

Effects of a reality TV cosmetic surgery makeover program on eating disordered attitudes and behaviors

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Abstract

Objective: To evaluate the effects of a reality TV cosmetic surgery program on eating disordered attitudes, behaviors, mood, anxiety, and self-esteem.

Method: Participants ($N=147$ women) completed baseline surveys and were subsequently randomly assigned to one of two conditions: one in which they watched a reality TV cosmetic surgery program (*The Swan*) and one in which they watched a reality TV home improvement program (*Clean Sweep*). Assessments were conducted immediately post-video and two weeks later.

Results: Women in the cosmetic surgery program group who reported higher internalization of the thin-ideal at baseline manifested lower self-esteem at posttesting. Among White women, those who watched the cosmetic surgery program reported greater perceptions of media pressures to be thin and stronger endorsement of their ability to control their body's appearance after watching the video. These differences persisted over a two-week follow-up period.

Discussion: Reality TV cosmetic surgery makeover programs may contribute to eating disordered attitudes and behaviors among young women, particularly those who have internalized the thin body-ideal. These findings seem to be especially applicable for White women; however, they should be further investigated with more diverse and international samples.

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1. Introduction

Sociocultural theories highlight the role of the media in the development of eating disordered behaviors (Levine & Harrison, 2004; Stice & Shaw, 1994). In addition, empirical investigations have examined the influence of magazine and television exposure, and, although findings have differed somewhat across modalities, exposure to media images of the thin-ideal is generally associated with adverse consequences among college-age women (Irving, 1990; Stice & Shaw, 1994; Tiggemann & Pickering, 1996).

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A newer form of media exposure is the “reality TV” cosmetic surgery makeover program. These programs appear regularly on U.S. network and cable television and are very popular; for example, as noted by Sarwer and Crerand (2004), *Extreme Makeover* was the second highest rated program for adults under age 50 in 2003. The popularity of these programs coincides with the overall rise in cosmetic surgical procedures. In the U.S., the number of cosmetic medical treatments performed increased 1600% between 1992 and 2002 (Sarwer & Crerand, 2004); an estimated 8.3 million individuals in the U.S. underwent cosmetic medical procedures in 2003 (Sarwer et al., 2005). Cosmetic medical procedures are also becoming more widely accepted, particularly among college women (Sarwer et al., 2005).

Despite the increased prevalence and acceptance of cosmetic surgery, as well as the popularity of cosmetic surgery makeover programs, there have been no investigations of the impact of these programs on viewers. One concern about these programs is that they actively promote the idea that a “perfect body” is attainable. On the typical reality makeover program, women undergo a full body critique, in which numerous surgeries are recommended to address multiple (perceived) flaws. Given the pervasiveness and popularity of this form of media, we decided to examine the impact of one of these programs, *The Swan*, on college women. *The Swan* presents the story of two women per episode who undergo an extensive transformation involving multiple plastic surgeries, an intense diet and exercise program, and counseling. The program’s title refers to the Hans Christian Andersen fairy tale in which an “ugly duckling” is revealed to be a beautiful swan. The study design was informed by previous investigations of media exposure and eating disorders, which are briefly reviewed in the following sections.

1.1. Magazine and television exposure studies

Numerous experimental studies have exposed college women to pictures of fashion models and found that this exposure was associated with adverse psychological consequences (Irving, 1990; Stice & Shaw, 1994; Tiggemann & Pickering, 1996). The impact of the media has also been assessed using self-report measures of exposure. For example, Stice and colleagues (Stice, Schupak-Neuberg, Shaw, & Stein, 1994) found a moderate, direct effect of magazine exposure on eating disorder symptoms. However, this association was also mediated by ideal-body stereotype internalization, gender role endorsement, and body dissatisfaction.

1.2. Importance of assessing moderators

Studies have found that although the direct effects of media exposure on viewers were generally moderate, individuals with pre-existing body dissatisfaction and thin-ideal internalization manifest more negative outcomes than individuals without these characteristics (Joshi, Herman, & Polivy, 2004; Stice, Spangler, & Agras, 2001). For example, Stice et al. (2001) randomly assigned girls to either a fashion-magazine subscription group or a no-subscription control. There were no main effects on outcomes. However, girls with higher baseline scores on measures of pressure to be thin and body dissatisfaction manifested greater increases in negative affect. The authors concluded that the negative effects of magazine exposure are short-lived, except for those individuals who are initially vulnerable. Nonetheless, they recommend that future studies conduct follow-up testing to clarify the duration of adverse effects.

Highly restrained eaters may actually experience increased self-esteem following exposure to thin-ideal media. For example, Joshi et al. (2004) found that restrained eaters exposed to thin images reported higher social self-esteem at posttesting, compared to restrained eaters in a control group. They concluded that restrained eaters may be more invested in their appearance and believe that achieving the thin ideal is attainable.

Feminist identity has been hypothesized to protect women from body dissatisfaction and thin-ideal internalization (Berel & Irving, 1988). Research has provided support for this hypothesis (Snyder & Hasbrouck, 1996), although results are mixed (Cash, Ancis, & Strachan, 1997). Finally, researchers have also recommended including self-esteem in studies of media exposure (Berel & Irving, 1988), as women with lower self-esteem are more likely to compare themselves negatively to models in advertisements (e.g., Martin & Kennedy, 1993).

1.3. Purpose of this study

To our knowledge, this is the first study of the effects of a cosmetic surgery reality TV program in which multiple body parts are transformed to meet Western society’s ideal of feminine physical attractiveness. This newer form of media may have different effects than magazine or more traditional TV programming, as its primary emphasis is on

highlighting and correcting perceived flaws in a specific individual. Thus, these programs promote an image that can only be obtained by a level of intervention that most individuals will never be able to pursue.

In addition, this study adds to the literature by considering several potential moderators of the association between cosmetic surgery reality TV exposure and negative outcomes, including thin-ideal internalization, body mass index (BMI), restraint, and feminist identity. We also examined the impact of this form of media exposure on participants' anxiety and depression. Moreover, although several studies have examined the immediate effects of media exposure on participants (e.g., Irving, 1990; Stice & Shaw, 1994; Tiggemann & Pickering, 1996), none have investigated whether these effects persist beyond immediate posttesting. Researchers (Stice et al., 2001) have called for investigations of the persistence of laboratory-induced distress in response to media exposure. Thus, in this study, we collected follow-up data approximately two weeks after initial exposure.

2. Method

2.1. Participants

Participants were recruited from the Psychology Department subject pool and undergraduate psychology classes at a southeastern university. This study was approved by the university's Office of Research Subjects Protection; participants received course research credit.

The study involved three phases. In Phase 1, participants ($N=291$) completed baseline measures and provided consent to be contacted if they were willing to participate in Phases 2 and 3 of the study. For Phase 2, participants were randomly assigned to watch one episode of either Fox's *The Swan* (experimental group) or The Learning Channel's *Clean Sweep* (control group). These shows were chosen because they are both "reality" television programs which depict a transformation process. *Clean Sweep* involves organizing and redecorating a room in a home. For both groups, the experimenter fast-forwarded through the commercials, and participants completed post-video questionnaires immediately afterwards. In Phase 3, participants completed a follow-up survey. The same measures were administered at all phases, with the exception of the Liberal Feminist Attitudes and Identity Scale (LFAIS), which was only administered at baseline as we did not expect participants' feminist identity to change as a result of their participation. A total of 148 participants completed Phases 1 and 2, and 115 of these individuals participated in Phase 3. Many participants chose not to participate beyond Phase 1 because they had already met the research participation level encouraged in their psychology classes. The mean number of days between Phases 1 and 2 was 6.23 ($SD=4.23$), and the mean number of days between Phases 2 and 3 was 12.86 ($SD=6.28$).

In addition to the measures described below, participants completed a demographic questionnaire that asked their age, year in school, ethnicity, and their current height and weight (used to calculate BMI). The ethnic composition of the sample was as follows: 54.2% White (non-Hispanic), 25.3% Black, 2.8% Hispanic, 7.3% Asian, and 10.4% other ethnicities. In addition, 38.1% were freshman, 13.1% were sophomores, 17.9% were juniors, and 28.9% were seniors. Participants' mean BMI (total sample) was 24.24 ($SD=5.33$).

2.2. Measures

2.2.1. Three-Factor Eating Questionnaire (TFEQ)

The 21-item Restraint subscale of the TFEQ was used (Stunkard & Messick, 1998). Lower scores indicate greater restraint. The validity of the TFEQ is well-established, and the restraint subscale has been found to yield internally consistent (Stunkard & Messick, 1998) scores.

2.2.2. Rosenberg Self-Esteem Scale (RSE)

The RSE is a 10-item measure of global self esteem; higher scores indicate lower self-esteem (Rosenberg, 1965). The RSE yields internally consistent and stable scores, and its validity is well-documented (Kelly, 1955; Rosenberg, 1965).

2.2.3. State-Trait Anxiety Inventory-(STAI)

The state anxiety subscale of the STAI was used to measure current anxiety. Higher scores indicate greater anxiety (G). The state anxiety subscale yields internally consistent scores, and the its validity of this scale has been demonstrated (Spielberger et al., 1983).

2.2.4. Center for Epidemiological Studies Depression Scale (CES-D)

The CES-D is a 20-item measure with higher scores indicating greater levels of depression. It yields internally consistent scores and manifests validity in nonclinical samples (Radloff, 1977).

2.2.5. Objectified Body Consciousness Scale (OBC)

The OBC assesses objectified body consciousness (McKinley & Hyde, 1996), with higher scores indicating greater endorsement of this characteristic. Its three subscales (Surveillance, Body Shame, and Appearance Control Beliefs), yield internally consistent and stable scores (McKinley & Hyde, 1996). The measure's construct, convergent, and divergent validity have also been supported (McKinley & Hyde, 1996).

2.2.6. Sociocultural Attitudes Towards Appearance Scale-3 (SATAQ-3)

The SATAQ-3 (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2003) assesses societal influences on body image and eating disturbances. The Internalization-General, Information, and Pressures, subscales were used in this study. Higher scores reflect greater endorsement of the thin-ideal. These subscales manifest strong psychometric properties (Thompson et al., 2003).

2.2.7. Liberal Feminist Attitudes and Identity Scale (LFAIS)

The LFAIS assesses feminist ideals and perceptions of gender roles and issues (Morgan, 1996). Higher scores suggest more feminist attitudes. Morgan (1996) found that the LFAIS demonstrated acceptable internal consistency and validity in a sample of undergraduate women (Morgan, 1996).

2.2.8. Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation (MBSRQ-AE)

The MBSRQ-AE subscale measures body dissatisfaction. It yields internally consistent ($\alpha = .88$; Brown, Cash, & Mikulka, 1990) and stable scores (3 month test-retest reliability = .91; Cash, 1994), and has demonstrated criterion validity (Cash & Hicks, 1990).

3. Results

3.1. Baseline differences

Scores for participants who completed Phases 1 and 2 and those who completed only Phase 1 were compared using independent samples *t*-tests. Results indicated that individuals who participated in Phases 1 and 2 had significantly higher scores on SATAQ-Pressure ($t_{288} = -1.99, p < .05$) than individuals who only participated in Phase 1 ($M = 22.86$ vs. 20.97). No differences were observed on the TFEQ, STAI, CES-D, OBC-Surveillance, OBC, Body Shame, OBC Control Beliefs, RSE, MBSRQ-AE, SATAQ-Internalization General, SATAQ-Information or BMI (all $ps > .05$). A chi-square analysis also failed to identify any ethnic differences between these two groups ($\chi^2(4) = 2.76, p = .59$). In sum, there were no major differences between individuals who completed both Phases 1 and 2 and those who only participated in Phase 1.

Further, individuals who participated in all three phases had significantly higher scores on SATAQ-Information ($t_{288} = -2.05, p < .05, M = 25.92$) than individuals who participated in Phases 1 and 2 only ($M = 24.08$). No differences were observed on the TFEQ, LFAIS, OBC-Surveillance, OBC-Body Shame, OBC-Control, RSE, MBSRQ-AE, SATAQ-Internalization General, SATAQ-Pressure, or BMI (all $ps > .05$). A chi-square analysis also failed to identify any ethnic differences between these two groups ($\chi^2(4) = 2.61, p = .63$).

3.2. Analyses of potential moderators of cosmetic surgery reality television exposure

All participants who completed Phases 1 and 2 of the study were included in analyses of moderation. Hierarchical regressions assessed moderation of group differences in post-video outcome by the SATAQ-Internalization General, LFAIS, BMI, and TFEQ Restraint. Regressions were conducted separately for each dependent variable, with corresponding baseline scores entered in the first step to control for pre-existing differences. Scores on the hypothesized moderators were centered, and product terms were created for each moderating variable by group membership. Main effects were entered in the second step of the regression; the product term was entered in the third. Results revealed that SATAQ-Internalization General moderated the effect of group on RSE scores; women in *The Swan* group who were

higher in thin ideal internalization were more likely to report lower self-esteem after watching the video ($\beta = .15$, $t = 2.07$, $p < .04$). No other significant moderators were found (all $ps > .05$).

3.3. Baseline to post-video changes

3.3.1. Full sample

All participants who completed baseline, post-video, and follow up assessments were included in these analyses. ANCOVAs were used to assess post-video changes (see Table 1 for means for each phase). Baseline scores corresponding to outcomes served as covariates. No differences were found at the $p < .05$ level. However, a change that approached significance was found on the TFEQ Restraint ($F_{1,130} = 3.74$, $p = .06$); individuals in the *Clean Sweep* group ($M = 34.7$, $SD = 7.87$) reported less restraint than individuals in *The Swan* group ($M = 32.66$, $SD = 7.64$). A similar trend was found for the RSE ($F_{1,132} = 3.24$, $p = .07$); individuals in *The Swan* group ($M = 17.75$, $SD = 5.09$) reported lower self-esteem than individuals in the *Clean Sweep* group ($M = 17.55$, $SD = 4.70$). In addition, a trend was evident for the SATAQ-Pressure subscale ($F_{1,133} = 3.51$, $p = .06$); individuals in *The Swan* group ($M = 24.42$, $SD = 7.9$) reported more pressure than individuals in the *Clean Sweep* group ($M = 22.48$, $SD = 7.7$). No baseline to post-video differences were found on the STAI, CES-D, OBC-Shame, OBC-Control Beliefs, MBSRQ-AE, SATAQ-Internalization General, or SATAQ-Information.

3.3.2. Exploratory analyses within the White subsample

Because of potential ethnic differences in the effects of the experimental manipulation conducted, we conducted separate ANCOVAs within the White subsample (see Table 2 for subsample means). Due to the relatively low representation of other ethnicities in our sample, we were unable to conduct these analyses separately within other groups. Baseline scores served as covariates in these analyses. Results revealed no baseline to post-video changes on the RSE, CES-D, OBC-Shame, OBC-Surveillance, MBSRQ-AE, TFEQ Restraint, STAI, SATAQ-Internalization General, or SATAQ-Information (all $ps > .05$). However, significant post-video changes were found on the OBC-

Table 1
Mean scores for participants on baseline, post-video, and follow-up measures for the Swan (S) and Clean Sweep (CS) groups

Measure	Baseline	Post-video	Follow-up
OBC surveillance (S)	4.79	4.69	4.69
OBC surveillance (CS)	4.73	4.48	4.45
OBC body shame (S)	3.50	3.63	3.60
OBC body shame (CS)	3.31	3.32	3.38
OBC control beliefs (S)	4.80	5.05	4.85
OBC control beliefs (CS)	4.85	4.91	4.73
SATAQ information (S)	24.53	24.78	24.33
SATAQ information (CS)	26.11	26.74	26.99
SATAQ pressure (S)	23.40	24.42	23.74
SATAQ pressure (CS)	22.62	22.48	22.30
SATAQ internalization (S)	27.67	28.15	28.76
SATAQ internalization (CS)	29.56	29.58	29.41
TFEQ (S)	31.91	32.66	31.58
TFEQ (CS)	34.89	34.70	34.68
RSE (S)	17.89	17.75	17.00*
RSE (CS)	18.95	17.55	17.39*
CES-D (S)	15.40	15.57	14.59
CES-D (CS)	16.51	15.22	15.28
State STAI (S)	39.25	38.58	37.17
State STAI (CS)	36.52	34.57	35.06
MBSRQ-AE (S)	23.57	23.98	24.00
MBSRQ-AE (CS)	23.58	24.40	24.54

OBC=Objectified Body Consciousness Scale; SATAQ=Sociocultural Attitudes Towards Appearance Scale-3; TFEQ=Three-Factor Eating Questionnaire (Restraint subscale); RSE=Rosenberg Self-Esteem Scale; CES-D=Center for Epidemiological Studies-Depression Scale; STAI=State-Trait Anxiety Inventory (State and Trait subscales); MBSRQ-AE=Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation.

*Indicates significant changes from post-video to follow-up between the Swan and Clean Sweep groups.

Table 2

Mean scores for Caucasian participants on baseline, post-video, and follow-up measures for the Swan (S) and Clean Sweep (CS) groups

Measure	Baseline	Post-video	Follow-up
OBC surveillance (CS)	4.81	4.64	4.62
OBC surveillance (S)	4.87	4.90	4.78
OBC body shame (CS)	3.61	3.53	3.56
OBC body shame (S)	3.67	3.68	3.79
OBC control beliefs (CS)	4.77	4.67 ^a	4.71 ^b
OBC control beliefs (S)	4.72	5.04 ^a	4.82 ^b
SATAQ information (CS)	25.57	26.57	25.97
SATAQ information (S)	25.58	27.20	26.76
SATAQ pressure (CS)	25.17	23.87 ^a	24.13
SATAQ pressure (S)	24.84	25.20 ^a	24.92
SATAQ internalization (CS)	31.14	31.40	30.50
SATAQ internalization (S)	27.97	30.08	30.72
TFEQ (CS)	33.49	33.17	32.87
TFEQ (S)	31.32	31.45	30.57
RSE (CS)	19.94	18.33	18.00
RSE (S)	18.29	18.20	17.24
CES-D (CS)	16.06	13.17	13.80
CES-D (S)	15.84	15.26	15.04
State STAI (CS)	36.18	34.83	34.33
State STAI (S)	39.74	42.16	39.40
MBSRQ-AE (CS)	21.71	22.85	23.23
MBSRQ-AE (S)	23.90	24.63	23.76

^a Indicates significant changes from baseline to post-video between the Swan and Clean Sweep groups.^b Indicates significant changes from post-video to follow-up between the Swan and Clean Sweep groups.

Control Beliefs subscale ($F_{1,58}=4.65$, $p<.04$); individuals in *The Swan* group ($M=5.04$, $SD=.86$) reported greater control beliefs than individuals in the *Clean Sweep* group ($M=4.67$, $SD=.89$). Individuals in *The Swan* group ($M=25.20$, $SD=8.23$) also reported greater changes on the SATAQ-Pressure subscale ($F_{1,62}=5.60$, $p<.02$), indicating that they experienced more pressure to be thin than individuals in the *Clean Sweep* group ($M=23.87$, $SD=7.54$).

3.4. Persistence of post-video changes: Analyses of follow-up data

The persistence of the changes identified in the baseline to post-video analyses described above was then assessed using the data of the full sample (i.e., participants of all ethnicities who completed all study phases). Significant post-video to follow-up differences were found on the RSE ($F_{1,112}=4.69$, $p<.05$); individuals in the *Clean Sweep* group ($M=17.39$, $SD=4.95$) reported lower self esteem than *The Swan* group ($M=17.00$, $SD=5.16$). Thus, although there was a significant decrease in self-esteem among participants in *The Swan* group at post-video, this negative effect appears to have dissipated during the two-week follow-up period. ANCOVAs revealed no post-video to follow-up changes on the TFEQ-Restraint or SATAQ-Pressures subscales (all $ps>.05$), suggesting that the trends identified between the two groups at post-testing persisted over the two-week follow-up interval.

Within the White subsample, ANCOVAs revealed post-video to follow-up changes on OBC-Control Beliefs ($F_{1,45}=5.58$, $p<.02$); individuals in *The Swan* group ($M=4.82$, $SD=1.01$) reported greater control beliefs than individuals in the control group ($M=4.71$, $SD=.77$). However, examination of the absolute value of these differences at posttesting and follow-up indicated that they decreased over time although they were still significant. ANCOVAs failed to identify any other changes on measures which were significantly different at the post-video assessment (i.e., the SATAQ-Pressures), suggesting that, within this ethnic group, changes identified after the video persisted over the follow-up period.

4. Discussion

Rates of cosmetic medical procedures have increased exponentially in the last few years. Moreover, these procedures are becoming increasingly accepted among the general public (Sarwer & Crerand, 2004; Sarwer et al.,

2005). Thus, it is perhaps not surprising that a new media phenomenon, the cosmetic surgery reality television program, has also generated significant interest. Previous research has indicated that exposure to thin-ideal media is associated with negative psychological outcomes for viewers, including eating disorder symptoms (Irving, 1990; Stice & Shaw, 1994; Tiggemann & Pickering, 1996). However, the impact of this newer form of media has not yet been assessed. Previous studies have indicated that the types of media to which individuals are exposed (i.e., television, magazines) can affect outcomes (Tiggemann, 2003). Thus, the purpose of this study was to evaluate the impact of this particular form of media, which directly emphasizes the pursuit of the “perfect” body using strategies that are not accessible to the average woman. This study also extended previous research in this area by evaluating the persistence of any adverse outcomes identified at immediate posttesting.

Consistent with other studies (e.g., Stice et al., 2001), we found that thin-ideal internalization moderated the association between exposure to *The Swan* and lower self-esteem. Individuals highest in thin-ideal internalization were most likely to report decreases in self-esteem following exposure to the cosmetic surgery reality TV program. However, in contrast to previous studies (Joshi et al., 2004; Snyder & Hasbrouck, 1996), we did not find that feminism or restraint moderated the impact of exposure condition on outcomes. This may be due, in part, to the fact that we used different measures of these constructs than were used in the previous studies cited. Future studies should further evaluate the moderating effects of these constructs.

Exploratory analyses indicated that the effects of the cosmetic surgery makeover program were most negative for White women. Within the White subsample, significant differences were found in beliefs about one’s ability to control appearance, and perceived media pressures. These changes persisted at follow-up. Perhaps White women are more vulnerable to the effects of this form of media than are women from other ethnic backgrounds. These results may also be attributable to the fact that the two women who were the subjects of *The Swan* episode used in this study were White. Future studies could examine the association between the ethnicity of the individuals depicted in the media of interest and the ethnicity of the viewer.

This study provides an important first look at this provocative form of media and also provides insight into the persistence of its effects. However, limitations should also be noted. First, although the experimental design enabled us to manipulate participants’ level of exposure to the media of interest, the laboratory environment is artificial. Participants may have been primed to pay greater attention to the appearance of the characters presented than they would in their everyday lives. Also, this study involved watching the reality makeover program on only one occasion. We cannot make any conclusive statements about the impact that regular viewing of these types of programs might have on the population of interest. Another limitation of this study involves attrition. Those who only participated in both Phases 1 and 2 manifested higher baseline scores on the SATAQ-Information subscale than those who only participated in Phase 1. This difference was also observed when participants who completed only the first two phases were compared to those who completed the entire study. Additionally, individuals who completed all three phases of the study reported more perceived media pressures at baseline than did those who participated in only the first two phases. It is possible that these individuals were more attuned to media messages about the thin-ideal. However, given the random assignment of participants to exposure condition, we do not think attrition influenced the study outcomes.

Another limitation is that experimental studies such as this cannot account for the fact that, in daily life, women are not only exposed to media images, but also actively seek them out (Berel & Irving, 1988). The current findings and previous research indicate that certain women are more vulnerable to negative effects of media exposure. Perhaps this vulnerability reflects an interaction of both a genetic susceptibility and environmental influences. As Bulik (2004) has described, perhaps genetically vulnerable individuals seek out experiences, such as exposure to thin-ideal media images, which reinforce their negative body image. This hypothesis is further supported by results of a longitudinal study which found that adolescent girls whose eating disorder symptomatology increased over a 16 month period also reported significantly higher levels of fashion magazine reading at Time 2, compared to Time 1 (Vaughn & Fouts, 2003). Future research should further evaluate the impact of different cosmetic surgery reality television programs and conduct these analyses with participants of diverse ages and ethnicities.

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