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UNDERSTANDING ADJUSTMENT TO DISFIGUREMENT: THE ROLE OF THE SELF-CONCEPT

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The objective of this study was to determine whether variation in psychological adjustment to physically disfiguring conditions is related to organisation of the content of appearance-related information in the self-concept. A cross-sectional design was employed, using 70 participants with a range of appearance problems recruited from support groups and the NHS. A postal paper and pencil task was completed by participants which assessed the level of their adjustment using the Derriford Appearance Scale, and measured the three self-concept variables – differential importance, compartmentalisation and complexity. Regression analyses showed that poor adjustment to disfigurement is related to greater differential importance of appearance-related self-aspects, greater compartmentalisation of appearance-related information and greater self-concept complexity. No moderating effects were found between these independent variables. The results have implications for psychological treatment strategies, particularly cognitive behavioural therapeutic interventions.

Keywords: Disfigurement; Psychological adjustment; Self-concept; Compartmentalization; Self-complexity

INTRODUCTION

In recent years, health psychologists have paid increasing attention to psychological adjustment associated with perceived abnormalities of appearance (e.g., patients with burns, cleft lip/palate, vitiligo; see Lansdown, Rumsey, Bradburgy, Carr and Partridge, 1997). Research indicates that having a disfigured appearance is likely to elicit avoidant and socially awkward behaviour in others (Bull and Rumsey, 1988). Individuals are prone to suffer problems including depression, anxiety, shame and interpersonal difficulties (MacGregor, 1990; Moss, 1997a; Thompson, Kent and Smith, 2002). However, the theoretical issues underlying adjustment are less well established (though see Moss, 1997a,b) – particularly, the question as to why people with objectively similar problems of appearance have differing degrees of

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adjustment. The aim of this paper is to demonstrate that these differences can be understood in part at least as a product of the cognitive self-system. To this end it utilises theory relating to the self-concept and well-being to elucidate understanding of the underlying adjustment differences in problems of appearance.

Self-concept Organisation

The self-concept has been used to explain adjustment to disfigurement through work on 'body image' (e.g., Knudson-Cooper, 1981; Thomas, 1990; Bronheim, Strain and Biller, 1991). However, problems with measurement and causality have made it difficult to interpret. The self-concept is also implicated in work assessing self-esteem (the evaluative component of self-concept), in relation to adjustment (Kapp, 1979; Pertschuk and Whitaker, 1982). This work has been largely limited to participants with cleft-lip/palate, and to children. Results generally suggest that overall, global self-esteem problems are not widespread in this population.

When looking at general well-being and psychological adjustment, *content* of the self-concept is most usually considered (e.g., the role of maladaptive beliefs about the self in cognitive behavioural therapy, Beck, 1987). Kent (1999) has demonstrated the importance of self-perception in adjustment to vitiligo, a disfiguring skin condition, and has subsequently argued the importance of cognitive self-schemata in adjustment to disfigurement (Thompson and Kent, 2001). However, work on self-concept content belies the fact that a lesser known but equally useful body of work exists on the *organisation* of the information in the self-concept. This paper will demonstrate the role of this organisation on adjustment to disfigurement.

Self-concept organisation is perhaps understood best from a social-cognitive perspective (Markus and Wurf, 1987). The self-concept is conceived of as an information processing network, which is multi-faceted, dynamic and hierarchical. It acts to guide behaviour through self-regulation, and guides information processing in relation to self-relevant information. The self is comprised of *self-aspects* (comprising roles, relationships, attributes and traits). Each aspect varies in the degree of internal elaboration as well as the closeness of its relation to other aspects. This enables theorising regarding the relative importance of the self-aspects, the degree to which positive and negative adjectives within aspect are grouped or compartmentalised, and the complexity of the self-concept. All of these are related to general adjustment and well-being in the general population (see below). Differential importance, compartmentalisation and complexity can also be related specifically to organisation of *appearance* information in the self-concept, and subsequently to adjustment.

Within the multi-faceted self-concept, some self-aspects are perceived as more central – that is, more fundamentally similar to the overall way people perceive themselves (Markus and Wurf, 1987; Sedikides, 1995). Greater centrality of self-aspects increased the speed of information processing of information relevant to those self-aspects. Central aspects are also more resistant to change. Importantly, central self-aspects are also more accessible, and therefore more often present in the working self-concept, than more peripheral self-aspects (Sedikides, 1995). Highly available self-aspects are also more likely to be used to interpret ambiguous stimuli (Bargh, Lombardi and Higgins, 1988). The importance of particular self-aspects has implications for overall self-worth (an idea with currency since James, 1890). That is, if valued (central)

self-aspects are seen as inadequate, this will have a greater impact on overall level of esteem than if less important aspects are valued (see Harter, 1988; Marsh, 1995; Pelham, 1995). Within the current study, it is hypothesised that having important/central self-aspects that contain more appearance-relevant information will be associated with poor adjustment to disfigurement. The consequence of this would be that appearance information would be more easily brought to mind in the poor adjusters (i.e., brought into the working self-concept), and expedite faster and preferential processing of appearance-related information in the environment.

A second feature of self-concept organisation that has been considered is compartmentalisation. When examining the positive and negative content of an individual's self-aspects, it is possible that some aspects would be mainly positive, and others mainly negative. Alternatively, the self-aspects might each contain a balance of both positive and negative information. The extent to which positive and negative information is clustered within self-aspects has been described as *compartmentalisation* or *evaluative differentiation*. Research has been carried out investigating the impact on self-esteem of the relationship between compartmentalisation of positive and negative adjectives within self-aspects, and the relative importance of these self-aspects. This showed that having a combination of high compartmentalisation and central, negative self-aspects is a risk for low self-esteem (Showers, 1992; Showers and Ryff, 1996). It is predicted here that in poor adjusters to disfigurement, there will be greater compartmentalisation of *appearance-related* and *appearance non-related* information – so that appearance information will dominate some self-aspects with little non-appearance information to 'buffer' it.

A different, although not theoretically unrelated, approach to looking at organisation of the self-concept has been to consider overall complexity of self-concept organisation (Linville, 1987). From this perspective, concepts are represented as nodes within a network, and related to each other semantically. Activation of one concept/node primes semantically similar concepts/nodes. Self-aspects are related to each other in this way so that activation of one self-aspect activates other similar aspects. As the self-concept is made up of a small number of self-aspects, a threat to one self-aspect will easily and quickly prime a large proportion of the others, resulting in a large proportion of the self-concept becoming involved. If, however, the self-concept is a more complex organisation with many self-aspects, which are not strongly related to each other, it is possible to bear damage to one self-aspect without a large effect on the overall self-system, as a relatively smaller proportion of the contents of the self-concept will be involved. It has been found that participants with low self complexity experienced greater mood changes in response to feedback than high complexity participants, and high complexity served to decrease the impact of negative life-events (Linville, 1985, 1987). Further work has demonstrated that when complexity is related to valued or positive aspects of the self it is indeed protective. However, when complexity is separately calculated for negative or devalued aspects of the self, it can in fact increase vulnerability to depression (Gara *et al.*, 1993; Morgan and Janoff-Bulman, 1994). In the current study, we predict that when self-aspects are high in importance and also contain a relatively high degree of appearance information, high overall cognitive complexity in representation of the self will be related to poorer adjustment.

The aim of this study is to synthesise the ideas presented above to bring the insights from research on self-concept organisation and well-being to the problem of

understanding individual differences in adjustment to perceived abnormalities of appearance. It is proposed that the way appearance-related self-relevant information is organised will differentiate those individuals who struggle to cope and manage due to their appearance with those who have less difficulty. This will be evident in differential importance, compartmentalisation, and complexity of the self-concept.

METHOD

Participants

Participants were recruited through two self-help organisations and the plastic surgery and burns unit at Derriford Hospital, Plymouth, and contacted by post with a booklet of paper and pencil tasks.

Members of the Acne Support Group, the Neurofibromatosis Association, and patients waiting for treatment at the plastic surgery and burns unit at Derriford Hospital, Plymouth were invited to participate. These participants represented a spectrum of causes and objective severity of problems of appearance. Two hundred and sixty four booklets were sent out, and ninety nine (37.5%) were returned. Of these, 29 had failed to complete the booklet to an extent which made the data useable. This meant that the final sample size was 70. Often in psychological research, this response rate would be considered rather low, and a risk to the representativeness of the sample. Within this research, however, this difficulty is guarded against by the inclusion of the Derriford Appearance Scale as a criterion measure of adjustment. It is possible to compare the DAS scores with known clinical and non-clinical populations in order to assess whether the experimental sample is representative. When compared to participants in previous research, it is clear that this sample is broadly consistent with a clinical sample (Moss, 1997a, found $M = 47.7$, $sd = 17.9$; this study, $M = 55.3$, $sd = 17.0$). The sample mean reflects a greater degree of inclusiveness of distress, which is typical when support group samples are used. The (participant identified) aetiologies were disease (28), congenital (14), trauma (9), pregnancy (6), weight loss (4), developmental growth (4), obesity (3) and other (2). The body sites most affected were face (33), multiple (15), trunk excluding breasts (10), breasts (6), limbs (3), and head excluding face (3). Of the 70, 56 were women, and the remainder men. The age range of the sample was from 19 years to 93 years, the mean age being 36 years 7 months.

Materials

A test booklet was designed, comprising three self-contained sections. The first section was an adjective check list. The adjectives were derived from two sources. Linville (personal communication) provided the set of 33 adjectives used in her self-complexity work (e.g., Linville, 1987). Further adjectives were selected from in-depth interviews in which participants represented the range of adjustment (Moss, 1997a). A total of 56 positive and negative adjectives such as 'blemished', 'attractive', 'worthless' and 'sexy' were used. The second section of the booklets was concerned with the identification of self-aspects and the organisation of the self-concept contents (see procedure, below). The third section of the booklet contained psychometric meas-

ures, including the Derriford Appearance Scale 24 (DAS 24) (Moss, 1997a). The DAS 24 is a 24-item scale, the short form of the DAS 56 (Carr, Harris and James, 2000). It is designed to measure distress and dysfunction related to perceived abnormalities of appearance. It has Cronbach's alpha $= 0.92$, six-month test-retest reliability $r = 0.68$, and appropriate convergent construct validity correlations of around $r = 0.5$ with negative affect, social anxiety, and shame. Finally, a closing page included the researcher's contact details for further information about the research project, or in case of distress related to completing the booklet. No participants reported any distress. Detailed contents of the booklet is beyond the scope of this article and is available from the authors.

Procedure

Booklets were sent directly to participants' homes with a covering letter. Participants were able to return them anonymously and directly to the researcher using freepost.

Firstly, participants were asked to identify any aspect of their appearance about which they were self-conscious or sensitive, which was then referred to as their 'feature'. They were then asked to indicate whether each adjective in the adjective list was associated with the way that they perceived their feature by circling either 'my feature' or 'not my feature' next to each of the adjectives.

The next part of the task was concerned with identifying the main self-aspects which comprised the participants' self-concept. The specific instructions they were given read

> The next page of the booklet is headed 'Ways I See Myself'. What I would like you to do is to write down some of the different ways you see yourself. This list will be different for everyone, and there are no right or wrong ways of doing it. People come up with all sorts of descriptions of themselves. In the past, some of the descriptions that people have used have been very varied. Some examples taken include 'Brother, sociable self, working class, teenager, environmentalist, hard worker, party animal, private self, teacher, Irish, successful self, macho,'. Some of your self descriptions might be similar to this – or they might be completely different! Some of the descriptions that you come up with might even be how you used to be in the past, or how you want to be (or think you might be) in the future. Take your time coming up with this list. Only you know which are the important ways in which you see yourself. Remember, it is only the important ways that you describe yourself, not how other people describe you, that matter for this task.
>
> With enough time, you could probably come up with many different kinds of self description. Don't get too bogged down, though. Just produce as few or as many self descriptions as are most meaningful and relevant to you. Write these down in the column marked "Self Descriptions".

The final part of the task was to facilitate the calculation of self-concept complexity and compartmentalisation. The participant was required to write the name of each of the self-aspects they had identified on a separate page in the booklet. Each of the self-aspects was conceptualised as being comprised of sub-descriptions. In other words, the content of each self-aspect could be represented by participant-selected sub-sets of the adjective list that they had seen earlier. Each of the pages which participants had headed with the name of a self-aspect contained a pre-printed full list of the adjectives. Participants ticked adjectives that they felt comprised each of their identified self-aspects on the page for the relevant self-aspect. Each page thus became analogous to a separate pile in the adjective-card sorts used by Linville to identify self-concept contents and organisation.

Calculation of Variables

Differential Importance

Participants were then asked to think about how central each of these self-aspects they had identified was to their overall view of themselves, and then numerically rank them in order of relative importance. The proportion of appearance-relevant words was also calculated for each self-aspect. The correlation of these two sets of values was then calculated for each participant, producing differential importance scores that could be entered into subsequent analyses. The highest ranking (most important self-aspect) was ranked at one, and decreasing importance was marked by increasing ranks. This meant that a strongly negative correlation would indicate a high level of association between centrality, and the proportion of appearance-relevant adjectives. A strongly positive correlation would indicate the reverse, that the self-aspects with the highest proportion of appearance-relevant adjectives were the least important aspects.

Compartmentalisation

The degree to which the types of content were clustered into self-aspect, or spread across the self-aspects, was determined by the compartmentalisation calculations on each set of self-aspects. Compartmentalisation was calculated in relation to the extent of clustering of appearance-relevant adjectives within self-aspects. The basis for this measure was Cramer's ϕ (phi), based on the chi-square statistic. This produced a value between zero (no compartmentalisation at all, the equivalent of a random selection of adjectives within each self-aspect) and one (totally compartmentalised – no appearance-relevant and appearance-irrelevant adjectives within the same self-aspect). Details of this calculation are available from the authors.

Complexity

This is defined by the equation $H = \log_2 n - (\sum_i n_i \log_2 n_i)/n$, and represents the number of independent attributes implicit in a participant's sort. n is the total number of adjectives sorted, and n_i is the number of adjectives that appear in each particular combination of self-aspects. For further details of the basis for the formula, see Linville (1987).

RESULTS

Descriptive Statistics

Missing or incomplete data reduce the number of usable data sets for compartmentalisation and differential importance to 63 and 64 respectively. Descriptive data are shown in Table I. The range for the H statistic is slightly larger than has been found in previous studies. This is to be expected with a larger pool of available adjectives.

The compartmentalisation scores had a theoretical range of 0–1. The range of compartmentalisation scores observed was close to this theoretical maximum. Some participants, with a maximum score of 1.0, showed complete compartmentalisation, while others with scores close to zero showed almost no compartmentalisation at all.

TABLE I Descriptive data for DAS 24 and self-concept organisation variables

	N	Min	Max	Mean	Std. Deviation
DAS 24	70	20	93	55.34	16.99
Complexity (H)	70	0.64	5.66	3.08	0.99
Compartmentalisation (φ)	63	0.12	1.00	0.514	0.20
Differential importance	64	−0.90	0.96	0.003	0.49

Analyses

Intercorrelations between the self-concept variables were low and non-significant. Consequently, in order to properly examine the relationships between self-concept and adjustment, two regression analyses were carried out. The first included adjustment (DAS 24) as a dependent variable, and compartmentalisation and differential importance as independent variables. In order to determine whether the effect of one of the variables was moderated by the other, an interaction term was calculated and added into the model as a second stage (cf. Miles and Shelvin, 2000). Complexity was omitted from this first regression analysis for two reasons. Firstly, it is not entirely theoretically independent of compartmentalisation. Secondly, to introduce a third independent variable would compromise the power of the analysis to an unacceptable degree.

The first stage of the analysis was significant ($R^2 = 0.187$, $df_{(2,57)}$, $p = 0.003$). Beta coefficients were 0.309 for compartmentalisation ($p = 0.012$), and −0.316 for differential importance ($p = 0.011$). Adding the interaction term into the model did not significantly increase R^2. The beta coefficient for the interaction term was itself non-significant at 0.154 ($p = 0.206$), indicating that there was no moderator effect between the two variables' impact on adjustment.

The second regression included adjustment (DAS 24) as a dependent variable, and complexity (rather than compartmentalisation) and differential importance as independent variables, again with an interaction term added in at a second stage. Once again, the first stage of the analysis was significant ($R^2 = 0.162$, $df = _{(2,61)}$, $p = 0.005$). Beta coefficients were −0.323 for differential importance ($p = 0.008$), and 0.263 for complexity ($p = 0.029$). Adding the interaction term into the model did significantly increase R^2. The beta coefficient for the interaction term was itself non-significant at − 0.149 ($p = 0.237$), indicating that there was no moderator effect between the two variables' impact on adjustment.

DISCUSSION

The aim of this study was to investigate the organisation of appearance-related information in the self-concept, and determine the extent to which this predicted good or poor adjustment to disfiguring conditions. Three self-concept organization variables were investigated – complexity, differential importance and compartmentalization.

The first regression demonstrated that poor adjustment was associated with high compartmentalisation of appearance and non-appearance adjectives within the self-concept, and that appearance adjectives were more central in poor adjusters than in good adjusters. The two variables were shown to act independently, rather than with one moderating the effect of the other. The second regression demonstrated that

increased complexity of the self-concept was associated with poor adjustment, and that this effect was not moderated through the differential importance of self-aspects.

The implication of greater compartmentalisation among poor adjusters is that being poorly adjusted is to have more discrete parts of the self-concept system, which contain information about one's appearance. By being represented in a discrete way, the appearance is more able to serve as an object of focus of self-directed attention. Being able to introspect on appearance and its qualities seems a minimal criterion to experience affective reactions of self-consciousness. This will be enhanced by compartmentalisation of the appearance characteristics. The findings can be compared to that of Showers' (Showers, 1992; Showers and Ryff, 1996) work on compartmentalisation. She demonstrated the utility of investigating compartmentalisation of positive and negative adjectives in relation to overall self-esteem. The value of this approach was more evident when the relative importance of aspects was taken into account. The lack of any moderating effect between differential importance of aspects and compartmentalisation upon adjustment in this sense did not replicate her findings. It is possible that for generalised positive/negative content, the importance of compartmentalised self-aspects plays a greater role than for appearance/non-appearance aspects.

As anticipated, the poor adjusters' self-concepts are organised in such a way that appearance information is more important and central to them. Important and central information is that which is chronically accessed and usable as part of the working self-concept. Participants with higher differential importance for appearance information would include this information in their working self-concept more easily, and consequently, more frequently – they will be more aware of their appearance. It will more easily be brought to mind in daily life, and more easily primed. Furthermore, there is evidence (Sedikides, 1995) that important aspects of the self are more resistant to change than other aspects, and are used to interpret ambiguous situations. If appearance self-aspects are important (as this study argues is the case for poor adjusters), this would suggest that they will be both stable, and used in the interpretation of situations when individuals are unsure of how to evaluate themselves. A typical example of this is when being looked at by other people in social situations.

Overall, poorer adjustment was associated with more complex self-descriptions than good adjustment. That is, number of self-aspects produced, and the sheer quantity of non-redundant information within those self-aspects was greater in the poor adjusters. Previous work (e.g., Linville, 1987) has suggested a self-protective function for complexity. The proposed mechanism in which complexity protects an individual is in providing alternative views of the self to 'fall back on' when any particular self-view is threatened. That is not born out by these findings. There are several reasons that may be put forward to explain this. It is possible that the protective effect of a complex self-concept depends on characteristics of the information it contains. If non-threatened aspects of the self are positive, then it will help to be able to use them as a resource. If, however, they are no better than the working self-concept under threat, they cannot help. Furthermore, complexity of a schema is a function of frequency of use and experience. Poor adjusters are involved in a lot of self-referent cognitive activity, continually elaborating their self-concepts. This will be particularly true in the domain of appearance-related information. A methodological feature of the current study is the elicitation of the self-descriptions, which was

carried out after a series of tasks in which the appearance was strongly primed. It is therefore likely that the sets of self-descriptions produced by the participants were more likely to contain appearance self-aspects. A measure of self-complexity under these conditions is likely to detect the more complex representation of appearance in poor adjusters.

How would the proposed organisation of the self-concept in those who find it difficult to cope and manage with their different appearance manifest itself in the every-day conscious experience? The centrality of appearance-dominated self-aspects facilitates thoughts about the appearance will occur more easily and more often. Ambiguous stimuli – for example, unexpectedly meeting the eye of a stranger – will be more likely to be interpreted as associated with the different appearance. These views of the self are chronic and hard to shift. Furthermore, from the compartmentalisation findings, we know that having primed appearance-related self-aspects, there is less 'non-appearance' related information available to act as a buffer, compensating for appearance-dominated thoughts. Finally, the complexity result shows us that these appearance-dominated self-conceptions are elaborate and densely packed with information. A myriad of thoughts, feelings and memories are associated with the poor adjusters' view of themselves and their appearance. Simply, the self-concept organisation of those who are poorly adjusted makes them prone to complex appearance-dominated thoughts which are not easily allayed.

We must consider the possibility of response bias in the sample. The task was a demanding one, and the mean adjustment scores slightly higher than the previous studies (Moss, 1997a). This may suggest an over inclusion of motivated and more poorly adjusted participants. The spread of scores was as wide as previous studies, and there is no *a priori* reason for believing that there would be any systematic difference in this sample than in a sample with a lower mean adjustment score. It would be valuable to replicate this work using alternative clinical and normative samples to investigate the way in which any possible biases in this sample may have had an impact. Similarly, the predominantly female sample (56 of 70) is an important sampling issue. This proportion of women is not unrepresentative of those seeking support or treatment in relation to their appearance. There is no *a priori* reason for believing that women's self-concept organisation would be different to that of men. The gender issues in appearance are beyond the scope of this paper, and future work must address self-concept organisation and gender more specifically.

Psychological Interventions

These findings go some way to explain the success of social skills training and cognitive behaviour therapy for these clients. In successful social skills training for problems of appearance (e.g., Robinson, Rumsey and Partridge, 1996), participants learn a new mental script for interacting with others. Direct and negative thoughts about the appearance are challenged by new thoughts about applying learned behaviours to manage social encounters. Consequently, the impact of the appearance-heavy central self-concept is reduced temporarily, and with sustained practice, possibly restructured.

Cognitive behavioural therapeutic (CBT) techniques have been shown to be helpful to disfigured clients (Papodopolous, Bor and Legg, 1999; Newell and Clarke, 2000; Newell

and Marks, 2000), and recent theoretical models of disfigurement have focussed on factors amenable to change through CBT (Kent, 2002). Incorporating the understanding of self-concept organisation suggested in this article, the goal of therapy may be moved towards investigating self-concept organisation, as well as content. This is not straightforward, as it is not possible to directly articulate organisational properties. However, it may be decided that a poor adjuster would be helped by 'de-compartmentalising' the appearance self-aspect. This would mean using techniques that would integrate positive, non-appearance relevant information into that aspect of the self-concept. Secondly, it may be decided that a worthwhile strategy would be to reduce the differential importance placed on appearance-self-aspects. This could be addressed by re-valuing alternative aspects of the self, or working to make the 'appearance-self' less central.

Further Work

Potential further work following this study is a test of the findings using experimental methods. It is concluded in this study that the poor adjusters have chronic and easy access to a negative schematic representation of their appearance. There are established paradigms that have been developed to investigate the use of schemata in experimental settings, which would facilitate a test of this conclusion. For example, when they are primed, schemata are more likely to be used both in the interpretation of ambiguous stimuli and to affect memory for new material (Bodenhausen and Wyer, 1985; Bodenhausen, 1988). With regard to problems of appearance, we would anticipate that the schema developed for appearance in the poor adjusters, being more easily primed, would lead to more feature-relevant interpretations of the world. In social situations, they are more likely to interpret events in a way which is consistent with their negative view of themselves. The amount of variance accounted for by self-concept organisation on adjustment suggests that although it is an important factor, there are clearly other factors operating which need independent investigation. Previous work has suggested social support, social skills, and coping strategies amongst likely theoretical candidates (see Moss, 1997b).

CONCLUSION

This article has attempted to offer a fresh theoretical perspective on the problem of understanding individual differences in adjustment to perceived abnormalities of appearance. By demonstrating that the organisation of appearance-related information is different in good and poor adjusters, it is hoped that fruitful avenues for further research and clinical intervention have been opened.

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