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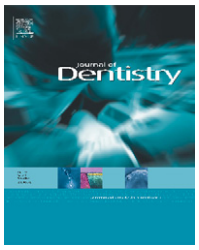

The impact of idealised facial images on satisfaction with facial appearance: Comparing 'ideal' and 'average' faces

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ABSTRACT

Objectives: Recent work has demonstrated that female orthognathic patients display more dissatisfaction with their facial appearance after viewing idealised images of facial photographs, than do controls. Patients may request orthognathic surgery because they hope to improve their appearance to conform with ideals portrayed in the mass media, and these hopes may not be realistic. Patients who demonstrate certain personality traits are more likely to hold such hopes. The current study sought to identify the role of dental status (orthognathic patient versus control), personality traits and media images in dissatisfaction with facial appearance.

Methods: Female patients and controls completed a bank of personality measures and then gave repeated measures of satisfaction with their facial appearance after viewing images of 'ideal' and 'average' women.

Results: Neither group showed any change in satisfaction with appearance after viewing either set of images. Patients showed lower satisfaction with facial appearance than controls, but did not differ on other personality measures.

Conclusions: Viewing 'ideal' images of other women has no significant impact on satisfaction with appearance compared to viewing images of 'average' women. These results may help inform the development of a psycho-educational intervention to protect women against the negative effects of viewing idealised images in the media.

The way we look has been important in human social interaction since ancient times and there is evidence of the importance of physical appearance from a rich variety of sources.[1] It has been demonstrated that there is agreement about what is regarded as attractive across cultures, genders, and age groups,[2] and that beautiful individuals are assumed to possess a host of favourable personality traits.[3,4] The face is a key feature in the determination of human physical attractiveness,[5] and within the face dental appearance has a considerable impact on how others view us. For example, early research indicated that dental appearance was important to the public in terms of how they spent their money[6] and

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how suitable they regarded others for prestigious occupations.[7] Furthermore, the mouth was found to be the most important individual feature in terms of assessing overall facial attractiveness,[8,9] though a recent study[10] reported that no single facial feature was especially important in overall attractiveness. Roberts-Harry et al.[11] found that children with cleft palate or lip were still considered less attractive than children without cleft palate or lip, even after the cleft had been repaired.

People who are disfigured may be subject to teasing and staring,[12] and an unusual dental appearance may lead to teasing that is especially hurtful.[13] It should come as no surprise then that improvement in physical appearance is a major motivation for orthodontic treatment and orthognathic surgery.[14–18]

However, while it may be understandable that people will try to attain higher standards of physical attractiveness, at a time where mass media is omnipresent, media ideals of physical attractiveness may serve as an unrealistic point of comparison. Psychological research into body satisfaction has suggested that mass media standards of attractiveness can exacerbate body dissatisfaction[19–23] and disordered eating attitudes[24] in the viewer.

Festinger's[25] social comparison theory postulates that people have an innate tendency to compare themselves with others, and that they tend to compare themselves to similar others. When they compare themselves to others who are far superior it can cause feelings of failure and inadequacy. Richins[22] demonstrated that women do indeed compare their appearance with that of professional models and that this increases the dissatisfaction they feel with their own appearance. Richins considered both facial and body appearance, and whilst the reduction was only found in facial satisfaction, she felt that there may have been a floor effect with body satisfaction whereby the women could not have a significantly lower satisfaction with their body appearance after viewing the images than they did before they viewed them.

A recent paper by Strahan et al.[26] also found that women are both more likely to compare their appearance to unrealistic others such as professional models and that they had lower satisfaction with their body appearance than men. In a second study they studied the degree to which an individual's salience of the societal norm has an impact on how likely they were to compare themselves to other people. They found prompting participants to think of the societal norm made it more likely that they would compare themselves to unrealistic others, such as professional models. Therefore, it seems that mass media portrayals of women are likely to lead to women comparing themselves with unrealisitic standards and subsequently feeling dissatisfied with their appearance.

Certain groups of individuals may be particularly vulnerable to the impact of idealised media images due to an increase in self-monitoring. For example adolescents,[27] pregnant women,[28] and people with eating disorders[29] have been shown to have heightened self-monitoring and sensitivity to their appearance. Individuals who possess certain personality traits, such as an increased tendency to compare their appearance to others and to internalise the societal ideal of beauty as their standard, or who show characteristics associated with eating disorders, may also be more vulnerable to reduced body satisfaction after viewing such images.[20,21] In the case of pregnant women and adolescents, increased self-monitoring of appearance is likely to be caused by the changes that their bodies are undergoing. In the case of those with eating disorders it may be that they possess a personality type that causes them to fixate on their appearance and this leads them to develop an eating disorder. So whether the fixation on appearance is caused by an objective, physical source (altered appearance) or by an internal, perceived source (personality type), it can lead to increased dissatisfaction with appearance.

A study by Newton and Minhas[30] has demonstrated that female orthognathic patients display more dissatisfaction with their facial appearance after viewing idealised images of facial photographs, than do female non-patients. Since the desire to improve their appearance is a major motivation for electing to undergo orthognathic surgery this is not a surprise.[14,15,17,18] The impact of celebrities and models portrayed in the media on the patients' requests for treatment cannot be discounted. Orthodontists have noted that demands for orthodontic treatment are increasingly linked to the patients desire to look like prominent celebrities.[31]

The current study sought to replicate the findings of Newton and Minhas[30] and to further their work by identifying personality traits that predicted increased dissatisfaction with facial appearance caused by exposure to media images. In addition to this, it measured the impact of comparing oneself to others who were not 'ideal' in appearance, but 'average'. This is of interest since it will help determine if the aesthetic comparisons that are motivating orthognathic patients to undergo surgery are relevant (e.g. peer) or unrealistic (e.g. professional model). It is hypothesised that viewing 'idealised' facial images will have a greater negative impact on facial satisfaction than viewing 'average' facial images, and that this effect will be greatest in those who have greater awareness of societal norms of appearance, and those who are seeking orthognathic treatment.

1. Method

Ethical approval was obtained for this study from both the King's College London Hospital Trust and Guy's and St. Thomas's Hospital Trust research ethics committees.

1.1. *Participants*

The participants were women drawn from one of two categories:

(i) Thirty patients who were undergoing, or had recently completed orthognathic treatment at the orthodontic department of King's College London Hospital Trust and Guy's and St. Thomas's Hospital Trust, and
(ii) Thirty volunteers who were not orthognathic patients recruited by the use of a mass e-mail to King's College London students and employees (excluding dentists and dental students).

1.2. Materials

Participants completed a bank of questionnaires in order to measure the following: satisfaction with facial appearance; psychological distress and self-esteem; tendency to compare their appearance with the appearance of others. The latter two traits were measured using a composite score of existing questionnaires based on a study investigating personality traits and media images in adolescents girls.[20]

Satisfaction with facial appearance was measured using:

(i) A Visual Analogue Scale (i.e. a horizontal straight line of 100 mm, anchored with the terms ''very dissatisfied'' and ''very satisfied'', participants intercept the line at the point they feel best reflects their opinion). Visual Analogue Scales have been shown to be sensitive enough to register changes before and after an intervention.[32]

Psychological distress and self-esteem were assessed with the following three scales:

(ii) A measure of state depression—Hospital Anxiety and Depression Scale (HAD).[33] The HAD is a 14 item measure of Anxiety and Depression designed for use in medical settings. The Depression scale comprises seven items. The HAD is widely used and has been subject to extensive psychometric testing in a range of populations, scores on the HAD are higher for clinically depressed groups, and are correlated with psychiatric opinion.[33]

(iii) A measure of state anxiety—Hospital Anxiety and Depression Scale (HAD).[33] The anxiety scale is seven items. Scores are higher for clinically anxious groups.[33]

(iv) A measure of self-esteem—The Rosenberg Self-Esteem Inventory.[34] This scale comprises 10 items which assess global self-esteem. Originally developed on a sample of over 5000 American Adolescents, the scale has high levels of internal consistency and correlates well with ratings of self-esteem by teachers and parents.[34,35]

Tendency to compare their appearance with the appearance of others involved the following four scales:

(v) A measure of the extent to which they compare their appearance to the appearance of relevant others—The Physical Appearance Comparison Scale (PACS).[36,37] This 18-item scale has good psychometric qualities (high internal consistency and test-retest reliabilities), it correlates well with measures of eating disturbance, body image dissatisfaction, social comparison, depression, and self-esteem.[37]

(vi) A measure of the extent to which they have internalised the socio-cultural ideals of appearance—Socio-cultural Attitudes Towards Appearance Questionnaire (SATAQ).[38] The SATAQ has two subscales: a six-item Awareness subscale and an eight-item Internalisation subscale. Both have high levels of internal consistency and correlate with indices of body image and eating disturbance each contributing separate variance to the prediction of eating disturbance.[38]

(vii) A measure of the extent to which they aware of the socio-cultural ideals of appearance—Socio-cultural Attitudes Towards Appearance Questionnaire (SATAQ).[38] This is a subscale of the SATAQ as described above.

(viii) A measure of how strong the participants' sense of self identity is—The Self-Concept Clarity Scale.[39] This is a 12-item scale with a Cronbach's alpha of 0.86 in the sample in which the scale was developed. Factor analysis of the scale suggests a single factor which correlates with measures of neuroticism and self esteem.[39]

1.3. Photographs

In Stage 2 of the study participants were asked to view and rate (for attractiveness using a VAS) two sets of photographs, these were:

1.3.1. 'Ideal' images

The first set of photographs were the 'ideal' images. These contained 20 facial photographs of women selected from popular magazines that focus on female fashion and with a largely female readership. They showed women smiling in way that exposed their teeth.

1.3.2. 'Average' images

The second set of photographs were the 'average' images. These contained 20 images of women taken from a website[40] on which members of the public can display photographs of themselves to be rated for attractiveness by others. Images were chosen of women smiling in a way that exposed their teeth, that had been rated by at least 25 members of the public, and had scores between 4 and 7 out of 10, which was deemed to be within a range of 'average' appearance. If necessary images were cropped to show just a head shot.

1.4. Procedure

This study design involved both within- and between-subjects comparisons, with a repeated measure factor (satisfaction with facial appearance). The study consisted of two stages.

In the first stage participants completed the questionnaires as detailed above. In the second stage of the study participants were exposed to one of two sets of facial photographs (the order in which the 'ideal' and 'average' images were presented was counterbalanced).

As participants viewed the images they were asked to rate each one on a physical attractiveness VAS in order to focus their attention on the images. After rating each photograph in the set participants completed the VAS rating of their satisfaction with their own physical appearance for a second time.

Participants then repeated the above procedure with the second set of photographs. After rating these images they completed the VAS of their satisfaction with their own physical appearance for the third and final time.

The data were transferred to SPSS v15 and analysed. Differences between the two groups on the personality measures were compared using an independent *t*-test, the change in the satisfaction with facial appearance VAS scores after viewing 'ideal' and 'average' images were analysed using a within-subjects *t*-test, and the interaction between the change in the satisfaction with facial appearance VAS scores, and the scores on the personality traits, participants' dental status, and order in which the photo-

Table 1 – Comparison of patient and non-patient sample ages	
Patient (standard deviation)	25.37 (8.05)
Control (standard deviation)	30.73 (9.63)
t (degrees of freedom = 58)	−2.34
Sig.	0.05

graphs were viewed was analysed using a repeated measures Analysis of Covariance, where satisfaction with facial appearance was the dependent variable, the repeated measure was the dependent variable after viewing 'average' and 'ideal' images, dental status (patient versus control) was the between subjects factor, and initial (baseline) satisfaction with appearance VAS score and age were covariates. Age was added as a covariate since initial analyses suggested age differences between the group of patients and controls.

2. Results

The control group were significantly older than the patient group (Table 1, $p = 0.02$). Table 2 shows that the orthognathic patients did not differ from the controls on the traits of psychological distress and self-esteem or tendency to compare their own appearance with that of others, but did have significantly lower satisfaction with their facial appearance ($p = 0.02$).

The mean satisfaction with appearance scores for both patients and the control group, after viewing both the 'ideal' and 'average' photographs are shown in Table 3. There was no significant change from the initial rating of satisfaction with appearance (Table 4). Satisfaction with appearance after viewing both sets of photographs did not significantly interact with the personality factors measured, the dental status of participant (patient versus control), or the order in which the participant viewed the photographs ('ideal' first versus 'average' first).

The data provide some evidence to support the integrity of the independent variable. Both the patients and the control group rated the 'ideal' images as significantly more attractive than the 'average' images. The mean 'ideal' image rating was 72.20 out of 100 in the patient group and 72.79 out of 100 in the control group, while the mean 'average' image rating was 52.90 in the patient group and 49.83 in the control group (both differences significant at $p < 0.001$). There were no significant difference in the ratings given to the images by the patient and control groups. When considered as a whole, the data set showed a mean rating of 72.50 for each 'ideal' image and a mean rating of 51.36 for each 'average' image ($p < 0.001$).

Table 3 – Mean scores for facial satisfaction after viewing 'ideal' and 'average' facial images		
	After 'ideal' images (standard deviation)	After 'average' images (standard deviation)
Patient	58.73 (25.66)	59.73 (21.53)
Control	73.10 (15.28)	75.70 (16.34)
Total	65.92 (22.15)	67.72 (20.59)

3. Discussion

This study failed to demonstrate an effect of viewing 'idealised;' or 'average' faces on satisfaction with self in either patients attending for orthognathic surgery or controls. Furthermore there was no difference in awareness of socio-cultural norms, psychological distress, self-esteem and tendency to compare self with others between the patient group and controls.

There are several possible reasons for the failure to replicate the findings of the Newton and Minhas[30] study. The current study did not attempt to disguise the purpose of the experiment and did not leave a long gap between the repeated ratings of satisfaction with facial appearance. Previous studies of the impact of media images have tended to use deception to hide the true purpose of the study[20,22,26] and/or to include a long time gap between the repeated measure of satisfaction with appearance. It is possible that cueing participants to the expected effect of 'ideal' images allowed them to identify that the participants realised the images were an inappropriate point of comparison. Alternatively participants may have been reluctant to express increased dissatisfaction if they experienced it, because they feel they should not be influenced by photographs in this way. Both of these eventualities raise interesting possibilities for developing a psycho-educational intervention to protect women against the negative effects of media images.

Another possible explanation for the difference between the current findings and those of Newton and Minhas,[30] is that Newton and Minhas only recruited pre-surgical orthognathic patients, whereas the present study used both pre- and up to 1 year post-operative patients. It is possible that the pre- and post-operative patients may differ in their sensitivity to and internalisation of media ideals. However this seems unlikely given that the present study was concerned with the sensitivity of orthognathic patients to media images, rather than their satisfaction with appearance *per se*, it seemed reasonable to use both pre- and post-operative patients, since it is likely both pre- and post-operative patients will have a heightened sensitivity to their facial appearance. This is likely

Table 2 – Mean scores on factors derived from psychological scales				
Personality factor	Patient (standard deviation)	Control (standard deviation)	t (degrees of freedom = 58)	Sig.
Factor 1—satisfaction with appearance	61.67 (24.82)	74.50 (14.44)	−2.45	0.05
Factor 2—satisfaction with self	70.63 (15.27)	64.10 (17.01)	1.57	ns
Factor 3—appearance comparison tendency	57.10 (11.23)	56.87 (10.36)	0.08	ns

Table 4 – Repeated measures ANCOVA table

Variable	Within-subject effect sum of squares	*F* (degrees of freedom = 58)	Sig.	Estimated marginal means (confidence intervals)
Change in satisfaction with appearance after viewing images	10.91	0.28	ns	66.82 (65.13–68.50)
Change in satisfaction with appearance after viewing images: satisfaction with appearance	107.81	2.77	ns	–
Change in satisfaction with appearance after viewing images: psychological distress	14.49	0.37	ns	–
Change in satisfaction with appearance after viewing images: appearance comparison tendency	2.53	0.07	ns	–
Change in satisfaction with appearance after viewing images: order in which the photographs were viewed	18.08	0.46	ns	–
Change in satisfaction with appearance after viewing images: dental status				
Patient post 'ideal' image	86.57	2.22	ns	65.20 (62.19–68.22)
Patient post 'average' image				65.32 (62.37–68.27)
Control post 'ideal' image				66.63 (63.61–69.65)
Control 'average' image				70.11 (67.16–73.07)
Dental status				
Patient	–	–	–	65.26 (62.80–67.72)
Control				68.37 (65.91–70.83)

to be the case regardless of how satisfied the post operative patients were with the outcome of the surgery.

There is some evidence that orthognathic patients show increased satisfaction with their appearance after surgery.[17,41,42] However, it was felt that patients' sensitivity to their facial appearance, and thus their susceptibility to influence by media images, was likely to be heightened even if they were satisfied with the outcome of the surgery and were focused on their face merely to enjoy the improvement. The sensitivity of post-operative orthognathic surgery patients to media images has not been directly addressed before. It is commonly accepted that aesthetic improvement is one of the most important patient motivations,[14,15,17] if not the most important[18] for undergoing orthognathic surgery. Therefore it seems a reasonable assumption that post-operative patients will be focused on their appearance. Moreover, a series of papers published by Kiyak et al.[43–47] based on a cohort study of orthognathic patients found that 9 months post-operation patients had lower facial body-image and self-esteem than they did before surgery, although these improved at 24 months post-surgery. They also noted that while patients perceived an improvement in their facial profile they became less pleased with other aspects of their face. It seems as though the improvement in profile made other facial-flaws more salient. These findings suggest patients were still sensitive to their facial appearance up to 2 years post-surgery.

However it may be that women are less vulnerable to feeling facial dissatisfaction caused by media images than they are to feeling body dissatisfaction. Although some studies have demonstrated that facial images of 'ideal' women lead to decreased facial satisfaction[22,30] the effect is much better established in body image.[19–21,23,24,26,48–50] Perhaps women are less likely to feel dissatisfied with their face because it is more closely connected with their sense of self-identity than their body shape is, or perhaps they feel more sensitive about their body image because they have a greater sense of control over their body weight than their facial appearance. Such feelings could help to protect them against the negative feelings elicited when they view, and compare themselves with, women with beautiful faces.

It is possible that there was insufficient distinction between the 'ideal' and 'average' faces to demonstrate differences in impact. This may be a consequence of the method used to select the 'average' faces. It is debatable whether the photographs on the web site are truly average and whether the ratings made on the Internet are realistic. However against this, a clear difference in ratings of the two sets of photographs was found in the present study.

People portrayed in the media as 'ideal' in appearance, do not necessarily have a perfect dental appearance. Some celebrities have significant malocclusions that the general public do not seem to notice and they are deemed to be extremely attractive. Examples of such celebrities include the actress Kiera Knightly who has a significant Class III skeletal pattern and maxillary hypoplasia, but is often described as one of the most beautiful women in the world, Claudia Schiffer who has a significant Class II skeletal Pattern, Tom Cruise who has a centre line shift of his upper teeth, and Thierry Henry who has a very convex facial profile with significant bimaxillary protrusion. Future research could use photographs of such celebrities who are considered to be beautiful despite having skeletal or dental discrepancies, and compare the ratings of how attractive they are to the ratings of 'ideal' and 'average' looking others in order to investigate the awareness of, and sensitivity to, malocclusions among orthognathic patients and the general public. It may be that in some cases a malocclusion may make a face distinctive which increases its attractiveness.

4. Conclusion

The current study investigated the impact of viewing images of 'ideal' and 'average' women on the facial satisfaction of women undergoing orthognathic treatment and a control group. Neither group showed any change in satisfaction after exposure to the images.

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