An Exploration of Emotional Distress in Adults with Acne

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ABSTRACT

Rationale: Current empirical yet atheoretical psychodermatological literature demonstrates the importance of demographic and psychodermatological factors in the distress experienced in adult acne. Objectification Theory (OT) provides a promising approach to understand distress, which has not previously been explored for relevance in this group. OT emphasises the roles of body surveillance and body shame. The potential relevance of both general and acne-specific OT constructs to further understanding of distress in adult acne has been demonstrated. The study's aim was to explore the relevance of demographic, psychodermatological and OT factors in predicting distress in this population.

Method: A cross-sectional design was used to examine relationships between age, psychodermatological factors (acne severity, visibility, duration), general OT factors (body surveillance, body shame), acne-specific OT factors (acne surveillance, acne shame) and emotional distress variables (low self-esteem, depression, anxiety, appearance-distress). 116 adults receiving acne treatment completed a series of questionnaires online examining the study variables. Four hierarchical multiple regression analyses were conducted.

Results: Age and the psychodermatological set of variables contributed a relatively limited proportion of the variance in predicting distress, and only significantly predicted appearance-distress. The general OT set of variables contributed the greatest proportion of the variance, followed by the acne-specific set. Both sets significantly predicted each distress variable. Acne shame was the most important individual predictor. Overall, the relationship patterns between the OT and distress variables provided some tentative support for the OT framework.

Conclusion: The findings question the relative utility of demographic and psychodermatological variables in understanding emotional distress in adult acne, and reveal the importance of OT factors. They demonstrate the relevance of both general and acne-specific OT constructs in predicting distress and therefore the potential utility of OT in this area. The findings also demonstrate the possible promise of applying the OT framework to understand distress in this population.

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CHAPTER ONE: INTRODUCTION

The purpose of this study is to explore the relevance of demographic, psychodermatological and Objectification Theory factors in understanding emotional distress in adults living with acne. This chapter firstly outlines what acne is. It then reviews studies that have examined emotional distress correlates in acne and the influence of demographic and psychodermatological factors. Objectification Theory has not yet been applied to understand the experience of people living with visible difference and very limited literature on this subject is available. Therefore, a comprehensive literature review was undertaken to present evidence for its relevance in understanding distress in adult acne. The study rationale and aims are then outlined.

The literature detailed in this report was gathered from several sources between November 2014 and January 2016. Two main searches were conducted broadly examining “acne distress” and “Objectification Theory”. These searches were conducted on PsychInfo, PubMed, and Scopus databases, which focus on journals relevant to psychology and other health professionals. To examine the “acne distress” literature, the terms “emotional distress”, “mental health”, psychological, psychosocial, psychiatric, “quality of life” were combined with “skin disorder”, “skin disease,” acne, and also age and gender. Details of the terms used in the “Objectification Theory” literature search will be provided later in this report. All articles were screened briefly by examining the abstract and those considered relevant were extracted. Any relevant references found within articles that had not previously been extracted were also sought.

1.1 What Is Acne Vulgaris?

1.1.1 Biological Model

Acne Vulgaris (referred to throughout as ‘Acne’) is an acquired chronic inflammatory skin disorder of the sebaceous glands, ducts and hair follicles, found in body areas with greatest sebaceous density such as the face, chest and back (Greydanus, 2015). It is classified by open and closed comedones

(whiteheads), papules (raised red lesions which are infected follicles), pustules (more greatly inflamed papules) and painful cysts (Greydanus, 2015).

The current dermatological understanding of acne development and maintenance focuses on the following four interconnected processes: abnormal keratinization (whereby sticky secreted proteins trap sebum in the follicle); follicle colonization by Propionibacterium acnes (local bacteria); increased sebum production; and abnormal response to inflammation (Suh & Kwon, 2015).

Although acne mainly presents as a single disease, it can also occur as a symptom of an underlying or co-morbid condition. For example, acne may be a significant symptom of congenital adrenal hyperplasia or polycystic ovary syndrome (Greydanus, 2015).

1.1.2 Psychological Models

The dermatological model does not consider the influence of psychological factors in acne development and maintenance, or its psychological impact. However, the role of such factors has been explored in the psychodermatological literature.

Kellett and Gilbert (2001) suggested that psychodynamic, behavioural and stress-diathesis models have dominated the psychodermatological literature regarding the development and maintenance of acne. They detailed how the psychoanalytic model originally understood psychosomatic conditions as visible products of unconscious conflicts, thus viewing acne as a conversion symptom evident of unresolved inner conflict. This understanding is now considered largely irrelevant. They also outlined how the behavioural model understands acne as being maintained by the environmental reinforcement of a range of maladaptive behaviours (e.g picking). Finally, they detailed the stress-diathesis model which conceptualises acne development in the context of environmental stressors impacting physiological mechanisms.

Kellett and Gilbert (2001) critiqued the biological and psychological models as overly reductionist and unable to explain complex interactions between psychosocial and biological factors. They presented an alternative

biopsychosocial model of acne development and maintenance. This model proposes that acne arises due to the interaction between genetic factors and stress, and that an individual's appraisals of their acne and social difficulties arising from it increase psychosocial strain. They propose that this impacts immune system functioning, which influences stress levels and the emergence of further acne lesions. The importance of this biopsychosocial model is acknowledged in current literature (e.g Nichols & Grossbart, 2014).

1.2 Treatment

Despite increased acknowledgement of the role of psychological factors in the development and maintenance of acne, the dominant view in dermatology is that skin disease can cause psychological distress and dermatological treatment will reduce it (Reid & Wojcik, 2014). This appears to be reflected in the National Institute of Clinical Excellence (NICE) guidelines for acne treatment where medication is the primary intervention (NICE, 2014). Indeed, several acne medications are currently available on the National Health Service (NHS; NHS Choices, 2016). However, they can have unpleasant side-effects. For example, two treatments have been associated with mood changes: co-cyprindiol hormonal treatment (for women) and isotretinoin tablets (NHS Choices, 2016). The effects of isotretinoin on emotional states have received much research attention. Although a recent systematic review of evidence examining the relationship between isotretinoin and depression, psychosis and suicide was unable to establish a causal link between taking isotretinoin and experiencing high emotional distress it strongly suggested an association exists (Kontaxakis, Skourides, Ferentinos, Havaki-Kontaxaki, & Papadimitriou, 2009).

Although it is unquestionable that the medical management of acne is crucial in mitigating its psychological sequelae, acne is a chronic condition where the medical therapeutic goal is to control rather than cure it rendering its psychological aspects a high priority for treatment (Magin, Adams, Heading, & Pond, 2011). The NICE guidelines for acne acknowledge the role of psychological factors, recommending psychiatry referrals for those with severe psychosocial difficulties (NICE, 2014). However, worryingly, there is limited

evidence of integrated medical and psychological approaches to its management (Bundy, 2012).

1.3 Epidemiology

Bhate and Williams's (2013) systematic review of acne epidemiological studies found acne to be a nearly universal disorder in young people (15-17 years old), and common in young adults. Indeed, acne was found in 64% of people in their 20s and in 43% of those in their 30s. Studies have shown that the incidence of acne in adolescents is greater in males (90% incidence, compared to 80% in females; Greydanus, 2015), whereas in adulthood its incidence is higher in females (12% incidence compared to 3% in males; Goulden, Stables, & Cunliffe (1999)).

There are no population-based studies examining adult acne prevalence rates for different ethnic groups, however clinic- and questionnaire-based studies suggest rates are similar among different ethnic groups (Bhate & Williams, 2013). Furthermore, Bhate and Williams (2013) reported that acne is the most common dermatological diagnosis among different ethnic groups and Vos et al. (2012) found acne to be the eighth most prevalent disease globally.

1.4 Contextualising Psychological Research among People with Acne

1.4.1 Appearance Concern in the General Population

Focusing on experiences in Western societies, Thompson (2012) highlights the pervasiveness of appearance concern in the general population, which seems to have increased since the 1980s. Studies have also consistently demonstrated greater appearance dissatisfaction among women than men (Cash, Morrow, Hrabosky, & Perry, 2004; Feingold & Mazzella, 1998; Harris & Carr, 2001). Indeed, Rodin, Silberstein, and Striegel-Moore (1984) have proposed the development of a phenomenon called ‘normative discontent’ in which it has become normal for women to feel unhappy about their appearance, particularly their weight. Many authors have suggested that gender differences

in appearance concerns could be explained by pressures in Western cultures emphasising the significance of appearance in females (e.g Hassan, Grogan, Clark-Carter, Richards, & Yates, 2009; Kellett & Gawkrodger, 1999).

1.4.2 Appearance Concern and Distress among People Living With Visible Difference

Being visibly different has been defined as having any disfiguring condition, either congenital or acquired, that results in an altered appearance (e.g skin conditions, craniofacial abnormalities) (Bessell & Moss, 2007).

Appearance dissatisfaction among people living with visible difference has received less research attention than that among the general population, and researchers have instead tended to examine levels of distress in this group (Thompson, 2012). Such studies have demonstrated higher than average reports of emotional distress among people living with visible difference. For example, Rumsey, Clarke, White, Wyn-Williams, and Garlick's (2004) cross-sectional survey among adult outpatients receiving treatment for a range of disfiguring conditions found higher levels of depression, anxiety, appearance concern and social anxiety compared with normative values, with greater distress reported by females than males. Furthermore, recent research has indicated that a significant proportion of people living with disfigurements also report the usual appearance concerns found in the general population (body shape and size), which may not be anatomically-related to their visible difference (Rumsey et al., under review).

1.4.3 The Impact of Skin Disorders and Distress among People Living with Them

Skin disorders constitute a particular form of visible disfigurement and studies have demonstrated their detrimental effects on the lives of those affected. Indeed, Hay et al.'s (2014) recent analysis of the impact of skin conditions found them to be the fourth main cause of non-life-threatening disease burden, which was expressed as years lost because of disability (behind lower back pain, major depressive disorder and iron-deficiency anaemia). Despite being neither

fatal nor physically debilitating, Cresce, Davis, Huang, and Feldman (2014) demonstrated that they (in this case acne and rosacea) impact individuals' quality of life to a similar extent as other chronic conditions such as epilepsy, diabetes and coronary heart disease. Moreover, Kellett and Gawkrodger (1999) reported higher rates of psychological distress (depression and anxiety) among acne and psoriasis sufferers than people diagnosed with cancer. A number of other studies have also found high levels of psychological distress among people with skin diseases (e.g Fried, Gupta, & Gupta, 2005; Hughes, Barraclough, Hamblin, & White, 1983).

However, the impact of skin disease is often not acknowledged by the general population or healthcare professionals. Indeed, many people perceive skin diseases more as 'cosmetic problems' than medical conditions and consequently sufferers' distress is often trivialised (Papadopoulos & Bor, 1999). Picardi, Lega, and Tarolla (2013) illustrated that distress among people with psoriasis, atopic dermatitis and acne is far from trivial by highlighting consistent findings demonstrating an increased suicide risk among these patients.

1.5 Why Examine Acne In Adulthood?

This study will focus on investigating experiences of acne in adulthood. Acne was chosen for further examination as it is the most prevalent skin disorder, affecting almost 80% of people aged 11-30 (Gollnick et al., 2003). Studies have also found that people with acne are more distressed than people with other skin conditions, such as psoriasis and eczema (e.g Kellett & Gawkrodger, 1999). Indeed, over half a century ago Sulzberger and Zaidens (1948) reported that ''There is no single disease which causes more psychic trauma…more general insecurity and feelings of inferiority…than does acne vulgaris.''

The study will consider acne in adulthood as most psychological studies in this area have been conducted with adolescents (Murray & Rhodes, 2005). Furthermore, studies have shown that acne prevalence in adults is increasing (Goulden et al., 1999; Uhlenhake, Yentzer, & Feldman, 2010) and that older people are more distressed by the condition than younger people (e.g Lasek &

Chren, 1998). Examples of studies reporting distress among adults with acne will be examined in detail below. Given that gender appears to be an important demographic variable to consider when examining distress in those who are visibly different any findings demonstrating gender differences will also be highlighted.

1.6 Distress in Adult Acne

The literature search identified mainly quantitative studies examining many different psychiatric and psychological emotional distress correlates in acne. There was a large body of literature examining the prevalence of psychiatric diagnoses in acne patients, illustrating the importance of the medical model in this research area. For example, obsessive-compulsive disorder (e.g Afkham Ebrahimi, Salehi, & Kafian Tafti, 2007), excoriation (skin-picking) disorder (e.g Grant, 2015), body dysmorphic disorder (e.g Uzun et al., 2003), personality disorder (e.g Rasoulian, Ebrahimi, Zare, & Taherifar, 2010), depression and anxiety (e.g Kellett & Gawkrodger, 1999), social anxiety (e.g Bez, Yesilova, Kaya, & Sir, 2011). Other studies examined psychological effects of acne using, for example, constructs such as self-esteem and appearance-related distress (e.g Papadopoulos, Walker, Aitken, and Bor, 2000; Hassan, Grogan, Clark-Carter, Richards, and Yates, 2009, respectively). A few studies also examined psychosocial effects of acne, such as embarrassment and self-consciousness (e.g Kellett & Gawkrodger, 1999).

It is important to note that the distress constructs examined in these studies have been made up; they have no ontological reality. The scientific validity of Western psychiatric diagnoses has been questioned. For example, Pilgrim and Bentall (1999) argued that depression is a disjunctive concept with no evidence of biological markers, which has been shaped by a particular social and cultural context. Although the psychological constructs tend to be more specifically-defined and do not assume a biological basis, they have also been shaped by context. Despite their limitations, however, it is believed that empirical findings measuring these constructs are useful as they point towards the reality of misery people experience (Pilgrim & Bentall, 1999).

From the literature review, the most well-studied emotional distress constructs in acne are depression and anxiety, social anxiety and appearance concern, low self-esteem and body-image, and quality of life. Several representative studies are outlined below addressing these in turn to exemplify the consistent findings in the literature that adults with acne report high levels of distress, which have been found to be particularly marked in females and older adults in several studies. Some of these studies also examined the role of psychodermatological factors (e.g acne visibility and subjective severity). These findings will also be reviewed. As these quantitative studies can be critiqued for providing a narrow view of distress (reducing it to symptoms), they will be contextualised by drawing on findings from qualitative studies in the field. Given this research is being conducted in the UK and previous researchers have highlighted the increasing importance of appearance in Western societies, the studies reviewed here will largely be based on those undertaken in the UK, US and Australia.

1.6.1 Depression and Anxiety

Kellett and Gawkrodger's (1999) UK-based study examined the psychological and emotional impact of chronic acne in 34 people attending a dermatology clinic (mean age: 24 years). They examined the prevalence of depression and anxiety using the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) and found that 44% reported anxiety at a clinically significant level and 18% reported depression to this extent. Indeed, the HADS was used in this study to identify psychiatric caseness of depression and anxiety.

Uhlenhake, Yentzer and Feldman (2010) examined the prevalence of depression alone among people living with acne in a US population-based study by analysing data from a medical claims database. They reported that 8.8% of acne patients had also been diagnosed with depression, which was two to three times greater than that recorded in the general population. They commented that their findings might have underestimated the prevalence of depression in the sample as they relied on patients discussing their emotional difficulties with their doctor and a diagnosis being recorded. Uhlenhake et al. (2010) also found rates of depression two times higher in females with acne

than males (10.6% and 5.3% respectively), and higher rates of depression in people with acne aged 18 and over. Callender et al's (2014) US-based study examined the experience of female adult acne further. In a large community sample of female adults with acne (n=208) using the Patient Health Questionnaire (PHQ-4; Kroenke, Spitzer, Williams, & Löwe, 2009), they reported that over 70% reported some symptoms of anxiety/depression.

These quantitative studies demonstrate the extent of depression and anxiety diagnoses/symptomatology in different acne samples. To contextualise these data, findings from Murray and Rhodes's (2005) qualitative phemenological study with adults with severe visible acne will be reviewed briefly to illustrate the nature of depression and anxiety in this group. This study reported participant accounts of the variable and unpredictable nature of acne, which impacted their ability to make social plans. The authors suggested it was such helplessness and powerlessness over the participants' condition that led to feelings of depression. Additionally, Murray and Rhodes (2005) felt that participants' reports of needing to adapt to their acne meant they were living in anxious expectation of it worsening.

1.6.2 Social Anxiety and Appearance-Related Concern

Bez, Yesilova, Kaya and Sir's (2011) study conducted in Turkey explored the prevalence of social phobia diagnoses in a sample of people with acne attending a dermatology outpatient clinic (n=140) and in non-dermatology controls (n=98) (mean age: 21 years). Almost half (46%) of those with acne were diagnosed with social phobia compared to 18% in the control group. The study also compared the extent of social anxiety between the groups (using the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987)). The LSAS consists of six sub-scales, and findings indicated higher scores for acne patients than controls on two of the scales: performance avoidance and total avoidance.

Hassan et al. (2009) examined appearance-related concern among 132 adolescents and adults with acne attending a UK dermatology outpatients service using the Derriford Appearance Scale (DAS-59; Harris & Carr, 2001). The DAS-59 consists of five scales: general self-consciousness of appearance, social self-consciousness of appearance, self-consciousness of sexual and

bodily appearance, self-consciousness of facial appearance, negative self-concept, and physical distress and dysfunction. Findings suggested that appearance concern was greater in this sample than that reported in the measure's general population norms. Additionally, it was found that females reported greater appearance-distress than males, and older participants described greater distress than adolescents. The study also examined the effects of psychodermatological factors on distress levels: subjective acne severity and its visibility. Findings indicated that subjective severity of facial acne was related to greater social self-consciousness in females but not males, and that back acne was related to sexual and bodily self-consciousness in both genders.

These studies demonstrated higher levels of social anxiety and appearance-related concern among adults with acne than those without acne. These findings can be contextualised by drawing on Murray and Rhodes's (2005) qualitative study which reported the importance of appearance in participants' identities and that their perceived appearance-related short-comings often led to social withdrawal and avoidance.

1.6.3 Self-Esteem and Body-Image

Papadopoulos, Walker, Aitken and Bor (2000) conducted a UK-based study examining the relationship between acne visibility, self-esteem (SE; measured using the Coopersmith Self-Esteem Inventory (Coopersmith, 1975)) and body-image (BI; measured using the Situational Inventory of Body-image Dysphoria (Cash, 1994)) in people with acne recruited from an acne support group. Data for participants with acne (n=197) were compared with data from a non-dermatology sample (n=82) matched for age (16 years or older) and gender. Findings indicated that people with facial and truncal acne reported lower SE and BI ratings than control participants, and people with facial acne reported lower ratings on these measures than those with truncal acne. Thus, lower SE and BI ratings were reported among those whose acne was more visible.

Abdel-Hafez et al. (2009) examined the impact of acne on quality of life and SE (using the Culture-Free Self-Esteem Inventory; El-Behairy, 2006) in Egypt. The young adult sample (mean age: 20 years) consisted of 150 people with acne

attending an outpatient dermatology clinic and 50 non-dermatology controls. Findings showed lower SE scores in people with acne than in controls, and lower SE scores in males with acne than females. The authors proposed a cultural explanation for this gender difference, suggesting it may be because females' acne is less exposed than males as they are likely to cover their faces and remain at home more. The study also examined the relationships between psychodermatological factors and SE and found negative correlations between SE and the duration and clinical severity of acne. Thus, lower SE scores were reported among those whose acne was more severe and of a longer duration.

These studies examined the psychological constructs of SE and BI and identified lower SE and BI in adults with acne than those without acne. Murray and Rhodes's (2005) qualitative findings help to contextualise these data, suggesting that the importance of appearance in participants' identities and their perceived short-comings in this regard often meant they expressed a low sense of self-worth and did not feel good enough. Furthermore, because of the condition's variability it was suggested the participants were unable to develop and maintain positive self-images. Similarly Magin, Adams, Heading, Pond and Smith's (2006) qualitative study using a grounded theory approach with 26 people with acne suggested a linear model of distress starting with the importance of appearance, which led explicitly to low self-esteem and negative self-image.

1.6.4 Quality of Life

Studies have also assessed the impact of acne on people's quality of life (QoL). Lasek and Chren (1998) examined the impact of acne on the QoL of 60 adult dermatology outpatients. They measured QoL using the Skindex (Chren, Lasek, Quinn, Mostow, & Zyzanski, 1996), which is a skin disease-specific QoL measure assessing the impact of skin disease on functioning, emotions and symptoms. They found that people with acne reported greater effects of their condition on their overall QoL than people in the normative sample. Older people with acne reported greater effects of it on their QoL than younger people, and statistical analysis showed this increased by 20% for every decade of life.

Tan et al. (2008) evaluated the relationship between demographic factors and QoL in 862 acne patients. QoL was measured using the Acne-QoL questionnaire (Fehnel et al., 2002), which measures the impact of facial acne across the following dimensions: self-perception, emotions, social experiences and acne symptoms. They found that acne's effect on QoL was related with being older, female and having had acne for longer (>5 years).

1.6.5 Summary: Acne and Emotional Distress Correlates

The studies reviewed in this section have demonstrated higher levels of depression and anxiety, social anxiety and appearance concern, and lower self-esteem and quality of life in adults with acne than those without. This has been shown using a variety of methodologies, including controlled and uncontrolled designs and community-based studies, with samples recruited from a range of sources (e.g dermatology outpatient clinics, acne support groups). Studies with larger samples also reported higher levels of distress in females, and some found greater distress among older adults as well. A few studies also examined the influence of psychodermatological factors in people's distress, and found that subjective acne severity, its visibility and duration were positively associated with distress.

Although these studies enhance understanding of the importance of demographic and psychodermatological factors in the distress experienced among people with acne, they are atheoretical and therefore limited in their ability to provide explanations of distress. Theoretically-driven research providing more detailed explanations of distress would help inform clinical work as clinicians could draw on research findings to assess the most relevant aspects of distress in those with disfigurements (Kent, 2002).

1.7 Explanations for Distress in Visible Difference

This section will review the following main theoretical approaches to appearance, which Thompson (2012) considered to be useful in understanding appearance distress: evolutionary approaches, stigma, body shame and social anxiety, and objectification approaches. Their relevance to acne will also be considered.

1.7.1 Evolutionary Approaches

Evolutionary psychologists propose that perceptions of attractiveness have mainly been shaped by selection pressures (Thompson, 2012). For example, Kellett and Gilbert (2001) suggest that 'social attractiveness' is greatly valued by humans as it confers rank, which influences access to resources. They argue that competition for connectedness and/or avoidance of group rejection influence psychological processes like self-criticism and social comparison that can be distressing. Kellett and Gilbert (2001) considered the distress experienced in people with acne from an evolutionary perspective and argued the condition could result in shame reactions because of its potential for distressing self-other attractiveness evaluations, which in turn could result in significant mental health concerns.

1.7.2 Models of Stigma

Goffman's (1963) writing on stigma proposed that visible markings designate those impacted as 'spoiled' and subsequently less valued. Although stigmatization is not always accepted by those impacted, Goffman suggested that on the whole stigmatised individuals share the same beliefs of their identity as 'spoiled' as wider society (self-stigma) and therefore may perceive themselves as falling short rendering shame a likely consequence. Murray and Rhodes (2005) drew on this model to interpret their qualitative findings among adults living with acne who reported having low self-esteem and not feeling good enough. Studies have also shown that being subject to stigmatising appearance-related remarks (enacted stigma) can result in later appearance concern. For example, Magin, Adams, Heading, Pond, and Smith's (2008) qualitative study found that teasing/bullying was experienced by a considerable

minority of participants with acne, eczema and psoriasis and in their accounts these experiences were causally linked to appearance-related distress.

People with disfigurements can be further stigmatised by myths about their condition, which may contribute to their distress. For example, Uslu et al. (2008) found that under 50% of adolescents surveyed considered acne to be a "disease" but instead believed it to be a negative self-induced imperfection caused by poor diet and hygiene. Additionally, El-Khateeb, Khafagy, Abd Elaziz, and Shedid (2014) found that almost six in ten (58%) school students believed acne is contagious and stated they tend to avoid people with it. It seems likely that such myths would contribute to people with acne experiencing powerful stigma (both self-stigma and enacted stigma).

1.7.3 Body Shame and Social Anxiety Models

Kent's (2002) model of disfigurement suggests that repeated appearance-related stigmatising experiences can result in the development of shame and appearance anxiety, which in turn drives cognitive processes similar to those in social anxiety (e.g attentional and interpretative biases). Indeed, Thompson and Kent (2001) have argued that there are commonalities between social anxiety and appearance concerns as both focus on self-evaluation. Although there is much evidence for specific kinds of cognitive processing involved in social anxiety there is less evidence for these processes in appearance concerns (Thompson, 2012). Only one study was found which examined such cognitive processing in people with acne. Lee et al. (2014) found that this group have, as predicted, a greater attentional bias for acne lesions and focus more on them than people without acne.

1.7.4 Summary of Theoretical Approaches and Critical Evaluation

It seems likely that no single model will be able to account for appearance-related distress experienced by people who are visibly different, and a comprehensive understanding would include aspects of each model. Nevertheless, it is pertinent at this point to consider the utility and limitations of each model reviewed so far.

The evolutionary perspective offers an initial point for understanding why disfigurement may be distressing, however it is unable to explain how appearance concerns operate in the sociocultural context, which limits its practical application. Whereas the stigma and social anxiety models do provide an explanation for distress among the visibly different, they appear unable to account for why some social groups (e.g females, older adults) may be more stigmatised or more likely to engage in particular cognitive processes than others. Additionally, the social anxiety model focusses on how cognitive processing maintains distress and in doing so decontextualizes individuals' distress. As such, like the evolutionary approach, the social anxiety model is unable to explain how appearance concerns operate in the sociocultural context.

These models all highlight that a shame response is likely among people living with visible difference/acne. One further model which also considers the role of shame is Objectification Theory (OT; Fredrickson & Roberts, 1997), however to the researcher's knowledge OT has not yet been applied to understand the experiences of people living with visible difference. As described below, OT provides a cognitive framework to explain how appearance concerns operate in a Western sociocultural context. OT could therefore help address some of the limitations outlined above. Examining its relevance to visibly different populations in such contexts seems important given the increasing significance of appearance and appearance-related distress in Western societies. Furthermore, OT may provide a useful framework to understand distress in people living with acne to build on current empirical literature in the field, which tends to be atheoretical. As detailed in section 1.7, there are strong reasons to believe that how we are viewed by others, view ourselves and think about how others see us all influence our sense of wellbeing and self-satisfaction. OT presents a helpful way of operationalising and examining this in detail.

To present evidence for OT's relevance in understanding distress in adult acne, a comprehensive literature search was conducted using the same databases and following the same procedure outlined on page one. To examine this literature, the terms "objectification theory", "objectified body consciousness" were combined with appearance, "body-image", health, dermatology, oncology, respiratory, rheumatology, acne and skin. In total, 482 papers were identified.

Of these, 326 articles were excluded as they had one or more of the following features: they were based on different kinds of objectification theory (e.g theorised objectification mechanisms involved in visual processes); they did not pertain to adult experiences; they did not examine the psychological parameters of depression, low self-esteem or body-image; and they were not conducted in Western societies (e.g Europe, US, Australasia) where Western norms and values shape peoples' experiences. In total, 111 papers were reviewed (having eliminated 45 duplicate articles). A review of this literature is detailed below.

1.8 Objectification Theory

Fredrickson and Roberts (1997) proposed Objectification Theory (OT) as a framework to understand how women's socialisation and sexual objectification experiences result in mental health difficulties: mainly depression, eating disorders and sexual dysfunction, which are all more prevalent in women than men.

OT strives to examine the experiences of women in an objectifying culture, placing the female body in a Western sociocultural context that emphasises women's appearance, for which they are constantly subject to appraisal (Buchanan, Fischer, Tokar, & Yoder, 2007). Indeed, OT proposes that women's gender socialisation and life experiences habitually include sexual objectification experiences (e.g in the objectifying gaze that can happen in social encounters and in media portrayals of women) (Fredrickson & Roberts, 1997).

Within OT, sexual objectification experiences are believed to socialise girls and women to consider themselves as objects to be looked at and evaluated based on appearance (Fredrickson & Roberts, 1997; Moradi & Huang, 2008). OT refers to the internalisation of another's perspective on the body as self-objectification, which is proposed to manifest as persistent body surveillance or the routine monitoring of outward appearance. Self-objectification, manifested as body surveillance, is proposed to promote the negative psychological consequences of body shame and anxiety, and reduce internal bodily awareness and flow experiences (Fredrickson & Roberts, 1997).

Body shame can result when individuals compare themselves against an internalised or cultural standard and perceive themselves as falling short (Fredrickson & Roberts, 1997). As the idealised female body is nearly universally unachievable (Wolf, 1991) it is likely most women experience body shame to some extent; however in this framework body shame should be more likely in people who self-objectify (Choma et al., 2010). In the framework, anxiety includes appearance-related anxiety (i.e fear of appearance evaluation) and anxiety about physical safety. Flow experiences refer to "rare moments during which we feel we are truly living, uncontrolled by others, creative and joyful" (Csikszentmihalyi, 1990), and internal bodily awareness refers to the ability to notice and make sense of physiological sensations like sexual arousal (Fredrickson & Roberts, 1997).

The model of relationships between these variables, as illustrated in figure 1, is proposed to increase women's risk of developing eating disorders, depression and sexual dysfunction (Fredrickson & Roberts, 1997).

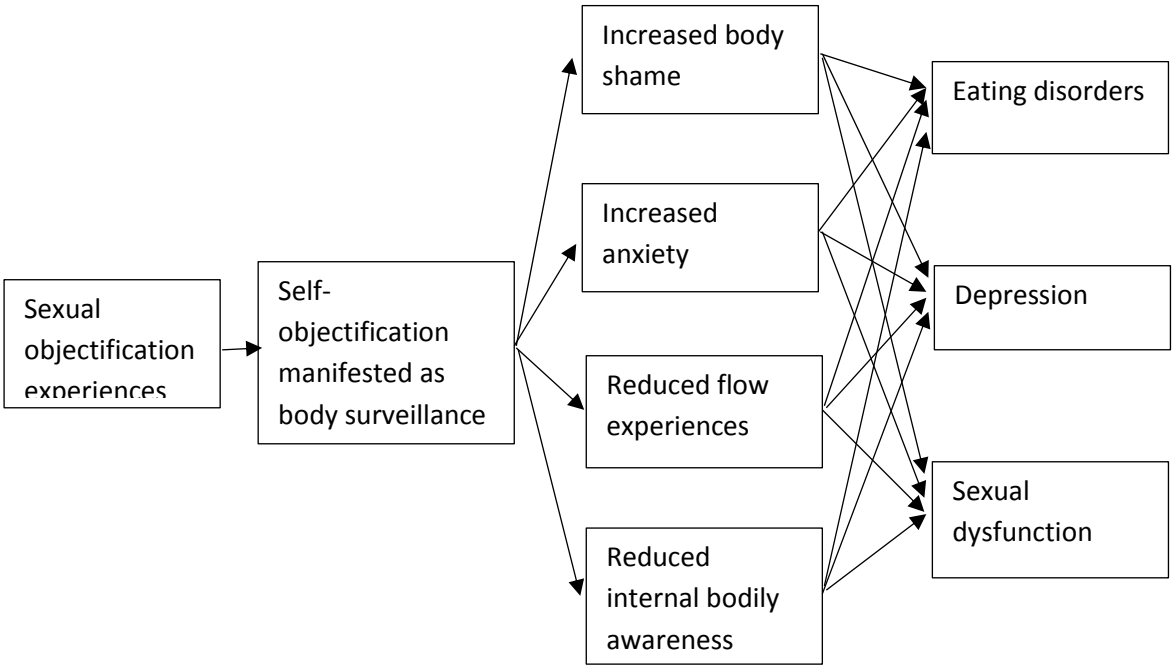


Figure 1: Objectification Theory Framework (Source: Moradi & Huang, 2008)

1.8.1 OT Empirical Research: Depression and Self-Esteem

Moradi and Huang's (2008) review of empirical research grounded in OT illustrates how it has supported the theory's basic tenets and in doing so

demonstrated how sexual objectification experiences translate into mental health difficulties (namely depression and eating disorders but also low self-esteem).

Before this research is reviewed further, it is important to consider the demographic composition of the study samples. Most OT research has been undertaken with samples of young women (Moradi & Huang, 2008), which is perhaps unsurprising given OT predicts that women will experience greater objectification in their reproductive years (Fredrickson & Roberts, 1997). Limited studies have been conducted with older women. OT also proposes that as women age they increasingly abandon an external observer's perspective as the main view of their body, and Tiggemann and Lynch (2001) demonstrated lower body surveillance scores for women in their 40s and 50s than those in their 20s and 30s. OT posits that the extent middle-aged women (aged 40+) remain at risk of mental health difficulties depends on the degree they internalise appearance ideals and encounter contexts that objectify their bodies (Fredrickson & Roberts, 1997). Evidence for the utility of OT in understanding their experiences, however, is incomplete. Less OT research has also been conducted with men. However, such research is important as studies have shown that men are also being increasingly objectified in western media (Pope, Olivardia, Borowiecki, & Cohane, 2001) and their idealised body is becoming increasingly muscular and unattainable (Olivardia, Pope, Borowiecki, & Cohane, 2004). Research has also demonstrated that developing a muscular figure has become an important issue for men (Cafri et al., 2005) and men are becoming more dissatisfied with their bodies (Garner, 1997). Overall, the limited OT research conducted with men so far highlights the promise of applying OT to understand their experiences (Moradi & Huang, 2008).

To the researcher's knowledge, OT has not yet been applied to understand the experiences of people who are visibly different. However, its application to people who are not visibly different suggests its utility here. Therefore, studies examining the utility of OT to understand experiences of depression and low self-esteem in young women and men, and available older samples, will be reviewed below. This focus is chosen as depression and low self-esteem are forms of distress previously examined in adults with acne, and gender and age

are demographic factors that have received the most attention in acne studies to date.

1.8.1.1 OT and Depression

Jones and Griffiths's (2015) recent systematic review investigated the validity of OT's proposal that self-objectification cause's depression. Across a range of methodologically and statistically varied approaches they found strong evidence for a positive association between self-objectification and depression in women. Also, in line with OT the most frequent result was a mediated relationship between the two variables with body shame and appearance anxiety the mediators. Additionally, two longitudinal studies revealed that increases in self-objectification over time were associated with increases in depression, which suggests a causal relationship between the variables.

Jones and Griffiths (2015) reported mixed findings among men, however they noted that a small majority of studies including samples of men found significant positive relationships between self-objectification and depression. As for women, the most frequent result was a mediated relationship between the constructs with body shame and appearance anxiety the mediators. The authors conclude that while OT studies including men have been limited, that findings so far suggest the theory may be useful in explaining depression in men as well as women.

The samples in Jones and Griffiths's review (2015) predominantly comprised of undergraduate students. Velez, Campos and Moradi (2015) demonstrated the applicability of OT in understanding depressive experiences in slightly older women. They explored the relationships between OT constructs and racist discrimination with depressive and eating disorder symptoms in a sample of Latina women (mean age: 28 years, range: 18-66). Their analyses indicated significant inverse relationships between age and the OT constructs, however they also showed a minimal influence of age on the relationships being investigated. Nevertheless, age was controlled in the study to rigorously examine the hypotheses. Findings revealed that body surveillance was associated with increased depressive symptomatology, and the relationship was mediated by body shame.

1.8.1.2 OT and Self-Esteem

In proposing OT, Fredrickson and Roberts (1997) argued that self-perceptions reflect individuals' notions of how others see them. As such, they suggested that for women, 'sense of self' is related to perceived evaluations of their bodies. Indeed, research has demonstrated that greater appearance dissatisfaction is associated with reduced self-esteem (SE; e.g Ganem, Heer, & Morera, 2009).

No systematic review has been conducted to examine relationships between OT variables and SE. From the literature review, fewer studies have been conducted examining the impact of OT constructs on SE than depression. Nevertheless, Choma et al. (2010) recently conducted a comprehensive study testing a moderated mediation model in the relationship between self-objectification and SE among Canadian undergraduates. They found that higher self-surveillance predicted lower SE in both women and men. The study also revealed that the constructs of body shame and appearance anxiety fully mediated the relationship between self-surveillance and SE. Choma et al. (2010) also found that the paths linking the OT variables with SE were not stronger in women than men, and therefore did not find evidence for moderation by gender. They concluded that their findings provide some evidence of the applicability of OT to men.

Similarly, in their review of OT research, Moradi and Huang (2008) highlighted that on the whole data available suggest gender similarities in the relationships between OT constructs and SE, with greater body surveillance and body shame being negatively correlated with SE.

McKinley (2006) conducted a longitudinal study examining the role of OT constructs in predicting body-esteem (a conceptually similar construct to self-esteem) with mainly undergraduates and their middle-aged mothers. Data were collected in 1993 and 2003. In 1993, college-age women reported greater body surveillance and body shame than middle-aged women, however by 2003 these cohort differences had reduced as college-aged women reported less body surveillance and body shame. The findings also revealed that in 1993 and 2003 both body surveillance and body shame were negatively related with positive

self-appraisal for college-age women, however only body shame was negatively related with body-esteem in middle-aged women. This study concluded that OT is relatively less representative of middle-aged women's experiences than younger women's (McKinley, 2006). However, importantly it did not conduct mediational analyses examining the proposed indirect relationships between body surveillance and body-esteem. This would have enabled more rigorous examination of the utility of OT in understanding the self-appraisals of middle-aged women.

1.8.1.3 Summary: OT, Depression and Self-Esteem

These studies demonstrate OT's utility in understanding depression and low SE among younger females and males in non-visibly different samples. Although OT was originally developed to understand women's experiences and most research has been conducted with women, these studies suggest it could be increasingly relevant to men too. However, it is important to note that although findings suggest the patterns of relations between the variables are similar for both genders, the extent of self-objectification and its experiences have been demonstrated to be more severe in women (Choma et al., 2010; Moradi & Huang, 2008).

Very few relevant studies have been conducted with older samples of women. The findings from studies reviewed here are mixed, however research discussed below (in section 1.9.2) indicates the theory's continued relevance in understanding experiences of older women with appearance-altering health conditions.

The next section starts to consider the relevance of applying OT to understand distress in people who are visibly different by reviewing relevant studies examining group-specific manifestations of OT.

1.8.2 Group-Specific Manifestations of OT

Fredrickson and Roberts (1997) advocated investigating objectification experiences of diverse groups of women to examine how such experiences might link with additional forms of oppression. The importance of examining

group-specific experiences was echoed in Moradi and Huang's (2008) review where, as well as diversifying samples, they called for research to evaluate the degree that current conceptualisations and measures of OT capture experiences of diverse subgroups of women. Furthermore, they highlighted that OT emphasises body shape and size and therefore existing conceptualisations of body surveillance and body shame do not examine other appearance factors that appeal to men (e.g skin-tone, facial features).

1.8.2.1 Culturally-Salient Appearance Concerns

Buchanan et al. (2007) argued that African-American women may anticipate that their appearance will be evaluated on physical features like skin-tone as well as body shape and size. As such they extended the application of OT to include culturally-specific measures emphasising skin-tone that might better capture body dissatisfaction among African-American women (by adapting traditional OT measures to emphasise skin-tone surveillance and skin-tone dissatisfaction). Their study, conducted with African-American women students, demonstrated that habitual skin-tone surveillance predicted both skin-tone dissatisfaction and body shame. They concluded that skin-tone is a relevant aspect of body surveillance and body shame for some African-American women.

Kim, Seo and Baek (2014) also examined culture-specific standards of beauty when they examined the key tenets of OT with South Korean college women. Specifically, they examined the relationships between sexually objectifying media, culturally-specific beauty standards (face size and shape) and eating disorder symptoms. They proposed the importance of examining facial features as findings suggest that South Korean women believe facial features attract more male attention than body shape and size (Frith, Shaw & Cheng, 2005). Having adapted traditional OT measures to emphasise face shape and size, they found that media exposure was positively related with body shame and eating disorder symptoms with the relationships mediated by body surveillance and face surveillance.

1.8.2.2 Health-Related Appearance Concerns

Fang, Chang and Shu (2014) tested a model including body surveillance, body shame, cancer-related body-image dissatisfaction and depression among breast cancer (BC) survivors in Taiwan (mean age: 48 years). They proposed that OT could help understand the relationship between BC and body dissatisfaction. Specifically, they argued that cancer treatments may change women's physical appearance and lower their self-evaluations of attractiveness compared with other women or their former selves. They proposed that such comparisons could encourage body surveillance and enhance body shame, body dissatisfaction and mental health difficulties. Reflective of this, their study demonstrated that women who reported greater body surveillance and body shame also reported greater cancer-related body dissatisfaction, which was associated with greater depressive symptomatology.

Boquiren, Esplen, Wong, Toner and Warner (2013) conducted a similar, Canadian-based, study examining the role of body surveillance and body shame on body dissatisfaction among BC survivors. Likewise, they found that those who reported greater body surveillance and body shame also reported greater body dissatisfaction. The mean age of women in their sample (50 years) was also greater than those in previously cited OT studies.

1.8.2.3 Summary: Group-Specific Manifestations of OT

Studies examining culturally-salient appearance concerns illustrate that body size and shape are not the only appearance concerns in diverse subgroups of women. They also demonstrate the utility of OT in understanding culture-specific beauty concerns. Furthermore, Buchanan et al's (2007) study highlights the utility of OT in understanding skin-related appearance concerns suggesting that skin appearance may be an important attractiveness indicator for some groups of women.

The studies examining appearance concerns among BC survivors demonstrate the applicability of OT in understanding the influence of having an appearance-altering health condition on distress. Additionally, they highlight the relevance of OT in understanding such experiences in older women. This suggests that

having a health condition that influences self-evaluations of attractiveness may maintain women's objectified relationships with their bodies.

Taken together this suggests that OT could be applied to understand appearance concerns other than body shape and size resulting from health-related changes in people who are visibly different. More specifically, it indicates that OT may be suitable to understand appearance concerns of women and men living with appearance-altering conditions occurring across the lifespan. The relevance of applying OT to understand distress in people with acne will now be considered.

1.9 Relevance of Applying OT to Understand Distress in Acne

Bundy (2012) suggests Western societies attach great importance to complexion and proposes that beauty is generally defined as a blemish-free even skin-tone. This is reflective of findings indicating dermatological appearance to be an important part of body-image perception (e.g Phillips, McElroy, Keck, Pope, & Hudson, 1993). As skin-tone appears to be a beauty indicator in society, it appears likely that having a skin disorder will impact how people evaluate their appearance.

Indeed, acne changes people's physical appearance and may lower their self-evaluations of attractiveness. Studies have demonstrated this reporting that adults with acne experience greater body-image dissatisfaction than non-dermatology controls (Kaymak, Ulutaş, Taner, Bakir, & Simşek, 2007; Papadopoulos et al., 2000). Murray and Rhodes's (2005) qualitative study reported that self-evaluations frequently involved people with acne comparing themselves to others and themselves when their acne was less severe/absent, which resulted in feelings of deficiency. It seems possible that such comparisons could encourage people to adopt an external observers' view of their acne and could make them feel bad for not meeting cultural ideals. This may also be influenced by people expecting their acne-related appearance to be evaluated by others.

Indeed, Murray and Rhodes (2005) found that participants with acne experienced or expected negative evaluations about their attractiveness from others. This self-consciousness could well encourage the habitual surveillance of their acne. Furthermore, Magin, Adams, Heading and Pond's (2011) qualitative study with people with skin disease found that participants reported a societal ideal of flawless skin. The inability to meet this ideal often resulted in psychological distress. This suggests that OT constructs of surveillance and shame might be useful in understanding distress in this population.

Also relevant here is Magin et al's (2006) proposed linear model of the psychological sequelae of acne. Following grounded theory analysis they identified that the negative impact of acne on appearance was explicitly linked with impaired self-image and self-esteem, which in turn were directly linked to embarrassment and self-consciousness. Additionally, Gupta, Gupta, Schork, Ellis, and Voorhees (1990) found that seven of ten participants in their study had experienced major depressive disorder that was worsened by acne-related self-consciousness. The relationships between these variables suggest that OT may provide a useful framework to understand distress in acne.

OT's application in this context will be considered further below by reviewing findings from previous acne studies that examined conceptually similar constructs to those in OT.

1.9.1 Previous Acne Research: Relevance of OT Constructs

Most studies examining distress correlates in people with acne focussed on examining the prevalence of psychiatric pathology, which has resulted in the condition's psychosocial aspects being understudied (Magin et al., 2008; Murray & Rhodes, 2005). Indeed, only a few studies examining psychosocial constructs were identified. Those examining constructs similar to the most well studied OT constructs (body surveillance and body shame (Moradi & Huang, 2008)) are reviewed below.

1.9.1.1 Body Surveillance

Body surveillance is defined as perceiving the body as an outside observer (McKinley & Hyde, 1996). Kellett and Gawkrodger (1999) appeared to measure a similar construct using Fenigstein, Scheier, and Buss's (1975) private self-consciousness scale. However, this scale assesses individuals awareness and scrutiny of themselves rather than how they appear to others (McKinley & Hyde, 1996). The construct most similar to OT's body surveillance was examined by Hassan et al. (2009). They found that subjective severity of facial acne was related to greater social self-consciousness of appearance in females but not males and that greater general self-consciousness of appearance and greater self-consciousness of sexual and bodily appearance was reported by older than younger participants. This study used self-consciousness measures from the Derriford Appearance Scale (Carr, Harris, & James, 2000), which were used to assess a range of behaviours and experiences including both private and public socio-evaluative concerns among those concerned about acne.

1.9.1.2 Body Shame

Body shame is defined as the feeling of shame when cultural expectations for the body are not met (McKinley & Hyde, 1996). The only quantitative study found that measured shame-related constructs in people with acne was Kellett and Gawkrodger's (1999). They found significantly higher levels of embarrassment about acne in women with the condition than men. Their embarrassment scale measured the extent people with acne think others see them as a source of social embarrassment because of how their skin looks and was modelled on the Other-As-Shamer Scale (Goss, Gilbert, & Allan, 1994), which explores expectations of how others evaluate the self. Although this appears to be a similar construct to body shame, it is slightly different as Kellett and Gawkrodger's (1999) embarrassment scale reflects an individual's perception of what others feel about them whereas the OT construct reflects what individuals feel about themselves having internalised cultural standards (McKinley & Hyde, 1996).

This review shows that although acne-specific constructs similar to OT's surveillance and shame constructs have been useful in understanding experiences in people with acne, no study has measured the OT constructs. The possible utility of examining acne-specific OT constructs was outlined in section 1.9. However, it also seems important to examine the influence of surveillance and shame regarding body shape and size in this population given scholars have proposed that women in western societies tend to perceive that it is their bodies that attract the most attention from men (Fredrickson & Roberts, 1997; Kim et al., 2014), and a recent study found that a significant proportion of people living with disfigurements report the usual appearance concerns found in the general population (body shape and size) (Rumsey et al., under review). This suggests that people with acne may expect their appearance to be evaluated regarding body shape and size as well as skin-tone.

The quantitative studies reviewed here, and in section 1.6, indicate that there is reason to believe that gender and age are also likely to be important in understanding distress in adult acne. One could speculate that gender may influence the extent of general and acne-specific surveillance and shame as Bordo (2003) argued that social pressure to meet appearance ideals in Western cultures is greater for women than men. Evidence for this was given when reviewing the general OT literature, however an acne-specific example is provided by Magin et al. (2011) who found that an inability to meet the perfect skin ideal led to psychological distress in females but not males. It is difficult, however, to speculate how age may influence these mechanisms in this context due to incomplete OT literature and the absence of relevant qualitative acne research. As this is an exploratory study and the relevance of OT has not previously been examined in a visibly different population, hypotheses regarding the influence of gender and age will not be set. However, it is acknowledged that OT might be useful to draw on to understand any gender and age influences on distress.

1.10 Study Rationale

1.10.1 Summary of Study Rationale and how it might add to Current Understanding of Distress in Acne

This literature review detailed findings of quantitative studies examining various emotional distress correlates in adults with acne, which showed higher levels of distress in adults with acne compared to non-dermatology samples. Studies with larger samples also reported higher levels of distress in females; a finding common to similar research in the field of visible difference. Some studies also found greater levels of distress among older adults with acne. Additionally, a few studies examined the influence of psychodermatological factors in people's distress, and found that subjective acne severity, its visibility and duration were positively associated with distress. Whilst these studies increase understanding of the importance of demographic and psychodermatological factors in the distress experienced among people with acne, they are atheoretical and therefore limited in their ability to provide explanations of distress and inform the development of interventions.

Among the main theoretical approaches to appearance considered useful in understanding appearance distress, OT (Fredrickson & Roberts, 1997) is a promising theory that has not yet been explored for relevance in people living with visible difference. It is also the only framework which offers an explanation of how appearance concerns operate in a Western sociocultural context. Studies demonstrating OT's utility in understanding depression and low self-esteem among young females and males in non-visibly different samples were detailed. Its application to understanding group-specific manifestations, which included older samples, were also reviewed. This suggested that OT could be suitable to understand appearance concerns other than body shape and size resulting from appearance-altering health conditions occurring across the lifespan.

The relevance of applying OT to understand distress in acne was outlined by highlighting that skin-tone is a beauty indicator in Western society (Bundy, 2012) and having acne may lower people's self-evaluations of attractiveness (Kaymak et al., 2007; Papadopoulos et al., 2000). It was also highlighted that

body-image dissatisfaction in people with acne may be influenced by them expecting their acne-related appearance to be evaluated by others, which may encourage them to adopt an external observers' view of their acne and make them feel ashamed for not meeting cultural ideals. Evidence for the relevance of assessing these acne-specific OT constructs to understand distress in adult acne was outlined. Additionally, it was highlighted that people with acne may expect their appearance to be evaluated regarding body shape and size as well as skin-tone, which may also influence their distress.

To add to current understanding of distress in adult acne this study will build on the psychodermatological evidence base by further examining the influence of demographic and psychodermatological factors and also examining the influence of OT constructs. This will enable exploration of the relevance of each set of factors in predicting distress in adult acne, which may provide further possible explanations for it.

1.10.2 Factors to be Investigated

The literature review highlighted the importance of demographic and psychodermatological factors in understanding distress experienced among people with acne. Gender, age, subjective acne severity, its visibility and duration were the main variables examined in previous studies and will be examined in this study.

Body surveillance and body shame are the most well studied OT constructs (Moradi & Huang, 2008). To examine OT's relevance in understanding distress in adult acne, in line with group-specific OT studies such as Buchanan et al. (2007) and Kim et al. (2014), acne-specific surveillance and shame constructs will be examined. As people with acne may expect their appearance to be evaluated regarding body shape and size as well as skin-tone, body surveillance and body shame constructs will also be examined.

Emotional distress in adult acne will be examined by assessing depression, generalised anxiety, appearance-related distress and self-esteem. These constructs have previously been examined when assessing the influence of demographic and psychodermatological factors on distress in adult acne.

Studies have demonstrated OT's utility in understanding depression and low self-esteem, and generalised anxiety and appearance-related distress appear conceptually similar to anxiety as it is understood in the OT framework.

1.10.3 Appropriate Methodology

Quantitative methodology will be used to examine the relevance of demographic, psychodermatological and OT factors in understanding distress among adults with acne. This approach is most suited to answer the study's research questions (see section 1.12)

Additionally, a quantitative approach is considered useful because it would allow this exploratory study to examine the influence of these factors in a large sample and therefore assess their relevance to the general population.

1.11 Aims

This study aims to explore the influence of demographic factors (age, gender), psychodermatological factors (acne duration, acne visibility, subjective acne severity) and OT factors (OT body surveillance, OT body shame, acne-specific surveillance, and acne-specific shame) on distress experienced by adults with acne (depression, generalised anxiety, appearance-related distress and low self-esteem). It will also assess the relationships between demographic factors and the study variables. This will enable further exploration of the influence of demographic and psychodermatological factors, and will also examine the relevance of OT in predicting distress. Together the findings may offer further potential explanations for emotional distress experienced by people living with acne.

1.12 Research Questions and Hypotheses

The study has four main research questions and one subsidiary question:

1. What is the association between acne-specific measures of surveillance and shame and the general OT measures of surveillance and shame? (subsidiary question)
2. What are the relationships between gender/age and the emotional distress, psychodermatological and OT factors (general and acne-specific)?
3. How well do the age/gender, psychodermatological, general OT variables and acne-specific OT variables predict emotional distress in adults with acne?
4. Do the general OT variables predict distress after the effects of age/gender and the psychodermatological factors have been controlled for?
5. Do the acne-specific OT variables predict distress after the effects of the generic OT variables have been controlled for?

Given the research evidence, the following hypotheses will be examined:

1.12.1 Hypothesis One

Greater levels of depression, generalised anxiety, appearance-distress, and low self-esteem would be reported in females than males and older than younger people (1-tailed).

1.12.2 Hypothesis Two

Higher scores for acne severity, visibility and duration would predict greater reported levels of depression, generalised anxiety, appearance-related distress, and low self-esteem (1-tailed).

1.12.3 Hypothesis Three

Higher scores for body surveillance and body shame would predict greater reported levels of appearance-distress, low self-esteem, depression and generalised anxiety (1-tailed).

1.12.4 Hypothesis Four

Higher scores for acne surveillance and acne shame would predict greater reported levels of appearance-distress, low self-esteem, depression and generalised anxiety (1-tailed).

CHAPTER TWO: METHOD

2.1 Epistemological Position

2.1.1 Background

Barker, Pistrang, and Elliott (2002) highlight the importance of a researcher's awareness of the philosophical assumptions underlying their work. Indeed, a study's ontological and epistemological assumptions dictate its chosen methods and conclusions that can be drawn from its findings (Willig, 2013). Ontological assumptions refer to what is 'out there' to be known, whereas epistemological assumptions speak of the knowledge we think we have about the world 'out there.'

The realist framework assumes that the world 'out there' is real, and the researcher's task is to understand its properties as accurately as possible (Barker et al., 2002). Furthermore, realist research seeks to produce reliable and valid knowledge about a reality existing independently from a researchers' awareness of it (Willig, 2013). There are two variants of realism: direct and critical realism.

Direct realism assumes that research data directly mirrors reality, and is ontologically and epistemologically realist. It adopts a correspondence theory of truth, which purports that a belief is true to the extent that it corresponds with reality (Barker et al., 2002). Critical realism differs from this as although it is also ontologically realist and assumes there is a reality to be known, it does not assume that research data provides a direct reflection of it (Willig, 2013). Indeed, knowledge acquired about this reality is considered subjective and imperfect (Bhaskar, 1990). Moreover, a critical realist position acknowledges that theories and methods for acquiring knowledge are influenced by both social forces and researcher interests (Pilgrim & Bentall, 1999).

2.1.2. Epistemological Positioning of this Study

This research takes a critical realist position. It assumes it is possible to know about people's psychological experiences and aims to gather information about

them by exploring participant scores on various measures (outlined below). However, these measures aim to tap into constructs (explanatory variables) of emotional distress and psychological processes; they are not directly observable.

As these constructs, and the tools to measure them, have been created it is acknowledged that social, cultural and historical contexts will have influenced their construction. It is also recognised that the researcher's interests influenced the inclusion of these constructs for inquiry. Additionally, it is acknowledged that the self-report tools chosen reflect one way of measuring the constructs (from many available), and that this method will provide imperfect data as it does not provide direct measures of psychological realities.

With this critical realist position in mind, alongside the research questions, this study will employ an empirical approach using quantitative analyses (as outlined in section 1.10.3). Although empirical methods will be used in data collection, the author will remain critically aware of the constructs being investigated. Whilst it is recognised that the language associated with psychological constructs, such as the terms 'depression' and 'anxiety' has been criticised, the researcher will use this commonly deployed terminology.

2.2 Ethical Approval

This study was approved by the University of East London's (UEL's) School of Psychology Ethics Committee on 3rd May 2015 (appendix one), and two methodological amendment requests were approved by the same body on 7th June (appendix two) and 13th November 2015 (appendix three).

2.2.1 Informed Consent

The participant information sheet (PIS, see appendix four) communicated the overall rationale and procedure of the study to patients to gain their informed consent. The PIS was presented using online methodology and participants were encouraged to email the researcher any questions they had about the

study. They were also informed that their responses would be anonymous and of their right to withdraw from the study at any point. Additionally, they were invited to enter themselves into a prize draw on completion of the questionnaires by providing their email address. Finally, they were given the details of support services they could contact should they become distressed whilst completing the questionnaires. Having read the PIS, participants were asked to indicate their consent before being presented with the questionnaires.

2.2.2 Deception

At this stage, participants were told the rationale of the study was to explore emotional distress in adults with acne. The variables of the study were not disclosed at this point as it was felt knowledge about them could impact responses.

Having completed the questionnaires, participants were presented with a debrief letter (appendix five) which informed them that analyses will involve examining the influence of demographic, psychodermatological and Objectification Theory (OT) variables in predicting emotional distress and the rationale for this. They were reminded of their right to withdraw from the study now they had participated and how to withdraw. They were also reminded about the support services they could contact if they were feeling distressed having completed the questionnaires.

2.2.3 Recruitment of Participants

Participants were recruited from private dermatology clinics, online acne support forums, acne-related social media sources and from UEL. It was thought these different sources would enable recruitment of people experiencing a range of distress levels.

The researcher contacted a number of private dermatology clinics to seek their consent to advertise the study by leaving leaflets in their clinic reception areas (appendix six). Online acne support forums and groups on Facebook and Twitter were also contacted to gain consent for them to advertise the study. Additionally, people who have written blogs about their experience of acne and

high profile medics and dermatologists were contacted on Twitter to gain consent for them to retweet an advert for the study. All of these sources were given information about the study and were encouraged to ask any questions about it. Posters were also placed on noticeboards in UEL to advertise the study (appendix seven).

2.3 Design

A cross-sectional correlational design was used. Dependent variables were depression, anxiety, appearance-related distress, and self-esteem. Independent variables were the OT variables (body surveillance, body shame, acne surveillance, acne shame), psychodermatological variables (subjective acne severity, acne visibility, duration of acne) and demographic variables (age and gender).

A dermatological quality of life variable was also included for descriptive use only.

2.4 Materials

2.4.1 Demographic Questions

Participants were asked to indicate their age, gender, and ethnicity.

As mentioned, some acne medications (co-cyprindiol hormonal treatment (females only) and isotretinoin tablets) have been found to have mood-altering effects, and acne can also present as part of wider physical health conditions (polycystic ovary syndrome (females only) or congenital adrenal hyperplasia) which may also impact emotional distress. As such, participants were asked to indicate which prescribed acne medication they are currently using (if any), and whether they have also been diagnosed with congenital adrenal hyperplasia or polycystic ovary syndrome. Responses were coded to enable the effects of these factors to be controlled for during analyses if warranted. Participants were

not required to provide an answer to these questions, however 99%[1] answered the question about polycystic ovary syndrome (question only asked to females), and 97%[2] answered the question about congenital adrenal hyperplasia.

2.4.2 Standardised Questionnaires

2.4.2.1 Anxiety and Depression

The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) was designed to identify caseness for anxiety disorders and depression in people in non-psychiatric hospital settings. It consists of 14 statements with multiple-choice response options (see appendix eight) scored from 0 to 3. The measure provides anxiety and depression sub-scores (ranging from 0 to 21 when the scores are summed for both scales). Higher scores reflect greater anxiety and depression symptomatology, with scores of 8-10 indicating borderline 'cases' and 11+ indicating definite 'cases' of anxiety and depression.

This measure was chosen as it is brief, widely used in clinical practice and considered to be valid and reliable. Indeed, Bjelland, Dahl, Haug and Neckelmann (2002) conducted a comprehensive review of studies using the HADS (n=747) which included samples of people who had a physical health diagnosis, were in psychiatric and primary care, and samples of the general population. They found that most factor analyses undertaken supported the two-factor solution reflective of the HADS's anxiety and depression subscales. The review also reported the HADS's good concurrent validity, with correlations from 0.60–0.80 between its two subscales and conceptually similar scales (e.g the Beck Depression Inventory, the Speilberger State-Trait Anxiety Inventory). Furthermore, the study reported good mean internal reliability coefficients for the anxiety and depression subscales (α=0.83 and 0.82 respectively).

This measure has been widely used in research conducted with primary and secondary healthcare samples. For example, Kellett and Gawkrodger's study

[1] In total, 98 of 99 females provided an answer.

[2] In total, 113 of 116 participants provided an answer.

(1999) with adult acne dermatology outpatients demonstrated good internal reliability for the depression scale (α=0.83) and acceptable reliability for the anxiety scale (α=0.70). Additionally, Bjelland et al. (2002) indicated good internal reliability for the HADS when used in general practice.

2.4.2.2 Appearance-Related Distress

The Derriford Appearance Scale short-form (DAS24; Moss, Harris & Carr, 2004) was designed to measure distress and dysfunction regarding appearance concerns. Participants are firstly asked to describe the attribute of their appearance that most concerns them, if any, and if other attributes also concern them. They are then asked to complete 24 items, which are rated on 4-point Likert scales (some items have an additional 'not applicable' option) examining the frequency and intensity of emotional and behavioural factors related to living with appearance difficulties (Moss et al., 2004). When summed the total scores range from 11 to 96, with higher scores indicating higher levels of appearance-related distress.

This measure was chosen because it is brief, has been widely used in recent research into visible difference, and has demonstrated good validity and reliability. Indeed, Carr, Moss, and Harris (2005) examined the measure's psychometric properties with both clinical (visibly different) and general population samples. They demonstrated the measure's good convergent validity in assessing its correlations with a range of conceptually similar scales (e.g the Fear of Negative Evaluation Scale), and its construct validity by reporting higher overall scores in the clinical than the general population sample. Additionally, Carr et al's study (2005) demonstrated the scale's high internal consistency (α=0.92).

2.4.2.3 Self-Esteem

Rosenberg's Global Self-Esteem Scale (1965) was designed to measure an individual's self-esteem: their overall sense of worthiness. It contains five positively-worded and five negatively-worded statements (see appendix nine). Each statement has four response options from strongly disagree (1) to strongly

agree (4), and the negatively-worded items are reverse scored. When summed, higher total scores indicate higher self-esteem.

This measure of self-esteem was chosen because it is a widely researched instrument considered to be reliable and valid. For example, Hatcher and Hall's findings (2009) supported the theoretical relationships between self-esteem and depressive symptoms and negative thinking (measured using the Beck Depression Inventory and the Crandell Cognitions Inventory, respectively), thereby demonstrating the scale's construct validity. Also of relevance here, Loney, Standage, and Lewis (2008) demonstrated acceptable internal reliability of this measure among 50 adults from a national acne support group (α=0.70).

2.4.2.4 Dermatological Quality of Life

Permission was gained to use the Dermatology Life Quality Index (DLQI; Finlay & Khan, 1994), which was designed to assess the quality of life in adults with skin conditions. It consists of ten questions pertaining to symptoms and emotions, daily activities, work/school and leisure activities, personal relationships and treatment (appendix ten). Response options are 'not at all' (0), 'a little' (1), 'a lot' (2), 'very much' (3). Scores are summed, ranging from 0 (no impairment to quality of life) to 30 (maximum impairment).

The DLQI was chosen for use because it is a well-validated measure, which has been widely used in acne research studies (Lewis & Finlay, 2004). The measure's validity has mainly been demonstrated in assessing its correlations with a range of conceptually similar scales (Lewis & Finlay, 2004). For example, Clark, Goulden, Finlay and Cunliffe (1997) reported a correlation coefficient of 0.65 between scores on the DQLI and the Assessment of the Psychological and Social Effects of Acne. Also, Loney et al. (2008) demonstrated good internal reliability of the DLQI among 50 adults from a national acne support group (α=0.88).

2.4.2.5 Body Surveillance

The body surveillance subscale of McKinley and Hyde's (1996) Objectified Body Consciousness Scale (OBCS) was used to measure the extent individual's see

themselves (the shape and size of their bodies) through the eyes of another. The scale (appendix 11) consists of eight statements for which there are seven Likert scale response options (1=strongly disagree to 7=strongly agree). Six items are reverse scored. Greater averaged scores on the scale indicate greater levels of body surveillance.

In their original study, McKinley and Hyde (1996) demonstrated the scale's convergent and divergent validity in reporting its strong positive correlation with Fenigstein, Scheier, and Buss's (1975) public self-consciousness scale (r=0.73), and no significant correlation with their private self-consciousness scale.

The scale's reliability has been demonstrated in various samples. McKinley and Hyde (1996) reported acceptable reliability in middle-aged women (α=0.76) and good reliability in undergraduate women (α=0.89). These samples were predominantly white, though Buchanan et al. (2007) reported acceptable reliability (α=0.70) in a sample of Afro-Caribbean women. Studies, such as Choma et al's (2010), have demonstrated good reliability among men (α=0.85). Only two known studies have used this measure with a physical health sample, among which, Boquiren et al. (2013) reported its good internal reliability with female breast cancer survivors (α=0.77).

2.4.2.6 Body Shame

The body shame subscale of McKinley and Hyde's (1996) Objectified Body Consciousness Scale (OBCS) was used to measure the extent individuals feel shame due to unmet internalised cultural body standards. The scale consists of eight statements for which there are seven Likert scale response options (1=strongly disagree to 7=strongly agree, see appendix 12). Two items are reverse scored. Greater averaged scores on the scale indicate greater levels of body shame.

McKinley and Hyde (1996) demonstrated the scale's divergent validity in reporting its inverse relation (r=-0.51) with Franzoi and Shields's (1984) body-esteem scale.

The measure's reliability has been reported in various samples. McKinley and Hyde (1996) reported acceptable reliability in middle-aged women (α=0.70) and good reliability in undergraduate women (α=0.84). Good reliability has also been reported among African-Caribbean women (α=0.81; Buchanan et al., 2007), and acceptable reliability among men (α=0.79; Choma et al., 2010). As above, only two known studies have used this measure with a physical health sample, and Boquiren et al. (2013) reported its good internal reliability with female breast cancer survivors (α=0.81).

2.4.3 Questionnaires Adapted for this Study

To test the relevance of Objectification Theory (OT) for people with acne, this study required acne-specific measures analogous to McKinley and Hyde's (1996) body surveillance and body shame scales. The author was unable to find any pre-validated measures meeting these requirements. Therefore, acne surveillance and acne shame measures were developed specifically for this study.

2.4.3.1 Acne Surveillance

Buchanan et al. (2007) modelled their measure examining skin-tone surveillance among African American women on McKinley and Hyde's body surveillance scale (1996). Buchanan et al's (2007) measure consisted of eight statements, however they emphasised skin-tone instead of body size and shape. One item was reverse scored. The scale demonstrated good reliability (α=0.92).

The measure for this study was in turn modelled on Buchanan et al's (2007) approach. This was considered the most appropriate option available given their measure was considered analogous to McKinley and Hyde's (1996) body surveillance scale, and had also been developed to examine skin concerns. Here, items were amended to emphasise acne instead of skin-tone to assess the extent people see their acne through the eyes of another. See appendix 13 for a copy of the acne surveillance scale. Greater averaged scores on the scale indicate greater levels of acne surveillance.

2.4.3.2 Acne Shame

The acne shame scale was modelled on McKinley and Hyde's (1996) body shame scale. This was considered the most appropriate approach to help ensure the scale was as analogous as possible to the body shame measure. Here items were amended to emphasise acne instead of body shape and size, and in relevant items to emphasise controlling acne instead of controlling weight through exercise. The acne shame scale (appendix 14) therefore assesses the degree people feel bad about not meeting internalised cultural expectations of acne-free skin.

Item four of the scale, which asked the extent participants would be ashamed for people to know what their acne really looks like, was not considered applicable to those who were unable to hide their acne. As such, two additional questions were included to which participants' answers determined whether they would be asked to answer item four (see section 2.6 for further details).

The first additional question was developed specifically for this study and asked: "Do you do things in order to hide/disguise your acne when you're with others? (e.g by wearing clothes that cover your acne, wearing make-up, growing a fringe, positioning yourself strategically when talking to someone)." The response option was yes/no.

The second additional question asked: "How difficult do you feel it is to hide/disguise your acne?" Response options ranged from 'extremely easy' (1) to 'impossible' (7). This question was modelled on one used by Rumsey et al. (under review), who asked participants how difficult they felt it was to hide or disguise the aspects of their appearance they were most concerned about. This question was amended in this study to emphasise acne.

Following the procedure outlined by McKinley and Hyde (1996), data were counted as missing for those that did not answer item four. Total average scores were calculated by summing responses for each item and dividing this by the number of non-missing items. Greater averaged scores on the scale indicate greater levels of acne shame.

2.4.3.3 Scale Consultation

Adults with acne and psychologists experienced in working with/researching their experiences were consulted when finalising the items in the two acne-specific OT scales.

Initially, draft items for these measures were developed by the researcher. Two adults with acne were consulted to explore whether the draft items made sense and seemed relevant. They reported that this was the case. The draft items were then presented to two psychologists who were asked the same questions and whether they felt any items for the OT measures should to be amended/added to ensure they were tapping into the constructs intended for measurement. Some slight word changes were made to the items following these conversations. The resulting measures were then pilot tested on a small sample (n=5) of adults with acne who did not raise any concerns about the items.

2.4.4 Psychodermatological Measures

2.4.4.1 Acne Duration

Participants were asked to estimate how many years they have lived with acne, by noting the number of years (to the nearest whole year). This question had previously been asked by Papadopoulos, Walker, Aitken, and Bor (2000).

2.4.4.2 Subjective Severity and Visibility

Subjective acne severity and objective visibility were measured based on the approach used by Gupta, Johnson and Gupta (1998). Respondents were asked to indicate to what extent the following areas of their body are affected by acne: face, neck, shoulders, chest, and back. Response options ranged from ‘not at all’ (1) to 'very severely’ (7). Each participant’s severity score was based on taking the highest severity score from the five areas.

These questions also provided a measure of objective visibility. Any scores of two or more on the face and/or neck scales were interpreted to indicate visible

acne; scores of two or more on the shoulders, chest and back scales (and one for the face and neck scales) were interpreted to indicate non-visible acne.

A subjective visibility question was also used, which asked participants to indicate the extent they think their acne is visible to others when wearing clothes. The response options ranged from ‘not at all visible’ (1) to ‘very visible’ (7). This question was modelled on one used by Rumsey et al. (under review), which was amended in this study to emphasise acne. Rumsey et al. (under review) asked participants how visible the aspect of their appearance they are most concerned about is to others when they are wearing clothes.

2.5 Participants

People were invited to participate who were receiving treatment for Acne Vulgaris from their GP or Dermatologist and felt they currently had acne, were 18 years old or older, were proficient in reading English, and were living in the UK.

In total, 116 people participated in the study. Ninety-six people (83%) were recruited from online support forums and social media, six from university (5%) and two from private dermatology clinics (2%). An additional 11 participants (9%) were recruited from ‘other’ sources (e.g they were sent details of the study by a friend, they heard about the study through online searches or through people at work). One participant (1%) did not indicate their recruitment source as they exited the study at this point.

2.6 Procedure

Qualtrics Survey Software was used to support the study. The study adverts detailed the Qualtrics secure online link participants could use to access further information about the study. By following this link, participants were presented with the PIS and encouraged to email the researcher with any questions they might have about the study. They were then asked to indicate their consent to

participate. Following this, the following instruction was given: “Please answer the following questions in relation to your acne. Not all of the questions will obviously refer to acne, however when you're answering them please hold your experience of having acne in mind.” Participants were then presented with a battery of questionnaires which everyone completed in the same order (see appendix 15).

Participants were required to provide an answer to every question presented before they could progress on to the next. The only exceptions were for questions enquiring about medication use and co-morbid health conditions. Participants were not required to provide an answer to these two questions. Only those who indicated they try to disguise their acne and do not find it impossible to disguise were asked to answer item four of the acne shame scale. Additionally, only females were asked to indicate whether they take female-only acne treatment and whether they had been diagnosed with Polycystic Ovarian Syndrome (as part of the medication and co-morbid health condition questions, respectively).

On completion of the survey, participants were asked to provide their email address if they wanted to enter the prize draw. They were then presented with the study's debrief sheet where they were encouraged to email the researcher to ask any remaining questions about the study. They were also invited to request a summary of the study's findings if they were interested.

2.7 Analysis of Data

2.7.1 Sample Size Calculation

This was calculated drawing on a few different approaches. The G*Power statistical package (version 3.1; Faul, Erdfelder, Buchner, & Lang, 2009) was used, with alpha assumed to be 0.05 and beta 0.8 (the power level suggested by Cohen, 1995), alongside a medium effect (0.3). Here, it was calculated that 109 participants would be required for eight predictor variables. A similar sample size (n=114) was calculated using Tabachnick and Fidell’s (1989)

formula for multiple regression[3]. Relevant literature was also examined to ensure this sample size was appropriate. For example, Magin, Pond, Smith, Watson, and Goode (2008) had a sample of 108 to compare seven predictor variables in multiple regression. Considering all of this information together, a minimum sample of 114 people was aimed for.

2.7.2 Analysis Approach

The data were analysed using the Statistical Package for the Social Sciences (version 22; SPSS). Numerous quantitative techniques were employed to analyse the data. Following preparatory analyses, correlational analyses were conducted to explore the relationships between study variables. A series of hierarchical multiple regression analyses were then undertaken to determine the contribution of the predictor variables to distress. Data were deemed to be significant at the one-tailed 0.05 level (unless otherwise specified).

[3] N>/=50+8m (where m is the number of predictor variables)

CHAPTER THREE: RESULTS

3.1 Sample Demographics

In total, 116 people participated in the study. Sample characteristics are detailed in table 1. Over four fifths of the sample (85%) was female. The mean age of participants was 31.9 years (range: 15-67; SD: 8.7); age was not normally distributed (Shapiro-Wilk=0.941, p<0.001). However, with around 43% of the sample in their 20s and approximately 37% in their 30s, the age distribution of the sample roughly reflects Schafer, Nienhaus, Vieluf, Berger and Ring's (2001) population study findings which reported higher prevalence rates among those in their 20s than 30s (64% and 43% respectively). Around 85% of the sample described their ethnicity as White.

Table 1: Participant Demographics

		n		**%**	
Gender	Female	99		85.3	
	Male	13		11.2	
	Other	4		3.4	
Ethnicity	White	98		84.5	
	Mixed/multiple ethnic groups	9		7.8	
	Asian/Asian British	2		1.7	
	Black/African/Caribbean/Black British	5		4.3	
	Other	2		1.7	
		Mean	**SD**	**Min**	**Max**
Age (years)		31.9	8.7	15	67

3.2 Descriptive Statistics

Descriptive statistics for the measures used in the study are detailed in table 2 below. Data from the full sample (n=116) are included for all measures apart from the appearance-distress measure (DAS24). DAS24 scores are only reported for those who described acne as a concern for them (n=107). As

illustrated by the Shapiro-Wilk statistic, only score distributions for self-esteem, appearance-distress, body shame and acne shame are normally distributed. Therefore, non-parametric tests are conducted in subsequent analyses.

The mean self-esteem score for the sample was 15.75, which is slightly above the cut-off considered reflective of low self-esteem (<15). The mean generalised anxiety score was 10.86, which is just under Zigmond and Snaith's (1983) suggested clinical anxiety case level of 11. This relatively high anxiety score is similar to that reported in Kellett and Gawkrodger's (1999) study among 34 acne outpatients (mean: 10.17). The mean depression score was 5.75, which is substantially below Zigmond and Snaith's (1983) suggested level for clinical depression caseness (which is 11). Again, this mean depression score is similar to that reported in Kellett and Gawkrodger's (1999) study (mean: 5.55).

The mean appearance-related distress score was 54.63. This score is greater than the mean scores for females and males in general population norms (18-30 years: 37.52; 31-60: 34.96; and 18-30 years: 29.6; 31-60: 27.6 respectively) (Moss, Harris & Carr, 2004). This indicates greater levels of appearance-related distress in this sample than the general population.

Collectively, average scores on these variables suggest relatively high levels of self-reported generalised anxiety and appearance-related distress in this sample, and relatively lower levels of depressive symptomology and low self-esteem.

The mean acne severity score for the sample indicates that on average participants felt their acne was slightly greater than moderately severe (4.97). This is similar to the mean subjective severity score in Hassan, Grogan, Clark-Carter, Richards, and Yates's (2009) study with acne dermatology outpatients. Their mean score was 3.6, with scores of 3.5-8 indicating moderate to severe acne. Participants' mean acne visibility score was 5.20, which indicates that when wearing clothes participants felt their acne is more than moderately visible to others. Findings from the more objective visibility measure (asking participants to indicate the body location of their acne) are not being analysed as all participants indicated having facial acne resulting in little variation in the data. However, these data indicate that similar levels of visibility were reported

in this study than others (e.g Hassan et al. (2009) found that 99% of adult outpatients reported visible acne).

On average, participants had lived with acne for 16 years. This mean acne duration score was considerably greater than other studies' (e.g Hassan et al. (2009) reported a mean acne duration score of 8.5 years). This is reflective of this sample being older than in previous studies. The duration score distribution for this study was negatively skewed, indicating that a notable proportion reported having lived with acne for many years.

The mean body surveillance score was 5.20, indicating greater levels of body surveillance than in McKinley and Hyde's (1996) validation study with undergraduate females (mean: 4.22). The mean body shame score was 4.05 which is also greater than this score in McKinley and Hyde's study (1996; mean: 3.25).

The mean acne surveillance score (6.27) for the present sample was greater than the mean body surveillance score. It was also greater than the mean skin-tone surveillance score reported by Buchanan, Fischer, Tokar, and Yoder (2007; mean: 2.29) on which the measure was modelled. The acne surveillance score distribution was also negatively skewed, indicating that a sizeable proportion reported engaging in high levels of acne surveillance. The mean acne shame score was 4.53, which is slightly greater than the mean body shame score for this sample.

Table 2: Descriptive Statistics

Measure	n	Mean	Median	SD	Min	Max	Skewness SE=0.225	Kurtosis SE=0.446	Shapiro-Wilk
Self-Esteem (RSES)	116	15.75	16.00	6.72	1	30	-0.08	-0.68	0.98
Anxiety (HADS-A)	116	10.86	11.00	4.68	2	21	0.24	-0.80	0.97*
Depression (HADS-D)	116	5.75	5.00	4.32	0	17	0.60	-0.54	0.94*
Appearance Distress (DAS24)	107	54.63	54.00	13.06	26	92	0.37 (SE=0.234)	0.12 (SE=0.463)	0.98
Quality of Life (DQLI)	116	9.91	9.00	5.98	1	28	0.57	-0.23	0.96*
Acne severity	116	4.97	5.00	1.26	2	7	-0.12	-0.81	0.92*
Acne visibility	116	5.20	6.00	1.75	1	7	-0.66	-0.50	0.87*
Acne duration	116	16.34	15.50	8.92	1	55	0.89	2.17	0.96*
Body surveillance	116	5.20	5.38	0.92	1.63	7.00	-0.78	1.61	0.96*
Body shame	116	4.05	4.06	1.39	1	7	0.12	-0.49	0.98
Acne surveillance	116	6.27	6.50	0.84	1.75	7	-2.42	8.46	0.77*
Acne shame	116	4.53	4.56	1.27	1.00	7.00	-0.16	-0.18	0.99

*significant at 0.05 level

3.3 Preparatory Analyses

3.3.1 Psychometric Reliability of the Objectification Theory Measures

As the standardised body surveillance and body shame measures had not previously been used with an acne sample and the acne surveillance and acne shame measures were developed specifically for this research; the scales' internal consistency was assessed using Cronbach's alpha. Analyses revealed good internal consistency for all measures (body surveillance α=0.80, body shame α=0.88, acne surveillance α=0.88, acne shame α=0.86). This suggests that the items for each scale tapped into the same underlying constructs well.

3.3.2 Influence of Medication and Co-Morbid Health Conditions

Nineteen participants (16.4%) reported taking acne medication that research has found can have mood-altering effects, and 13 (11.2%) indicated that they have been diagnosed with a co-morbid underlying hormone condition of which acne can be a symptom. Point-biserial Spearman's correlations (2-tailed) were conducted between each of these variables and the predictive and criterion variables. No significant correlations ($p<0.05$) were found, therefore the medication and co-morbid diagnoses variables were not included in the analyses.

3.4 Relationships between the Variables

Spearman's correlation analyses were conducted to explore the relationships between the study variables. The results are detailed in table 3 below.

3.4.1 Emotional Distress Variables

The relationships between the criterion variables were explored. As was expected, generalised anxiety, depression and appearance-distress were all positively related to each other. Also as anticipated these variables were

negatively related with self-esteem. All correlations were moderate and significant (r>/=±0.5; p<0.01).

3.4.2 Psychodermatological and Objectification Theory Variables

Due to the exploratory nature of this study, these relationships were examined at the two-tailed level. No significant relationships were revealed between the general OT and psychodermatological variables. A weak but significant positive relationship was found between acne surveillance and acne visibility (r=0.3, p<0.01), and a weak but significant negative relationship was identified between acne surveillance and acne duration (r=-0.3, p<0.01). A weak but significant positive relationship was revealed between acne shame and acne severity (r=0.2, p<0.05). There were no significant relationships between acne-specific OT variables and the remaining psychodermatological variables.

Additionally, significant positive relationships were found between the general and acne-specific OT variables. There was a weak but significant positive relationship between acne surveillance and body surveillance (r=0.3, p<0.01) and a moderate and significant positive relationship between acne shame and body shame (r=0.6, p<0.01). This indicates that the acne surveillance measure shared 11% of the variance with the body surveillance measure and the acne shame and body shame measures shared 31% of the variance. This suggests that although the general OT and acne-specific OT variables are similar, they are measuring different constructs.

3.4.3 Psychodermatological, Objectification Theory and Emotional Distress Variables

Weak yet significant positive relationships were found between acne severity and generalised anxiety, depression and appearance-distress (r=/>0.2, p<0.05 for all). Weak but significant negative relationships were revealed between acne duration and generalised anxiety, depression and appearance-distress (r=-0.2, p<0.05 for all). There were no significant relationships between acne visibility and both generalised anxiety and depression, however a weak yet significant positive relationship was revealed between visibility and appearance-distress

(r=0.3, p<0.01) No significant relationships were identified between the psychodermatological variables and self-esteem.

Weak positive significant relationships were revealed between body surveillance and generalised anxiety, depression and appearance-distress (r=/>0.2, p<0.01 for all), and more moderate relationships were found between body shame and the same distress variables (r=0.4, p<0.01 for all). Also, a weak but significant negative relationship was found between body surveillance and self-esteem (r=-0.3, p<0.01), and a more moderate relationship was revealed between body shame and self-esteem (r=-0.5, p<0.01).

A weak yet significant positive relationship was found between acne surveillance and depression (r=0.3, p<0.01), and a more moderate relationship was indicated between acne surveillance and appearance-distress (r=0.6, p<0.01). No significant relationship was found between acne surveillance and generalised anxiety. More moderate positive relationships were identified between acne shame and general anxiety, depression and appearance-distress (r=/>0.5, p<0.01 for all). A weak but significant negative relationship was revealed between acne surveillance and self-esteem (r=-0.3, p<0.01) and a more moderate relationship was found between acne shame and self-esteem (r=-0.6, p<0.01).

On the whole, these correlations indicate that most of the psychodermatological, general and acne-specific OT variables are significantly related to the emotional distress variables, which warrants more detailed exploration.

Table 3: Spearman's Correlation Coefficients and Significance Values for the Study Variables

	Self-Esteem	General Anxiety	Depression	Appearance Distress (n=107)	Severity	Visibility	Duration	Body Surveillance	Body Shame	Acne Surveillance
General Anxiety	-0.528**									
Depression	-0.640**	0.573**								
Appearance Distress (n=107)	-0.651**	0.487**	0.651**							
Severity	-0.134	0.212*	0.185*	0.302**						
Visibility	-0.140	0.127	0.143	0.252**	0.279**†					
Duration	0.058	-0.171*	-0.172*	-0.230**	0.096†	-0.140†				
Body Surveillance	-0.334**	0.343**	0.220**	0.415**	-0.011†	0.075†	-0.137†			
Body Shame	-0.545**	0.370**	0.419**	0.382**	0.081†	0.056†	-0.007†	0.364**†		
Acne Surveillance	-0.288**†	0.161†	0.302**†	0.554**†	-0.013†	0.319**†	-0.330**†	0.336**†	0.097†	
Acne Shame	-0.616**†	0.461**†	0.579**†	0.610**†	0.237*†	0.148†	-0.090†	0.259**†	0.556**†	0.366**†

*=p< 0.05, **=p< 0.01, †=two-tailed

3.4.4 Relationships between the Demographic and Study Variables

There were insufficient numbers of participants in the sample identifying as male to conduct group-level analysis for gender. However, there is sufficient data to explore the relationships between age and the study variables. Spearman's correlation analyses were conducted to explore these relationships which are detailed in table 4.

Table 4: Spearman's Correlation Coefficients and Significance Values for Relationships between Age and the Study Variables

	R	**P**	**1-or 2-tailed**
Self-esteem	0.185	0.024*	1-tailed
Anxiety	-0.260	0.002*	1-tailed
Depression	-0.243	0.004*	1-tailed
Appearance-distress	-0.246	0.005*	1-tailed
Severity	-0.001	0.987	2-tailed
Visibility	-0.125	0.182	2-tailed
Duration	0.663	0.000*	2-tailed
Body surveillance	-0.116	0.216	2-tailed
Body shame	-0.012	0.899	2-tailed
Acne surveillance	-0.360	0.000*	2-tailed
Acne shame	-0.156	0.095	2-tailed

*=statistically significant correlation

3.4.4.1 Age and Emotional Distress Variables

The analyses revealed weak but significant negative relationships between age and generalised anxiety, depression, and appearance-distress (r=approximately -0.2, $p<0.01$ for all). They also demonstrated a weak yet significant positive relationship between age and self-esteem (r=0.2, $p<0.05$).

3.4.4.2 Age and Psychodermatological and Objectification Theory Variables

Perhaps unsurprisingly given the mean age of the sample, the data indicated a moderate-strong and significant positive relationship between age and acne duration (r=0.7, $p<0.01$). The data also showed a weak but significant negative relationship between age and acne surveillance (r=-0.4, $p<0.01$).

These data suggest age is an important variable to explore in further analyses due to its relationships with the criterion variables.

3.5 Predictors of Emotional Distress

Four hierarchical regression models (HRMs) were used to examine the relative contributions of the predictor variables to self-esteem, depression, generalised anxiety and appearance-distress.

The rationale for the order in which the eight predictor variables were entered into each model is based on previous research (Field, 2009). As there is most empirical evidence demonstrating the influence of demographic factors on distress in adult acne followed by findings showing the influence of psychodermatological factors, age was entered into the model first and the psychodermatological variables (acne severity, visibility and duration) were entered second. The general OT variables (body surveillance and body shame) were entered third due to empirical evidence demonstrating their influence on emotional distress. The acne-specific OT variables (acne surveillance and acne shame) were entered last as their impact on distress has not previously been explored.

According to Field (2009), alongside having a sufficient sample size (see 2.7.1), the following assumptions must be met to demonstrate regression models are reliable: variables must not be perfectly correlated and outliers/influential cases must be removed if warranted. In addition, to generalise findings to the wider population, any two residuals/errors must be independent, and the residuals must be linear, normally distributed and demonstrate homoscedasticity (Field, 2009).

3.5.1 Self-Esteem

This HRM comprised of the eight predictor variables and the self-esteem outcome variable. The predictor variables were entered into the model as described above. The data assumptions will be reviewed before detailing the

findings for the final stage of the model. Data outputs for every stage of the hierarchy are detailed in appendix 16.

3.5.1.1 Assumptions

- *Outliers and Influential Cases*: the standardised residuals were examined. Three cases exceeded the recommended value of +/-2. It is acceptable for 5% of cases (n=6) to exceed this value, therefore these cases were not removed. Although it is acceptable to have 1% of cases (n=1) exceed +/-2.5, one additional case was further examined as it exceeded +/-3. The case did not violate the Cook's distance and leverage limits suggested by Field (2009). Additionally, the Mahalanobis distance value for the case did not exceed the conservative limit set for the study (>20; Barnett & Lewis, 1978).
- *Multicollinearity*: the VIF and tolerance statistics were scrutinised. Field (2009) recommends that the VIF values are under 10, their mean close to 1, and no tolerance statistics are less than 0.2. The data met these limits suggesting no multicollinearity.
- *Independent Errors*: the Durbin-Watson test examines correlations between residuals (Field, 2009). The acceptable Durbin-Watson value for this study was calculated to be >1.506 (Durbin & Watson, 1951), which would indicate the residuals are uncorrelated. The value of 2.029 here indicates this assumption was met.
- *Residuals* were considered normally distributed by reviewing a histogram and normality plot (appendix 17). Additionally, a Shapiro-Wilk test (statistic=0.994) confirmed their normal distribution (p>0.05). The assumptions of linearity and homoscedasticity were also met as the scatterplot for the standardised residuals and predicted values (appendix 18) showed the points being evenly dispersed with the majority lying within +/-2 residuals.

3.5.1.2 Regression Analysis

The final model's R-value was 0.683, which indicates a moderate-strong correlation between the observed and predicted values for self-esteem. The

model's R-squared suggests that a large proportion of the variance in self-esteem, almost half (46.6%), is explained by the predictor variables. The model's adjusted R-squared (42.6%) is similar to its R-squared, which indicates it generalises well to the wider population. Furthermore, the model's f-ratio is 11.668 ($p<0.01$) which shows it is significantly better at predicting self-esteem than the mean.

The R-squared change data shows that age explains 2.7% of the variance in self-esteem (n.s), and the psychodermatological variables explain a further 2.5% (n.s). However, the general OT variables account for a much greater proportion of the variance in self-esteem (an additional 29.4%; $p<0.01$) and the acne-specific OT variables account for a further 12.0% ($p<0.01$).

The influence of individual predictors (when other predictors are controlled for) was also examined (table 5). This reveals that acne shame made the biggest unique contribution to predicting low-self-esteem, followed by body shame (β=-0.441, t=-4.412, $p<0.01$; and β=-0.234, t=-2.485, p=0.01 respectively).

Table 5: Individual Predictor Coefficients for the Self-Esteem Model

	Standardised β	**T-value**	**P-value**
Age	0.167	1.587	0.116
Acne Severity	-0.027	-0.339	0.735
Subjective visibility	0.005	0.065	0.948
Acne Duration	-0.089	-0.843	0.401
Body surveillance	-0.095	-1.170	0.245
Body shame	-0.234	-2.485	0.015*
Acne surveillance	-0.017	-0.193	0.847
Acne shame	-0.441	-4.412	0.000*

*=statistically significant correlation

3.5.2 Depression

This HRM included the eight predictor variables (entered as previously described) and the depression outcome variable. The data assumptions will be

reviewed then findings for the final stage of the model detailed. Data outputs for every stage of the hierarchy are provided in appendix 19.

3.5.2.1 Assumptions

- *Outliers and Influential Cases*: the standardised residuals were examined. Three cases exceeded the recommended value of +/-2, which is an acceptable proportion of the sample. Two further cases exceeded +/-2.5, and as this is slightly beyond the recommended sample proportion they were examined further (as described in 3.5.1.1). Neither violated the limits set so were not removed.
- *Multicollinearity*: the VIF and tolerance statistics were scrutinised following the recommendations outlined above (section 3.5.1.1), which suggested no multicollinearity.
- *Independent Errors*: the value of 2.034 in the Durbin-Watson test indicates this assumption was met.
- *Residuals* were considered normally distributed by reviewing the histogram and normality plots (appendix 20). Additionally, a Shapiro-Wilk test (statistic=0.981) confirmed their normal distribution ($p>0.05$). The assumptions of linearity and homoscedasticity were met as the residuals scatterplot (appendix 21) showed evenly dispersed points with the majority within +/-2 residuals.

3.5.2.2 Regression Analysis

The R-value for the final model was 0.607, indicating a moderate-strong correlation between the observed and predicted values for depression. The model's R-squared suggests that over one-third (36.8%) of the variance in depression can be accounted for by the predictor variables. The model's adjusted R-squared (32.1%) is similar to its R-squared, which indicates it generalises well to the wider population. The model's f-ratio is 7.798 ($p<0.01$) which reveals its reliability in predicting depression.

The R-squared change data indicates that participants' age accounts for 2.4% of the variance in depression (n.s), and the psychodermatological variables explain a further 4.5% (n.s). Again, the general OT variables account for most of

the variance (explaining a further 16.7%; p<0.01) and the acne-specific OT variables explain an additional 13.2% (p<0.01).

The influence of individual predictors were also examined (table 6). This revealed that acne shame made the biggest contribution in predicting depression (β=0.485, t=4.464, p<0.01).

Table 6: Individual Predictor Coefficients for the Depression Model

	Standardised β	**T-value**	**P-value**
Age	-0.017	-0.151	0.881
Acne Severity	0.082	0.960	0.339
Subjective visibility	0.029	0.325	0.746
Acne Duration	-0.114	-0.996	0.321
Body surveillance	0.049	0.554	0.581
Body shame	0.106	1.029	0.306
Acne surveillance	-0.036	-0.363	0.718
Acne shame	0.485	4.464	0.000*

*=statistically significant correlation

3.5.3 Generalised Anxiety

The HRM comprised of the generalised anxiety outcome variable and the eight predictor variables (entered into the model as detailed above). The data assumptions will be reviewed then findings for the final stage of the model detailed. Data outputs for every stage of the hierarchy are detailed in appendix 22.

3.5.3.1 Assumptions

- *Outliers and Influential Cases*: on examination, the standardised residuals revealed two cases which exceeded +/-2 and one that exceeded +/-2.5. As these represent acceptable proportions of the sample they were not removed.

- *Multicollinearity*: the VIF and tolerance statistics were scrutinised following the recommendations outlined above (section 3.5.1.1). This indicated no multicollinearity.
- *Independent Errors*: the Durbin-Watson test statistic (1.684) revealed this assumption was met.
- *Residuals* were considered normally distributed by reviewing the histogram and normality plots (appendix 23), and conducting a Shapiro-Wilk test (statistic=0.981; $p>0.05$). Linearity and homoscedasticity assumptions were also met as the residuals scatterplot (appendix 24) showed evenly dispersed points, the majority of which were within +/-2 residuals.

3.5.3.2 Regression Analysis

The final model's R-value was 0.552, indicating a moderate correlation between the observed and predicted values for generalised anxiety. The model's R-squared suggests that around one-third (30.5%) of the variance in generalised anxiety can be accounted for by the predictor variables. The model's adjusted R-squared (25.3%) is similar to its R-squared, indicating it generalises well to other samples. Furthermore, the model's f-ratio (5.873; $p<0.01$) reveals it is significantly better at predicting generalised anxiety than the mean.

The R-squared change data indicates that participants' age alone explains 2.9% of the variance in generalised anxiety (n.s), and the psychodermatological variables account for a further 5.2% (n.s). The general OT variables account for an additional 15.0% of the variance ($p<0.01$) and the acne-specific OT variables account for a further 7.5% ($p<0.01$).

Examination of the influence of individual predictors (table 7) revealed that acne shame followed by body surveillance made the biggest contributions in predicting generalised anxiety ($\beta=0.378$, $t=3.323$, $p<0.01$; and $\beta=0.211$, $t=2.286$, $p<0.05$ respectively).

Table 7: Individual Predictor Coefficients for the Generalised Anxiety Model

	Standardised β	T-value	P-value
Age	-0.118	-0.985	0.327
Acne Severity	0.131	1.458	0.148
Subjective visibility	0.036	0.386	0.701
Acne Duration	-0.008	-0.064	0.949
Body surveillance	0.211	2.286	0.024*
Body shame	0.035	0.322	0.748
Acne surveillance	-0.069	-0.676	0.501
Acne shame	0.378	3.323	0.001*

*=statistically significant correlation

3.5.4 Appearance-Distress

This HRM included the eight predictor variables (entered as detailed above) and the appearance-distress outcome variable. The data assumptions will be reviewed then findings for the final stage of the model detailed. Data outputs for every stage of the hierarchy are provided in appendix 25.

3.5.4.1 Assumptions

- *Outliers and Influential Cases*: on examination, the standardised residuals revealed two cases which exceeded +/-2, which is an acceptable proportion of the sample. Two further cases exceeded +/-2.5, and were examined further (as described in 3.5.1.1) as this proportion is slightly beyond the recommended limit. Neither violated the limits set so were not removed.
- *Multicollinearity*: the VIF and tolerance statistics were scrutinised following the guidelines outlined above (section 3.5.1.1), which indicated there was no multicollinearity.
- *Independent Errors*: the Durbin-Watson test statistic (2.253) revealed this assumption was met.
- *Residuals:* A Shapiro-Wilk test revealed the residuals were not normally distributed (statistic=0.976; p=0.05), however the residuals appeared to

be normally distributed according to the histogram and normality plots (appendix 26). Linearity and homoscedasticity assumptions were met as the residuals scatterplot (appendix 27) showed evenly dispersed points with the majority lying within +/-2 residuals.

3.5.4.2 Regression Analysis

The final model's R-value was 0.705, indicating a moderate-strong correlation between the observed and predicted values for appearance-distress. The model's R-squared revealed that a substantial amount of the variance in appearance-distress, about half (49.8%), can be explained by the predictor variables. The model's adjusted R-squared (45.7%) is similar to its R-squared, indicating it could provide a good predictor of the outcome in other samples. Furthermore, the model's f-ratio (12.13; $p<0.01$) demonstrates its reliability in predicting appearance-distress.

The R-squared change data indicates that age alone explains 4.0% of the variance in appearance-related distress ($p<0.05$), and the psychodermatological variables account for a further 11.5% ($p<0.01$). The general OT variables account for an additional 18.9% of the variance ($p<0.01$) and the acne-specific OT variables explain a further 15.4% ($p<0.01$).

Examination of the influence of individual predictors (table 8) indicates that acne shame offers the biggest contribution in predicting appearance-distress ($\beta=0.352$, $t=3.544$, $p<0.01$), followed by acne surveillance ($\beta=0.235$, $t=2.619$, $p=0.01$) and acne severity ($\beta=0.201$, $t=2.520$, $p=0.01$). The contribution of body surveillance to predicting appearance-distress approximates significance ($\beta=0.156$, $t=1.875$, $p=0.064$).

Table 8: Individual Predictor Coefficients for the Appearance-Distress Model

	Standardised β	T-value	P-value
Age	0.001	0.007	0.995
Acne Severity	0.201	2.520	0.013*
Subjective visibility	0.065	0.804	0.423
Acne Duration	-0.115	-1.048	0.297
Body surveillance	0.156	1.875	0.064
Body shame	0.066	0.700	0.486
Acne surveillance	0.235	2.619	0.010*
Acne shame	0.352	3.544	0.001*

*=statistically significant correlation

CHAPTER FOUR: DISCUSSION

This study aimed to explore the effect of demographic, psychodermatological and Objectification Theory (OT) variables in predicting emotional distress in adults with acne, and assess the relationships between demographic factors and the study variables. This enabled further exploration of the role of demographic and psychodermatological factors, and also examined the relevance of OT which had not previously been applied in the field of visible difference. Previous research has applied OT to appearance concerns other than body shape and size and to appearance concerns resulting from health-related changes. Examining the relevance of OT in predicting distress in people with acne was novel and potentially useful. This involved exploring the influence of both general and acne-specific OT constructs.

Based on previous research, self-esteem, depression, generalised anxiety and appearance-related distress were used to conceptualise emotional distress. The following independent variables were also chosen for examination following the literature review: age, gender, acne severity, visibility, duration, body surveillance, body shame, acne surveillance, and acne shame. Firstly, correlational analyses were conducted to examine the relationships between these variables. Four hierarchical multiple regression analyses were then conducted to examine the relevance of the predictor variables in explaining the emotional distress constructs under investigation.

This chapter will review the results of the study. Discussion will be exploratory given that OT is a new approach to understanding distress in a visibly different population. Firstly, the sample characteristics will be considered and then the findings relevant to each research question will be reviewed in turn. They will be discussed by drawing on existing literature. The study's strengths and limitations, and the research and clinical implications of the findings will also be considered.

4.1. Sample Characteristics

4.1.1 Demographics

Over four fifths of the sample (85%) was female. The predominance of females in the sample is perhaps unsurprising given that Goulden, Stables and Cunliffe's (2009) British community study reported prevalence rates of adult acne to be four times higher in females than males.

The mean age of participants was approximately 32 years. Around 43% of the sample were in their 20s and approximately 37% in their 30s. The age distribution of the sample roughly reflects Schafer, Nienhaus, Vieluf, Berger and Ring's (2001) population study findings which reported higher prevalence rates among those in their 20s than 30s.

Around 85% of the sample described their ethnicity as white. There are no population-based studies examining adult acne prevalence rates for different ethnic groups, however clinic- and questionnaire-based studies suggest rates are similar among different ethnic groups (Bhate & Williams, 2013).

The demographic profile of the sample suggests it broadly reflects the general age and gender distribution of the adult acne population. However, it is limited in capturing the experiences of people who are non-white. Therefore, caution will be required in drawing conclusions about their experiences.

4.1.2 Overall Scores

Emotional distress levels in the sample were in line with acne studies conducted with outpatient samples (Hassan, Grogan, Clark-Carter, Richards, & Yates, 2009; Kellett & Gawkrodger, 1999). This was perhaps surprising as it was expected that secondary care samples would be more distressed. This sample comprised of people receiving treatment in both primary and secondary care services. However, the sample proportions from each source are not known, so it is unclear whether this sample consisted of more people receiving treatment as outpatients or in primary care.

The sample reported having facial acne to various extents and on average rated their acne as moderately severe. These visibility and severity findings are also

similar to those reported in acne outpatient samples (e.g Hassan et al., 2009). However the average duration of acne was considerably longer here than in outpatient studies (e.g Abdel-Hafez et al., 2009), which reflects the older average age of this sample than in previous studies.

Additionally, the sample reported greater average body surveillance and body shame scores than the undergraduate females who participated in McKinley and Hyde's (1996) validation study. The sample's average acne surveillance score was greater than the mean body surveillance score, and its average acne shame score was greater than the mean body shame score. Taken together, these scores tentatively indicate that, on the whole, adults with acne tend to see their body and their acne as they believe others might, which in turn suggests that body shape and size and acne-free skin are both important indicators of attractiveness. The scores also suggest that, on the whole, these societal standards have become internalised and used for negative self-evaluation. Additionally, they tentatively indicate that having acne-free skin may be the more potent attractiveness indicator used for self-evaluation in this group.

4.2 Summary of Findings and General Discussions

4.2.1 Research Question One

This question asked "What is the association between acne-specific measures of surveillance and shame and the general OT measures of surveillance and shame?"

Correlation analyses demonstrated that the acne surveillance measure shared only 11% of the variance with the body surveillance measure and the acne and body shame measures shared 31% of the variance.

These findings suggest that although the corresponding general OT and acne-specific OT variables are related, they are measuring different constructs. Moreover, their distinctiveness suggests they are capturing different aspects of body-image for adults with acne. Their inter-relationships also indicate that including acne-specific as well as general OT measures enables a richer understanding of body-image in this group.

4.2.2 Research Question Two

This question asked “What are the relationships between age/gender and emotional distress, psychodermatological and OT factors (general and acne-specific)?”

There were insufficient data to conduct group-level analysis for gender, therefore correlation analyses explored the relationships between age and the study variables.

The findings showed that as age increases, generalised anxiety, depression and appearance-distress decrease. They also demonstrated that as age increases, self-esteem increases. These findings were unexpected and do not support the first hypothesis, which predicted that greater levels of emotional distress would be reported in older than younger people. They also do not reflect findings from other studies, which reported greater emotional distress in older than younger adults with acne (Hassan et al., 2009; Lasek & Chren, 1998; Uhlenhake et al., 2010).

Of the psychodermatological variables, age was only significantly associated with acne duration. The data showed that as age increases, the length of time people had lived with acne also increases. Of the OT variables, age was only significantly related to acne surveillance, which indicates that older adults are less likely to see their acne as they believe others might.

The unexpected findings, showing a decrease in emotional distress with age, will now be considered. Although there are important similarities between this sample and those in the other acne studies, for example the age distribution scores are similar to those of Lasek and Chren (1998) and the mean severity scores are similar those reported by Hassan et al. (2009), there are also important differences. Indeed, on average this sample had lived with acne for longer than samples in these previous studies. Perhaps the lower distress scores in older participants can be explained by greater acne chronicity, which may have resulted in increased acne habituation. A further explanation is offered by the OT findings revealing that acne surveillance decreases with age. OT proposes that as women age they increasingly abandon an external observer’s perspective as the main view of their body, which reduces the risk of

negative psychological consequences (Fredrickson & Roberts, 1997). Findings here loosely support this proposition as they showed that as age increases body surveillance decreases, however this relationship was not significant. Greater support is provided by the acne surveillance findings. Indeed, in a sample where the vast majority indicated acne as a concern for them, decreasing distress with age may be explained by people abandoning others' perspectives on their acne as they get older.

4.2.3 Research Questions Three, Four and Five

These questions asked: "How well do the age, psychodermatological, general and acne-specific OT variables predict emotional distress in adults with acne?" "Do the general OT variables predict distress after the effects of age and the psychodermatological factors have been controlled for?" "Do the acne-specific OT variables predict distress after the effects of the generic OT variables have been controlled for?"

To answer these questions, four hierarchical multiple regression models (HRMs) were developed to examine the relevance of each set of predictor variables in explaining the four distress constructs under investigation. The findings for each model will be summarised before conclusions are drawn and the findings are discussed further.

The appearance-distress HRM revealed that together the predictor variables predicted half of the variance in appearance-distress, and the contribution of each set of variables was significant. Age alone explained 4% of the variance, the psychodermatological variables accounted for a further 12%, the general OT variables explained an additional 19% and the acne-specific OT variables added a further 15%. Acne shame offered the biggest significant individual contribution in predicting appearance-related distress, followed by acne surveillance and acne severity.

The self-esteem HRM indicated that in total the predictor variables predicted almost half (47%) of the variance in self-esteem. Age explained 3% (n.s), the psychodermatological variables accounted for a further 3% (n.s), the general OT variables explained an additional 29% and the acne-specific OT variables

added a further 12%. Acne shame provided the biggest significant contribution to predicting low self-esteem, followed by body shame.

The depression HRM revealed that together the predictor variables predicted over one-third (37%) of the variance in depression. Age alone explained 2% of the variance (n.s), the psychodermatological variables accounted for a further 5% (n.s), the general OT variables explained an additional 17% and the acne-specific OT variables added a further 13%. Acne shame made the biggest significant contribution to predicting depression.

The generalised anxiety HRM indicated that in total the predictor variables predicted almost one-third (31%) of the variance in anxiety. Age alone explained 3% (n.s), the psychodermatological variables accounted for a further 5% (n.s), the general OT variables explained an additional 15% and the acne-specific OT variables added a further 8%. Acne shame, followed by body surveillance made the biggest individual significant contributions to predicting anxiety.

Overall, this data indicated that together the variables play an important role in explaining each distress construct (predicting between one-third and one-half of the variance). However, although the unique contributions of age and the psychodermatological set of variables significantly predicted appearance-distress they did not predict self-esteem, depression or anxiety. Furthermore, the age and psychodermatological sets of variables accounted for relatively little of the variance in all of the criterion variables. The findings also revealed that the general OT variables predicted distress after the age and psychodermatological factors were controlled for, and that the acne-specific OT variables predicted distress after the general OT variables were controlled for. They also indicated that across all models, the general OT set of variables accounted for the greatest proportion of the variance, followed by the acne-specific set. This indicates that OT may well provide relevant constructs to examine distress in this context. These findings will be discussed below. The findings pertaining to the influence of the individual predictors will be discussed in section 4.2.4.

4.2.3.1 Age and Psychodermatological Variables

It makes sense that age contributed to predicting the overall variance for each model given previous research demonstrating its influence on emotional distress in adults with acne (e.g Lasek & Chren, 1998; Uhlenhake et al., 2010). However, it was surprising that age only accounted for approximately 3% of the variance in self-esteem, depression and anxiety, and these contributions were not statistically significant, despite age being the first variable entered. Nevertheless, it did significantly predict appearance-distress.

One possible explanation for the non-significant findings is the nature of the emotional distress measures themselves. Examination of previous literature reveals that the relationships between age and self-esteem, depression and anxiety had not been statistically analysed in adults with acne before. However, Lasek and Chren (1998) revealed the influence of age on quality of life, and Hassan et al. (2009) identified its influence on appearance-distress. Taken together, this suggests that the age-related experiences of having acne may be more strongly associated with the impact of acne on quality of life and appearance-distress than with experiencing more general forms of distress.

It was also understandable that the psychodermatological factors contributed to predicting the overall variance for each distress variable as previous literature has demonstrated their importance. Indeed, studies have reported greater distress among those who had lived with acne for longer (Abdel-Hafez et al., 2009; Tan, 2008), consider their acne more severe (Abdel-Hafez et al., 2009; Hassan et al., 2009) and visible (Hassan et al., 2009; Papadopoulos et al., 2000). Thus, it was surprising that the set of psychodermatological variables examined also accounted for a relatively small unique proportion of the variance in self-esteem, depression and anxiety (2.5%-5%), which did not reach statistical significance. Nevertheless, as above, this set of psychodermatological factors did significantly predict appearance-distress.

Differences between the sensitivity of different criterion measures may provide possible explanations for these findings. Examination of previous literature indicates that the relationships between the psychodermatological factors and depression and anxiety had not been analysed in this population before. However, self-esteem has been assessed by Abdel-Hafez et al. (2009) using the Culture-Free Self-Esteem Inventory – Adult Version (CFSEI-AD; El-Behairy,

2006). Abdel-Hafez et al.'s study (2009) revealed a significant relationship between acne duration and self-esteem (R^2=11%). The CFSEI-AD contains 40 items and provides a more comprehensive measure of self-esteem than Rosenberg's Global Self-Esteem Scale (RSES; 1965), which only contains ten items. Therefore, perhaps the psychodermatological set of variables was not predictive of self-esteem here as the RSES may have lacked the sensitivity to capture important aspects of self-esteem associated with acne severity, visibility and duration. The psychodermatological set of variables were, however, predictive of appearance-distress. Again, perhaps this measure provided sufficient sensitivity to capture aspects of appearance-distress associated with the psychodermatological variables. Furthermore, this analysis only included data for those concerned about acne and all of the psychodermatological variables were acne-specific. Therefore, this significant finding may also have been influenced by greater relationship specificity.

On the whole, both age and the psychodermatological set of variables contributed relatively little of the variance in all of the criterion variables despite the significance of some of the relationships. One possible explanation for this is offered by Thompson (2012) who highlighted that wider studies in the field of visible difference have found that appearance well-being is more strongly predicted by psychological than demographic/physical factors.

4.2.3.2 General OT Variables

The OT variables provided the means of examining psychological factors in each model, and findings revealed that the general OT variables (body surveillance and body shame combined) significantly predicted each distress construct examined and contributed the greatest unique proportion of the variance in predicting each of them. These variables predicted distress after the effects of age and the psychodermatological factors had been controlled for, which further demonstrates their importance.

The important role of these variables in predicting distress is understandable given that studies have previously demonstrated the relationships between general OT constructs (body surveillance and body shame), and distress

constructs such as depression (e.g Jones & Griffiths, 2015), low self-esteem and appearance-anxiety (e.g Choma et al., 2010).

It is perhaps surprising, however, that the general OT variables account for such a large unique proportion of the variance in distress in a sample where the large majority indicated acne as a key appearance concern. One possible explanation for this is provided by researchers who proposed that women in western societies tend to consider that their bodies attract the most attention from men (Fredrickson & Roberts, 1997; Kim et al., 2014). Furthermore, Rumsey et al's (under review) findings recently demonstrated that a significant proportion of people living with disfigurements report the usual appearance concerns found in the general population (body shape and size), which may not be anatomically-related to their visible difference. Such concerns are the focus of OT.

4.2.3.3 Acne-Specific OT Variables

The findings also revealed that the acne-specific OT variables (acne surveillance and acne shame combined) significantly predicted each distress construct examined and contributed the second greatest unique proportion of the variance in predicting each of them. They predicted distress after the effects of the general OT, psychodermatological and age variables had all been controlled for. This demonstrates their importance in predicting the distress constructs examined.

The importance of these variables points towards the relevance of drawing on OT to understand group-specific appearance concerns to predict distress. This has been demonstrated in other studies. For example, Buchanan, Fischer, Tokar, and Yoder (2007) revealed skin-tone surveillance predicted skin-tone dissatisfaction in African American women, and Kim et al. (2014) reported that face surveillance mediated the relationship between media exposure and eating disorder symptoms in South Korean women.

Although acne surveillance and acne shame are not original OT constructs, their inclusion and importance in this study points towards them enabling a richer understanding of emotional distress in people with acne. More broadly, their importance highlights the potential utility of OT in this area.

4.2.4: Exploring the Influence of Individual Predictors

The findings discussed so far are based on analyses examining the unique contributions of sets of variables in predicting the distress constructs. However, these findings are influenced by both the order the variables were entered into the models and the inter-relationships within each set of variables. Further analyses, examining the influence of each individual predictor independent of the order of entry and when the influence of all others are held constant enables a more detailed examination of the findings to consider the extent they support the study's hypotheses and their relevance to OT.

4.2.4.1: Age

Age was not identified as a significant individual predictor in any of the Hierarchical Regression Models (HRMs) when the influence of all other variables had been controlled for. This is perhaps unsurprising as the variable's ability to predict distress in previous analyses, when age was the only variable entered into the models, was minimal.

The individual predictor findings revealed that as age increases, generalised anxiety decreases and self-esteem increases, however these findings were not significant. The analyses also showed no relationships between age and both appearance-distress and depression. These findings were unexpected and do not support the first hypothesis, which predicted that greater levels of depression, generalised anxiety, appearance-distress, and low self-esteem would be reported in older than younger people. They also do not reflect the findings of other acne studies, which reported greater emotional distress in older than younger adults with acne (e.g Hassan et al., 2009; Uhlenhake et al., 2010).

The possible influence of the emotional distress measures on these findings have been outlined elsewhere (section 4.2.3.1). Additionally, in section 4.2.2, it was suggested that this study's unexpected relationships between age and the criterion variables may be explained by greater acne chronicity, which may have resulted in increased acne habituation. A further explanation was provided by OT as findings revealed acne surveillance decreases with age. These

explanations acknowledge that other factors, as well as age, change with time and these factors may confer protective benefits. The findings reported in this section may tentatively support these explanations as age was not revealed as a significant predictor of distress when the influence of other variables in the model were held constant.

4.2.4.2 Psychodermatological Variables

There was limited support for the significance of the individual psychodermatological predictors (acne severity, acne visibility and acne duration) in the HRMs. Again, this makes sense as these variables' combined ability to predict distress in previous analyses, when only age had been controlled for, was minimal.

The individual predictor findings showed that only acne severity was found to significantly predict one of the criterion variables: appearance-distress. Here, as acne severity increased, appearance-distress also increased. The analyses also revealed that: as acne severity increased, anxiety increased; and as acne duration increased, depression and appearance-distress decreased. However, these relationships did not reach significance. No relationships were found between the remaining psychodermatological factors and criterion variables. Therefore, the second hypothesis, which predicted that higher scores for acne severity, visibility and duration would predict greater reported levels of distress was only minimally supported. The possible influence of the emotional distress measures on these findings were outlined in section 4.2.3.1.

These findings highlighting the limited individual roles of age, acne severity, visibility and duration in predicting the distress constructs further support Thompson (2012) who questioned the utility of demographic/physical factors in predicting appearance well-being in visibly different populations.

4.2.4.3 Body Surveillance

The findings support the importance of body surveillance in predicting the anxiety-related constructs, as it was shown to significantly predict generalised

anxiety and was approaching significance in predicting appearance-distress. Thus, greater levels of engagement in body surveillance predicted greater levels of general anxiety and appearance-distress. No relationships were revealed between body surveillance and both depression and self-esteem. Therefore, these findings partially support hypothesis three, which predicted that higher scores for body surveillance (and body shame) would predict greater reported levels of appearance-distress, low self-esteem, depressive and anxious symptomatology.

One possible explanation for the importance of body surveillance in predicting these anxiety-related constructs is that they may be considered conceptually similar to anxiety as it is understood in the OT framework. Indeed, Fredrickson and Roberts (1997) propose that body surveillance may increase anxiety (specifically, appearance anxiety and anxiety about physical safety). This relationship has been demonstrated in other studies using OT's conceptually similar appearance-anxiety measure (Appearance Anxiety Scale; Dion, Dion & Keelan, 1990). For example, Choma et al's (2010) study examining the relationship between self-objectification and self-esteem found that body surveillance predicted appearance anxiety. This study's findings therefore suggest loose support for OT's proposed role of body surveillance in predicting anxiety.

No relationships were revealed between body surveillance and both low self-esteem and depression. Although other studies found that body surveillance predicted these distress constructs (Choma et al., 2010; and Jones & Griffiths, 2015; respectively), the OT framework proposes that these relationships are mediated by body shame. This highlights the need for future studies to analyse such indirect relations to further examine the application of OT in this context (see section 4.5.3).

4.2.4.4 Body Shame

Findings indicated some limited support for the importance of body shame, as it was revealed that greater body shame experiences significantly predict low self-esteem. Findings also demonstrated a weak positive relationship between body shame and depressive symptomatology, however this relationship was not

significant. No relationships were found between body shame and both generalised anxiety and appearance-distress. Thus, these findings provided limited support for hypothesis three, which predicted that higher scores for (body surveillance and) body shame would predict greater reported distress levels.

The importance of body shame in predicting low self-esteem in this group makes sense when the links between appearance evaluations and self-esteem are considered further. Indeed, Fredrickson and Roberts (1997) argued that women's self-perceptions reflect their ideas of how they are seen by others and as such their sense of self tends to be related to perceived body evaluations. Furthermore, Murray and Rhodes's (2005) qualitative study with adults living with acne reported the importance of appearance in participants identities and that their perceived appearance shortcomings often led them to express a low sense of self-esteem.

An extension of OT proposed by Choma et al. (2010) suggested that body surveillance can promote body shame, which in turn increases the risk of low self-esteem. OT studies have also found body shame to be predictive of low self-esteem (e.g Choma et al. (2010)), which this study also revealed. This study's findings, therefore, support OT's proposed role of body shame in predicting low self-esteem.

The limited role of body shame in predicting depressive symptomatology was more surprising given findings from previous OT studies demonstrating body shame to be predictive of depression (e.g Jones & Griffiths, 2015), and non-OT research revealing internal shame to be predictive of depression (e.g Kim, Thibodeau, & Jorgensen, 2011). Fredrickson and Roberts (1997) suggest that women may be more likely to present with depressive symptomatology if their bodies create feelings of helplessness (as they are unable to change their bodies or control others' reactions to their appearance) and if others' evaluations of their bodies create limited positive experiences (e.g in relationships and at work). For adults with acne, it may be that helplessness and limited positive experiences are less related with body shape and size, and more associated with their acne (discussed further in section 4.2.4.6).

Finally, it is perhaps unsurprising that no relationships were found between body shame and both anxiety and appearance-distress, as there is no proposed relationship between body shame and anxiety in the OT framework.

4.2.4.5 Acne Surveillance

Findings also revealed limited support for the importance of acne surveillance, as it was only found to significantly predict appearance-distress. The more people engage in acne surveillance the greater their appearance-distress. No relationships were found between acne surveillance and the remaining criterion variables. Thus, these findings provided limited support for hypothesis four, which predicted that higher scores for acne surveillance (and acne shame) would predict greater reported distress levels.

The importance of acne surveillance (scrutinising how acne appears to others) is indicated in the literature as a qualitative study found that people with acne expected their appearance to be negatively evaluated by others (Murray & Rhodes, 2005). It makes sense in this study that acne surveillance predicts appearance-distress as this analysis only included those who described acne as a concern for them and acne surveillance is a measure of self-scrutiny specific to this concern. Additionally, as described above, OT proposes that surveillance may increase appearance anxiety (Fredrickson & Roberts, 1997), and appearance-distress appears conceptually similar to appearance anxiety as it is understood in the OT framework. Therefore, this finding may loosely support OT's proposed role of surveillance in predicting anxiety.

As was the case for body surveillance, no relationships were revealed between acne surveillance and both low self-esteem and depression. This was unexpected given previous qualitative acne research had reported that people's depressive experiences had been worsened by acne-related self-consciousness (Gupta et al., 1990) and had identified direct links between self-consciousness and low self-esteem in adults with acne (Magin, Adams, Heading, Pond, & Smith, 2006). However, these relationships were not revealed here statistically. One explanation for this is provided by OT's empirical framework, which proposes that surveillance and both low self-esteem and depression are mediated by body shame. As such, it is perhaps unsurprising

that this study's analyses did not reveal relationships between acne surveillance and these constructs.

The newly-developed OT measure of acne surveillance used in this study enabled the researcher to examine the extent that people with acne scrutinise how their acne appears to others in an objectifying sociocultural context. The findings highlight that acne surveillance is an important indicator of appearance-distress and suggest the utility of adapting this OT construct to understand appearance-distress in acne. However, they provide limited support for the role of acne surveillance in predicting wider forms of distress. Further analyses is required to examine the proposed indirect relationships between surveillance and the criterion variables to be able to more thoroughly examine the application of OT in this context (see section 4.5.3).

4.2.4.6 Acne Shame

Overall, acne shame was the most important individual predictor of emotional distress in this group, as it significantly predicted each distress construct. Indeed, those who experienced greater acne shame, also reported greater appearance-distress, depression, anxiety and lower self-esteem. Thus, these findings supported hypothesis four, which predicted that higher scores for (acne surveillance and) acne shame would predict greater reported distress levels.

It is unsurprising that greater acne shame is predictive of emotional distress given previous literature. Murray and Rhodes (2005) highlighted that it can be stigmatising to have visible acne as it can be greatly discrediting in social interactions. In their qualitative study, the same authors reported that participants reported the same stigmatising beliefs about their acne as in the wider society, which made shame likely and in turn lowered self-esteem. Other researchers have also proposed that acne-related shame can result in appearance anxiety (Kent, 2002), and depression and generalised anxiety (Kellett & Gilbert, 2001).

Although this study's findings reflect those in the wider literature, it provided new empirical evidence as a newly-developed OT measure of acne shame was used. This enabled the researcher to examine for the first time the extent that people with acne experience shame in an objectifying sociocultural context.

Indeed, the measure examined the extent that cultural expectations about having acne-free skin had become internalised and used for self-evaluation. It is understandable that this acne shame construct significantly predicted the emotional distress constructs examined given previous qualitative findings reporting that participants' inability to meet societal ideals of perfect skin were linked to low mood and impaired self-image (Magin, Adams, Heading, & Pond, 2011).

This study's findings suggest the importance of using this acne shame construct in understanding distress in this group. They also point towards the utility of applying OT to understand appearance concerns other than body shape and size, as the findings support OT's proposed role of shame in predicting both depression and low self-esteem.

4.2.5 Summary and Conclusions

The pattern of results from the hierarchical multiple regression analyses revealed that age and the combined psychodermatological factors contributed a relatively limited proportion of the variance in predicting self-esteem, depression and anxiety. However, both sets of variables contributed significant yet still relatively limited proportions in predicting appearance-distress. When the importance of each of these variables was examined individually, only acne severity continued to predict appearance-distress.

The results also showed that the set of general OT variables (body surveillance and body shame combined) significantly predicted each distress construct examined and contributed the greatest unique proportion of the variance in predicting each of them. This indicates the importance of the extent people living with acne adopt an external observer's perspective on the shape and size of their bodies and the degree they experience shame for not meeting societal body ideals (combined) in predicting distress. When considered in isolation, body surveillance was only revealed to significantly predict appearance-distress, and body shame only significantly predicted low self-esteem. However, this pattern of relationships appeared to provide loose support for the OT framework.

Additionally, the pattern of results revealed that the acne-specific OT set of variables (acne surveillance and acne shame combined) significantly predicted each distress construct examined and contributed the second greatest unique proportion of the variance in predicting each of them. This indicates the importance of the extent people living with acne adopt an external observer's perspective on their condition and the degree they experience shame for not meeting societal acne-free skin ideals (combined) in predicting distress. In isolation, acne surveillance only significantly predicted appearance-distress. However, acne shame was revealed as the most important predictor of emotional distress, as it significantly predicted each distress construct. These findings again provided loose support for the OT framework.

Overall, this study's findings question the relative utility of demographic and psychodermatological variables in understanding emotional distress in adult acne, and reveal the importance of OT factors. Indeed, they demonstrate the relevance of both general and acne-specific OT constructs in predicting distress and therefore the potential utility of OT in this area. The findings also demonstrate the potential promise of applying the OT framework to understand distress in this population.

4.3 Study Strengths

4.3.1 Building on Previous Research Using Quantitative Methodology

The study used quantitative methodology to build on previous research. It provides a good example of using more exploratory qualitative work as the basis for systematic, theorised quantitative research. Indeed, issues that frequently arose in qualitative adult acne studies pertained to psychosocial factors such as shame and self-consciousness, which tended to be linked with experiences of low self-esteem and sadness (e.g Magin, Adams, Heading, & Pond, 2011; Magin, Adams, Heading, Pond, & Smith, 2006; Murray & Rhodes, 2005). However such experiences had received little attention in previous quantitative acne studies examining its emotional correlates. OT provided a relevant framework to incorporate and examine the role of such experiences empirically. Using a quantitative methodology enabled these issues to be

explored with a large sample size. As such, these findings may be more representative of distress in acne than previous literature.

This approach also built on existing quantitative psychodermatological research. Indeed, alongside exploring the influence of OT's psychosocial constructs, this study also examined the role of previously studied demographic and psychodermatological factors in emotional distress. This enabled the study to build on the psychodermatological evidence base. Examining the combination of these factors not only enabled an assessment of all the variables' relative importance in understanding emotional distress; it enabled the findings to be interpreted whilst drawing on multiple positions. This multivariate approach provides an important contribution given most appearance research has taken a positional approach (Thompson, 2012).

4.3.2 New Evidence

It is important to emphasise that an integrative research approach is required to understand appearance-distress in people who are visibly different and that no one theory can provide a full explanation (Thompson, 2012). By drawing on OT, this study provides new evidence to contribute to our understanding of distress in adults with acne. OT had not previously been applied to understand emotional distress in a population who are visibly different. This research provides an initial understanding of the importance of some of the psychological mechanisms operating in an objectifying sociocultural context and their influence on the distress experienced by people who are visibly different. These mechanisms seem important to study given the increasing significance of appearance and appearance-related distress in Western societies.

4.3.3 Sample Size and Sample Representativeness

The quantitative methodology employed enabled this exploratory study to examine the influence of the factors in a large sample (n=116). The study's desired sample size (n=/>114) was informed by conducting sample size calculations using the G*Power statistical package (version 3.1; Faul, Erdfelder, Buchner, & Lang, 2009), Tabachnick and Fidell's (1989) formula for multiple regression, and reviewing sample sizes used in previous literature. This

comprehensive approach ensured a sample size was aimed for that would provide sufficient power for multiple regression analyses to detect significant relationships.

The large sample size achieved also enabled the researcher to assess the relevance of the findings to the wider adult acne population. Indeed, larger samples are more likely to be representative of the population and this study's sample captures the adult acne population in a reasonably representative way.

4.4 Study Limitations

4.4.1 OT Measures

This study used McKinley and Hyde's validated body surveillance and body shame subscales (1996). The study's acne surveillance and acne shame measures were developed specifically for this study, and were modelled on McKinley and Hyde's subscales.

It is important to highlight that the quality of McKinley and Hyde's body surveillance and body shame measures (1996) can be questioned. For example, some items on their body surveillance measure seem to reflect similar yet different constructs (e.g social comparison) despite McKinley and Hyde's (1996) factor analytic validation study indicating the scale assesses one construct. Additionally, their use of a double negative when asking "I never worry that something is wrong with me when I am not exercising as much as I should" on their body shame scale (McKinley & Hyde, 1996) may be confusing for participants. However, McKinley and Hyde (1996) did not identify this item as heavily influencing the body shame measure's reliability in their validation study, which may indicate that participants did not find it confusing as their answers to it were in line with their responses to other items in the scale.

Whilst these concerns highlight that like all measures McKinley and Hyde's body surveillance and body shame scales (1996) require ongoing scrutiny and evaluation in their application, it is also believed that they show promise in addressing important conceptual issues and that their ongoing evaluation when employed with new populations would be useful.

Although the acne-specific OT measures appear to be face valid as they demonstrate good internal consistency and criterion-related validity was evidenced by the positive correlation between the measures (Buchanan et al., 2007), more refinement is required. Indeed, despite briefly consulting with adults with acne and researchers in the field on the measures' items, more extensive consultation is needed to help refine and develop the measures. Further consultation would also help to address concerns such as those raised above, which also apply to these new measures as they were modelled on McKinley and Hyde's subscales (1996). Additionally, more rigorous statistical examination is required to establish the new measures' psychometric properties.

4.4.2 Skewness of Some Variables

The acne duration and acne surveillance scores were negatively skewed indicating that a high proportion of the sample reported experiencing acne for many years and adopting an external observer's perspective on their condition. Initially, this led the researcher to question whether these findings were representative of the wider adult acne population, however it was concluded that skewness in these variables is likely to be expected in this population given acne is a chronic and stigmatised condition.

For this reason, and because the large sample size enabled the central limit theorem to be drawn on to assume the sampling distribution was normal, the researcher decided against correcting this skewness and other non-normal data distributions by transforming or bootstrapping the data. Nevertheless, to be confident the findings were not influenced by the non-normal distributions non-parametric analyses were used when their parametric equivalents relied on the sampling distributions being normal (e.g. in correlational analyses).

4.4.3 Limitations to the Findings' Generalisability

Although this study's sample captures the adult acne population in a broadly representative way it is important to reiterate that the sample is limited in capturing the experiences of people who are non-white. Therefore, caution is needed in drawing conclusions about their experiences.

Reflective of this study's critical realist epistemological position, possible effects of response bias were recognised and precautions were taken to enhance objectivity. For example, an anonymous online method was adopted due to concern that some people (especially men) may be reluctant to participate for fear of appearing preoccupied with their appearance (as was the case in Thompson and Kent's study (2001)). However, the online methods used coupled with the non-random sampling strategy adopted may have influenced the findings generalisability to the wider adult acne population. Indeed, this study's self-selecting sample was recruited online largely via acne support groups and social media. The sample may therefore have consisted of those most concerned about acne, most socially withdrawn and those who seek support from others. This may help explain why few males participated in the study, which negated the ability to analyse the findings by gender.

Additionally, the generalisability of the appearance-distress hierarchical multiple regression model may have been impacted by non-normally distributed residuals. Although when reviewing the histogram and normality plots the residuals appeared normally distributed, a Shapiro-Wilk test indicated they were not. However, in large samples statistical tests can deem even small deviations from normality to be significant and therefore in this case the Shapiro-Wilk statistic was interpreted with caution. Nevertheless, the normality of residuals for this model is questionable and generalising the appearance-distress findings to the wider population should be done tentatively.

4.4.4 No Control Group or Inclusion of Wider Confounding Variables

Although this is an exploratory study, it could be critiqued for assuming a relationship between psychological factors and acne. As such, it would have been preferable to include a control group to compare the findings of those who have acne and those who do not. The study could also be critiqued for neglecting the role of confounding factors. Although this study explored the influence of acne medication and specific co-morbid health conditions on the relationships between variables it did not examine the role of other potentially confounding variables. One study identified examined the influence of personality, social and socioeconomic factors in understanding distress in people living with skin disease (Magin, Pond, Smith, Watson, & Goode, 2008).

Similarly, this study would have benefitted from examining the influence of such factors and adjusting for them in analyses if warranted.

4.4.5 Extent the Study Reflected the OT Model

It is acknowledged that this exploratory study did not examine all of the constructs included in the OT framework and only analysed direct relationships between the OT constructs examined and the criterion variables. As such, the study only partially reflected the OT model. Possible ways of investigating OT in more detail are provided in sections 4.5.2 and 4.5.3.

4.5 Future Research

4.5.1 Study Replication

It is firstly proposed that this study be replicated to address some of the limitations outlined above. Specifically, it is recommended the replication study employs a random probability stratified sampling strategy to ensure the sample include sufficient numbers for sub-group analyses (e.g regarding age, gender, ethnicity) and to minimise response bias. To further address bias it is suggested that participants be recruited at their treatment source (e.g through GPs and dermatologists). Furthermore, it is recommended a demographically-matched control group be included and information about potentially confounding variables be captured to enable more robust interpretation of findings.

Prior to the replication study, additional work would also be required to examine the psychometric properties of the OT measures, which is discussed in greater detail below.

4.5.2 Measures and Extension of Study

Before the replication study be conducted it is recommended that the psychometric properties of the OT measures be examined further. For example, it is suggested that a more thorough consultation be conducted with people with acne, clinicians and researchers in the field and they be involved in rating and refining the content validity of the acne-specific OT measures' items.

As mentioned above, this exploratory study did not examine all of the constructs included in the OT framework. For example, it did not examine people's experience of sexual objectification and how this was related to surveillance and the criterion variables. These relationships would be important to assess in future studies to more rigorously test the application of the OT framework in this context. This would require the development of appropriate methods to assess sexual objectification experiences in people living with acne. It is also recommended that an OT appearance anxiety measure be included in future studies (e.g Dion, Dion and Keelan's Appearance Anxiety Scale (1990)) to facilitate interpretation. Additionally, it is acknowledged that this study did not consider the role of stigma associated with skin disease. It is suggested that future studies explore this, for example by including a relevant measure of stigma (if available) to assess how it intertwines with OT. Other OT studies have also incorporated measures of stigma/discrimination (e.g Velez, Campos, & Moradi, 2015). Finally, it is recommended that a dermatological quality of life measure be used as an additional criterion variable given their previous use in understanding distress in adult acne (e.g Abdel-Hafez et al., 2009; Lasek & Chren, 1998). Health-related quality of life measures have been used this way in other OT health-related studies (e.g Boquiren, Esplen, Wong, Toner, & Warner, 2013).

4.5.3 Mediational and Moderational Analyses

As mentioned above, this exploratory study only assessed the direct relationships between both the surveillance and shame OT constructs and the criterion variables. It is recommended that in future studies, the relationships between the OT constructs and the criterion variables be explored in more detail through mediational analyses. These analyses are required to examine the proposed indirect relationships between both sexual objectification experiences and surveillance and the criterion variables. The analyses would also examine the proposed direct relationships between sexual objectification experiences and surveillance, surveillance and shame/appearance anxiety, and shame/appearance anxiety and the criterion variables. These investigations would enable a more thorough examination of the findings and would test the application of the OT framework in this context. Importantly, a stigma construct

should also be included in the analyses. This would reveal how the stigma of having acne intertwines with OT.

This study's sample was older than that of previous acne studies and was largely female. It is proposed that future studies further consider the influence of age and gender and it is recommended that moderational analyses be conducted to determine whether any of the above relationships are moderated by these demographic factors. These additional analyses would provide further information about tailoring and focussing therapy with adults with acne.

4.5.4 Longitudinal and Experimental Studies

The analyses conducted for this study, and the mediational analyses suggested above, are rooted in correlational methodology which precludes causal interpretations. Longitudinal and experimental studies are therefore also required to examine the causal and directional relationships between the OT constructs and criterion variables (Kim et al., 2014).

Furthermore, experimental studies could enable a more flexible exploration of the application of OT in visibly different populations. For example, it may be that in the context of having a stigmatised condition that fear of negative evaluation causes increased appearance-anxiety, which in turn increases self-surveillance. As such, fear of negative evaluation could be manipulated experimentally to test its effects.

4.5.5 Qualitative Exploration and Research

The validity of the conclusions drawn could have been improved by incorporating a qualitative element to the study, therefore it is recommended that future studies do so. For example, some studies have asked open-ended questions to enquire about participants' views and feelings about the issue being examined (e.g Buchanan et al., 2007).

This study has highlighted the need for additional qualitative research to be conducted with people of varied ages to explore the influence of age on distress in adults with acne. Existing studies have consisted of people in emerging adulthood (Prior & Khadaroo, 2015) and young adulthood (Murray & Rhodes,

2005), however their experiences of acne may differ from those in their 30s and 40s. This gap in the literature presented challenges in interpreting some of this study's findings. Additional qualitative research would enable the influence of age on distress in adult acne to be explored at the individual level, which would provide a richer understanding of distress (or lack thereof) in a more contextualised way.

4.6 Clinical Implications

Despite this study's limitations and the additional research recommended the findings highlight several clinical implications.

4.6.1 Provision of Support

As demonstrated in this sample, acne is a chronic condition associated with high levels of emotional distress. As the medical goal is to control rather than cure it, acne's psychological aspects have been rendered a high priority for treatment (Magin et al., 2011). The importance of such support is highlighted further by the biopsychosocial model of acne, which suggests its psychological and social sequelae may exacerbate it (Kellett & Gilbert, 2001). Charities have recently called for additional money to fund services to support people in managing the emotional effects of living with acne (BBC News, 2016). This study did not ask about psychological service provision but its findings indicate high distress and therefore supports the call for greater psychological input to be provided at different levels. To enhance a psychological approach to working with people with acne, clinical recommendations relevant to the different professional groups most in contact with them will be outlined below.

4.6.2 Psychologists/Counsellors

The study's findings can help inform psychological interventions at both the individual and community levels.

When working with clients who are distressed about their acne, therapists may find it useful to draw on OT and address some of its pertinent issues. This could

entail adopting a CBT approach or a more discursive model of therapy (e.g using a narrative approach). OT could be drawn on, for example, to critically examine societal meanings about acne, explore how they were learned and the extent they have been internalised. This may help clients understand that the source of their appearance-distress does not arise from individual deficits but from sociocultural pressure. Following this, psychosocial interventions could help clients redefine their personal attractiveness standards to be less focussed on societal expectations, which may help reduce negative self-evaluations (Boquiren et al., 2013). Indeed, this study found such negative self-evaluations about acne to be most predictive of distress. The findings also highlight the importance of being aware that distress may be influenced by multiple attractiveness standards (body shape and size, as well as acne), which may also require attention.

Therapists could also intervene at the community level by running workshops in schools (for example) to educate people about the causes of acne to help address stigma, highlight objectifying practices in the media and facilitate discussion about healthy body-image (Buchanan et al., 2007). Additionally, therapists could be involved in advocacy campaigns to educate communities about the risks of objectification (Kim et al., 2014).

4.6.3 Medical Staff

GPs, dermatologists and nurses are more likely to have contact with adults with acne than mental health professionals, and therefore currently enable the best means of providing a more psychological approach to working with them. This study's findings could be used to inform training or briefing to these groups to support a more psychological approach to their work. Such training could highlight the issues below.

It is important for medical staff not to assume that people are distressed by their acne. Indeed, this study demonstrated variations in levels of distress. The findings also revealed that age, acne severity, visibility and duration are not very important factors in predicting low self-esteem, anxiety and depression in this group. They did highlight, however, the significance of psychological factors, such as shame, in predicting distress. As such, it is difficult to predict which

patients will be more/less likely to be distressed by acne based on demographic and dermatological factors alone. Therefore when people seek acne treatment it is imperative to enquire about their experience of having acne and its impact on their emotions.

For those who report distress it may be helpful to ask them what they find most distressing about having acne. This study revealed shame to be most predictive of emotional distress in adult acne. If people mention that acne makes them feel like they are ‘falling short’ or ‘not good enough’ it may be useful to gently question unrealistic cultural expectations that may be fuelling their distress. The development of a brief screening tool may also be helpful to capture the extent of people’s experiences of shame, which could help focus these conversations. Given that shame is a likely emotional experience in those who are distressed, it is important these interactions are characterised with empathy and understanding.

These conversations may not only be experienced as validating of peoples’ experiences and therefore psychologically therapeutic, they may help elucidate those requiring additional psychological support.

REFERENCES

Abdel-Hafez, K., Mahran, A. M., Hofny, E. R. M., Mohammed, K. A., Darweesh, A. M., & Aal, A. A. (2009). The impact of acne vulgaris on the quality of life and psychologic status in patients from upper Egypt. *International Journal of Dermatology*, *48*(3), 280–5. doi:10.1111/j.1365-4632.2009.03838.x

Afkham Ebrahimi, A., Salehi, M., & Kafian Tafti, A. (2007). Obsessive-compulsive disorder in dermatology outpatients. *International Journal of Psychiatry in Clinical Practice*, *11*(3), 218–21. doi:10.1080/13651500601127172

Barker, C., Pistrang, N., & Elliott, R. (2002). *Research Methods in Clinical Psychology: An Introduction for Students and Practitioners: Second Edition*. Chichester, UK: John Wiley & Sons, Ltd. doi:10.1002/0470013435

Barnett, V. & Lewis, T. (1978). *Outliers in Statistical Data*. New York: Wiley

BBC News (2016). *Acne needs to be taken more seriously, say charities*. Retrieved on 2nd May 2016 from: http://www.bbc.co.uk/newsbeat/article/36081736/acne-needs-to-be-taken-more-seriously-say-charities

Bentall, D. P. R. (1999). The medicalisation of misery: A critical realist analysis of the concept of depression. *Journal of Mental Health*, *8*(3), 261–274. doi:10.1080/09638239917427

Bessell, A., & Moss, T. P. (2007). Evaluating the effectiveness of psychosocial interventions for individuals with visible differences: a systematic review of the empirical literature. *Body Image*, *4*(3), 227–38. doi:10.1016/j.bodyim.2007.04.005

Bez, Y., Yesilova, Y., Kaya, M. C., & Sir, A. (2011). High social phobia frequency and related disability in patients with acne vulgaris. *European Journal of Dermatology : EJD*, *21*(5), 756–60. doi:10.1684/ejd.2011.1418

Bhaskar, R. (1990). *Reclaiming reality*. London: Verso

Bhate, K., & Williams, H. C. (2013). Epidemiology of acne vulgaris. *The British Journal of Dermatology*, *168*(3), 474–85. doi:10.1111/bjd.12149

Bjelland, I., Dahl, A. A., Haug, T. T., & Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale. *Journal of Psychosomatic Research*, *52*(2), 69–77. doi:10.1016/S0022-3999(01)00296-3

Boquiren, V. M., Esplen, M. J., Wong, J., Toner, B., & Warner, E. (2013). Exploring the influence of gender-role socialization and objectified body consciousness on body image disturbance in breast cancer survivors. *Psycho-Oncology*, *22*(10), 2177–2185. doi:10.1002/pon.3271

Bordo, S. (2003). *Unbearable weight: Feminism, western culture, and the body*. 10th anniversary edn. Berkeley, CA: University of California Press.

Buchanan, T. S., Fischer, A. R., Tokar, D. M., & Yoder, J. D. (2007). Testing a Culture-Specific Extension of Objectification Theory Regarding African American Women's Body Image. *The Counseling Psychologist*, *36*(5), 697–718. doi:10.1177/0011000008316322

Bundy, C. (2012). Visible difference associated with disease: Skin conditions. In N. Rumsey and D. Harcourt (Eds) *The Oxford handbook of the psychology of appearance*. New York, NY, US: Oxford University Press.

Cafri, G., Thompson, J. K., Ricciardelli, L., McCabe, M., Smolak, L., & Yesalis, C. (2005). Pursuit of the muscular ideal: Physical and psychological consequences and putative risk factors. *Clinical Psychology Review*, *25*(2), 215–39. doi:10.1016/j.cpr.2004.09.003

Callender, V. D., Alexis, A. F., Daniels, S. R., Kawata, A. K., Burk, C. T., Wilcox, T. K., & Taylor, S. C. (2014). Racial differences in clinical characteristics, perceptions and behaviors, and psychosocial impact of adult female acne. *Journal of Clinical and Aesthetic Dermatology*, *7*(7), 19–31.

Carr, T., Harris, D., & James, C. (2000). The Derriford Appearance Scale (DAS-59): A new scale to measure individual responses to living with problems of appearance. *British Journal of Health Psychology*, *5*(2), 201–215.

Carr, T., Moss, T., & Harris, D. (2005). The DAS24: a short form of the Derriford Appearance Scale DAS59 to measure individual responses to living with problems of appearance. *British Journal of Health Psychology*, *10*(Pt 2), 285–98. doi:10.1348/135910705X27613

Cash, T. F. (2002). The situational inventory of body-image dysphoria: psychometric evidence and development of a short form. *The International Journal of Eating Disorders*, *32*(3), 362–6. doi:10.1002/eat.10100

Cash, T. F., Morrow, J. A., Hrabosky, J. I., & Perry, A. A. (2004). How has body image changed? A cross-sectional investigation of college women and men from 1983 to 2001. *Journal of Consulting and Clinical Psychology*, *72*(6), 1081–9. doi:10.1037/0022-006X.72.6.1081

Choma, B. L., Visser, B. A., Pozzebon, J. A., Bogaert, A. F., Busseri, M. A., & Sadava, S. W. (2010). Self-Objectification, Self-Esteem, and Gender: Testing a Moderated Mediation Model. *Sex Roles*, *63*(9-10), 645–656. doi:10.1007/s11199-010-9829-8

Chren, M. M., Lasek, R. J., Quinn, L. M., Mostow, E. N., & Zyzanski, S. J. (1996). Skindex, a quality-of-life measure for patients with skin disease: Reliability, validity, and responsiveness. *Journal of Investigative Dermatology*, *107*(5), 707–713.

Clark, S., Goulden, V., Finlay, A., Cunliffe, W. (1997). The psychological and social aspect of acne: a comparison study using three acne disability questionnaires. *British Journal of Dermatology*, 137, 41

Cohen, P. (1995). *Empirical Methods for Artificial Intelligence*. New York: MIT publishings

Coopersmith, S. (1975). *Coopersmith Inventory: Adult form*. California: Consulting Psychologists Press

Cresce, N. D., Davis, S. A., Huang, W. W., & Feldman, S. R. (2014). The quality of life impact of acne and rosacea compared to other major medical conditions. *Journal of Drugs in Dermatology*, *13*(6), 692–697.

Csikszentmihalyi, M (1990). *Flow*. New York: Harper Perennial

Dion, K., Dion, K., & Keelan, J. (1990). Appearance anxiety as a dimension of social- evaluative anxiety: Exploring the ugly duckling syndrome. *Contemporary Social Psychology*, 14, 220-224

Durbin, J., & Watson, G. S. (1951). Testing for serial correlation in least squares regression. II. *Biometrika*, *38*(1-2), 159–178.

El-Behairy A. (2006). *Arabic Version of CFSEI-AD Form*. Educational and Psychological Research Center, Assiut University. Assiut: Mochtar Press.

El-Khateeb, E. A., Khafagy, N. H., Abd Elaziz, K. M., & Shedid, A. M. (2014). Acne vulgaris: prevalence, beliefs, patients' attitudes, severity and impact on quality of life in Egypt. *Public Health*, *128*(6), 576–8. doi:10.1016/j.puhe.2014.03.009

Fang, S.-Y., Chang, H.-T., & Shu, B.-C. (2014). Objectified Body Consciousness, Body Image Discomfort, and Depressive Symptoms Among Breast Cancer Survivors in Taiwan. *Psychology of Women Quarterly*, *38*(4), 563–574. doi:10.1177/0361684314552652

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behaviour Research Methods*, 41, 1149 - 1160

Fehnel, S. E., McLeod, L. D., Brandman, J., Arbit, D. I., McLaughlin-Miley, C. J., Coombs, J. H., … Girman, C. J. (2002). Responsiveness of the Acne-Specific Quality of Life Questionnaire (Acne-Qol) to treatment for acne vulgaris in placebo-controlled clinical trials. *Quality of Life Research*, *11*(8), 809–816. doi:10.1023/A:1020880005846

Feingold, A., & Mazzella, R. (1998). Gender differences in body image are increasing. *Psychological Science*, *9*(3), 190–195.

Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self consciousness: assessment and theory. *Journal of Consulting and Clinical Psychology*.

Field, A. (2009). *Discovering Statistics using SPSS*. London: Sage Publications

Finlay, A. Y., & Khan, G. K. (1994). Dermatology Life Quality Index (DLQI)-a simple practical measure for routine clinical use. *Clinical and Experimental Dermatology*, *19*(3), 210–216. doi:10.1111/j.1365-2230.1994.tb01167.x

Franzoi, S. L., & Shields, S. A. (1984). The Body Esteem Scale: multidimensional structure and sex differences in a college population. *Journal of Personality Assessment*, *48*(2), 173–8. doi:10.1207/s15327752jpa4802_12

Fredrickson, B. L., & Roberts, T. A. (1997). Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly*, *21*(2), 173–206.

Fried, R. G., Gupta, M. A., & Gupta, A. K. (2005). Depression and skin disease. *Dermatologic Clinics*, *23*(4), 657–64. doi:10.1016/j.det.2005.05.014

Frith, K. (2005). The Construction of Beauty: A Cross-Cultural Analysis of Women's Magazine Advertising. *Journal of Communication*, *55*(1), 56–70. doi:10.1093/joc/55.1.56

Ganem, P. A., Heer, H. de, & Morera, O. F. (2009). Does body dissatisfaction predict mental health outcomes in a sample of predominantly Hispanic college students? *Personality and Individual Differences*, *46*(4), 557–561. doi:10.1016/j.paid.2008.12.014

Garner, D. (1997). The 1997 body image survey results. *Psychology Today*, 30, 30 –44.

Goffman, E. (1963). *Stigma: Notes of the management of spoiled identity*. Englewood Cliffs, NJ: Prentice-Hill.

Gollnick, H., Cunliffe, W., Berson, D., Dreno, B., Finlay, A., Leyden, J. J., … Thiboutot, D. (2003). Management of acne: a report from a Global Alliance to Improve Outcomes in Acne. *Journal of the American Academy of Dermatology*, *49*(1 Suppl), S1–37. doi:10.1067/mjd.2003.618

Goss, K., Gilbert, P., & Allan, S. (1994). An exploration of shame measures—I: The other as Shamer scale. *Personality and Individual Differences*, *17*(5), 713–717. doi:10.1016/0191-8869(94)90149-X

Goulden, V., Stables, G. I., & Cunliffe, W. J. (1999). Prevalence of facial acne in adults. *Journal of the American Academy of Dermatology*, *41*(4), 577–580.

Grant, J (2015). Excoriation (skin picking) disorder. In K. Phillips and D. Stein (Eds) *Handbook on obsessive-compulsive and related disorders*. Arlington, VA, US: American Psychiatric Publishing.

Greydanus, D. (2015). Acne. *International Journal of Child Health and Human Development*, Vol 8(3), pp. 311-332.

Gupta, M. A., Gupta, A. K., Schork, N. J., Ellis, C. N., & Voorhees, J. J. (1990). Psychiatric aspects of the treatment of mild to moderate facial acne: Some preliminary observations. *International Journal of Dermatology*, *29*(10), 719–721.

Gupta, A., Johnson, A., & Aditya, M. (1998). The Development of an Acne Quality of Life Scale: Reliability, Validity, and Relation to Subjective Acne Severity in Mild to Moderate Acne Vulgaris. *Acta Dermato-Venereologica*, *78*(6), 451–456. doi:10.1080/000155598442773

Harris, D. L., & Carr, A. T. (2001). The Derriford Appearance Scale (DAS59): a new psychometric scale for the evaluation of patients with disfigurements and aesthetic problems of appearance. *British Journal of Plastic Surgery*, *54*(3), 216–22. doi:10.1054/bjps.2001.3559

Hassan, J., Grogan, S., Clark-Carter, D., Richards, H., & Yates, V. M. (2009). The individual health burden of acne: appearance-related distress in male and female adolescents and adults with back, chest and facial acne. *Journal of Health Psychology*, *14*(8), 1105–18. doi:10.1177/1359105309342470

Hatcher, J., & Hall, L. A. (2009). Psychometric properties of the Rosenberg self-esteem scale in African American single mothers. *Issues in Mental Health Nursing*, *30*(2), 70–7. doi:10.1080/01612840802595113

Hay, R. J., Johns, N. E., Williams, H. C., Bolliger, I. W., Dellavalle, R. P., Margolis, D. J., … Naghavi, M. (2014). The global burden of skin disease in 2010: an analysis of the prevalence and impact of skin conditions. *The Journal of Investigative Dermatology*, *134*(6), 1527–34. doi:10.1038/jid.2013.446

Hughes, J. E., Barraclough, B. M., Hamblin, L. G., & White, J. E. (1983). Psychiatric symptoms in dermatology patients. *British Journal of Psychiatry*, *143*(1), 51–54.

Jones, B. A., & Griffiths, K. M. (2015). Self-objectification and depression: an integrative systematic review. *Journal of Affective Disorders*, *171*, 22–32. doi:10.1016/j.jad.2014.09.011

Kaymak, Y., Ulutaş, I., Taner, E., Bakir, B., & Simşek, I. (2007). Body image

satisfaction and anxiety of a Turkish sample of university students with skin diseases. *Psychological Reports*, *100*(2), 499–508. doi:10.2466/pr0.100.2.499-508

Kellett, S. C., & Gawkrodger, D. J. (1999). The psychological and emotional impact of acne and the effect of treatment with isotretinoin. *British Journal of Dermatology*, *140*(2), 273–282. doi:10.1046/j.1365-2133.1999.02662.x

Kellett, S., & Gilbert, P. (2001). Acne: a biopsychosocial and evolutionary perspective with a focus on shame. *British Journal of Health Psychology*, *6*(Pt 1), 1–24. doi:10.1348/135910701169025

Kent, G. (2002). Testing a Model of Disfigurement: Effects of a Skin Camouflage Service on Well-being and Appearance Anxiety. *Psychology & Health*, *17*(3), 377–386. doi:10.1080/08870440290029601

Kim, S., Thibodeau, R., & Jorgensen, R. S. (2011). Shame, guilt, and depressive symptoms: a meta-analytic review. *Psychological Bulletin*, *137*(1), 68–96. doi:10.1037/a0021466

Kim, S. Y., Seo, Y. S., & Baek, K. Y. (2014). Face consciousness among South Korean women: a culture-specific extension of objectification theory. *Journal of Counseling Psychology*, *61*(1), 24–36. doi:10.1037/a0034433

Kontaxakis, V. P., Skourides, D., Ferentinos, P., Havaki-Kontaxaki, B. J., & Papadimitriou, G. N. (2009). Isotretinoin and psychopathology: a review. *Annals of General Psychiatry*, *8*, 2. doi:10.1186/1744-859X-8-2

Kroenke, K., Spitzer, R. L., Williams, J. B. W., & Löwe, B. (2009). An ultra-brief screening scale for anxiety and depression: the PHQ-4. *Psychosomatics*, *50*(6), 613–21. doi:10.1176/appi.psy.50.6.613

Lasek, R. J., & Chren, M.-M. (1998). Acne Vulgaris and the Quality of Life of Adult Dermatology Patients. *Archives of Dermatology*, *134*(4), 454. doi:10.1001/archderm.134.4.454

Lee, I.-S., Lee, A.-R., Lee, H., Park, H.-J., Chung, S.-Y., Wallraven, C., … Chae, Y. (2014). Psychological distress and attentional bias toward acne lesions in patients with acne. *Psychology, Health & Medicine*, *19*(6), 680–6. doi:10.1080/13548506.2014.880493

Lewis, V., & Finlay, A. Y. (2004). 10 years experience of the Dermatology Life Quality Index (DLQI). *The Journal of Investigative Dermatology. Symposium Proceedings / the Society for Investigative Dermatology, Inc. [and] European Society for Dermatological Research*, *9*(2), 169–80. doi:10.1111/j.1087-0024.2004.09113.x

Liebowitz, M. R. (1987). Social phobia. *Modern Problems of Pharmacopsychiatry*, *22*, 141–173.

Loney, T., Standage, M., & Lewis, S. (2008). Not just “skin deep”: psychosocial effects of dermatological-related social anxiety in a sample of acne patients. *Journal of Health Psychology*, *13*(1), 47–54. doi:10.1177/1359105307084311

Magin, P., Adams, J., Heading, G., & Pond, D. (2011). “Perfect skin”, the media and patients with skin disease: a qualitative study of patients with acne, psoriasis and atopic eczema. *Australian Journal of Primary Health*, *17*(2), 181–5. doi:10.1071/PY10047

Magin, P., Adams, J., Heading, G., Pond, D., & Smith, W. (2006). Psychological sequelae of acne vulgaris: Results of a qualitative study. *Canadian Family Physician*, *52*(8), 978–979.

Magin, P., Adams, J., Heading, G., Pond, D., & Smith, W. (2008). Experiences of appearance-related teasing and bullying in skin diseases and their psychological sequelae: results of a qualitative study. *Scandinavian Journal of Caring Sciences*, *22*(3), 430–6. doi:10.1111/j.1471-6712.2007.00547.x

Magin, P. J., Pond, C. D., Smith, W. T., Watson, A. B., & Goode, S. M. (2008). A cross-sectional study of psychological morbidity in patients with acne, psoriasis and atopic dermatitis in specialist dermatology and general practices. *Journal of the European Academy of Dermatology and Venereology : JEADV*, *22*(12), 1435–44. doi:10.1111/j.1468-3083.2008.02890.x

McKinley, N. M. (2006). The developmental and cultural contexts of objectified body consciousness: a longitudinal analysis of two cohorts of women. *Developmental Psychology*, *42*(4), 679–87. doi:10.1037/0012-1649.42.4.679

McKinley, N. M., & Hyde, J. S. (1996). The objectified body consciousness scale development and validation. *Psychology of Women Quarterly*, *20*(2), 181–215.

Moradi, B., & Huang, Y.-P. (2008). OBJECTIFICATION THEORY AND PSYCHOLOGY OF WOMEN: A DECADE OF ADVANCES AND FUTURE DIRECTIONS. *Psychology of Women Quarterly*, *32*(4), 377–398. doi:10.1111/j.1471-6402.2008.00452.x

Moss, T.P., Harris, D. & Carr, T. (2004) *Manual for the Derriford Appearance Scale 24 (DAS24)*. Musketeer Press, Bradford on Avon

Murray, C. D., & Rhodes, K. (2005). “Nobody likes damaged goods”: the experience of adult visible acne. *British Journal of Health Psychology*, *10*(Pt 2), 183–202. doi:10.1348/135910705X26128

National Institute of Clinical Excellence (NICE) (2014). *Acne Vulgaris: Management*. Retrieved on 8th January 2016 from: http://cks.nice.org.uk/acne-vulgaris

NHS Choices (2016) *Acne: Treatment*. Retrieved on 8th January 2016 from: http://www.nhs.uk/Conditions/Acne/Pages/Treatment.aspx

Nichols, A. & Grossbart, T. (2014). Functional symptoms in pediatric dermatology: The canary in the coal mine. In R. Anbar (Ed) *Functional symptoms in pediatric disease: A clinical guide.* New York, NY, US: Springer Science + Business Media.

Olivardia, R., Pope, H. G., Borowiecki, J. J., & Cohane, G. H. (2004). Biceps and Body Image: The Relationship Between Muscularity and Self-Esteem, Depression, and Eating Disorder Symptoms. *Psychology of Men & Masculinity*, *5*(2), 112–120. doi:10.1037/1524-9220.5.2.112

Papadopoulos, l. & Bor, R. (1999). *Psychological approaches to dermatology*. Leicester: BPS Books.

Papadopoulos, L., Walker, C., Aitken, D., & Bor, R. (2000). The relationship between body location and psychological morbidity in individuals with acne vulgaris. *Psychology, Health and Medicine*, *5*(4), 431–438.

Phillips, K. A., McElroy, S. L., Keck, P. E., Pope, H. G., & Hudson, J. I. (1993).

Body dysmorphic disorder: 30 Cases of imagined ugliness. *American Journal of Psychiatry*, *150*(2), 302–308.

Picardi, A., Lega, I., & Tarolla, E. (2013). Suicide risk in skin disorders. *Clinics in Dermatology*, *31*(1), 47–56. doi:10.1016/j.clindermatol.2011.11.006

Pope Jr., H. G., Olivardia, R., Borowiecki III, J. J., & Cohane, G. H. (2001). The Growing Commercial Value of the Male Body: A Longitudinal Survey of Advertising in Women's Magazines. *Psychotherapy and Psychosomatics*, *70*(4), 189–192. doi:10.1159/000056252

Prior, J., & Khadaroo, A. (2015). "I sort of balance it out". Living with facial acne in emerging adulthood. *Journal of Health Psychology*, *20*(9), 1154–65. doi:10.1177/1359105313509842

Rasoulian, M., Ebrahimi, A. A., Zare, M., & Taherifar, Z. (2010). Psychiatric morbidity in dermatological conditions. *International Journal of Psychiatry in Clinical Practice*, *14*(1), 18–22. doi:10.3109/13651500903262370

Reid, S. & Wojcik, W. (2014). Chronic skin disease and anxiety, depression and other affective disorders. In A. Bewley, R. Taylor, J. Reichenberg and M. Magid (Eds.) *Practical Psychodermatology*. John Wiley & Sons, Ltd.

Rodin, J., Silberstein, L., & Striegel-Moore, R. (1984). Women and weight: a normative discontent. *Nebraska Symposium on Motivation. Nebraska Symposium on Motivation*.

Rosenberg, M. (1965). *Society and the Adolescent Self-Image*. Princeton, NJ: Princeton University Press

Rumsey, N., Charlton, R., Clarke, A., Harcourt, D., James, H., Jenkinson, E., et al. (under review). *Factors associated with distress and positive adjustment in people with disfigurement: Evidence from a large multi-centred study*.

Rumsey, N., Clarke, A., White, P., Wyn-Williams, M., & Garlick, W. (2004). Altered body image: appearance-related concerns of people with visible disfigurement. *Journal of Advanced Nursing*, *48*(5), 443–53. doi:10.1111/j.1365-2648.2004.03227.x

Schafer, T., Nienhaus, A., Vieluf, D., Berger, J., & Ring, J. (2001). Epidemiology of acne in the general population: the risk of smoking. *British Journal of*

Dermatology, *145*(1), 100–104. doi:10.1046/j.1365-2133.2001.04290.x

Suh, D. H., & Kwon, H. H. (2015). What's new in the physiopathology of acne? *The British Journal of Dermatology*, *172 Suppl* (S1), 13–9. doi:10.1111/bjd.13634

Sulzberger, M. B., & Zaidens, S. H. (1948). Psychogenic factors in dermatologic disorders. *The Medical Clinics of North America*, *32*, 669–685.

Tabachnick, B. G., & Fidell, L. S. (1996). *Using Multivariate Statistics*. New York: Harper Collins.

Tan, J. K. (2008). Current measures for the evaluation of acne severity. *Expert Review of Dermatology*, *3*(5), 595–603. doi:10.1586/17469872.3.5.595

Tan, J. K. L., Li, Y., Fung, K., Gupta, A. K., Thomas, D. R., Sapra, S., … Sebaldt, R. J. (2008). Divergence of Demographic Factors Associated with Clinical Severity Compared with Quality of Life Impact in Acne. *Journal of Cutaneous Medicine and Surgery*, *12*(5), 235–242. doi:10.2310/7750.2008.07053

Thompson, A. (2012) Researching Appearance: Models, Theories and Frameworks. In N. Rumsey and D. Harcourt (Eds) *The Oxford handbook of the psychology of appearance*. New York, NY, US: Oxford University Press

Thompson, A., & Kent, G. (2001). Adjusting to disfigurement: processes involved in dealing with being visibly different. *Clinical Psychology Review*, *21*(5), 663–682. doi:10.1016/S0272-7358(00)00056-8

Tiggemann, M., & Lynch, J. E. (2001). Body image across the life span in adult women: the role of self-objectification. *Developmental Psychology*, *37*(2), 243–253.

Uhlenhake, E., Yentzer, B. A., & Feldman, S. R. (2010). Acne vulgaris and depression: a retrospective examination. *Journal of Cosmetic Dermatology*, *9*(1), 59–63. doi:10.1111/j.1473-2165.2010.00478.x

Uslu, G., Sendur, N., Uslu, M., Savk, E., Karaman, G., & Eskin, M. (2008). Acne: prevalence, perceptions and effects on psychological health among adolescents in Aydin, Turkey. *Journal of the European Academy of Dermatology and Venereology : JEADV*, *22*(4), 462–9. doi:10.1111/j.1468-

3083.2007.02497.x

Uzun, O., Başoğlu, C., Akar, A., Cansever, A., Ozşahin, A., Cetin, M., & Ebrinç, S. (2003). Body dysmorphic disorder in patients with acne. *Comprehensive Psychiatry*, *44*(5), 415–9. doi:10.1016/S0010-440X(03)00102-0

Velez, B. L., Campos, I. D., & Moradi, B. (2015). Relations of Sexual Objectification and Racist Discrimination with Latina Women's Body Image and Mental Health. *The Counseling Psychologist*, *43*(6), 906–935. doi:10.1177/0011000015591287

Vos, T., Flaxman, A. D., Naghavi, M., Lozano, R., Michaud, C., Ezzati, M., … Memish, Z. A. (2012). Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*, *380*(9859), 2163–96. doi:10.1016/S0140-6736(12)61729-2

Willig, C. (2013). *Introducing qualitative research in psychology*. Third edition. Buckingham: Open University Press

Wolf, N. (1991). *The beauty myth*. New York: William Morrow

Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica*, *67*(6), 361–370.

APPENDICES

Appendix 1: Initial Ethical Approval Letter Received on 3rd May 2015

NOTICE OF ETHICS REVIEW DECISION

For research involving human participants

BSc/MSc/MA/Professional Doctorates in Clinical, Counselling and Educational Psychology

SUPERVISOR: Kenneth Gannon **REVIEWER:** Irvine Gersch

STUDENT: Susannah Clark

Title of proposed study: An Exploration of Emotional Distress in Adults with Acne

Course: Professional Doctorate in Clinical Psychology

DECISION *(Delete as necessary)***:**

APPROVED, MINOR AMENDMENTS REQUIRED

APPROVED: Ethics approval for the above named research study has been granted from the date of approval (see end of this notice) to the date it is submitted for assessment/examination.

APPROVED, BUT MINOR AMENDMENTS ARE REQUIRED BEFORE THE RESEARCH COMMENCES (see Minor Amendments box below)**:** In this circumstance, re-submission of an ethics application is not required but the student must confirm with their supervisor that all minor amendments have been made before the research commences. Students are to do this by filling in the confirmation box below when all amendments have been attended to and emailing a copy of this decision notice to her/his supervisor for their records. The supervisor will then forward the student's confirmation to the School for its records.

NOT APPROVED, MAJOR AMENDMENTS AND RE-SUBMISSION REQUIRED (see Major Amendments box below)**:** In this circumstance, a revised ethics application must be submitted and approved before any research takes place. The revised application will be reviewed by the same reviewer. If in doubt, students should ask their supervisor for support in revising their ethics application.

Minor amendments required *(for reviewer)*:

This is a clearly presented, interesting study but attention needs to be paid to the following:

1. Will the data be password protected when stored electronically? State specifically.

2. Will the results be published (a) externally (b) in a journal/book (c) in a thesis? Obviously the latter will be required. This all needs explicit specification to avoid problems later as this looks a likely publishable project. This should be added.

3. s Survey Monkey as reliable and secure as you think? I think UEL uses different software which is worth checking. Check and amend if needed.

4. The recruitment from acne support forums will surely bias results in favour of those who have sought such help. What about those who do not seek forum support? Should the sample be widened, or this point considered more explicitly at this stage. Discuss more directly.

Major amendments required *(for reviewer):*

Confirmation of making the above minor amendments *(for students)*:

I have noted and made minor amendments one and two (above) before starting my research and collecting data. I have discussed points three and four with my supervisor (Ken Gannon) and he is happy with my current sample design and use of Survey Monkey.

Student's name *(Typed name to act as signature):* Susannah Clark

Student number: u1331771

Date: 06/05/2015

ASSESSMENT OF RISK TO RESEACHER *(for reviewer)*

If the proposed research could expose the researcher to any of kind of emotional, physical or health and safety hazard? Please rate the degree of risk:

☐ HIGH

☐ MEDIUM

☒ LOW

Reviewer comments in relation to researcher risk (if any):

Reviewer Professor Irvine Gersch

Date: 3.5.15

This reviewer has assessed the ethics application for the named research study on behalf of the School of Psychology Research Ethics Committee (moderator of School ethics approvals)

PLEASE NOTE:

*For the researcher and participants involved in the above named study to be covered by UEL's insurance and indemnity policy, prior ethics approval from the School of Psychology (acting on behalf of the UEL Research Ethics Committee), and confirmation from students where minor amendments were required, must be obtained before any research takes place.

*For the researcher and participants involved in the above named study to be covered by UEL's insurance and indemnity policy, travel approval from UEL (not the School of Psychology) must be gained if a researcher intends to travel overseas to collect data, even if this involves the researcher travelling to his/her home country to conduct the research. Application details can be found here: http://www.uel.ac.uk/gradschool/ethics/fieldwork/

Appendix 2: Methodological Amendment Request Approval Letter Received on 7th June 2015

UNIVERSITY OF EAST LONDON

School of Psychology

REQUEST FOR AMENDMENT TO AN ETHICS APPLICATION

FOR BSc, MSc/MA & TAUGHT PROFESSIONAL DOCTORATE STUDENTS

Please complete this form if you are requesting approval for proposed amendment(s) to an ethics application that has been approved by the School of Psychology.

Note that approval must be given for significant change to research procedure that impacts on ethical protocol. If you are not sure about whether your proposed amendment warrants approval consult your supervisor or contact Dr Mark Finn (Chair of the School Research Ethics Committee).

HOW TO COMPLETE & SUBMIT THE REQUEST

1. Complete the request form electronically and accurately.
2. Type your name in the 'student's signature' section (page 2).
3. When submitting this request form, ensure that all necessary documents are attached (see below).
4. Using your UEL email address, email the completed request form along with associated documents to: Dr Mark Finn at m.finn@uel.ac.uk
5. Your request form will be returned to you via your UEL email address with reviewer's response box completed. This will normally be within five days. Keep a copy of the approval to submit with your project/dissertation/thesis.
6. Recruitment and data collection are **not** to commence until your proposed amendment has been approved.

REQUIRED DOCUMENTS

1. A copy of your previously approved ethics application with proposed amendments(s) added as tracked changes.
2. Copies of updated documents that may relate to your proposed amendment(s). For example an updated recruitment notice, updated participant information letter, updated consent form etc.
3. A copy of the approval of your initial ethics application.

Name of applicant:	Susannah Clark
Programme of study:	Professional Doctorate in Clinical Psychology
Title of research:	An Exploration of Emotional Distress in Adults with Acne
Name of supervisor:	Dr Ken Gannon

Briefly outline the nature of your proposed amendment(s) and associated rationale(s) in the boxes below

Proposed amendment	Rationale
To recruit participants from private dermatology clinics, in addition to the recruitment sources already detailed.	The acne support groups that I have contacted so far no longer exist. Therefore, I need additional sources from which to recruit participants.

Please tick	YES	NO
Is your supervisor aware of your proposed amendment(s) and agree to them?	✓	

Student's signature (please type your name): Susannah Clark

Date: 6th August 2015

TO BE COMPLETED BY REVIEWER		
Amendment(s) approved	YES	
Comments Proposed amendments is approved		

Reviewer: M Finn

Date: 7/06/15

Appendix 3: Methodological Amendment Request Approval Letter Received on 13TH November 2015

UNIVERSITY OF EAST LONDON

School of Psychology

REQUEST FOR AMENDMENT TO AN ETHICS APPLICATION

FOR BSc, MSc/MA & TAUGHT PROFESSIONAL DOCTORATE STUDENTS

Please complete this form if you are requesting approval for proposed amendment(s) to an ethics application that has been approved by the School of Psychology.

Note that approval must be given for significant change to research procedure that impacts on ethical protocol. If you are not sure about whether your proposed amendment warrants approval consult your supervisor or contact Dr Mark Finn (Chair of the School Research Ethics Committee).

HOW TO COMPLETE & SUBMIT THE REQUEST

7. Complete the request form electronically and accurately.
8. Type your name in the 'student's signature' section (page 2).
9. When submitting this request form, ensure that all necessary documents are attached (see below).
10. Using your UEL email address, email the completed request form along with associated documents to: Dr Mark Finn at m.finn@uel.ac.uk
11. Your request form will be returned to you via your UEL email address with reviewer's response box completed. This will normally be within five days. Keep a copy of the approval to submit with your project/dissertation/thesis.
12. Recruitment and data collection are **not** to commence until your proposed amendment has been approved.

REQUIRED DOCUMENTS

4. A copy of your previously approved ethics application with proposed amendments(s) added as tracked changes.
5. Copies of updated documents that may relate to your proposed amendment(s). For example an updated recruitment notice, updated participant information letter, updated consent form etc.
6. A copy of the approval of your initial ethics application.

Name of applicant:	Susannah Clark
Programme of study:	Professional Doctorate in Clinical Psychology
Title of research:	An Exploration of Emotional Distress in Adults with Acne
Name of supervisor:	Dr Ken Gannon

Briefly outline the nature of your proposed amendment(s) and associated rationale(s) in the boxes below

Proposed amendment	Rationale
To invite participants to enter themselves into a prize draw for completing the questionnaires.	Fewer responses have been received so far than expected. It's anticipated that a prize draw may provide an additional incentive for people to participate.

Please tick	YES	NO
Is your supervisor aware of your proposed amendment(s) and agree to them?	✓	

Student's signature (please type your name): Susannah Clark

Date: 10th November 2015

TO BE COMPLETED BY REVIEWER		
Amendment(s) approved	YES	
Comments		

Reviewer: Mark Finn

Date: 13/11/15

Appendix 4: Participant Information Sheet

PARTICIPANT INVITATION LETTER

UNIVERSITY OF EAST LONDON
School of Psychology
Stratford Campus
Water Lane
London E15 4LZ

The Principal Investigator
Susie Clark
Contact Details: u1331771@uel.ac.uk

Consent to Participate in a Research Study
The purpose of this letter is to provide you with the information that you need to consider in deciding whether to participate in this research study. The study is being conducted as part of my Doctoral degree in Clinical Psychology at the University of East London.

Project Title
An Exploration of Emotional Distress in Adults with Acne

Project Description
This study aims to explore how much different psychological factors predict emotional distress in adults with acne.

Some people feel unsure about participating in psychological research as they may think the researcher thinks any difficulties are all in their minds. I certainly don't believe this is the case. Research has shown that acne is a condition many people find distressing, and that it impacts their lives in a range of different ways. I too have lived with acne, and although I have an understanding of my own experience of it, I'm conducting this study to better understand others' experiences. My hope is that the research will inform the ways professionals respond when working with people living with acne.

People who meet the following criteria are being invited to participate:

- people who currently have acne;
- are receiving treatment for Acne Vulgaris (commonly known as 'Acne') from their GP or Dermatologist;
- are aged 18 years old or over;
- are proficient in reading English;
- are currently living in the UK.

Participants will be asked to complete a series of questionnaires online, which should take approximately 20 minutes.

At the end of the questionnaires, participants will be invited to enter a prize draw to win up to £50 worth of Amazon vouchers. Those who wish to enter the draw will be asked to provide their email address. One person will win £50 worth of vouchers, a further participant will win a voucher worth £30 and one more participant will win one worth £20.

There is a possibility that some people might become distressed about their acne whilst answering the questionnaires. If you decide to participate and this happens to you, you have the right to withdraw from the study at any stage, and appropriate organisations you could contact are detailed at the bottom of this letter.

Confidentiality of the Data
Participants will complete the questionnaires online using secure software. The email addresses of those wanting to be entered into the prize draw will be collected. The addresses will be stored in a password protected excel file (including no other participant data) on a password protected computer. This data will be destroyed after the prizes have been sent to those concerned. Email addresses will be stored separately from participants questionnaire responses, which will therefore be anonymised. This questionnaire response data will be kept for three years following the study and destroyed after this point.

As identifying information will not be collected for those not wishing to enter the prize draw, these participants responses will be anonymous. Their data will also be kept for three years then destroyed.

Location
The study will be conducted online.

Disclaimer
You are not obliged to take part in this study and should not feel coerced. You are free to withdraw at any time. Should you choose to withdraw from the study you may do so without disadvantage to yourself and without any obligation to give a reason. If you decide to withdraw from the study after you have completed and submitted your responses to the questionnaires, please email the researcher to inform them of this (citing your participant identification number, which will be given to you on completion of the questionnaires) before 29th February 2016 to ensure your data is not included in the analyses.

Please feel free to ask me any questions. If you are happy to continue you will be asked to indicate your consent prior to your participation. Please retain this invitation letter for reference.

If you have any questions or concerns about how the study has been conducted, please contact the study's supervisor Dr Ken Gannon, School of Psychology, University of East London, Water Lane, London E15 4LZ. Email address: K.N.Gannon@uel.ac.uk.

or

Chair of the School of Psychology Research Ethics Sub-committee: Dr. Mark Finn, School of Psychology, University of East London, Water Lane, London E15 4LZ. (Tel: 020 8223 4493. Email: m.finn@uel.ac.uk)

Thank you in anticipation.

Yours sincerely,

Susie Clark

Organisations you could contact should you feel distressed about your acne are:

- **Changing Faces** provides free advice, information and emotional support to people living with a condition that affects their appearance. They have a Support Service Helpline (telephone 0300 012 0275 open 10am-4pm, Monday to Friday) or you could email them at support@changingfaces.org.uk.
- **Your GP**
- **The Samaritans** provides free and confidential emotional support to people experiencing emotional distress. They can be contacted 24 hours a day. Their telephone number is 08457 90 90 90, or their email address is jo@samaritans.org.
- The **Talk Health Partnership** run an **online Acne support forum** where people can discuss and share their experiences of having acne and support others. You can access the website using the following link: http://www.talkhealthpartnership.com/forum/viewforum.php?f=11

Appendix 5: Debrief Letter

Thank you very much for taking part in this study.

The purpose of the study is to explore how much different psychological factors predict emotional distress in adults with acne. Analyses of the findings will involve examining any gender differences in emotional distress.

It is important to explore the role of gender as previous studies have found greater levels of emotional distress in female adults with acne than males (Kellett & Gawkrodger, 1999; Hassan, Grogan, Clark-Carter, Richards, & Yates, 2009). Evolutionary theory is the only framework that has been used to explain this, however the explanation has not been tested empirically. This study aims to build on this explanation by extending the application of Objectification Theory (Fredrickson & Roberts, 1997).

Objectification Theory proposes that sexual objectification experiences of women promote self-objectification (where people treat themselves as objects to be looked upon and evaluated based upon bodily appearance) which manifests as persistent body-surveillance. In turn, self-objectification and body surveillance promote greater body shame and emotional distress. This study will examine whether Objectification Theory, as well as wider dermatological factors (e.g acne severity and visibility), helps predict emotional distress in male and female adults with acne. The findings may offer further possible explanations of emotional distress among adults with acne and of any gender differences in distress.

Please remember that:

- Your responses to the questionnaires are anonymous;
- All questionnaire data will be kept for three years following the study and destroyed after this point;
- You can remove yourself from this study at any time, even now you have participated. To do so, please email me before 29th February 2016 citing your study reference number, which will be given to you on the next page.

Please contact me if you have any questions or would like to raise any concerns about the study. If you are interested in the results of the study and would like me to send you a short summary of the findings, please let me know.

Thanks again for your participation in this study.

Best wishes,

Susie
(u1331771@uel.ac.uk)

Here is a reminder of the organisations you could contact should you feel distressed about your acne:

- **Changing Faces** provides free advice, information and emotional support to people living with a condition that affects their appearance. They have a Support Service Helpline (telephone 0300 012 0275 open 10am-4pm, Monday to Friday) or you could email them at support@changingfaces.org.uk.
- **Your GP**
- **The Samaritans** provides free and confidential emotional support to people experiencing emotional distress. They can be contacted 24 hours a day. Their telephone number is 08457 90 90 90, or their email address is jo@samaritans.org.
- The **Talk Health Partnership** run an **online Acne support forum** where people can discuss and share their experiences of having acne and support others. You can access the website using the following link: http://www.talkhealthpartnership.com/forum/viewforum.php?f=11

Appendix 6: Study Leaflets

University of East London

Professional Doctorate in Clinical Psychology

Do you have adult acne? Are you receiving treatment for it from your GP/Dermatologist?

If so, complete this questionnaire and you could win up to £50 in Amazon vouchers

This research is exploring the emotional experiences of adults living with acne. Participation will involve answering a series of questionnaires online which should take approximately 20 minutes. Go to this link to be directed to more information about the study and to access the questionnaires: http://tinyurl.com/acne-study

If you don't meet the criteria to participate but know of other people that might, I'd really appreciate it if you'd support the study by sharing it's facebook page www.facebook.com/acneresearch2015 (widely, rather than to specific people) and/or retweeting the link http://tinyurl.com/acne-study or following @AcneStudy2015

Thank you in anticipation and best wishes,

Susie

University of East London

Professional Doctorate in Clinical Psychology

Do you have adult acne? Are you receiving treatment for it from your GP/Dermatologist?

If so, complete this questionnaire and you could win up to £50 in Amazon vouchers

This research is exploring the emotional experiences of adults living with acne. Participation will involve answering a series of questionnaires online which should take approximately 20 minutes. Go to this link to be directed to more information about the study and to access the questionnaires: http://tinyurl.com/acne-study

If you don't meet the criteria to participate but know of other people that might, I'd really appreciate it if you'd support the study by sharing it's facebook page www.facebook.com/acneresearch2015 (widely, rather than to specific people) and/or retweeting the link http://tinyurl.com/acne-study or following @AcneStudy2015

Thank you in anticipation and best wishes,

Susie

Appendix 7: Study Poster

University of East London

Professional Doctorate in Clinical Psychology

Do you have adult acne? Are you receiving treatment for it from your GP/Dermatologist?

If so, complete this questionnaire and you could win up to £50 in Amazon vouchers

This research is exploring the emotional experiences of adults living with acne. Participation will involve answering a series of questionnaires online which should take approximately 20 minutes. Go to this link to be directed to more information about the study and to access the questionnaires: http://tinyurl.com/acne-study

If you don't meet the criteria to participate but know of other people that might, I'd really appreciate it if you'd support the study by sharing it's facebook page www.facebook.com/acneresearch2015 (widely, rather than to specific people) and/or retweeting the link http://tinyurl.com/acne-study or following @AcneStudy2015

Thank you in anticipation and best wishes,

Susie

http://tinyurl.com/acne-study	http://tinyurl.com/acne-study	http://tinyurl.com/acne-study	http://tinyurl.com/acne-study	http://tinyurl.com/acne-study	http://tinyurl.com/acne-study	http://tinyurl.com/acne-study	http://tinyurl.com/acne-study	http://tinyurl.com/acne-study	http://tinyurl.com/acne-study

Appendix 8 - The Hospital Anxiety and Depression Scale (Zigmond and Snaith, 1983)

Read each item and place a tick in the box next to the reply that comes closest to how you have been feeling over the **past week**. Don't take too long over your answers; your immediate reaction to each statement will probably be more accurate than a long thought-out response.

1A. I feel tense or "wound-up":	(Score)	**8D. I feel as if I am slowed down:**	(Score)
☐ Most of the time	3	☐ Nearly all the time	3
☐ A lot of the time	2	☐ Very often	2
☐ From time to time, occasionally	1	☐ Sometimes	1
☐ Not at all	0	☐ Not at all	0
2D. I still enjoy things I used to enjoy:		**9A. I get a sort of frightened feeling like "butterflies" in the stomach:**	
☐ Definitely as much	0	☐ Not at all	0
☐ Not quite so much	1	☐ Occasionally	1
☐ Only a little	2	☐ Quite often	2
☐ Hardly at all	3	☐ Very often	3
3A. I get a sort of frightened feeling as if something awful is about to happen:		**10D. I have lost interest in my appearance:**	
☐ Very definitely and quite badly	3	☐ Definitely	3
☐ Yes, but not too badly	2	☐ I don't take as much care as I should	2
☐ A little, but it doesn't worry me	1	☐ I may not take quite as much care	1
☐ Not at all	0	☐ I take just as much care as ever	0
4D. I can laugh and see the funny side of things:		**11A. I feel restless as if I have to be on the move:**	
☐ As much as I always could	0	☐ Very much indeed	3
☐ Not quite so much now	1	☐ Quite a lot	2
☐ Not at all	2	☐ Not very much	1

☐ Definitely not so much now	3	☐ Not at all	0
5A. Worrying thoughts go through my mind: ☐ A great deal of the time	3	**12D. I look forward with enjoyment to things:** ☐ As much as I ever did	0
☐ A lot of the time	2	☐ Rather less than I used to	1
☐ Not too often	1	☐ Definitely less than I used to	2
☐ Very little	0	☐ Hardly at all	3
6D. I feel cheerful: ☐ Never	3	**13A. I get sudden feelings of panic:** ☐ Very often indeed	3
☐ Not often	2	☐ Quite often	2
☐ Sometimes	1	☐ Not very often	1
☐ Most of the time	0	☐ Not at all	0
7A. I can sit at ease and feel relaxed: ☐ Definitely	0	**14D. I can enjoy a good book, radio or TV programme:** ☐ Often	0
☐ Usually	1	☐ Sometimes	1
☐ Not often	2	☐ Not often	2
☐ Not at all	3	☐ Very seldom	3

Appendix 9 - Rosenberg's Global Self-Esteem Scale (1965).

Please tick one response for each statement to indicate to what extent you agree or disagree with each.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I feel that I am a person of worth, at least on an equal plane with others.	3	2	1	0
2. I feel that I have a number of good qualities.	3	2	1	0
3. All in all, I am inclined to feel that I am a failure.	0	1	2	3
4. I am able to do things as well as most other people.	3	2	1	0
5. I feel I do not have much to be proud of.	0	1	2	3
6. I take a positive attitude toward myself.	3	2	1	0
7. On the whole, I am satisfied with myself.	3	2	1	0
8. I wish I could have more respect for myself.	0	1	2	3
9. I certainly feel useless at times.	0	1	2	3
10. At times I think I am no good at all.	0	1	2	3

Appendix 10: Dermatology Life Quality Index (Finlay & Khan, 1994).

Tick one response for each question.

	very much (3)	a lot (2)	a little (1)	not at all (0)	Not relevant (0)
1. Over the last week, how **itchy**, **sore**, **painful** or **stinging** has your skin been?					-
2. Over the last week, how **embarrassed** or **self-conscious** have you been because of your skin?					-
3. Over the last week, how much has your skin interfered with you going **shopping**, or looking after your **home** or **garden**?					
4. Over the last week, how much has your skin influenced the **clothes** you wear?					
5. Over the last week, how much has your skin affected any **social** or **leisure** activities?					
6. Over the last week, how much has your skin made it difficult for you to do any **sport**?					

	Yes (3)	No (0)	Not relevant (0)
7a. Over the last week, has your skin prevented you from **working** or **studying**?			

	A lot (2)	A little (1)	Not at all (0)

7b. If "no", over the last week, how much has your skin been a problem at **work** or **studying**?			

	very much (3)	a lot (2)	a little (1)	not at all (0)	Not relevant (0)
8. Over the last week, how much has your skin created problems with your **partner** or any of your **close friends** or **relatives**?					
9. Over the last week, how much has your skin caused any **sexual difficulties**?					
10. Over the last week, how much of a problem has the **treatment** for your skin been, for example by making your home messy or by taking up time?					

Appendix 11: McKinley and Hyde's Body Surveillance Subscale (1996)

Please tick one response for each statement to indicate how more you agree or disagree with each.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. I rarely think about how I look	7	6	5	4	3	2	1
2. I think it is more important that my clothes are comfortable than whether they look good on me	7	6	5	4	3	2	1
3. I think more about how my body feels than how my body looks	7	6	5	4	3	2	1
4. I rarely compare how I look with how other people look	7	6	5	4	3	2	1
5. During the day I think about how I look many times	1	2	3	4	5	6	7
6. I often worry about whether the clothes I am wearing make me look good	1	2	3	4	5	6	7
7. I rarely worry about how I look to other people	7	6	5	4	3	2	1
8. I am more concerned with what my body can do than how it looks	7	6	5	4	3	2	1

Appendix 12: McKinley and Hyde's Body Shame Subscale (1996)

Please tick one response for each statement to indicate how more you agree or disagree with each.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. When I can't control my weight, I feel like something must be wrong with me	1	2	3	4	5	6	7
2. I feel ashamed of myself when I haven't made the effort to look my best	1	2	3	4	5	6	7
3. I feel like I must be a bad person when I don't look as good as I could	1	2	3	4	5	6	7
4. I would be ashamed for people to know what I really weigh	1	2	3	4	5	6	7
5. I never worry that something is wrong with me when I am not exercising as much as I should	7	6	5	4	3	2	1
6. When I'm not exercising enough, I question whether I'm a good enough person	1	2	3	4	5	6	7
7. Even when I can't control my weight, I think I'm an ok person	7	6	5	4	3	2	1
8. When I'm not the size I think I should be, I feel ashamed	1	2	3	4	5	6	7

Appendix 13: Acne Surveillance Scale (modelled on Buchanan et al.'s skin-tone surveillance scale (2007)

Please tick one response for each statement to indicate how more you agree or disagree with each.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. I often worry about how my acne looks to other people	1	2	3	4	5	6	7
2. I often compare my skin affected by acne with that of other people	1	2	3	4	5	6	7
3. I rarely think about how my acne looks	7	6	5	4	3	2	1
4. I often think about how much spottier my skin is than other people's	1	2	3	4	5	6	7
5. I often wonder whether or not my skin affected by acne is attractive to other people	1	2	3	4	5	6	7
6. I often think about how my acne affects my looks	1	2	3	4	5	6	7
7. I often feel conscious of how my acne looks to other people	1	2	3	4	5	6	7
8. I often worry that my acne is unattractive to other people	1	2	3	4	5	6	7

Appendix 14: Acne Shame Subscale (modelled on McKinley and Hyde's body shame subscale (1996)

Please tick one response for each statement to indicate how more you agree or disagree with each.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1. When I can't control my acne, I feel like something must be wrong with me	1	2	3	4	5	6	7
2. I feel ashamed of myself when I haven't made the effort to look my best	1	2	3	4	5	6	7
3. I feel like I must be a bad person when I don't look as good as I could	1	2	3	4	5	6	7
4. I would be ashamed for people to know what my acne really looks like	1	2	3	4	5	6	7
5. I never worry that something is wrong with me when I am not trying to control my acne as much as I should	7	6	5	4	3	2	1
6. When I'm not trying to control my acne enough, I question whether I'm a good enough person	1	2	3	4	5	6	7
7. Even when I can't control my acne, I think I'm an ok person	7	6	5	4	3	2	1
8. When my skin affected by acne isn't the way I think it should be, I feel ashamed	1	2	3	4	5	6	7

Appendix 15: Order of Questionnaires/Questions

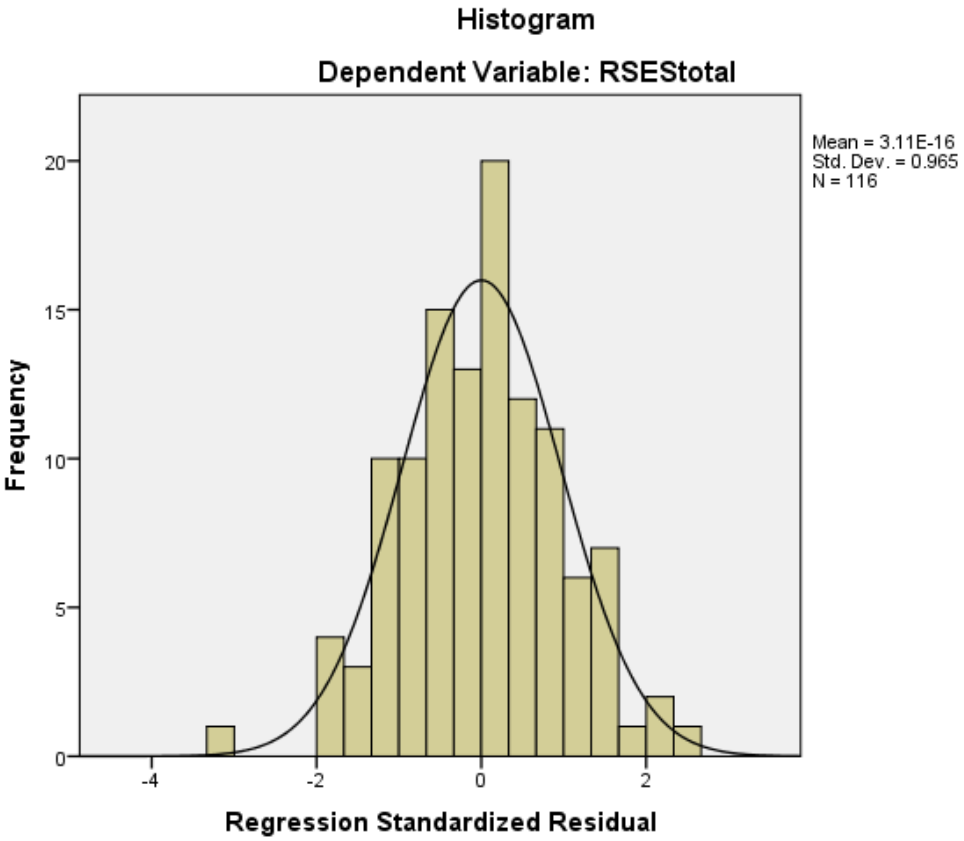
1. Dermatology Life Quality Index (DLQI; Finlay & Khan, 1994)
2. The Derriford Appearance Scale Short Form (DAS24; Moss, Harris & Carr, 2004)
3. Self-Esteem Scale (Rosenberg, 1965)
4. The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)
5. Acne Duration
6. Subjective Severity and Objective Visibility of Acne
7. Subjective Visibility of Acne
8. Disguise Acne (Y/N)
9. Difficulty Disguising Acne
10. Acne Surveillance
11. Acne Shame
12. Body Surveillance (McKinley & Hyde, 1996)
13. Body Shame (McKinley & Hyde, 1996)
14. Gender
15. Age
16. Ethnicity
17. Current Acne Medication
18. Presence of Underlying Hormone Condition
19. Where Hear About Study

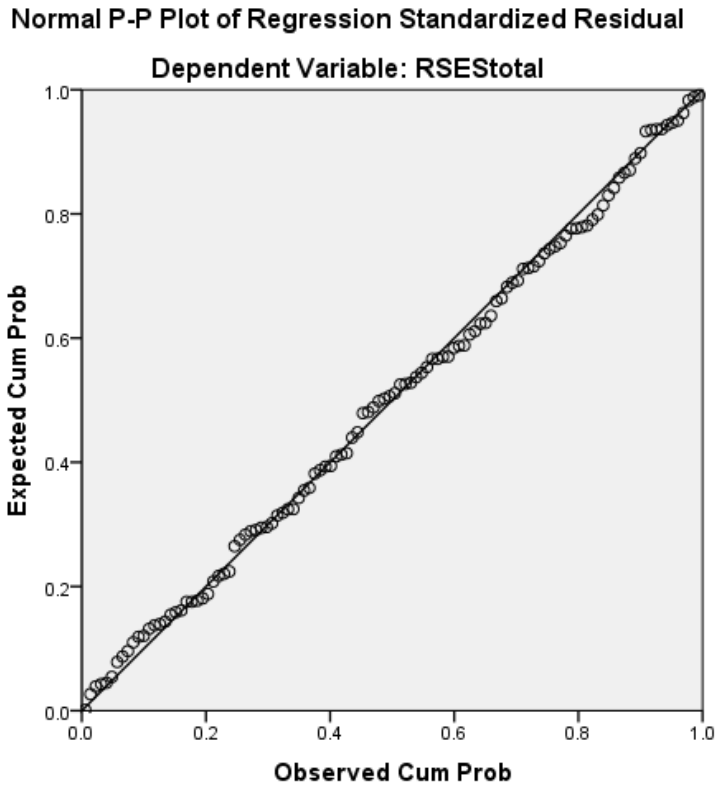
Appendix 16: Hierarchical Multiple Regression Analyses Predicting Self-Esteem

	R^2-change	β	β Standard Errors	Standardised β	T-value
Step 1	0.027				
Constant		11.672	2.370		4.925
Age		.128	.072	.165	1.782
Step 2	0.025				
Constant		15.125	3.762		4.020
Age		.180	.106	.232	1.698
Severity		-.691	.525	-.129	-1.316
Visibility		-.111	.378	-.029	-.293
Duration		-.068	.103	-.090	-.657
Step 3	0.294**				
Constant		28.743	4.372		6.574
Age		.169	.089	.218	1.902
Severity		-.486	.441	-.091	-1.102
Visibility		-.006	.317	-.002	-.020
Duration		-.062	.087	-.082	-.713
Body surveillance		-1.079	.613	-.147	-1.761
Body shame		-2.297	.406	-.474**	-5.664
Step 4	0.120**				
Constant		32.920	5.146		6.398
Age		.129	.081	.167	1.587
Severity		-.142	.419	-.027	-.339
Visibility		.020	.311	.005	.065
Duration		-.067	.079	-.089	-.843
Body surveillance		-.694	.593	-.095	-1.170
Body shame		-1.134	.457	-.234*	-2.485
Acne surveillance		-.140	.724	-.017	-.193
Acne shame		-2.321	.526	-.441**	-4.412

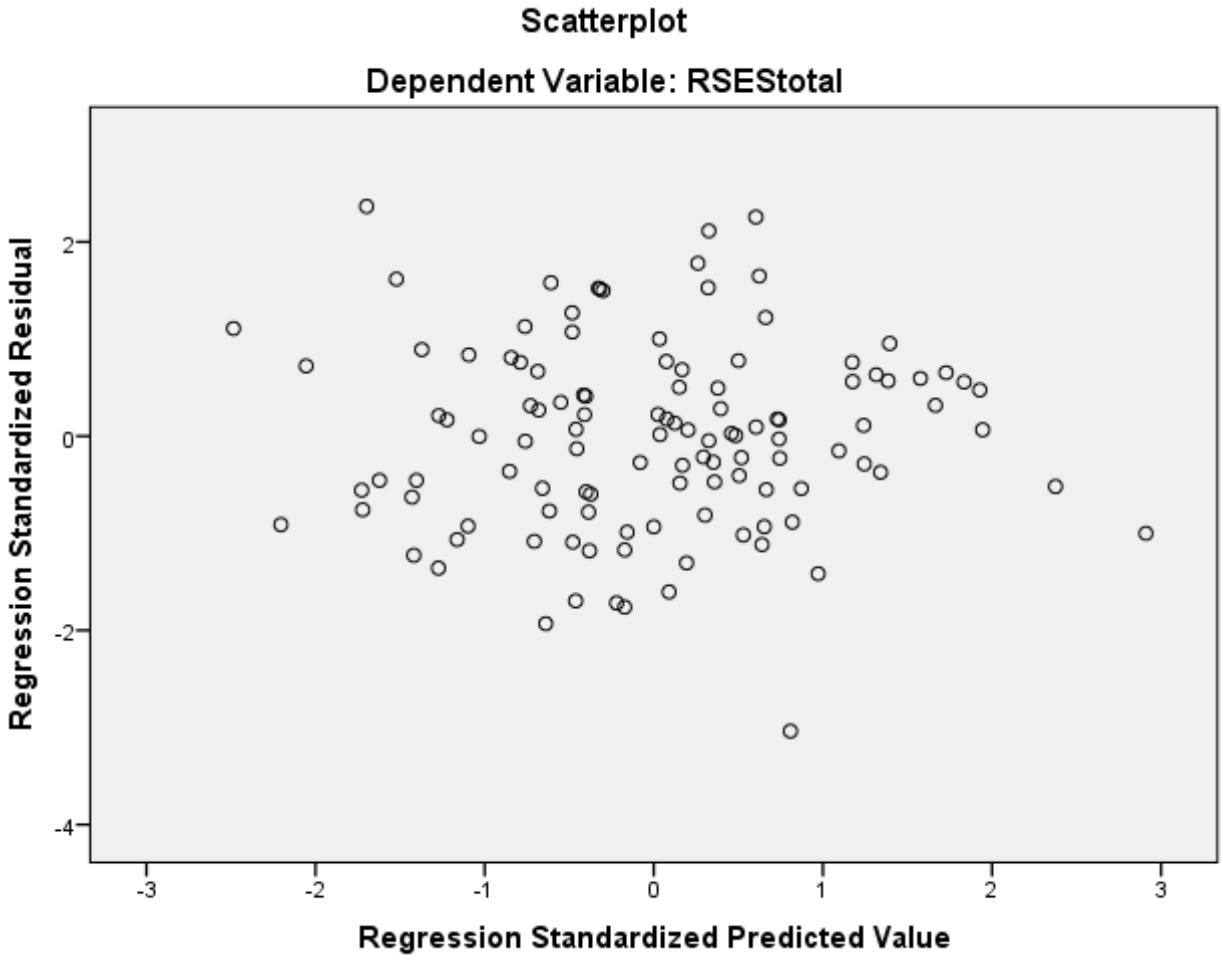
*=p<0.05, **=p<0.01

Appendix 17: Self-Esteem Histogram and Normality Plot





Appendix 18: Self-Esteem Scatterplot for the Standardised Residuals and Predicted Values

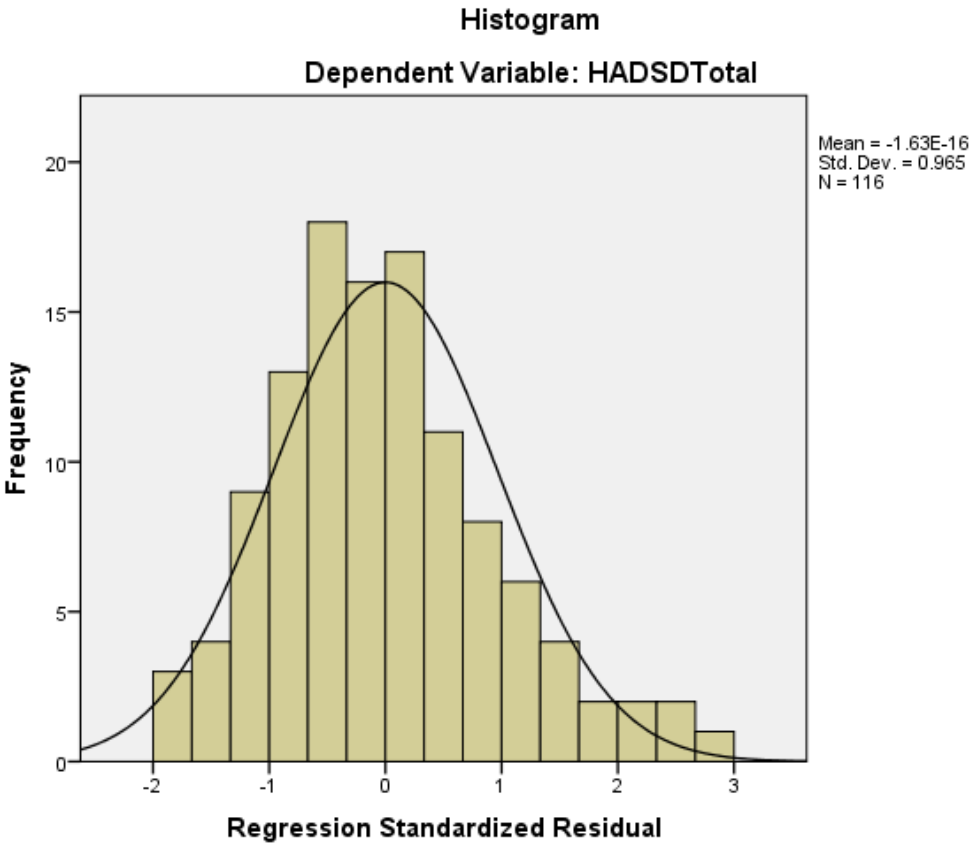


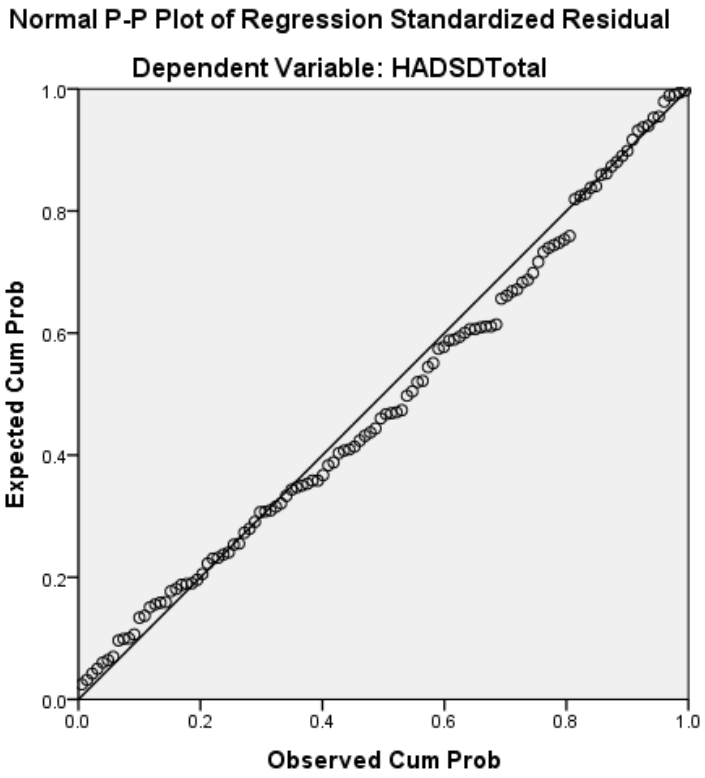
Appendix 19: Hierarchical Multiple Regression Analyses Predicting Depression

	R^2-change	β	β Standard Errors	Standardised β	T-value
Step 1	0.024				
Constant		8.230	1.525		5.397
Age		-.078	.046	-.156	-1.684
Step 2	0.045				
Constant		4.127	2.395		1.723
Age		-.039	.067	-.078	-.580
Severity		.651	.334	.190	1.949
Visibility		.094	.241	.038	.392
Duration		-.052	.066	-.108	-.796
Step 3	0.167**				
Constant		-2.055	3.036		-.677
Age		-.034	.062	-.068	-.548
Severity		.548	.307	.160	1.787
Visibility		.045	.220	.018	.203
Duration		-.056	.060	-.116	-.936
Body surveillance		.418	.426	.089	.982
Body shame		1.154	.282	.371**	4.097
Step 4	0.132**				
Constant		-3.650	3.596		-1.015
Age		-.009	.057	-.017	-.151
Severity		.281	.293	.082	.960
Visibility		.071	.218	.029	.325
Duration		-.055	.055	-.114	-.996
Body surveillance		.229	.414	.049	.554
Body shame		.328	.319	.106	1.029
Acne surveillance		-.183	.506	-.036	-.363
Acne shame		1.641	.368	.485**	4.464

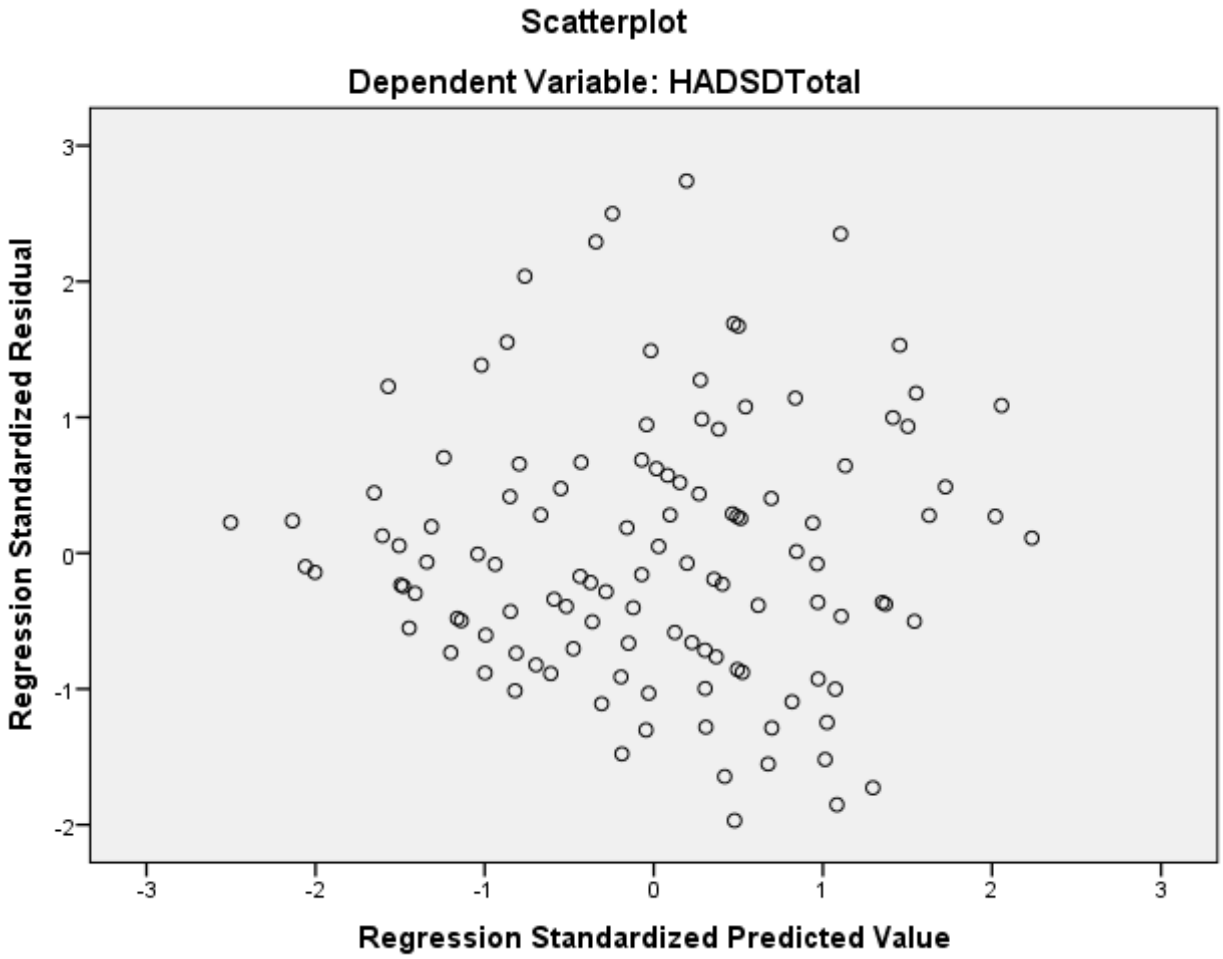
*=p<0.05, **=p<0.01

Appendix 20: Depression Histogram and Normality Plot





Appendix 21: Depression Scatterplot for the Standardised Residuals and Predicted Values

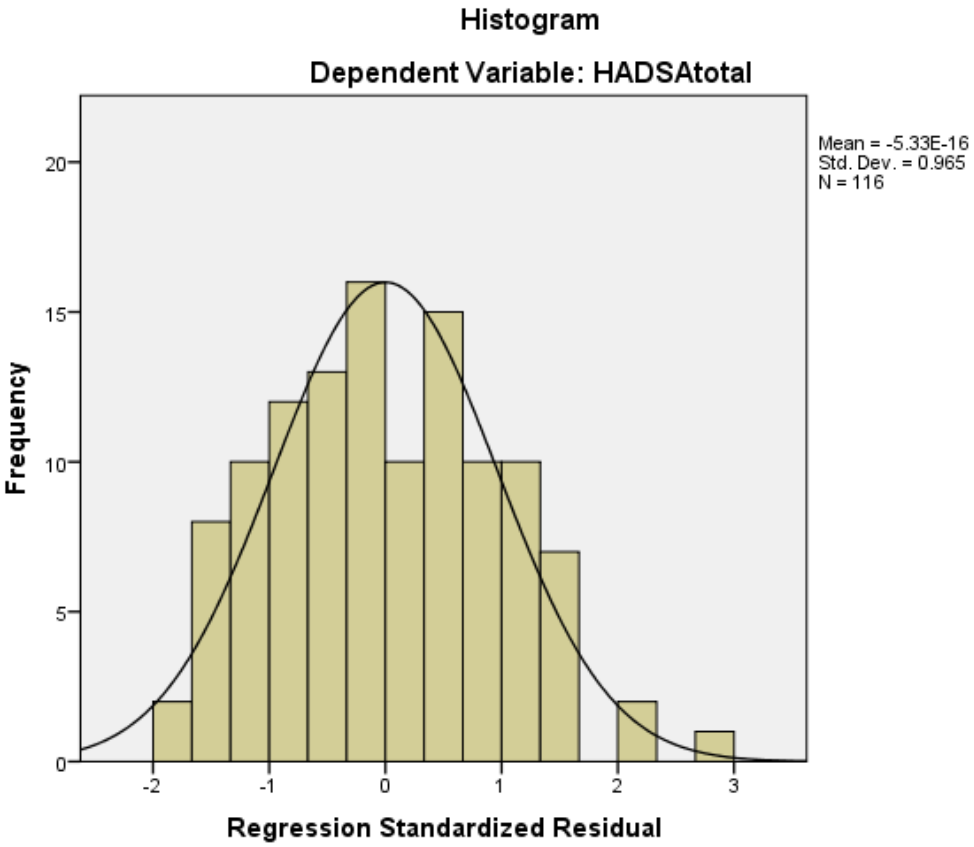


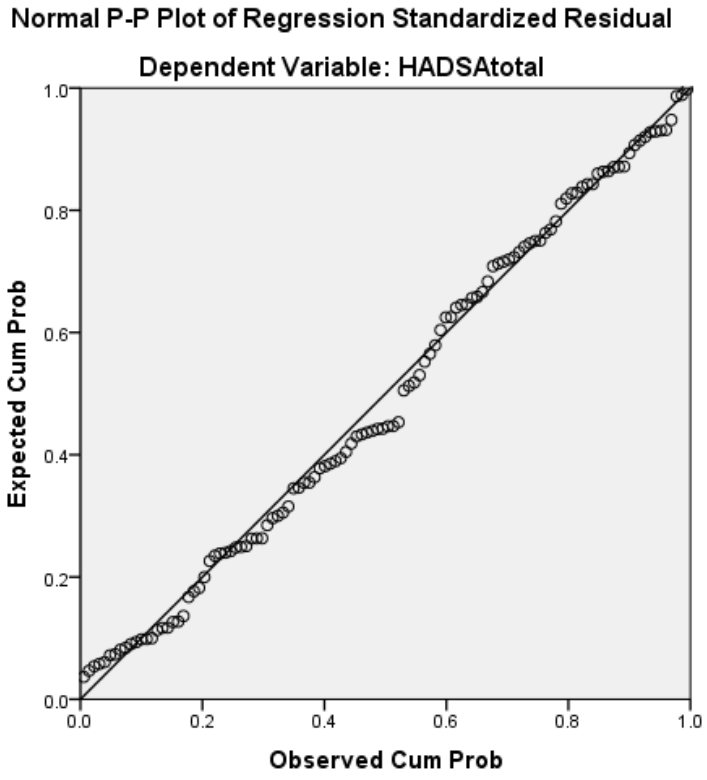
Appendix 22: Hierarchical Multiple Regression Analyses Predicting Generalised Anxiety

	R^2-change	β	β Standard Errors	Standardised β	T-value
Step 1	0.029				
Constant		13.789	1.650		8.356
Age		-.092	.050	-.170	-1.837
Step 2	0.052				
Constant		9.345	2.583		3.618
Age		-.088	.073	-.162	-1.205
Severity		.798	.360	.214*	2.216
Visibility		.091	.260	.034	.350
Duration		-.008	.071	-.014	-.106
Step 3	0.150**				
Constant		.342	3.307		.104
Age		-.083	.067	-.153	-1.232
Severity		.731	.334	.196*	2.188
Visibility		.036	.240	.014	.152
Duration		-.003	.065	-.006	-.045
Body surveillance		1.168	.464	.229*	2.519
Body shame		.819	.307	.242**	2.669
Step 4	0.075**				
Constant		.116	4.091		.028
Age		-.064	.065	-.118	-.985
Severity		.486	.333	.131	1.458
Visibility		.095	.248	.036	.386
Duration		-.004	.063	-.008	-.064
Body surveillance		1.078	.471	.211*	2.286
Body shame		.117	.363	.035	.322
Acne surveillance		-.389	.576	-.069	-.676
Acne shame		1.390	.418	.378**	3.323

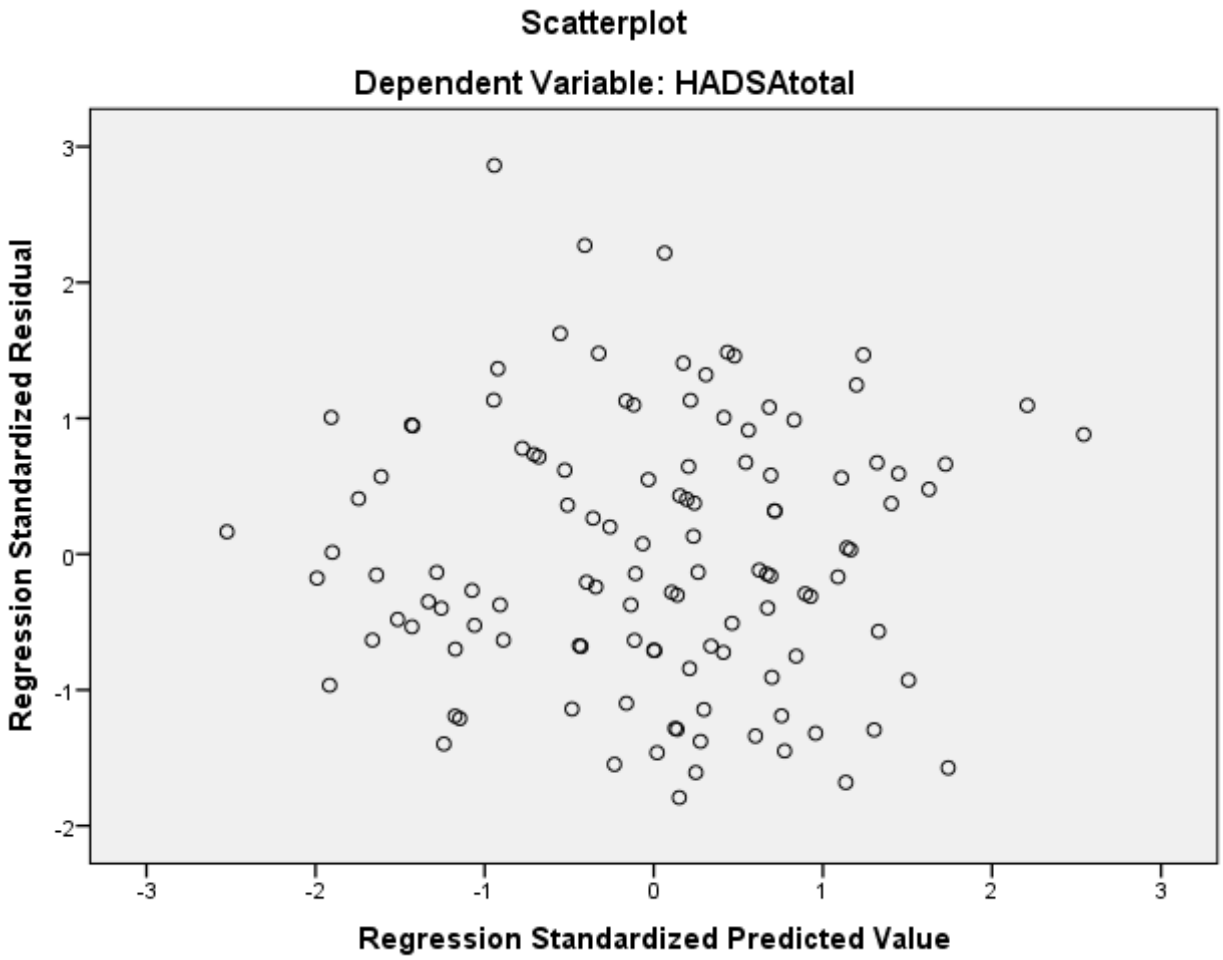
*=p<0.05, **=p<0.01

Appendix 23: Generalised Anxiety Histogram and Normality Plot





Appendix 24: Generalised Anxiety Scatterplot for the Standardised Residuals and Predicted Values

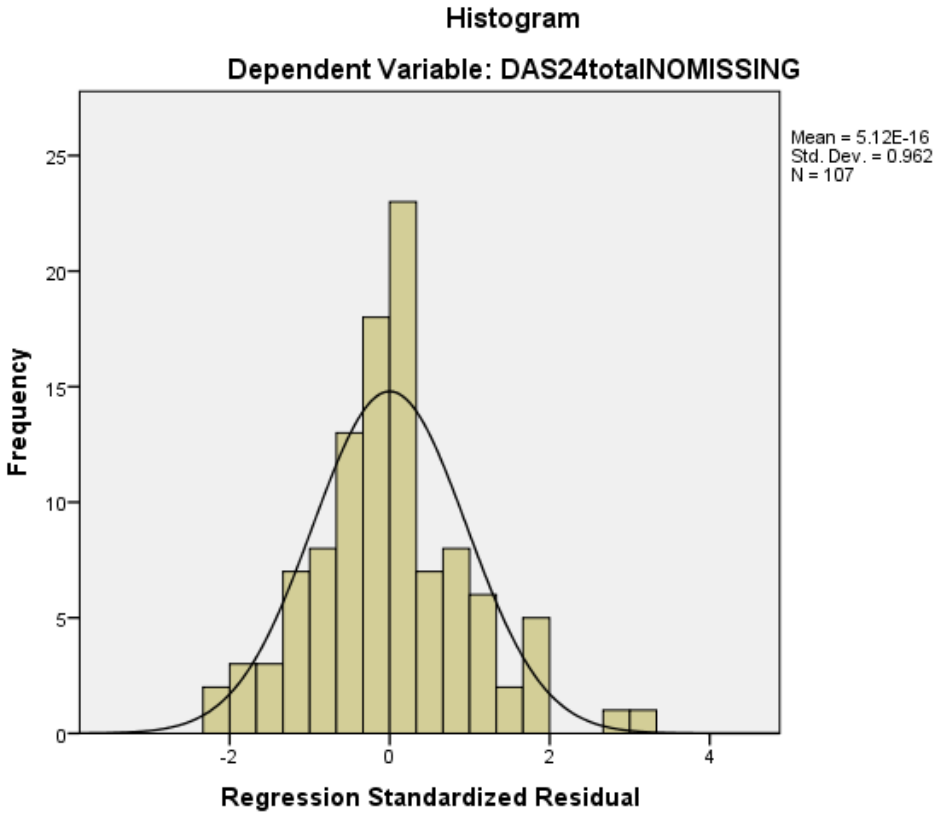


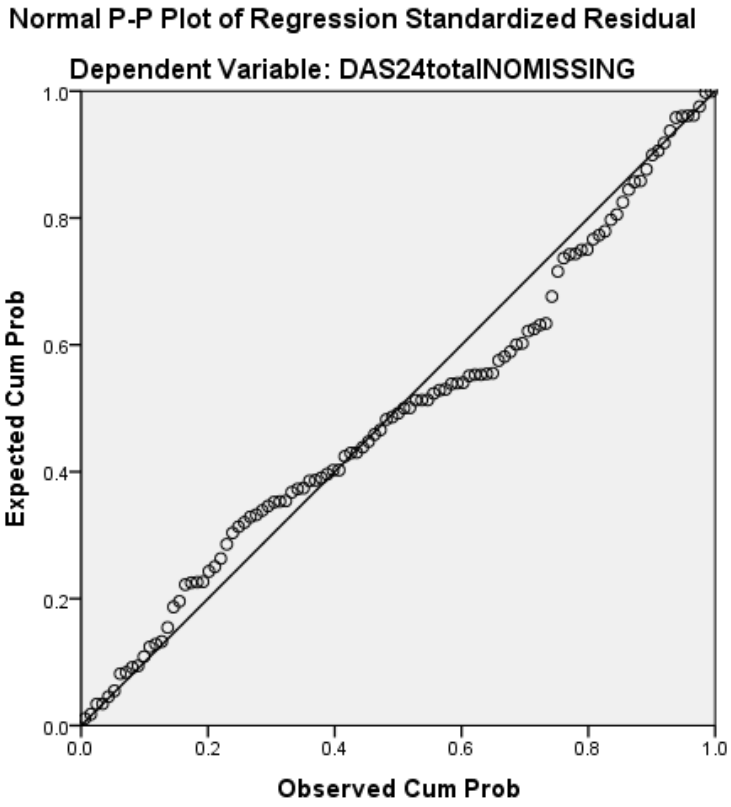
Appendix 25: Hierarchical Multiple Regression Analyses Predicting Appearance-Distress

	R^2-change	β	β Standard Errors	Standardised β	T-value
Step 1	0.040*				
Constant		64.489	4.899		13.165
Age		-.312	.150	-.199*	-2.082
Step 2	0.115**				
Constant		44.777	7.182		6.235
Age		-.211	.217	-.135	-.973
Severity		2.936	1.021	.280**	2.876
Visibility		.896	.743	.117	1.206
Duration		-.180	.211	-.119	-.854
Step 3	0.189**				
Constant		16.278	8.914		1.826
Age		-.203	.194	-.130	-1.048
Severity		2.474	.914	.236**	2.708
Visibility		.919	.661	.120	1.391
Duration		-.115	.189	-.075	-.608
Body surveillance		3.701	1.236	.265**	2.994
Body shame		2.533	.848	.263**	2.986
Step 4	0.154**				
Constant		-12.842	11.249		-1.142
Age		.001	.176	.001	.007
Severity		2.103	.835	.201*	2.520
Visibility		.497	.618	.065	.804
Duration		-.175	.167	-.115	-1.048
Body surveillance		2.174	1.159	.156	1.875
Body shame		.637	.910	.066	.700
Acne surveillance		4.250	1.623	.235*	2.619
Acne shame		3.586	1.012	.352**	3.544

*=p<0.05, **=p<0.01

Appendix 26: Appearance-Related Distress Histogram and Normality Plot





Appendix 27: Appearance-Related Distress Scatterplot for the Standardised Residuals and Predicted Values