses (Mature D) by immature defenses (Immature D), giving a score that reflects the proportion of mature compared with immature defenses. Unlike M - I, it does not take into consideration the level of mature or immature defenses.

M / I = Mature D / Immature D

(8) Jealousy/Self-Esteem Groups

Jealousy scores and self-esteem scores were divided on the basis of the median, into low and high jealousy groups, and low and high self-esteem groups. Four groups were created by combining these:

1) High jealousy/ low self-esteem (1. HJ LSE)

2) Low jealousy/ high self-esteem (2. LJ HSE)

3) High jealousy/ high self-esteem (3. HJ HSE)

4) Low jealousy/ low self-esteem (4. LJ LSE)

Chapter 3: Results

3.1 Tests of Assumptions

Data were examined using SPSS Version 17.0. Missing values and values outside the specified ranges were assessed and adjusted where necessary, to ensure a complete data set. Mahalanobis distance indicated no multivariate outliers among the dependent variables. An analysis of the residuals and normality probability (P-P)

indicated that the assumptions of normality, linearity and homoscedasticity were adequately met.

Missing values for either the jealousy scale (Melamed, 1991) and Rosenberg Self-Esteem Scale (Rosenberg, 1965) were dealt with in the following way: for two missing values or less, the mean of all other items was substituted for the missing value; for more than two missing values, values for that measure were deleted for that participant. There were three cases of less than two missing values, and one case of more than two missing values. Missing values for the DSQ-40 (Andrews et al.,1993) were dealt with in the following way: missing values for one item from the two items pertaining to each defense were replaced with the score for the other item for that defense. There were five cases of such missing values, and no instances of missing values for both items pertaining to a defense.

3.2 Data Analysis

For each scale and sub-scale a Cronbach's Alpha reliability analysis was run to determine reliability within the current study.

A series of correlational analyses were conducted to examine the relationship between jealousy, self-esteem, global defenses, mature defenses, neurotic defenses, immature defenses, and individual defenses. This was done for the overall sample, followed by analysis of males and females separately. The results for jealousy and self-esteem were then compared and contrasted.

The relationship between variables relating to defenses were examined using a series of correlational analyses, namely global defenses, mature defenses, neurotic defenses, immature defenses, and calculated defense scores. The relationship between these variables and the variables of jealousy and self-esteem were also examined using a series of correlational analyses. One calculated defense score was chosen to represent overall defenses based on strength of correlations with jealousy and self-esteem.

Where appropriate, the relationship between demographic variables including age, gender, relationship status, in love, relationship duration and number of relationships were explored, and the relationship between these variables and jealousy, self-esteem, global defenses, mature defenses, neurotic defenses, immature defenses, individual defenses, and overall defenses, were also explored. Correlational analyses, *t*-tests and analyses of variance were used for this purpose.

Jealousy/self-esteem groups were compared in terms of their levels of immature, neurotic and mature defenses, and overall defenses. Analyses of variance were used for this purpose. A series of multiple linear regression analyses were conducted to determine the predictor variables of jealousy and self-esteem.

Results of correlational analyses were reported using Cohen's (1988) guidelines for interpreting the magnitude of correlation coefficients. Cohen maintains

that correlation coefficients of .10 are “small,” coefficients of .30 are “medium,” and coefficients of .50 are “large” in terms of effect size.

3.3 Reliability of Scales and Subscales

A Cronbach’s Alpha reliability analysis was run to determine reliability of jealousy, self-esteem and defense scales, defense factor sub-scales of mature defenses, neurotic defenses and immature defenses, and each individual defense (see Table 3.01).

Results indicated that the jealousy scale (Melamed, 1991) showed high reliability (Cronbach a = .95), similar to Melamed’s (1991) findings (Cronbach a = .87). The Rosenberg Self-Esteem Scale (Rosenberg ,1965) showed good reliability (Cronbach a = 0.86), slightly better than Rosenberg’s results (Cronbach a = .72). The Defense Style Questionnaire (DSQ-40; Andrews et al. 1993) also showed good reliability (Cronbach a = .78). Defense factor scores ranged from .56 to .75, comparable to Andrews et al.’s finding of .58 to .80. Reliability for each individual defense ranged from .11 to .72, comparable to Andrews et al.’s finding of -.01 to .89, however low reliability can be attributed to only two items existing for each defense.

Table 3.01

Reliability Analyses for Scales (Jealousy, Self-Esteem, Defenses) Sub-Scales (Mature Defenses, Neurotic Defenses, Immature Defenses) and Individual Defenses

	Cronbach's Alpha
Jealousy	.95
Self-Esteem	.86
Defenses	.78
Mature Defenses	.58
Neurotic Defenses	.56
Immature Defenses	.75
Sublimation	.46
Humor	.64
Anticipation	.35
Suppression	.51
Undoing	.42
Pseudo-Altruism	.18
Idealization	.51
Reaction Formation	.11
Projection	.52
Passive Aggression	.51
Acting Out	.59
Isolation	.46
Devaluation	.27
Autistic Fantasy	.72
Denial	.20
Displacement	.29
Dissociation	.35
Splitting	.13
Rationalization	.56
Somatization	.52

3.4 Jealousy, Self-Esteem, and Defenses

3.4.1 Jealousy, Self-Esteem, Global Defenses and Defense Factors

Correlational analyses were conducted to examine the relationship between jealousy, self-esteem, global defenses, and defense factors of mature defenses (Mature D), neurotic defenses (Neurotic D), and immature defenses (Immature D). This was done for the overall sample, followed by analyses of males and females separately.

Overall sample. Table 3.02 indicates that there was a significant negative correlation between jealousy and self-esteem, with a medium effect size.

Results (see Table 3.02) indicated that jealousy and global defenses were correlated in a positive direction, with a small effect size. Given that this correlation was so low, it was decided to further investigate the data by calculating alternative defense scores (see section 3.5.3). Jealousy was also found to be negatively correlated with mature defenses, and positively correlated with immature defenses, both with a medium effect size. Jealousy was not correlated with neurotic defenses.

Results (see Table 3.02) also indicated that there was a positive correlation between self-esteem and mature defenses, with a medium effect size. There was no correlational relationship found between self-esteem and any of the following: global defenses, immature defenses, or neurotic defenses.

Table 3.02

Correlations Between Jealousy, Self-Esteem, Global Defenses and Defense Factors

	Jealousy		Self-Esteem	
	r	*p*	*r*	*p*
Jealousy			-.31**	.005
Global Defenses	.16*	.03	-.04	.57
Mature D	-.32**	.0005	.28**	.0005
Neurotic D	.03	.69	-.12	.09
Immature D	.34**	.0005	-.13	.08

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

Males and females. Table 3.03 indicates that there was a significant negative correlation between jealousy and self-esteem for females with a medium effect size, however there was no correlational relationship between jealousy and self-esteem for males.

Results (see Table 3.03) indicated that jealousy and global defenses were not correlated for males or females. Jealousy was found to be negatively correlated with mature defenses, and positively correlated with immature defenses, for both males and females; the effect sizes of these correlations were medium for males but small for females. Jealousy was not correlated with neurotic defenses for either males or females.

Results (see Table 3.03) also indicated that there was a positive correlation between self-esteem and mature defenses for both males and females, with a medium effect size. There was no correlational relationship found for males or females between self-esteem and any of the following: global defenses, immature defenses, or neurotic defenses.

Table 3.03

Correlations Between Jealousy, Self-Esteem, Global Defenses and Defense Factors for Males and Females

	Jealousy				Self-Esteem			
	Males		Females		Males		Females	
	r	*p*	*r*	*p*	*r*	*P*	*r*	*p*
Jealousy					-.19	.12	-.37**	.0005
Global Defenses	.22	.06	.11	.25	-.09	.43	-.02	.86
Mature D	-.45**	.0005	-.28**	.003	.30**	.01	.29**	.002
Neurotic D	.02	.86	.01	.89	-.22	.06	-.01	.67
Immature D	.48**	.0005	.27**	.004	-.15	.20	-.13	.17

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

3.4.2 Jealousy, Self-Esteem and Individual Defenses

Correlational analyses were conducted to examine the relationships between jealousy and self-esteem, and 20 individual defenses. This was done for the overall sample followed by analyses for males and females separately.

Overall sample. Table 3.04 indicates that there were significant positive correlations between jealousy and the following defenses: undoing, projection, passive aggression, acting out, devaluation, autistic fantasy, displacement, splitting and somatization. Jealousy was also negatively correlated with sublimation, humor and suppression. Effect sizes for these correlations were small to medium.

Results (see Table 3.04) indicated that self-esteem was found to be significantly positively correlated with the following defenses: humor, suppression, denial, dissociation and rationalization. There were negative correlations between

self-esteem and the following defenses: undoing, projection, passive aggression, autistic fantasy, displacement and somatization. Effect sizes for these correlations were small to medium.

Table 3.04

Correlations Between Jealousy, Self-Esteem and Individual Defenses

	Jealousy		Self-Esteem	
	r	*p*	*r*	*p*
Sublimation	-.15*	.04	.11	.15
Humor	-.29**	.0005	.25**	.001
Anticipation	-.10	.16	.05	.54
Suppression	-.30**	.0005	.33**	.0005
Undoing	.17*	.02	-.15*	.04
Pseudo-Altruism	.03	.65	-.03	.72
Idealization	-.004	.96	-.03	.66
Reaction Formation	-.12	.09	-.12	.11
Projection	.32**	.0005	-.33**	.0005
Passive Aggression	.27**	.0005	-.18*	.01
Acting Out	.30**	.0005	-.04	.57
Isolation	.004	.96	.01	.87
Devaluation	.28**	.0005	-.11	.13
Autistic Fantasy	.28**	.0005	-.30**	.0005
Denial	.03	.74	.25**	.001
Displacement	.21**	.005	-.18*	.01
Dissociation	.06	.41	.19**	.01
Splitting	.21**	.004	-.14	.07
Rationalization	-.10	.16	.30**	.0005
Somatization	.27**	.0005	-.24**	.001

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

Males and females. Table 3.05 indicates that for males there were significant positive correlations between jealousy and the following defenses: projection, passive aggression, acting out, devaluation, autistic fantasy, displacement and somatization. For males, jealousy was also negatively correlated with humor, anticipation and

reaction formation. For females there were significant positive correlations between jealousy and the following defenses: projection, passive aggression, acting out, devaluation, autistic fantasy, splitting and somatization. For females, jealousy was also negatively correlated with humor and suppression.

Results (see table 3.05) indicated that for males, self-esteem was found to be significantly positively correlated with suppression and rationalization, and negatively correlated with undoing, projection, passive aggression, autistic fantasy, displacement, and somatization. For females, self-esteem was positively correlated with humor, suppression, denial and rationalization, and negatively correlated with projection, autistic fantasy, and somatization.

Table 3.05

Correlations Between Individual Defenses, Jealousy and Self-Esteem for Males and Females

	Jealousy				Self-Esteem			
	Males		Females		Males		Females	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Sublimation	-.20	.10	-.14	.14	.10	.42	.12	.20
Humor	-.42**	.0005	-.22*	.02	.14	.23	.33**	.0005
Anticipation	-.25*	.03	-.05	.57	.14	.25	.009	.92
Suppression	-.22	.06	-.33**	.0005	.38**	.001	.30**	.001
Undoing	.21	.07	.12	.22	-.30**	.009	-.06	.54
Pseudo-Altruism	.001	.99	.03	.75	-.06	.60	.02	.86
Idealization	.07	.58	-.05	.62	-.04	.75	.003	.98
Reaction Formation	-.23*	.05	-.06	.52	-.15	.20	-.07	.45
Projection	.44**	.0005	.25**	.008	-.26*	.03	-.37**	.0005
Passive Aggression	.40**	.0005	.20*	.03	-.23*	.05	-.17	.08
Acting Out	.40**	.0005	.23*	.02	-.12	.31	.009	.93
Isolation	-.04	.73	.03	.79	.07	.57	-.06	.53
Devaluation	.40**	.001	.22*	.02	-.07	.56	-.15	.12
Autistic Fantasy	.36**	.002	.24*	.01	-.39**	.001	-.26**	.006
Denial	.07	.58	.004	.97	.22	.06	.25**	.01
Displacement	.27*	.02	.17	.07	-.29*	.01	-.11	.25
Dissociation	.06	.60	.06	.52	.22	.07	.15	.11
Splitting	.22	.06	.22*	.02	-.10	.40	-.18	.06
Rationalization	-.08	.51	-.12	.19	.31**	.008	.31**	.001
Somatization	.33**	.005	.24**	.01	-.24*	.04	-.21*	.03

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

3.4.3 Comparisons Between Jealousy and Self-Esteem

Comparisons were made between those individual defenses correlated positively with jealousy and negatively with self-esteem, and those correlated negatively with jealousy and positively with self-esteem, for the overall sample.

Table 3.06 indicates that all the individual defenses negatively correlated with self-esteem were also positively correlated with jealousy: undoing, projection, passive aggression, autistic fantasy, displacement and somatization. Additional defenses that correlated positively with jealousy but had no correlational relationship to self-esteem were acting out, devaluation and splitting.

Table 3.06

Comparison of Individual Defenses Correlated Positively with Jealousy and Negatively with Self-Esteem

Jealousy +ve correlations	Self-esteem –ve correlations
Undoing	Undoing
Projection	Projection
Passive Aggression	Passive Aggression
Acting Out	-
Devaluation	-
Autistic Fantasy	Autistic Fantasy
Displacement	Displacement
Splitting	-
Somatization	Somatization

Table 3.07 indicates that the individual defenses of humor and suppression were correlated negatively with jealousy and positively with self-esteem. Sublimation

was correlated negatively with jealousy but had no correlational relationship with self-esteem. Denial, dissociation and rationalization was correlated positively with self-esteem, but had no relationship with jealousy.

Table 3.07

Comparison of Individual Defenses Correlated Negatively with Jealousy and Positively with Self-Esteem

Jealousy –ve correlations	Self-Esteem +ve correlations
Sublimation	-
Humor	Humor
Suppression	Suppression
-	Denial
-	Dissociation
-	Rationalization

3.5 Defenses

3.5.1 Defense Factors

Correlational analyses were conducted to explore the relationship between defense factors of mature defenses (Mature D), neurotic defenses (Neurotic D), and immature defenses (Immature D). Table 3.08 indicates that neurotic defenses were found to be significantly positively correlated with mature defenses (medium effect size), and positively correlated with immature defenses (large effect size). Mature and immature defenses were not correlated.

Table 3.08

Correlations Between Defense Factors

	Mature D		Immature D	
	r	*p*	*r*	*p*
Neurotic D	.33**	.0005	.50**	.0005
Immature D	.14	.06		

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

3.5.2 Global Defenses and Defense Factors

Correlational analyses were conducted to examine the relationship between global defenses and defense factors of mature defenses (Mature D), neurotic defenses (Neurotic D), and immature defenses (Immature D). Table 3.09 indicates that global defenses was significantly positively correlated with mature defenses, neurotic defenses, and immature defenses, with increasingly large effect sizes.

Table 3.09

Correlations Between Global Defenses and Defense Factors

	Global Defenses	
	r	*p*
Mature D	.49**	.0005
Neurotic D	.75**	.0005
Immature D	.90**	.0005

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

3.5.3 Calculated Defense Scores, Jealousy and Self-Esteem

Combined defense scores. These scores were calculated to explore the data further. Combining pairs of defense factors, for example immature and neurotic defenses, was hypothesised to result in different correlational relationships with jealousy and self-esteem.

A correlational analysis was conducted to examine the relationship between calculated defense scores of N+I, N+M and M+I, against defense factors of mature defenses (Mature D), neurotic defenses (Neurotic D), immature defenses (Immature D), jealousy and self-esteem.

Table 3.10 indicates that there is a significant positive correlation between N+I and mature defenses, with a small effect size. A positive correlation was also found between N+M and immature defenses, with a medium effect size. There was a positive correlation between M+I and neurotic defenses, with a large effect size.

Results (see Table 3.10) indicated that N+I was positively correlated with jealousy, and negatively correlated with self-esteem, with small effect sizes. N+M was negatively correlated with jealousy (small effect size), and had no correlational relationship with self-esteem. M+I had no correlational relationship with either jealousy or self-esteem. Due to the small effect sizes of correlations between combined defense scores and jealousy and self-esteem, it was decided that the combined defense scores would not be used in subsequent analyses.

Table 3.10

Correlations Between Combined Defense Scores, Defense Factors, Jealousy and Self-Esteem

	Mature D		Neurotic D		Immature D		Jealousy		Self-Esteem	
	r	*P*	*R*	*p*	*r*	*P*	*r*	*p*	*r*	*p*
N+I	.28**	.0005					.19**	.008	-.15**	.05
N+M					.39**	.0005	-.18*	.01	.10	.18
M+I			.53**	.0005			-.04	.61	.14	.07

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

Overall defense scores. These scores were calculated to explore the data further. Overall defense score (M - I) measured the difference in an individual's level of mature and immature defenses, and overall defense score (M / I) measured the proportion of mature defenses to immature defenses. It was hypothesised that these overall defense scores would result in stronger correlational relationships with jealousy and self-esteem than any single defense factor score.

A correlational analysis was conducted to ascertain the relationship between overall defense scores (M - I, M / I) and jealousy, self-esteem and neurotic defenses (Neurotic D). This was done for the whole sample, followed by analyses of males and females separately.

Overall sample. Table 3.11 indicates that overall defense score (M - I) was significantly negatively correlated with jealousy (large effect size) and positively correlated with self-esteem (medium effect size). There was no correlational relationship between overall defense score (M - I) and neurotic defenses. Overall

defense score (M / I) was significantly negatively correlated with jealousy (medium effect size) and positively correlated with self-esteem (small effect size). Overall defense score (M / I) was positively correlated with neurotic defenses (Neurotic D), with a small effect size.

It was decided that the overall defense score (M - I) would be used in subsequent analyses because correlations with jealousy and self-esteem were higher than that of the alternative overall defense score (M / I).

Table 3.11

Correlations Between Overall Defense Scores, Jealousy, Self-Esteem and Neurotic Defenses

	Jealousy		Self-Esteem		Neurotic D	
	R	*P*	*r*	*P*	*r*	*p*
M - I	-.50**	.0005	.33**	.0005	-.06	.41
M / I	-.44**	.0005	.28**	.0005	.23**	.001

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

Males and females. Table 3.12 indicates that for males and females, the overall defense score (M - I) was significantly negatively correlated with jealousy; correlations were of a large effect size, and effect size was considerably larger for males than females. Overall defense score (M - I) was also positively correlated with self-esteem for both males and females, with a medium effect size.

Table 3.12

Correlations Between Overall Defense Scores, Jealousy, Self-Esteem and Neurotic Defenses for Males and Females

	Jealousy		Self-Esteem		Neurotic D	
	R	*P*	*r*	*P*	*r*	*p*
M - I (Males)	-.63**	.0005	.33**	.004	-.04	.75
M - I (Females)	-.44**	.0005	.34**	.0005	-.10	.31

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

3.6 Demographic and Relationship Variables

3.6.1 Age

A correlational analysis was conducted to examine the relationship between age and jealousy, self-esteem, individual defenses, immature defenses (Immature D), neurotic defenses (Neurotic D), immature defenses (Immature D), and overall defense score (M - I).

Table 3.13 indicates that age was significantly negatively correlated with jealousy, however had no correlational relationship with self-esteem. Age was found to be negatively correlated with immature defenses, however had no correlational relationship with mature defenses, or neurotic defenses. Age was weakly positively correlated with the overall defense score. Age was significantly positively correlated with the individual defense of idealization, and weakly negatively correlated with the projection, devaluation and somatization. All effect sizes were small.

Table 3.13

Correlations Between Age, Jealousy, Self-Esteem and Defenses

	Age	
	R	*p*
Jealousy	-.19**	.009
Self-esteem	-.04	.57
Mature D	.04	.56
Neurotic D	.04	.61
Immature D	-.20**	.006
M - I	.17*	.02
Sublimation	.10	.16
Humor	-.02	.84
Anticipation	.04	.61
Suppression	-.01	.88
Undoing	-.13	.08
Pseudo-Altruism	-.06	.42
Idealization	.15*	.04
Reaction Formation	.12	.11
Projection	-.16*	.04
Passive Aggression	-.14	.06
Acting Out	-.10	.21
Isolation	-.06	.42
Devaluation	-.20**	.01
Autistic Fantasy	-.13	.08
Denial	-.05	.51
Displacement	-.05	.52
Dissociation	-.11	.12
Splitting	-.11	.13
Rationalization	.05	.47
Somatization	-.19**	.009

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

3.6.2 Relationship Duration and Number of Relationships

A correlational analysis was conducted to examine the relationship between relationship duration and number of relationships, and jealousy and self-esteem. Table 3.14 indicates that relationship duration was significantly negatively correlated with jealousy, with a small effect size. There was no correlational relationship between relationship duration and self-esteem, or number of relationships and jealousy or self-esteem.

Table 3.14

Correlations Between Relationship Duration, Number of Relationships, Jealousy and Self-Esteem

	Jealousy		Self-Esteem	
	R	*P*	*r*	*p*
Relationship Duration	-.26**	.002	-.10	.27
Number of Relationships	.06	.43	.14	.07

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

3.6.3 In Love

An independent samples t-test was conducted to compare means for individuals who were in love and those who were not. There was no significant difference in means for the variables of age, relationship duration, number of relationships, jealousy or self-esteem.

3.6.4 Relationship Status

An ANOVA was conducted to determine whether relationship status had an impact on jealousy. Due to low numbers of participants in the categories of *separated* and *divorced*, these categories were combined with *single, not in a relationship*. The ANOVA revealed no significant difference in jealousy for people with different relationship status.

An ANOVA was conducted to determine whether relationship status had an impact on self-esteem. The ANOVA revealed that there was no significant difference in self-esteem for people with different relationship status.

3.6.5 Gender

An independent samples t-test was conducted to compare mean values of males and females for variables of age, relationship duration and number of relationships. Results indicated that there was a significant difference ($t(176) = 3.69$, $p = .0005$) in mean number of relationships between males ($M = 5.32$, $SD = 4.77$, $n = 71$) and females ($M = 3.41$, $SD = 1.99$, $n = 107$). There were no significant differences between males and females for the variables of age or relationship duration.

An independent samples t-test was conducted to compare mean values of males and females for jealousy and self-esteem; there were no significant differences found. An independent samples t-test was conducted to compare mean values of

males and females for overall defenses (M-I). There was no significant difference found.

Gender and defense factors. A MANOVA was conducted to determine whether gender had an impact on the defense factors of mature defenses (Mature D), neurotic defenses (Neurotic D) and immature defenses (Immature D). The MANOVA showed a significant difference between males and females in defense factors (*Wilks' Lambda* = .93, $F(1) = 4.37$, $p = .005$, *partial* $\eta^2 = .07$). Table 3.15 shows the means and standard deviations of males and females for defense factors, and indicates that women were found to use a significantly higher level of neurotic defenses than men. Men and women did not differ in their level of mature defenses or immature defenses.

Table 3.15

Means and Standard Deviations and Univariate ANOVA Results for Defense Factors and Gender

	Male *M(SD)*	Female *M(SD)*	F	*p*
Mature D	5.54 (1.09)	5.56 (1.27)	.01	.92
Neurotic D	4.54 (1.15)	4.98 (1.19)	6.15**	.01
Immature D	4.00 (.85)	3.88 (1.00)	.74	.39

* Significant at the 0.05 level (2-tailed)
** Significant at the 0.01 level (2-tailed)

Gender and individual defenses. A MANOVA was conducted to determine whether males and females differed significantly in their level of individual defenses. The MANOVA showed a significant difference between males and females in their level of individual defenses (*Wilks' Lambda* = .78, $F(1) = 2.33$, $p = .002$, *partial* $\eta^2 = .22$). Table 3.16 indicates that men reported using significantly higher levels of

isolation and denial than women. It also shows that women used significantly higher levels of idealization, displacement and somatization than men.

Table 3.16

Means and Standard Deviations and Univariate ANOVA Results for Individual Defenses and Gender

	Male *M(SD)*	Female *M(SD)*	F	*p*
Sublimation	4.96 (1.75)	5.13 (1.88)	.36	.55
Humor	6.46 (1.70)	6.56 (1.75)	.15	.70
Anticipation	5.24 (1.52)	5.50 (1.70)	1.11	.29
Suppression	5.42 (1.82)	5.05 (2.08)	1.51	.22
Undoing	4.14 (1.79)	4.41 (1.83)	.984	.32
Pseudo-Altruism	5.22 (1.57)	5.59 (1.62)	2.39	.12
Idealization	4.07 (2.01)	4.78 (2.06)	5.34*	.02
Reaction Formation	4.73 (1.85)	5.15 (1.65)	2.55	.11
Projection	3.15 (1.60)	3.11 (1.80)	.03	.88
Passive Aggression	3.39 (1.75)	3.29 (1.86)	.14	.71
Acting Out	4.69 (1.91)	4.91 (1.95)	.55	.46
Isolation	4.52 (1.82)	3.66 (1.92)	9.14**	.003
Devaluation	3.56 (1.55)	3.30 (1.70)	1.02	.31
Autistic Fantasy	3.28 (1.96)	3.00 (1.90)	.99	.32
Denial	4.21 (1.81)	3.35 (1.59)	11.49**	.001
Displacement	3.34 (1.65)	3.92 (1.98)	4.28*	.04
Dissociation	4.25 (1.86)	3.84 (1.77)	2.27	.13
Splitting	4.41 (1.96)	4.00 (1.81)	2.15	.14
Rationalization	5.70 (1.64)	5.86 (1.69)	.38	.54
Somatization	3.35 (1.65)	4.31 (2.01)	11.44**	.001

* Significant at the 0.05 level (2-tailed)
** Significant at the 0.01 level (2-tailed)

3.7 Jealousy/Self-Esteem Groups and Defenses

3.7.1 Jealousy/ Self-Esteem Groups and Defense Factors

Table 3.17 shows the means and standard deviations of jealousy/self-esteem groups for defense factors. For a graphical representation, please see Figure 1.

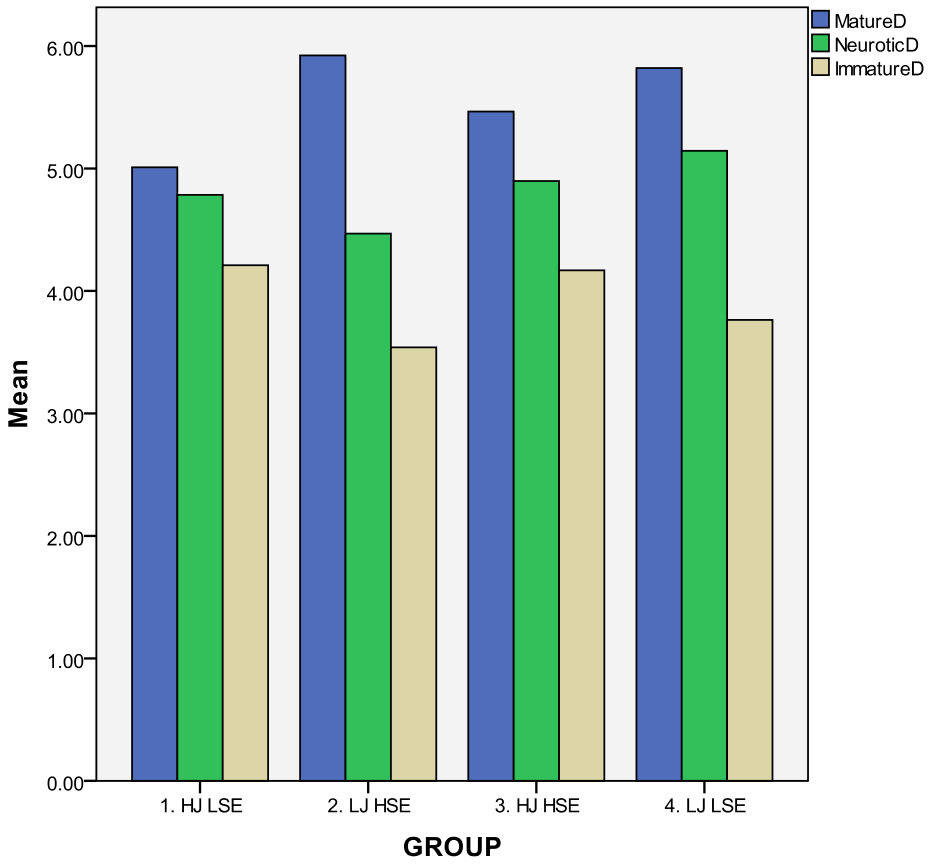
Table 3.17

Means and Standard Deviations for Defense Factors Based on Jealousy/Self-Esteem Groups

	1.HJ LSE n=54 *M(SD)*	2.LJ HSE n=55 *M(SD)*	3.HJ HSE n=39 *M(SD)*	4.LJ LSE n=39 *M(SD)*
Mature D	5.01(1.16)	5.92(1.25)	5.46(.94)	5.82(1.14)
Neurotic D	4.78(1.04)	4.47(1.41(	4.90(1.05)	5.14(1.11
Immature D	4.21(.85)	3.53(1.04)	4.17(.89)	3.76(.78)

Figure 1

Means for Defense Factors Based on Jealousy/Self-Esteem Groups



A MANOVA was conducted to determine whether groups with different jealousy/ self-esteem combinations showed significant differences in defense factors of mature defenses (Mature D), neurotic defenses (Neurotic D) and immature defenses (Immature D). The MANOVA showed a significant difference between groups in defense factors (*Wilks' Lambda* = .74, $F(9) = 6.32$, $p = .0005$, *partial* $\eta^2 = .094$). Tests of between subjects effects highlighted significant differences between jealousy/self-esteem groups in mature defenses ($F(3,183) = 6.76$, $p = .0005$, *partial* $\eta^2 = .10$), neurotic defenses ($F(3,183) = 2.66$, $p = .05$, *partial* $\eta^2 = .42$), and immature defenses ($F(3,183) = 6.44$, $p = .0005$, *partial* $\eta^2 = .96$).

A post hoc multiple comparisons test revealed that the high jealousy/ low self-esteem group (1. HJ LSE) used significantly less mature defenses than the low jealousy/ high self-esteem group (2. LJ HSE; $p = .0005$) and the low jealousy/ low self-esteem group (4. LJ LSE; $p = .005$). With regard to neurotic defenses, the low jealousy/ low self-esteem group (4. LJ LSE) used significantly more neurotic defenses than the low jealousy/ high self-esteem group (2. LJ HSE; $p = .03$). With regard to immature defenses, the low jealousy/ high self-esteem group (2. LJ HSE) used significantly less immature defenses than the high jealousy/ low self-esteem group (1. HJ LSE; $p = .001$) and the high jealousy/ high self-esteem group (3. HJ HSE; $p = .006$).

3.7.2 Jealousy/Self-Esteem Groups and Overall Defenses

Table 3.18 Shows the means and standard deviations of jealousy/self-esteem groups for overall defenses (M - I).

Table 3.18

Means and Standard Deviations for Overall Defenses Based on Jealousy/Self-Esteem Groups

	1.HJ LSE *M(SD)*	2.LJ HSE *M(SD)*	3.HJ HSE *M(SD)*	4.LJ LSE *M(SD)*
M - I	.80(1,44)	2.38(1.03)	1.29(1.16)	2.06(1.40)

An ANOVA was conducted to determine whether groups with different jealousy/self-esteem combinations showed significant differences in mean of overall

defense score (M - I). There was a significant difference in overall defense score between groups (F(3,183) = 16.586, p = .0005).

A post hoc multiple comparisons test revealed that the high jealousy/ low self-esteem group (1. HJ LSE) had a significantly lower overall defenses score than the low jealousy/ high self-esteem group (2. LJ HSE; p = .0005), and the low jealousy/ low self-esteem group (4. LJ LSE, p = .0005). Also, the high jealousy/ high self-esteem group (3. HJ HSE) had a significantly lower overall defenses score than the low jealousy/ high self-esteem group (2. LJ HSE; p = .0005), and the low jealousy/ low self-esteem group (4. LJ LSE, p = .04).

3.8 Predictors of Jealousy

Correlational analyses were performed in earlier sections of the results of this study; assessment of relationships between variables indicated suitability for exploratory regression analysis.

3.8.1 Demographics, Self-Esteem and Defenses

Defense factors. A stepwise multiple linear regression was conducted to examine the statistical predictors of jealousy including age, gender, in love, relationship duration, number of relationships, self-esteem, mature defenses (Mature D), neurotic defenses (Neurotic D), and immature defenses (Immature D). There were four models produced, and model four explained the most variance (F (4, 124) = 16.96, p = .0005). The R-square adjusted value indicated that the model accounted for

33% of the variance. See table 3.19 for variables that remained in the model and their beta values.

Table 3.19

Stepwise Multiple Linear Regression Analysis Examining Predictor Variables for Jealousy

	Beta	*t*	*p*
Immature D	.36	4.52	.0005
Mature D	-.31	-3.98	.0005
Relationship Duration	-.20	-2.61	.01
Self-Esteem	-.198	-2.59	.01

Individual defenses. A stepwise multiple linear regression was conducted to further examine the statistical predictors of jealousy including age, gender, in love, relationship duration, number of relationships, self-esteem, and 20 individual defenses. There were six models produced, and model 6 explained the most variance (F (6, 121) = 11.10, p = .0005). The R-square adjusted value indicated that the model accounted for 32% of the variance. See table 3.20 for variables that remained in the model and their beta values.

Table 3.20

Stepwise Multiple Linear Regression Analysis Examining Predictor Variables for Jealousy

	Beta	*t*	*p*
Autistic Fantasy	.26	3.26	.001
Relationship Duration	-.23	-3.04	.003
Humor	-.24	-3.05	.003
Self-Esteem	-.23	-2.81	.006
Dissociation	.207	2.51	.01
Reaction Formation	-.16	-2.06	.04

Overall defenses. A stepwise multiple linear regression was conducted to further examine the statistical predictors of jealousy including age, gender, in love, relationship duration, number of relationships, self-esteem, and overall defenses (M - I). There were three models produced and model 3 explained the most variance (F (3, 125) = 22.17, p = .0005). The R-square adjusted value indicated that the model accounted for 33% of the variance. See table 3.20 for variables that remained in the model and their beta values.

Table 3.21

Stepwise Multiple Linear Regression Analysis Examining Predictor Variables for Jealousy

	Beta	*t*	*p*
M - I	-.42	-5.31	.0005
Relationship Duration	-.22	-2.86	.005
Self-Esteem	-.20	-2.58	.01

3.8.2 Defenses

Defense factors. A stepwise multiple linear regression was conducted to further examine which of the defense factors predicted jealousy. There were two models produced and model two explained the most variance (F (2, 185) = 32.23, p = .0005). The R-square adjusted value indicated that the model accounted for 25% of the variance. See table 3.22 for variables that remained in the model and their beta values.

Table 3.22

Stepwise Multiple Linear Regression Analysis Examining Predictor Variables for Jealousy

	Beta	*t*	*p*
Immature D	.40	6.21	.0005
Mature D	-.38	-5.91	.0005

Individual defenses. A stepwise multiple linear regression was conducted to further examine which individual defenses predicted jealousy. There were eight models produced and model eight explained the most variance (F (6, 180) = 12.19, p = .0005). The R-square adjusted value indicated that the model accounted for 27% of the variance. See table 3.23 for variables that remained in the model and their beta values.

Table 3.23

Stepwise Multiple Linear Regression Analysis Examining Predictor Variables for Jealousy

	Beta	*t*	*p*
Acting Out	.27	3.87	.0005
Humor	-.27	-4.20	.0005
Anticipation	-.14	-2.13	.03
Somatization	.19	2.74	.007
Reaction Formation	-.13	-1.97	.05
Autistic Fantasy	.17	2.58	.01

3.9 Predictors of Self-Esteem

Correlational analyses were performed in earlier sections of the methods section of this study and assessment of relationships between variables indicated suitability for exploratory regression analysis.

3.9.1 Demographics, Jealousy and Defenses

Defense factors. A stepwise multiple linear regression was conducted to examine the statistical predictors of self-esteem including age, gender, in love, relationship duration, number of relationships, jealousy, mature defenses (Mature D), neurotic defenses (Neurotic D), and immature defenses (Immature D). There were five models produced and model five explained the most variance (F (5,123) = 7.80, p = .0005). The R-square adjusted value indicated that the model accounted for 21% of the variance. See table 3.24 for variables that remained in the model and their beta values.

Table 3.24

Stepwise Multiple Linear Regression Analysis Examining Predictor Variables for Self-Esteem

	Beta	*t*	*p*
Jealousy	-.275	-3.13	.002
Neurotic D	-.241	-2.86	.005
Mature D	.248	2.84	.005
Relationship Duration	-.185	-2.24	.03
Gender	-.173	-2.16	.03

Individual defenses. A stepwise multiple linear regression was conducted to further examine the statistical predictors of self-esteem including age, gender, in love, relationship duration, number of relationships, jealousy, and 20 individual defenses. There were five models produced and model five explained the most variance (F (5, 122) = 16.73, p = .0005). The R-square adjusted value indicated that the model accounted for 38% of the variance. See table 3.25 for variables that remained in the model and their beta values.

Table 3.25

Stepwise Multiple Linear Regression Analysis Examining Predictor Variables for Self-Esteem

	Beta	*t*	*p*
Projection	-.34	-4.23	.0005
Denial	.44	6.11	.0005
Jealousy	-.27	-3.52	.001
Relationship Duration	-.19	-2.60	.01
Undoing	-.18	-2.29	.02

Overall defenses. A stepwise multiple linear regression was conducted to further examine the statistical predictors of self-esteem including age, gender, in love, relationship duration, number of relationships, jealousy, and overall defense score (M - I). There were four models produced and model four explained the most variance (F (4, 124) = 8.04, p = .0005). The R-square adjusted value indicated that the model accounted for 18% of the variance. See table 3.26 for variables that remained in the model and their beta values.

Table 3.26

Stepwise Multiple Linear Regression Analysis Examining Predictor Variables for Self-Esteem

	Beta	*t*	*p*
Jealousy	-.25	-2.56	.01
Gender	-.22	-2.76	.007
Relationship Duration	-.23	-2.67	.009
M - I	.24	2.53	.01

3.9.2 Defenses

Defense factors. A stepwise multiple linear regression was conducted to further examine which of the defense factors predicted self-esteem. There were two models produced and model two explained the most variance (F (2, 184) = 14.07, p = .0005). The R-square adjusted value indicated that the model accounted for 12% of the variance. See table 3.27 for variables that remained in the model and their beta values.

Table 3.27

Stepwise Multiple Linear Regression Analysis Examining Predictor Variables for Self-Esteem

	Beta	*t*	*p*
Mature D	.36	4.99	.0005
Neurotic D	-.24	-3.32	.001

Individual defenses. A stepwise multiple linear regression was conducted to further examine which individual defenses predicted self-esteem. There were four models produced and model four explained the most variance (F (4, 181) = 18.65, p = .0005). The R-square adjusted value indicated that the model accounted for 28% of the variance. See table 3.28 for variables that remained in the model and their beta values.

Table 3.28

Stepwise Multiple Linear Regression Analysis Examining Predictor Variables for Self-Esteem

	Beta	*t*	*p*
Projection	-.26	-3.70	.0005
Denial	.30	4.60	.0005
Autistic Fantasy	-.24	-3.62	.0005
Rationalization	.19	2.97	.003

Chapter 4: Discussion

4.1 Jealousy and Self-Esteem

The relationship between jealousy and self-esteem is unclear because research has yielded inconsistent results (review: White & Mullen, 1989). In the current study, the hypothesis that jealousy would be negatively correlated with self-esteem was supported. That is, the lower an individual's self-esteem, the higher their level of jealousy was likely to be. The correlational nature of this relationship, however, means that the causal direction is ambiguous; low self-esteem could cause jealousy, or jealousy could cause low self-esteem. What was clear from the current study, however, was that a modest relationship existed.

The relationship between jealousy and self-esteem for men and women was also explored. It was found that for women, there was a negative correlation between jealousy and self-esteem. That is, the lower a woman's self-esteem, the higher her level of jealousy was likely to be. However, there was no relationship found for men. This is consistent with Hansen's (1985) study, however other research has found mixed results. The reason for this gender difference might be, as Hansen suggests, "due to a woman's traditionally greater ego involvement in marriage and family life" (p. 267). Women's global self-esteem may indeed be more connected to their relationships than that of men, who might obtain their feelings of worth elsewhere.

White and Mullen (1989) have suggested that jealousy research should measure relationship-related self-esteem; this has been supported by research findings

showing that perceived inadequacy as a partner is correlated with jealousy (White, 1981b, 1981c, 1981d). Perhaps measuring specifically relationship-related self-esteem would yield different results in terms of gender differences in the relationship between jealousy and self-esteem.

4.2 Jealousy, Self-Esteem and Defenses

4.2.1 Jealousy, Self-Esteem and Global Defenses

To explore the relationship between jealousy and defenses, a global defenses score was calculated. The DSQ-40 is not typically scored to include global defenses, but rather defense factors and individual defenses. This is likely because a global defenses score does not differentiate between defenses, and more information is to be gleaned from doing so. It is possible that a global defenses score could yield information about generally high or low levels of defenses. However, a global defenses score would not differentiate between, for example, an individual who used a high level of mature defenses and low level of immature defenses, and an individual who used a low level of mature defenses and a high level of immature defenses.

There has been no previous research into the relationship between jealousy and global defenses. Freud (1922) suggested that a complete lack of jealousy infers defensive processes such as repression. If defenses protect us from distressing thoughts and feelings, it is possible that an individual using a high level of global defenses would experience low levels of jealousy. However, this would mean that

highly jealous people used less defenses, which is counter-intuitive. Relationships between jealousy and defense style are perhaps more likely to be informative.

The relationship between jealousy and global defenses was explored. It was found that jealousy and global defenses were correlated in a positive direction. That is, the higher an individual's global defenses were, the higher their level of jealousy was likely to be. This relationship, however, was very weak, and when the sample was split by gender, there was no correlational relationship found for either. Thus, the need for an alternative defense score was identified.

The relationship between self-esteem and global defenses was explored, however there was no correlational relationship found. There was also no relationship when the sample was split by gender. A globally high or low use of defenses was therefore not found to affect self-esteem. Taken alongside the previous result of only a very weak positive relationship between global defenses and jealousy, this indicates that there is little advantage to exploring global defenses, rather focusing on immature, neurotic and mature defenses.

4.2.2 Jealousy and Defense Factors

Despite a theoretical link between jealousy and the defenses of projection, denial and repression (Freud, 1922; Klein & Riviere, 1964), the relationship between jealousy and defenses has not been explored in previous research. On the basis of research into jealousy and coping, and areas of research including anger and related behaviours, personality traits, psychopathology and attachment, a relationship

between jealousy and defenses was inferred. It was hypothesised that jealousy would be positively correlated with immature defenses and negatively correlated with mature defenses. These hypotheses were supported, and the correlations were very similar in terms of strength.

These findings makes conceptual sense. Mature defenses are more adaptive in that they protect the self without adverse consequences, loss of pleasure, discomfort, and unpleasant effects on others, whereas immature defenses are less adaptive in that they distort reality and are socially undesirable (Vaillant, 1992). Use of mature defenses does not fit with dispositional jealousy, however use of immature defenses does. These results also make sense in light of other correlations found between immature defenses and many different types of psychopathology.

Jealousy was not found to have a correlational relationship with neurotic defenses, that is, the level of neurotic defenses that an individual used was not related to their level of jealousy. Research into jealousy and personality has found a relationship between jealousy and neuroticism (e.g., Melamed, 1991; Xiaojun, 2002; Buunk, 1997), however neurotic defenses are conceptually distinct from this personality trait, which has been related to low immature, and high mature, defense use (Soldz, Budman, Demby & Merry, 1995).

The relationship between jealousy and defense factors was explored for men and women. Jealousy was positively correlated with immature defenses and negatively correlated with mature defenses for both genders. However, the correlations were much stronger for men than for women. It seems that highly jealous

men are less likely to use mature defenses, and more likely to use immature defenses, than highly jealous women.

4.2.3 Self-Esteem and Defense Factors

Previous research using the DSQ has revealed a negative correlational relationship between self-esteem and immature defenses (Romans et al., 1999; Whitty, 2003), and neurotic defenses (Romans et al., 1999). However, the relationship between self-esteem and mature defenses is less clear, with research finding either a positive correlation (Romans et al., 1999) or no relationship (Whitty, 2003). This difference may be due to the use of different versions of the DSQ, and different measures of self-esteem.

Defenses have been conceptualised as protecting the self and self-esteem (Kohut, 1977). Conceptually, then, the results of previous research seem to imply that mature defenses protect self-esteem and immature and neurotic defenses damage self-esteem. However, it is important to remember that direction of causation cannot be implied from a correlational relationship.

Results of the current study supported the hypothesis that self-esteem would be positively correlated with mature defenses. That is, the higher an individual's self-esteem, the higher their level of mature defenses was likely to be. However, the hypothesis that self-esteem would be negatively correlated with immature and neurotic defenses was not supported. That is, was no relationship found between self-esteem and immature defenses or neurotic defenses. This means that immature

defenses and neurotic defenses were not related to low self-esteem, and implies that they do not, in fact, damage self-esteem. However, there was negative relationship found with self-esteem when immature and neurotic defenses were added together.

The relationship between self-esteem and defense factors was explored for men and women. The positive correlation between self-esteem and mature defenses found for the overall sample was maintained at a similar strength for both men and women.

4.2.4 Jealousy and Individual Defenses

Theory has long suggested that jealous individuals use the defenses of projection and denial (e.g., Freud, 1922). Research on communicative responses to jealousy (Guerero & Afifi, 1998) found that coping strategies similar to the defenses of projection and denial were related to jealousy. Although research has not explored the relationship between jealousy and individual defenses, aggression has been linked with jealousy (Archer & Webb, 2006; Delgado & Bond, 1993; Hansen,1991; Schaap et al., 1998;) and projection and denial (Kim, 2001, cited in Cramer, 2006; Porcerelli et al., 2004). Jealousy has also been linked with trait anxiety (Bringle, 1981; Buunk, 1997; Hindy et al., 1989; Xiaojun, 2002), as has projection (Block & Block, 1980; Cramer, 2006). Jealousy has been linked with neuroticism (Buunk, 1997; Mahanta, 1983; Xiaojun, 2002), as has projection (Cramer, 2003). On the basis of these shared relationships, it was hypothesised that jealousy would be positively correlated with the defenses of projection and denial.

The current study found a positive correlation between jealousy and projection, however no relationship between jealousy and denial. The research cited above largely used the DMM to assess defenses, which yields three defenses of denial, projection and idealization. Denial is the most primitive and involves distorting reality or replacing it with fantasy (Cramer, 2006). An individual using denial is likely to be completely unaware of their thoughts and feelings, so jealousy may no longer be conscious or even observable. Projection, on the other hand, can involve at least partial awareness of thoughts and feelings (Cramer, 2006). The use of projection as a defense may therefore still allow for self-report of jealousy, whereas the use of denial may not.

In addition to projection, results indicated that the more jealous an individual was, the more likely they were to use high levels of the immature defenses of passive aggression, acting out, devaluation, autistic fantasy, displacement, splitting, and somatization. They were also more likely to use the neurotic defense of undoing, although this relationship was very weak. Results imply that use of these individual defenses does not protect individuals from the thoughts and emotions associated with jealousy, but rather exacerbates them. The current study also found that jealousy was negatively correlated with the mature defenses of sublimation, humor and suppression. This means that the less jealous an individual was, the more likely they were to use high levels of these defenses; they can therefore be seen as protecting individuals from feeling jealous.

Research has found that of these defenses, projection, passive aggression and acting out are negatively related to ego strength (Bond et al., 1983), negatively

related to good adjustment (Vaillant, 1976), and positively related to narcissistic and antisocial personality disorders (Vaillant & Drake, 1985).

Other defenses that were found to have no correlational relationship with jealousy were the mature defense of anticipation, neurotic defenses of pseudo-altruism, idealization and reaction formation, and the immature defenses of isolation, dissociation and rationalization. Use of these defenses did not make any difference to an individual's level of jealousy.

Gender differences. The relationship between jealousy and individual defenses was explored for men and women. Whereas the overall sample showed a negative correlation between jealousy and sublimation, and jealousy and undoing, these relationships did not exist separately for men or women. Anticipation and reaction formation, which did not show a relationship with jealousy in the overall sample, were negatively correlated for men but not for women.

Some individual defenses had a correlational relationship with jealousy for both men and women, however the relationship was much stronger for men. Highly jealous men were up to twice as likely as highly jealous women to use high levels of projection, passive aggression, acting out, devaluation, autistic fantasy, and somatization. The lower a man's jealousy was, the more likely he was to use humor, and this relationship was twice as strong as that for women.

Individual defenses that were correlated with jealousy only for women included suppression and splitting, where the higher a woman's jealousy, the more

likely she was to use splitting, and the less likely she was to use suppression. Individual defenses that were correlated with jealousy only for men included anticipation, reaction formation and displacement, where the more jealous a man was, the less likely he was to use anticipation and reaction formation, and the more likely he was to use displacement.

4.2.5 Self-Esteem and Individual Defenses

Research has not explored the relationship between self-esteem and individual defenses. In the current study, self-esteem was found to be positively correlated with the mature defenses of humor and suppression, and the immature defenses of denial, dissociation and rationalization. That is, people with high self-esteem are likely to use high levels of these defenses. Humor and suppression are mature defenses, so conceptually it makes sense that using them would protect self-esteem. Denial, dissociation and rationalization are immature defenses, however, and their relationship with self-esteem may be more complex.

There was also a negative correlation between self-esteem and the immature defenses of projection, passive aggression, autistic fantasy, displacement and somatization, and the neurotic defense of undoing. This means that individuals who used high levels of these defenses were likely to have low self-esteem. Again, it makes conceptual sense for immature defenses to be negatively related to self-esteem, as they may damage self-esteem. Undoing is the only neurotic defense that was found to be related to self-esteem.

There was no relationship found between self-esteem and the mature defenses of sublimation and anticipation, the neurotic defenses of pseudo-altrusim, idealization and reaction formation, and the immature defenses of acting out, isolation, devaluation and splitting. These results indicate that these particular defenses do not protect or damage self-esteem.

Gender differences. The relationship between self-esteem and individual defenses was explored for men and women. All correlations found in the overall sample were maintained for at least men or women.

Some individual defenses had a correlational relationship with jealousy for both men and women. The higher men and women's use of suppression and rationalization was, the higher their self-esteem was likely to be. The higher their use of somatization, projection and autistic fantasy, the lower their self-esteem was likely to be. The relationship between self-esteem and projection was stronger for women, that is women with low self-esteem were more likely to use projection than men with low self-esteem. The relationship between self-esteem and autistic fantasy was stronger for men, that is men with low self-esteem were more likely to use autistic fantasy than women with low self-esteem.

Humor and denial were positively correlated with self-esteem for women but not men. That is, the higher a woman's use of humor and denial, the higher her self-esteem was likely to be. Undoing, passive aggression and displacement were correlated negatively for men but not women. That is, the higher a man's use of

undoing, passive aggression, and displacement, the lower his self-esteem was likely to be.

4.2.6 Comparisons Between Jealousy and Self-Esteem

Comparing the groups of defenses that have a correlational relationship with jealousy and self-esteem in the overall sample reveals interesting similarities.

High jealousy and low self-esteem were both related to the neurotic defense of undoing, and the immature defenses of projection, passive aggression, autistic fantasy, displacement and somatization. All of these defenses are immature except undoing, which is a neurotic defense. Low jealousy and high self-esteem were both related to the mature defenses of humor and suppression. These comparisons are interesting mostly in that they highlight defenses that are likely to be used by classically jealous people (high jealousy/ low self-esteem) and classically non-jealous people (low jealousy/ high self-esteem).

High jealousy was additionally related to the immature defenses of acting out, devaluation and splitting, and low jealousy was additionally related to the mature defense of sublimation; these defenses were not related to self-esteem. High self-esteem was additionally related to the immature defenses of denial, dissociation, and rationalization; these defenses were not related to jealousy.

4.3 Defenses

4.3.1 Defense Factors

Intercorrelations of defense factors were not reported in the development of the DSQ-40 (Andrews, Singh & Bond, 1993), however these were reported in Bond's (1983) research developing the first version of the DSQ. Comparisons between Bond's research and the current study are made difficult by inconsistency in the individual defenses included in defense factors and the number of defense factors.

Results indicated that the level of mature defenses an individual used was not related to the level of immature defenses they used. This result is interesting in that we might expect people who use high levels of mature defenses to use lower levels of immature defenses, consistent with Bond's (1983) research. It seems, however, that for the current sample this was not the case, and individuals who used high or low levels of mature defenses were just as likely to use high levels of immature defenses.

Results also indicated that individuals who used a high level of mature defenses were more likely to use a high level of neurotic defenses. This relationship was not evident in previous research (Bond, 1983). Individuals who used a high level of immature defenses were also more likely to use high levels of neurotic defenses; this was partially supported by previous research (Bond, 1983). This relationship was stronger than that between neurotic and mature defenses. The stronger relationshp between neurotic and immature defenses can be understood in that both styles are less adaptive than mature defenses.

4.3.2 Global Defenses and Defense Factors

The relationship between global defenses and defense factors was explored. Global defenses were correlated with mature defenses, neurotic defenses, and immature defenses, with increasing strength of correlation. That is, the higher an individual's global defenses, the more likely they were to have high levels of mature defenses, even more likely to have high levels of neurotic defenses, and most likely to have high levels of immature defenses.

Since the global defenses score is made up of the three defense factor scores of mature, neurotic, and immature defenses, a correlational relationship would be expected between each defense factor and global defenses. For example, a high score for immature defenses would increase the likelihood that the global defenses score would be high; a high score for neurotic defenses or mature defenses would be expected to have the same effect.

However, the difference in strength of relationship between global defenses and the different defense factors yields additional information. The strongest relationship found was between global defenses and immature defenses; the higher an individual's immature defense use, the most likely it was that they used high levels of all three defense styles put together. This result makes sense in light of the correlations between defense factors discussed previously, specifically between neurotic defenses and mature defenses, and the stronger relationship between immature defenses and neurotic defenses.

The finding that the overall sample used most mature defenses, less neurotic defenses, and least immature defenses seems at odds with this. On closer inspection, however, it becomes clear that the result under discussion indicates the predictive relationship between defense factors and global defenses rather than the overall mean. As such, the global defenses score can be used to predict the level of immature defenses quite accurately, followed by level neurotic defenses, and then mature defenses.

4.3.3 Calculated Defense Scores, Jealousy and Self-Esteem

Due to the weak relationship found between global defenses and jealousy, and the lack of relationship between global defenses and self-esteem, alternative defense scores were calculated in the hope of exploring these relationships further and yielding more significant results.

Combined defense scores. Combined defense scores were calculated by pairing defense factors and adding their scores, yielding three combined defense scores: neurotic and immature, neurotic and mature, and mature and immature. It was hypothesised that combining defense factors in this way would result in different correlational relationships with jealousy and self-esteem.

There was a positive correlation between each of these scores and the third defense factor, which was expected due to previous results of correlations between defense factors.

The combined defense scores were found to have even weaker correlations with jealousy and self-esteem than global defenses, and were therefore deemed of limited value. However, there was a negative correlation between combined immature and neurotic defenses and self-esteem. Even though this relationship was weak, it is interesting to note because there was no relationship found between self-esteem and immature defenses nor neurotic defenses alone, despite such a relationship being found in previous research (Romans et al., 1999). It seems that adding immature and neurotic defenses reveals such a relationship in the current sample. That is, individuals with high levels of combined immature and neurotic defenses were more likely to have low self-esteem.

Overall defense scores. A reason for the weak relationships between jealousy and global and combined defense scores, and self-esteem and global and combined defense scores, could be that these scores do not sufficiently differentiate between defense factors. It was therefore decided that calculating a defense score that would differentiate between defense factors would be useful. Such a score would allow comparisons on the basis of one overall defense score for each individual, rather than necessitating the exploration of the relationship of defense factors separately.

Scores for neurotic defenses were omitted, and the overall defense scores were calculated using only the scores for the mature and immature defense factors. This decision was made on the basis that neurotic defenses were correlated positively with both mature and immature defenses, however there was no relationship between

mature and immature defenses, and also because neurotic defenses had no correlational relationship with either jealousy or self-esteem.

Overall defense scores were calculated in two ways: by subtracting the immature defenses score from the mature defenses score (M - I), and by dividing the mature defense score by the immature defense score (M / I). These scores are different in that M - I measures the difference in an individual's level of mature and immature defenses, whereas M / I measures the proportion of mature defenses to immature defenses. It was hypothesised that these overall defense scores would result in stronger correlational relationships with jealousy and self-esteem than any single defense factor score.

Both calculated defense scores were negatively correlated with jealousy, and positively correlated with self-esteem, however M - I yielded stronger relationships than M / I. This means that the greater an individual's "overall maturity of defenses", the less likely they were to be jealous, and the more likely they were to have high self-esteem. The overall defense scores yielded higher correlations than the global defense score. Because of the stronger relationships between M - I and jealousy and self-esteem, and also because M - I takes into account the level of defense use, it was decided that this score would be used in subsequent research.

The difference in the relationship between level of neurotic defenses and either the M - I score or the M / I score is interesting to note. It seems that although the difference in level of mature and immature defenses (M - I) is not related to level

of neurotic defenses, the proportion of mature compared to immature defenses (M / I) is related to the level of neurotic defenses.

The overall defense score (M - I) was negatively correlated with jealousy for both men and women, however the relationship was considerably stronger for men. That is, those with higher overall maturity of defenses were more likely to have a lower level of jealousy. The overall defense score (M - I) was positively correlated with self-esteem for both men and women, with a similar strength of relationship. Both men and women with greater overall maturity of defenses were therefore more likely to have high self-esteem.

4.4 Demographic and Relationship Variables

4.4.1 Age

Age, jealousy and self-esteem. The hypothesis that there would be a negative correlation between jealousy and age was supported; this is consistent with previous research by Pines and Aaronson (1983). Many studies of jealousy have used a student sample, and consequently this relationship has not often been explored. Pines and Aaronson (1983) do not discuss the reasons for the tendency of older people to have lower levels of jealousy, however it may be due to individuals gaining more experience and feeling more secure in their relationships, and in themselves, with age.

The hypothesis that self-esteem would be positively correlated with age was not supported. This hypothesis was made on the basis of research that has found an

increase in self-esteem during adulthood (Robins et al., 2002), however the same research also found that self-esteem dropped sharply in old age. Longitudinal studies (Orth et al., 2010; Shaw et al., 2010) have yielded similar results. This kind of non-linear relationship may explain the lack of correlation found in the current study, however does not preclude a different kind of relationship between self-esteem and age.

Age, defense factors and overall defense score. Studies using the DSQ have found that older people use less immature defenses (Andrews et al., 1993; Costa, Zonderman, & McCrae 1991; Bond et al. 1989). The hypothesis that age would be correlated negatively with immature defenses was supported by the current study. That is, the older people were, the less likely they were to use immature defenses. Although Cramer (2006) suggested this could be the result of difference in life stage stresses or cohort differences, Vaillant (1992) theorised that it was a result of less reality-distortion. It seems reasonable to assume that as people get older, they depend less on defenses that are not adaptive.

Previous research using the DSQ (Romans et al.,1999; Costa et al., 1991) has found that use of mature defenses increased with age. The current study found that use of mature defenses did not change with age, which is consistent with some previous research (Andrews et al., 1993; Whitty, 2003). There was also no relationship between age and neurotic defenses. Age was, however, positively correlated with the overall defense score (M - I). This means that the older an individual was, the greater their overall maturity of defenses was likely to be.

Age and individual defenses. There is little research that reports the relationship between the individual defenses of the DSQ and age, even fewer using samples of adults, and none that report correlational relationships. Research using the REM-71 (Steiner et al., 2001), which was developed from the DSQ, compared use of individual defenses for different age groups and found that the defenses of suppression, idealization, altruism, denial and humor were higher in older adults, and altruism was higher in younger adults.

In the current study, age was found to be positively correlated with the neurotic defense of idealization, which means that the older an individual was, the more likely they were to use this defense. Idealization is characterised by attributing positive qualities to the self or others (DSM-III-R glossary), and has been associated with mature defenses in factor analyses (Steiner et al., 2001).

Age was found to be negatively correlated with the immature defenses of projection, devaluation and somatization. That is, use of these particular defenses declined with age. Projection involves attributing one's own thoughts and feelings to others, devaluation involves attributing negative qualities to oneself and others, and somatization involves preoccupation with physical symptoms.

The mature defenses of sublimation, humor, anticipation and suppression, the neurotic defenses of undoing, pseudo-altruism, and idealization, and the immature defenses of passive aggression, acting out, isolation, autistic fantasy, denial, displacement, dissociation, splitting and rationalization were not found to vary with age.

4.4.2 Relationship Duration and Number of Relationships

In previous research, relationship duration has been inconsistently related to jealousy (review: White & Mullen, 1989). In the current study, a negative correlation between jealousy and duration of relationship was found; the longer an individual had been in their current relationship, the less likely they were to feel jealous. It makes sense for jealousy to decrease as a relationship continues, as a result of increased familiarity, commitment and security. This result is inconsistent with research that found that jealous people were more likely to stay together (Mathes, 1986), however the research in question measured jealousy and then the existence or non-existence of the relationship several years later, rather than exploring level of jealousy and the length of relationship.

The relationship between jealousy and number of relationships was explored, however none was found. That is, there was no difference in people's level of jealousy whether they had many or few relationships during their lives. Duration of relationship and number of relationships were not found to be related to self-esteem.

4.4.3 In Love

The hypothesis that love and jealousy would have a positive correlational relationship was based on previous research (e.g., Bush et al., 1988; Mathes, 1984; White, 1984), however the current study did not support this hypothesis. That is, people in love were not found to be more jealous. This is contrary to what would be

expected from the view of jealousy as 'proof of love' (Clanton, 1989). Individuals who were in love and those who were not in love also did not differ significantly in terms of age, duration of relationship, number of relationships, or self-esteem.

4.4.4 Relationship Status

In previous research, jealousy was found to be more likely for people who live together (Macklin, 1972). In the current study, there was no support for the hypothesis that there would be a difference in jealousy between people with different relationship status. Individuals with different relationship status also did not differ significantly in self-esteem.

4.4.5 Gender

Exploratory analyses revealed that men reported having significantly more relationships than women. There was no difference found between men and women in age or relationship duration. Exploratory analyses revealed that there was no difference between men and women in level of jealousy or self-esteem, and there was no significant difference between men and women in overall defense score (M - I).

Most previous research using the DSQ has not shown gender differences in defense factors, however some studies have found that men scored higher on mature and immature defenses (e.g., Watson & Sinha, 1998; Spinhoven & Kooiman, 1997). The current study found that women used significantly higher levels of neurotic

defenses than men, however they did not differ in level of mature or immature defenses.

Men and women differed significantly in their use of specific individual defenses. Previous research using the DSQ-40 has found that men used higher levels of suppression and isolation, and women used higher levels of pseudo-altruism (Watson & Sinha, 1998).

Men reported using significantly higher levels of the immature defenses of isolation and denial than women. Denial involves failure to acknowledge reality and isolation consists of keeping feelings hidden. These defenses fall in line with the view of men as more avoidant/withdrawn and having difficulty expressing their feelings.

Women were found to use significantly higher levels than men of the neurotic defense of idealization, and the immature defenses of displacement and somatization. Idealization involves attributing positive qualities to the self or others, displacement redirects feelings about one object to another, and somatization involves preoccupation with physical symptoms. These individual defenses, therefore, can be seen as more feminine.

These results are partially supported by previous research using the REM-71 (Steiner et al., 2001), adapted from the DSQ. In this research, as in the current study, men used higher levels of isolation and denial, although these defenses were collapsed into one. However, men additionally used higher levels of omnipotence, passive aggression, repression, intellectualization and suppression. In this research, as in the

current study, women used higher levels of idealization and somatization, but not displacement. In addition, women used more splitting, sublimation, undoing, altruism and reaction formation. Steiner et al. (2001) interpret their results as indicating women's typical use of internalizing defensese that are focused on relationships, and men's typical use of denial of thoughts and feelings while establishing dominance and control.

4.5 Jealousy/Self-Esteem Groups and Defenses

4.5.1 Jealousy/Self-Esteem Groups and Defense Factors

Four jealousy/self-esteem groups were compared in their use of defense factors:

1) High jealousy/ low self-esteem (jealous insecure)

2) Low jealousy/ high self-esteem (non-jealous secure)

3) High jealousy/ high self-esteem (jealous secure)

4) Low jealousy/ low self-esteem (non-jealous insecure)

Each of these groups has been given a descriptor, in brackets, that uses different terms in an attempt to clarify the discussion of results. The terms "secure" and "insecure" are used as a substitute for high and low self-esteem, however it should be noted that this is conceptually distinct from use of the term in research that is not related specifically to self-esteem, for example with regard to attachment theory.

Group 1 used significantly lower levels of mature defenses than group 2 and 4, however group 3 did not differ significantly from any of the other groups in their level

of mature defense use. That is, jealous insecure people could be distinguished from both types of non-jealous people (secure and insecure) by their lower use of mature defenses. Jealous secure people, however, could not be distinguished from the other groups by their use of mature defenses. This means that jealous insecure people, or the classically jealous individual, stands out against non-jealous individuals by using less mature defenses, whereas the jealous secure individual does not.

Group 2 used less immature defenses than group 1 and 3, however group 4 did not differ significantly from any of the other groups in their level of immature defense use. That is, non-jealous secure people could be distinguished from both types of jealous people (secure and insecure) by their lower use of immature defenses. Non-jealous insecure people, however, could not be distinguished from the other groups by their use of immature defenses. This means that non-jealous secure people, or the classic non-jealous individual, stands out against jealous individuals by using less immature defenses, whereas the non-jealous insecure individual does not.

Group 4 used more neurotic defenses than group 2. That is, non-jealous insecure people used higher levels of neurotic defenses than non-jealous secure people. The use of neurotic defenses thus distinguishes between the two types of non-jealous people. This is interesting because in correlational analyses neurotic defenses were not found to be related to jealousy or self-esteem.

Group 1 and 3 were not found to differ significantly in defense factors. That is, jealous insecure people could not be distinguished from jealous secure people by their defense style. Group 3 and 4 were also found not to differ significantly in their

use of defense factors. That is, jealous secure people could not be distinguished from non-jealous insecure people by their defense style.

4.5.2 Jealousy/Self-Esteem Groups and Overall Defenses

Group 1 scored significantly lower for overall defenses than group 2 or 4. This means that jealous insecure individuals had lower overall defense maturity than both types of non-jealous individuals (secure and insecure). Group 3 scored lower for overall defenses than group 2 or 4. This means that jealous secure individuals had lower overall defense maturity than both types of non-jealous individuals (secure and insecure).

Results therefore indicated that individuals with high jealousy could be distinguished from individuals with low jealousy by lower overall defense maturity regardless of their self-esteem.

4.6 Predictors of Jealousy

Although correlational analyses can reveal information about the relationship between two variables, multiple regression allows an exploration of the relationship between one variable and several predictors. This kind of analysis has not been reported in research on jealousy and defenses, nor in research on self-esteem and defenses. To explore these relationships further, a series of multiple regression analyses were conducted.

4.6.1 Demographics, Self-Esteem and Defenses

Defense factors. Exploration of whether demographic information, self-esteem and defense factors were significant predictors of jealousy revealed a model in which self-esteem, relationship duration and mature defenses were significant negative predictors of jealousy, and immature defenses were a significant positive predictor of jealousy. Immature and mature defenses were the strongest predictors of jealousy. Age, gender, whether an individual was in love, number of relationships, and neurotic defenses were not significant predictors of jealousy. This model accounted for 33% of the variance.

Individual defenses. Replacing defense factors with individual defenses, the significant predictors of jealousy were again explored. It was found that autistic fantasy and dissociation were significant positive predictors of jealousy, while relationship duration, humor, self-esteem and reaction formation were negative predictors of jealousy. Age, gender, whether an individual was in love, number of relationships, and the defenses of sublimation, anticipation, suppression, undoing, pseudo-altruism, idealization, projection, passive aggression, acting out, isolation, devaluation, denial, displacement, splitting, rationalization and somatization were not significant predictors of jealousy. This model accounted for 32% of the variance.

Overall Defenses. When defenses were represented by an overall defense score, the model revealed that overall defense score, self-esteem, and relationship length were significant negative predictors of jealousy. Overall defense score was the strongest predictor of jealousy. Age, gender, whether an individual was in love and

number of relationships were not significant predictors of jealousy. This model accounted for 33% of the variance.

4.6.2 Defenses

Defense factors. The relationship between jealousy and defense factors was explored further and it was found that when all other variables were removed, immature defenses were found to be significant positive predictors of jealousy, and mature defenses were found to be negative predictors of jealousy, and of similar predictive strength. Neurotic defenses were not significant predictors of jealousy. This model accounted for 25% of the variance.

Individual defenses. The relationship between jealousy and individual defenses was explored further and it was found that when only these variables were included, the defenses of acting out, somatization and autistic fantasy were significant positive predictors of jealousy, and the defenses of humor, anticipation and reaction formation were negative predictors of jealousy. Acting out and humor were the strongest predictors of jealousy. The individual defenses of sublimation, humor, anticipation, suppression, undoing, pseudo-altruism, idealization, projection, passive aggression, isolation, devaluation, denial, displacement, dissociation, splitting and rationalization were not found to be significant predictors of jealousy. This model accounted for 27% of the variance. This model accounted for more variance than that including defense factors.

4.7 Predictors of Self-Esteem

4.7.1 Demographics, Jealousy and Defenses

Defense factors. Exploration of whether demographic information, jealousy and defense factors were significant predictors of self-esteem revealed a model in which mature defenses were significant positive predictors of self-esteem, and jealousy, neurotic defenses and relationship duration were negative predictors. Gender also predicted self-esteem. This model accounted for 21% of the variance.

Individual defenses. Replacing defense factors with individual defenses, the significant predictors of self-esteem were again explored. It was found that denial was a positive predictor of self-esteem, while jealousy, relationship duration and undoing were negative predictors of self-esteem. Projection and denial were the strongest predictors of self-esteem. Age, gender, whether an individual was in love, number of relationships, and the defenses of sublimation, humor, anticipation, suppression, pseudo-altruism, idealization, reaction formation, passive aggression, acting out, isolation, devaluation, autistic fantasy, displacement, dissociation, splitting, rationalization and somatization were not significant predictors of jealousy. This model accounted for 38% of the variance.

Overall defenses. When defenses were represented by an overall defense score, the overall defense score was a significant positive predictor of jealousy, and jealousy and relationship duration were negative predictors. Gender was also a predictor of self esteem. Age, whether an individual was in love and number of

relationships were not significant predictors of self-esteem. This model accounted for 18% of variance.

4.7.2 Defenses

Defense factors. The relationship between self-esteem and defense factors was explored further and it was found that when all other variables were removed, mature defenses were found to be positive predictors of self-esteem and neurotic defenses were found to be negative predictors of self-esteem. Mature defenses were the strongest predictor of self-esteem. Immature defenses were not significant predictors of self-esteem. This model explained 12% of the variance.

Individual defenses. The relationship between self-esteem and individual defenses was explored further and it was found that when only these variables were included, the defenses of denial and rationalization were significant positive predictors of self-esteem, and projection and autistic fantasy were negative predictors of self-esteem. Projection, denial and autistic fantasy were the strongest predictors of self-esteem. The defenses of sublimation, humor, anticipation, suppression, undoing, pseudo-altruism, idealization, reaction formation, passive aggression acting out, isolation, devaluation, displacement, dissociation, splitting and somatization were not significant predictors of self-esteem. This model explained 28% of the variance.

4.8 Summary of Main Findings

4.8.1 Jealousy and Self-Esteem

- The more jealousy an individual was, the lower their self-esteem was likely to be. When the sample was split by gender, this relationship was true for women, but not for men.

4.8.2 Jealousy and Defenses

Table 4.01 summarises main findings with regard to variables found to be positively and negatively related to jealousy for the overall sample.

Table 4.01

Defenses and Jealousy for the Overall Sample

Jealousy positively related to:	Jealousy negatively related to:
	Overall Defenses (overall maturity of defenses)
Immature Defenses	Mature Defenses
Undoing	Sublimation
Projection	Humor
Passive Aggression	Suppression
Acting Out	
Devaluation	
Autistic Fantasy	
Displacement	
Splitting	
Somatization	

Table 4.02 summarises main findings with regard to individual defenses found to be positively and negatively related to jealousy for men and women.

Table 4.02

Individual Defenses and Jealousy for Men and Women

Jealousy positively related to:		Jealousy negatively related to:	
Men	Women	Men	Women
Projection	Projection	Humor	Humor
Passive Aggression	Passive Aggression	Anticipation	Suppression
Acting Out	Acting Out	Reaction Formation	
Devaluation	Devaluation		
Autistic Fantasy	Autistic Fantasy		
Displacement	Splitting		
Somatization	Somatization		

Additional gender differences were as follows:

- The relationship between jealousy and overall defenses, immature defenses, and mature defenses was much stronger for men than women.
- Relationships between jealousy and the following defenses was much stronger for men than women: humor, projection, passive aggression, acting out and devaluation.

4.8.3 Self-Esteem and Defenses

Table 4.03 summarises main findings with regard to variables found to be positively and negatively related to self-esteem for the overall sample.

Table 4.03

Defenses and Self-Esteem for the Overall Sample

Self-Esteem positively related to:	Self-Esteem negatively related to:
Overall Defenses (overall maturity of defenses)	
Mature Defenses	Immature + Neurotic Defenses
Humor	Undoing
Suppression	Projection
Denial	Passive Aggression
Dissociation	Autistic Fantasy
Rationalization	Displacement
	Somatization

Table 4.04 summarises main findings with regard to individual defenses found to be positively and negatively related to self-esteem for men and women.

Table 4.04

Individual Defenses and Self-Esteem for Men and Women

Self-esteem positively related to:		Self-esteem negatively related to:	
Men	Women	Men	Women
Suppression Rationalization	Humor Suppression Denial Rationalization	Undoing Projection Passive Aggression Autistic Fantasy Displacement Somatization	Projection Autistic Fantasy Somatization

4.8.4 Demographics

- The longer the duration of a relationship, the less likely an individual was to feel jealous.

Age

- The older an individual was, the less likely they were to be jealous and use immature defenses, and the more likely they were to have a higher overall maturity of defenses.
- The older an individual was, the less likely they were to use projection, devaluation and somatization, and the more likely they were to use idealization.

Gender

- Women used a significantly higher level of neurotic defenses than men.

- Men used significantly higher levels of isolation and denial than women.
- Women used higher levels of idealization, displacement, and somatization than men.

4.8.5 Jealousy/Self-Esteem groups

- Jealous insecure people could be distinguished from both types of non-jealous people (secure and insecure) by their lower use of mature defenses.
- Non-jealous secure people could be distinguished from both types of jealous people (secure and insecure) by their lower use of immature defenses.
- Non-jealous insecure people used higher levels of neurotic defenses than non-jealous secure people.

4.8.6 Predictors of Jealousy and Self-Esteem

- Jealousy was predicted equally well by 1) overall defenses, relationship duration and self-esteem, 2) mature defenses, immature defenses, relationship duration and self-esteem. When only defenses were included, jealousy was best predicted by acting out, humor, anticipation, somatization, reaction formation and autistic fantasy.
- Self-esteem was best predicted by projection, denial, jealousy, relationship duration and undoing. When only defenses were included, self-esteem was best predicted by projection, denial, autistic fantasy, and rationalization.

4.9 Theoretical, Clinical and Practical Significance

4.9.1 Jealousy and Self-Esteem

Jealousy is an emotion that is felt by most people at some time during their lives, and has been shown not to differ in clinical and non-clinical samples. Pathological jealousy, jealousy related to paranoid personality disorder, and jealousy related to violence, bring the emotion into a clinical setting. The current study, however, concerns jealousy in romantic relationships, and as such, the clinical significance of findings is relevant with regard to jealousy issues in individual psychotherapy and couples therapy. The advantages of "*appropriate* jealousy, *constructively* expressed" (Clanton, 1996; p. 188) must be kept in mind when interpreting results and planning therapeutic interventions.

Self-esteem has been linked with various psychological and social problems, and as such the clinical significance of this construct has been long-recognised in terms of the impact of research findings. Compensatory, or fragile self-esteem (review: Kernis & Paradise, 2002) appears as high self-esteem when measured by global self-esteem measures. In addition to keeping this in mind when interpreting relationships between high self-esteem and other variables, perhaps fragile self-esteem, rather than global self-esteem, would characterise jealousy more accurately, linked as it is to aggression. This could explain the discrepancy between the picture of somebody with classic low self-esteem and a jealous individual, and could be a direction for future research.

The finding that there was a relationship between jealousy and low self-esteem supports the widely-held view that jealous individuals have low self-esteem. The relationship, however, was a moderate one, and inferences made from it should be treated with caution. The relationship between jealousy and self-esteem has clinical implications in that individuals experiencing jealousy in relationships are likely to have low self-esteem, and therapeutic interventions could therefore focus on improving self-esteem to address jealousy issues. When the sample was divided by gender, the relationship only existed for women and not for men. Women would therefore potentially benefit more from focusing on improving their self-esteem in therapy. Previous findings of a relationship between relationship-related self-esteem and jealousy (White & Mullen, 1989) also point to the benefits of focusing more specifically on perceived inadequacy as a partner, rather than global self-esteem.

4.9.2 Jealousy and Defenses

The relationship between jealousy and defenses had not been explored in previous research. Defenses have been conceptualised as protecting the self against unpleasant thoughts and emotions (A. Freud, 1936; Cramer, 2006). It seems surprising, then, that the relationship between defenses and specific emotions has been neglected in research. Indeed, it would be interesting to know how the different negative emotions such as anxiety, guilt, jealousy and sadness relate to defenses. Additionally, measures of defenses for specific emotions would shed light on individual differences in defense use. For example, a measure for defense use in relation to jealousy may show that some individuals who feel particularly threatened

by experiencing that emotion use particular kinds of defenses, and those who feel less threatened use other kinds of defenses.

The finding that jealous individuals were likely to use a high level of global defenses seems not to support Freud's (1922) suggestion that lack of jealousy infers defensive processes such as repression. Repression was a defense under which Freud often subsumed all other defenses, and to support his suggestion, individuals with low levels of jealousy would have the highest global defenses scores. However, in its current conceptualisation alongside other defenses, repression is a defense by which thoughts and feelings are completely removed from consciousness, whereas other defenses may allow partial awareness to remain. Repression was not included in the DSQ because it is not measurable by self-report, and as a result we have no information about how this individual defense and jealousy are related. Lack of differentiation between defense styles is likely to limit the usefulness of a global defense score, and indeed the relationship with jealousy was weak.

The overall defense score differentiates between defense factors, unlike the global defenses score. This allows for a measure of "overall maturity of defenses" and for simplified statistical comparisons. Higher overall maturity of defenses corresponded with low jealousy, and the relationship was stronger for men.

The finding that people who are jealous are more likely to use immature defenses and less likely to use mature defenses has theoretical implications in that mature defenses seem to protect individuals from jealousy, whereas immature defenses exacerbate jealousy. In addition, although it was found that neurotic defenses

did not have a relationship with jealousy, when immature and neurotic defenses were combined, a positive relationship existed. Clinical implications of this relationship include the importance of recognising and interpreting immature defenses and neurotic defenses. By doing so, psychotherapists can treat not only those with neurotic disorders and personality disorders (Vaillant, 1992) but those with jealousy issues. Vaillant (1992) acknowledges mature defenses as adaptive and not needing a response from clinicians. Perhaps, however, mature defenses could be fostered in cognitive-behavioural approaches. For example, sublimation could be encouraged by increasing creative activities, and suppression, anticipation and humor could be encouraged through cognitive restructuring. Couples could be directed toward ways of interacting and activities that would challenge their typical defense patterns.

The finding that the relationship between jealousy and defense style was stronger for men has theoretical implications. Taken alongside the result that jealousy and self-esteem were not correlated for men, it seems that defenses, rather than self-esteem, have a larger impact on jealousy in men. Clinical implications of this might be that jealousy in women may be best addressed by focusing on self-esteem, whereas jealousy in men may be better addressed by focusing on defenses.

The finding of the current study that jealous individuals were likely to use projection is consistent with theory (e.g., Freud, 1922). However, it would seem that the lack of a negative relationship between denial and jealousy precludes the kind of relationship Freud (1922) wrote about with regard to repression and jealousy, in that lack of jealousy implies this defensive process. As discussed previously, however, an

individual who uses denial may no longer be aware of jealous thoughts and feelings. In terms of theory, then, this result is difficult to interpret.

Jealous individuals were also likely to use passive aggression, acting out, devaluation, autistic fantasy, displacement, splitting, somatization and undoing. Passive aggression, devaluation, displacement and splitting seem to fit the picture of the way a jealous person might behave, and indeed correspond to some of the coping strategies described by Guerero and Affifi (1998). Autistic fantasy, somatization and undoing are perhaps more surprising in relation to jealousy. Sublimation, humor and suppression were related to low jealousy, and can be understood as protecting individuals from jealous feelings. These findings add complexity to theory regarding the defenses involved in jealousy. It should be kept in mind, however, that these defenses were not measured specifically with regard to jealousy, so any theoretical elucidation should be tentative.

The finding that jealous men were twice as likely as jealous women to use projection, passive aggression, acting out and devaluation, and more likely to use autistic fantasy and somatization has implications in that although these defenses are used by jealous individuals generally, they may be particularly strong in jealous men. These defenses may therefore have a larger impact on jealousy in men, and therapists should therefore be especially aware of the potential operation of these mechanisms in men who present with jealousy issues. In couples therapy where jealousy is an issue, therapists would also do well to keep in mind that the use of defenses such as projection and passive aggression may result in provocation of jealous and angry feelings in the individual's partner. It is therefore important, through an understanding

of defenses, to be aware of the origin of these feelings, and help jealous individuals, especially men, to take ownership of them. Men with low jealousy were also twice as likely to use humor as women, which can be seen as protective. It should be kept in mind that the stronger association between jealousy and particular defenses in men could be due to greater variability in women. That is, the gender difference could be a statistical artefact of restricted range in men.

Jealous women were found to use splitting, whereas jealous men were not. Jealous women may therefore be likely to view themselves and others as all good or all bad, and therapists could focus on assisting women to integrate positive and negative qualities. Jealous men were found to use displacement, whereas jealous women were not; redirection of emotion to the correct object may be helpful in the case of the use of this defense. Women with low jealousy were found to use suppression, whereas men were not; this defense therefore may be particularly helpful in dealing with jealousy for women. Men with low jealousy were also found to use anticipation and reaction formation, whereas women were not; this defense therefore may be particularly helpful in dealing with jealousy for men. Again, the stronger association between jealousy and particular defenses in one gender could be a statistical artefact of greater variability in the other.

Comparisons of correlations between defenses and both jealousy and self-esteem show that particular defenses related only to high jealousy and not to self-esteem were those of acting out, devaluation and splitting. Individuals with high jealousy were therefore more likely to use these defenses regardless of their self-esteem. Individuals with low jealousy, on the other hand, were more likely to use

sublimation regardless of their self-esteem. This has theoretical implications in that the associations between jealousy and particular defenses independent of self-esteem highlight the existence of a unique relationship between these variables.

4.9.3 Self-Esteem and Defenses

The lack of relationship between global defenses and self-esteem has theoretical implications in that not all defenses protect self-esteem, but rather particular defense factors, and individual defenses, do. In terms of the overall defense score, higher overall maturity of defenses corresponded with high self-esteem.

The finding of the current study that individuals with high self-esteem use a high level of mature defenses implies that mature defenses protect self-esteem. The lack of relationship between self-esteem and both neurotic and immature defenses is interesting to note, as it is inconsistent with previous research. However, combining immature and neurotic defenses produced a different result; individuals with low self-esteem were more likely to use a combination of neurotic and immature defenses. This implies that use of immature and neurotic defenses damages self-esteem, or that there is at least a reciprocal relationship between them. These results demonstrate the importance of defenses with regard to self-esteem.

The finding that high self-esteem was related to the defenses of humor and suppression has implications in that these particular mature defenses protect self-esteem, whereas the mature defenses of sublimation and anticipation do not. The finding that high self-esteem was also related to the use of the immature defenses of

denial, dissociation and rationalization needs to be looked at more closely in terms of theory. Denial is a very primitive defense whereby reality is either not acknowledged or distorted, and dissociation involves changes in identity. These defenses may protect self-esteem by dramatically altering reality or the self, thereby completely and successfully removing thoughts and feelings from awareness, whereas other immature defenses may allow for partial awareness. Rationalization involves incorrect explanations for behaviour, and although the DSQ-40 classifies it as an immature defense, Vaillant (1992) subsumes it under the defense of intellectualization, which he classifies as a neurotic defense. Rationalization may protect self-esteem by generating believable and advantageous interpretations of reality that are reassuring. In terms of clinical significance, the mature defenses of humor and suppression can indeed be fostered, however immature defenses of denial, dissociation and rationalization are maladaptive despite their apparent positive effect on self-esteem. Therapists may need to keep in mind that these defenses are used to protect self-esteem, and that interpreting and challenging them may therefore have adverse effects on self-esteem, so this should be done with caution.

The finding that low self esteem was related to the immature defenses of projection, passive aggression, autistic fantasy, displacement, somatization, and undoing, has implications in that use of these defenses has an adverse effect on self-esteem. Therapists should turn their attention to the potential use of these defenses in individuals presenting with low self-esteem.

Comparing the relationship between defenses and self-esteem on the basis of gender revealed some differences in that the relationship between low self-esteem and

projection was stronger for women, and low self-esteem and autistic fantasy was stronger for men. More interesting to note, however, was the relationship between high self-esteem and humor and denial for women that did not exist for men. These defenses may therefore be particularly successful in protecting self-esteem for women. There were no defenses that were particularly damaging for women, however low self-esteem was related to undoing, passive aggression and displacement for men. These particular defenses may therefore be understood as damaging for the self-esteem of men. However, it should be kept in mind that the stronger association between self-esteem and particular defenses in one gender could be a statistical artifact of greater variability in the other.

Comparisons of correlations between defenses and both jealousy and self-esteem show that particular defenses related only to high self-esteem and not to jealousy were denial, dissociation and rationalization. This is interesting in that these defenses were only the immature defenses related to high self-esteem and not the mature defenses. These defenses seem, then, to protect individuals from low self-esteem but not from jealousy.

4.9.4 Jealousy/Self-Esteem Groups

Dividing individuals into four groups with different combinations of high/low jealousy and high/low self-esteem produced some interesting findings. Jealous insecure people stood out against both groups of non-jealous people by their lower use of mature defenses. Non-jealous secure people stood out against both groups of jealous people by their use of less immature defenses. The fact that these “types” of

classically jealous and non-jealous individuals were distinguishable on the basis of their defense use from other groups may go some way to explaining why these types are so commonly recognised, lending support to the view that low self-esteem and jealousy are linked. That is, despite the existence of different combinations of jealousy and self-esteem, the classic types are more obvious. The two jealous groups were indistinguishable in terms of defense use. So were the two un-classic groups- jealous secure and non-jealous insecure.

With regard to jealousy/self-esteem groups, the finding that the two groups of non-jealous people can be distinguished between on the basis of their neurotic defense use, in that insecure people use more neurotic defenses than secure people, is interesting. This means that for non-jealous people, low self-esteem corresponds with neurotic defenses. The finding that individuals with high jealousy had lower overall defense maturity regardless of their self-esteem is important in terms of theory in that overall maturity of defenses has a unique impact on jealousy.

Comparisons of correlations between defenses and both jealousy and self-esteem yielded additional information about individual defenses that might be used by some jealousy/self-esteem groups in the absence of running countless comarisons of individual defenses between groups. The finding that high jealousy and low self-esteem were both related to the defenses of undoing, projection, passive aggression, autistic fantasy, displacement and somatization, gives us an indication of the defenses that may be typically used by individuals with high jealousy and low self-esteem, that is, classically jealous, or jealous insecure individuals. The finding that low jealousy and high self-esteem were related to the defenses of humor and suppression gives us

an indication of the defenses typically used by individuals with low jealousy and high self-esteem, that is, classically non-jealous, or non-jealous secure, individuals.

4.9.5 Predictors of Jealousy and Self-Esteem

Self-esteem, relationship length, immature defenses and mature defenses were found to be predictors of jealousy; jealousy was equally well predicted when immature and mature defenses were replaced with overall defenses. Individual defenses that predicted jealousy included acting out, humor, anticipation, somatization, reaction formation and autistic fantasy. Jealousy, relationship length, projection, denial and undoing were found to be predictors of self-esteem. Individual defenses that predicted self-esteem included projection, denial, autistic fantasy, and rationalization. The theoretical significance of these findings is that the combination of values for certain variables can be used to predict jealousy and self-esteem.

4.10 Strengths and Limitations

The current study sought to explore the relationship between jealousy and defenses. This is a relationship that has never been researched, and as such is a unique contribution that brings together and casts new light on disparate bodies of research that nonetheless are linked by theory.

Strengths of the current study include a sample size that ensured statistical significance, and unlike many studies in the area of jealousy, a wide age-range to increase generalizability. The use of a self-report questionnaire provided ease of

administration and interpretation. The calculation of additional defense scores, the comparisons between jealousy/self-esteem groups, and the exploration of the predictors of jealousy and self-esteem allowed for some interesting insights.

Measures used were brief, and for the most part demonstrated good internal consistency, validity and reliability. The Rosenberg Self-Esteem Scale has been used in countless studies, and the DSQ-40 has an advantage over other versions of each defense being represented by two items. The jealousy measure had not been widely used nor compared with other measures of jealousy, however it yielded a single score of dispositional jealousy, which does not share the problems of other methods of measurement.

Some additional points about the DSQ are important to note. Low reliability of individual defenses makes interpretation problematic. Indeed, Bond (1983) advised that the DSQ should not be used to examine individual defenses but rather defense style. Cramer (2006) drew attention to inconsistency in factor structure for different samples, suggesting that using a factor structure drawn from another sample may yield quite different results. She advised factor analysis for each new sample, however this was not carried out in the current study, in order to maintain ease of comparison with previous research.

Self-report is inherently problematic, in that it relies on the ability of the individual to be aware of, and accurately report on, aspects of themselves. People are likely to lack insight and tend towards social desirability, particularly when reporting about personal issues such as jealousy and self-esteem. In addition, differences in

scores could indicate a response bias in that particular individuals may use generally higher scores to indicate the same level of defenses as other individuals who may use generally lower scores.

Self-report of defenses is particularly problematic because defenses are by definition unconscious, however the DSQ attempts to overcome this by focusing on behaviour that is a result of defenses. The relationship between defenses and emotion is bound to be unclear because defenses protect the individual from distressing thoughts and feelings. Therefore, if an individual typically uses defenses to manage jealousy, they may no longer feel or appear jealous. This presents problems in terms of measuring self-report of dispositional jealousy. Cramer (1998a) points out the possibility of under-reporting socially undesirable behaviour, and the problem of the defense determining the way in which the individual self-reports on the outcome measure.

A limitation in comparing genders in terms of strength of association between either jealousy or self-esteem and particular defenses is that men and women may have different variabilities (heteroscedasticity), and greater variability would weaken the analysis of association. It should be kept in mind that any gender differences found may therefore be owing to statistical artefact.

In the current study, self-esteem and defenses were measured as global attitudes or patterns of behaving. This limitation could be overcome by measuring these constructs with a particular focus on relationships and jealousy, which may have advantages for theory and research. In addition, measurement of the multi-

dimensionality of the concepts of self-esteem and jealousy were neglected. A final important limitation of the current study was that in measuring dispositional jealousy, situational and relationship factors were not taken into consideration. The study did not consider, for example, whether feelings of jealousy were based on an actual threat to the relationship, as in the case of infidelity. Nor did it consider the particular dynamics of the relationship, for example, whether feelings of jealousy were provoked by the behaviour of the partner. These factors may indeed have affected the measurement of self-report of dispositional jealousy, particularly in the instance that an individual may have had relationships with very different levels of jealousy, or may not have had many relationships to generalise from. On the other hand, it could be argued that individuals seek out relationships with similar dynamics, and that love is just matching pathology.

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Appendix A

The relationship between jealousy in romantic relationships and self-esteem and psychological defenses

Questionnaire Booklet

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Table of Contents

Section A Demographic Information

Please answer the following questions as truthfully as possible.
All your responses will be confidential.

Date of birth: ……

Age in years: ……

Sex: ……

Relationship status (*please circle all that currently apply to you*):

a) Married
b) Separated
c) Divorced
d) Single, not in a relationship
e) In a relationship, not living with your partner
f) In a relationship, living with your partner

If you are in a relationship, how long has it been since this relationship started?

..... years, …..... months.

If you are in a relationship, are you in love with your partner (*please circle*)?

YES NO

How many relationships have you had during your life?

……

Section B Jealousy

*This questionnaire consists of a number of questions about jealousy in **your past and current romantic relationships**. Using the 7-point scale below, please indicate your answer to the question by circling one of the numbers on the scale beside the statement.*

Never/ not at all — Always/ very much so

1 2 3 4 5 6 7

1. How often are you troubled by jealous thoughts?.....	1	2	3	4	5	6	7
2. How often do you experience mild jealousy in your relationship?.....	1	2	3	4	5	6	7
3. Whenever your partner goes out without you, do you worry that she or he will be unfaithful to you?.....	1	2	3	4	5	6	7
4. How often do you experience extreme jealousy in your relationship?.....	1	2	3	4	5	6	7
5. How often are arguments with your partner brought on by your jealousy?.....	1	2	3	4	5	6	7
6. Do people you have been intimate with consider you a jealous person?.....	1	2	3	4	5	6	7
7. Would you consider yourself a jealous person?.....	1	2	3	4	5	6	7
8. Do people you know consider you a jealous person?.....	1	2	3	4	5	6	7

Section C Self-Esteem

Below is a list of statements dealing with your general feelings about yourself. Please read the questions below and each of the four possible answers. Select the response that best applies to you. Thank you for answering all the questions.

1. On the whole, I am satisfied with myself.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

2. At times, I think I am no good at all.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

3. I feel I have a number of good qualities.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

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

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

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

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

6. I certainly feel useless at times.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

7. I feel that I am a person of worth, at least on an equal pane with others.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

8. I wish I could have more respect for myself.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

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

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

10. I take a positive outlook toward myself.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

Section D Defenses

This questionnaire consists of a number of statements about personal attitudes. There are no right or wrong answers. Using the 9-point scale below, please indicate how much you agree or disagree with each statement by circling one of the numbers on the scale beside the statement. For example, a score of 5 would indicate that you neither agree nor disagree with the statement, a score of 3 that you moderately disagree, a score of 9 that you strongly agree.

1	2	3	4	5	6	7	8	9
Strongly disagree								Strongly agree

1. I get satisfaction from helping others and if this were taken away from me I would get depressed……....	1	2	3	4	5	6	7	8	9
2. I'm able to keep a problem out of my mind until I have time to deal with it….....	1	2	3	4	5	6	7	8	9
3. I work out my anxiety through doing something constructive and creative like painting and woodwork…….	1	2	3	4	5	6	7	8	9
4. I am able to find good reasons for everything I do……	1	2	3	4	5	6	7	8	9
5. I am able to laugh at myself pretty easily…….	1	2	3	4	5	6	7	8	9
6. People tend to mistreat me…….	1	2	3	4	5	6	7	8	9
7. If someone mugged me and stole my money, I'd rather he be helped than punished……...	1	2	3	4	5	6	7	8	9

1	2	3	4	5	6	7	8	9
Strongly disagree								Strongly agree

8. People say I tend to ignore unpleasant facts as if they didn't exist……..	1	2	3	4	5	6	7	8	9
9. I ignore danger as if I am Superman....	1	2	3	4	5	6	7	8	9
10. I pride myself on my ability to cut people down to size…….	1	2	3	4	5	6	7	8	9
11. I often act impulsively when something is bothering me…….	1	2	3	4	5	6	7	8	9
12. I get physically ill when things aren't going well for me…….	1	2	3	4	5	6	7	8	9
13. I'm a very inhibited person…….	1	2	3	4	5	6	7	8	9
14. I get more satisfaction from my fantasies than from my real life…….	1	2	3	4	5	6	7	8	9
15. I have special talents that allow me to go through life without problems…….	1	2	3	4	5	6	7	8	9
16. There are always good reasons when things don't work out for me…….	1	2	3	4	5	6	7	8	9
17. I work more things out in my daydreams than in my real life……..	1	2	3	4	5	6	7	8	9
18. I fear nothing…….	1	2	3	4	5	6	7	8	9

1	2	3	4	5	6	7	8	9
Strongly disagree								Strongly agree

19. Sometimes I think I'm an angel and other times I think I'm a devil……..	1	2	3	4	5	6	7	8	9
20. I get openly aggressive when I feel hurt……..	1	2	3	4	5	6	7	8	9
21. I always feel that someone I know is like a guardian angel……..	1	2	3	4	5	6	7	8	9
22. As far as I'm concerned, people are either good or bad……..	1	2	3	4	5	6	7	8	9
23. If my boss bugged me, I might make a mistake in my work or work more slowly so as to get back at him……..	1	2	3	4	5	6	7	8	9
24. There is someone I know who can do anything and who is absolutely fair and just……	1	2	3	4	5	6	7	8	9
25. I can keep the lid on my feelings if letting them out would interfere with what I'm doing……	1	2	3	4	5	6	7	8	9
26. I'm usually able to see the funny side of an otherwise painful predicament……	1	2	3	4	5	6	7	8	9
27. I get a headache when I have to do something I don't like…….	1	2	3	4	5	6	7	8	9

1	2	3	4	5	6	7	8	9
Strongly disagree								Strongly agree

28. I often find myself being very nice to people who by all rights I should be angry at……	1	2	3	4	5	6	7	8	9
29. I am sure I get a raw deal from life….	1	2	3	4	5	6	7	8	9
30. When I have to face a difficult situation I try to imagine what it will be like and plan ways to cope with it…….	1	2	3	4	5	6	7	8	9
31. Doctors never really understand what is wrong with me……...	1	2	3	4	5	6	7	8	9
32. After I fight for my rights, I tend to apologize for my assertiveness……..	1	2	3	4	5	6	7	8	9
33. When I'm depressed or anxious, eating makes me feel better……...	1	2	3	4	5	6	7	8	9
34. I'm often told that I don't show my feelings…….	1	2	3	4	5	6	7	8	9
35. If I can predict that I'm going to be sad ahead of time, I can cope better……..	1	2	3	4	5	6	7	8	9
36. No matter how much I complain, I never get a satisfactory response……...	1	2	3	4	5	6	7	8	9
37. Often I find that I don't feel anything when the situation would seem to warrant strong emotions……	1	2	3	4	5	6	7	8	9

1	2	3	4	5	6	7	8	9
Strongly disagree								Strongly agree

38. Sticking to the task at hand keeps me from feeling depressed or anxious…….	1	2	3	4	5	6	7	8	9
39. If I were in a crisis, I would seek out another person who had the same problem……	1	2	3	4	5	6	7	8	9
40. If I have an aggressive thought, I feel the need to do something to compensate for it……..	1	2	3	4	5	6	7	8	9

Appendix B

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH

You are invited to participate

You are invited to participate in a research project entitled:

> **The relationship between jealousy in romantic relationships and self-esteem and psychological defenses.**

This project is being conducted by student researcher Sabrina Adams as part of a Doctorate in Clinical Psychology at Victoria University under the supervision of Dr. Gerard A. Kennedy from the School of Psychology, Faculty of Arts, Education and Human Development.

Project explanation

In Western society there is a commonly held belief that if an individual in a romantic relationship feels jealous, they must have low self-esteem. That is, if someone feels a valued relationship is threatened by a rival, they must believe they are inferior to the rival and unworthy of their partner.

Research on the link between jealousy and self-esteem has yielded inconsistent results. Some studies suggest that people who feel jealous have low self-esteem, and some studies suggest that they do not. This mixture of results suggests that our current understanding of the relationship between jealousy and self-esteem is inadequate, and that research needs to explore other factors that may contribute to the complexity of this relationship.

The subjective experience of jealousy includes anxiety, fear of loss, pain, anger, vulnerability and hopelessness. Difficult emotions can be regulated by either conscious coping strategies or unconscious psychological defense mechanisms. This study will focus on the latter- how jealous people are may depend on their utilization of defenses to protect them from unpleasant emotion. Research into the relationship between emotions and defenses has been very limited.

The current study questions the relationship between jealousy and self-esteem, and seeks to ascertain the role that defenses have with regard to experiencing jealousy in romantic relationships. 200 participants will be recruited for this study and will be requested to complete a questionnaire consisting of measures that have been specifically developed to examine jealousy, self-esteem and defenses. General demographic and questions pertaining to their current and past relationships will also be asked.

What will I be asked to do?

If you are at least 20 years old and have had at least one romantic relationship, you will be requested to complete a questionnaire consisting of measures that have been specifically developed to examine jealousy, self-esteem and defenses. General questions pertaining to your age, sex, and current and past relationships will also be asked. Your responses will be confidential and you are free to withdraw from the study at any time.

What will I gain from participating?

While there are no immediate personal gains from participating, the results of the study will contribute to the body of knowledge about the relationship between self-esteem and jealousy, and the role of defenses in this. This knowledge

could subsequently be useful in how we understand this relationship, and could potentially inform psychological practice in areas such as individual psychotherapy and relationships counselling.

How will the information I give be used?

Your responses will remain anonymous and no identifying information will be collected. The data collected will be used strictly for research purposes and the completion of a DPsych degree.

What are the potential risks of participating in this project?

We do not anticipate any significant physical or psychological risks associated with participation in this study. However, subjects may become aware of issues relating to their jealousy in relationships, self-esteem or defenses that may result in some level of concern or distress. If any participant should become distressed they will have access to the contact details of a registered psychologist Dr. Harriet Speed ((03) 9919 5412).

How will this project be conducted?

The research project will involve up to 200 men and women participants who will be recruited from the campuses of Victoria University via advertising and from the general community via snowball sampling. Participants will be requested to read the "Information to Participants Involved in Research" form. Participants will then complete the questionnaire booklet and return it to the student researcher via reply-paid post, for data analysis.

Who is conducting the study?

Victoria University

Principal Researcher
Dr. Gerard A. Kennedy
(03) 9919 2481
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Student Researcher
Sabrina Adams
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Any queries about your participation in this project may be directed to the Principal Researcher listed above.
If you have any queries or complaints about the way you have been treated, you may contact the Secretary, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 phone (03) 9919 4781.