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Pursuit of Psychoplasty? Psychological Health and Aims of Aesthetic Surgery Patients

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Abstract
The psychological health of people who elect to surgically alter the embodied self is often questioned. This study examines characteristics and goals of 546 people who elect aesthetic surgery compared with 264 people who are interested in it and 1,135 population comparisons. Assessments included demographics, attractiveness, body image importance, depression, social phobia, joy, general health, life satisfaction, and open-ended and standard goals. Surgery and interested groups were more likely than the population to be female and younger, have lower income and lower body mass index, and have higher body image importance. The surgery group reported lower general attractiveness, life satisfaction, and joy, but also lower depression and higher overall health than the general population. There were no differences in social phobia. Overall, people obtaining and interested in cosmetic surgery appeared generally psychologically healthy. The most frequent goal was to "feel better about/in one's own body." Overtly social or unrealistic goals were uncommon.

Keywords
aesthetic/cosmetic surgery, psychopathology, depression, body image, social phobia, attractiveness, patient goals

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Physical beauty may be skin deep, but its universally recognized features (Kościński, 2007; Langlois et al., 2000; Magro, 1999; Rubenstein, Langlois, & Roggman, 2002) confer substantial benefits across social, romantic, and work life (Berggren, Jordahl, & Poutvaara, 2007; Eckel & Wilson, 2006; French, 2002; Hamermesh & Biddle, 1994; Langlois et al., 2000; Mobius & Rosenblat, 2005; Reingen & Kernan, 1993; Rhodes, Simmons, & Peters, 2005; Rosenblat, 2008; Solnick & Schweitzer, 1999) and are associated with greater personal subjective well-being (Diener, Wolsic, & Fujita, 1995). It is no wonder, then, that people strive to increase their physical appeal in various ways, dating far back in history (Yalamanchili, Sclafani, Schaefer, & Presti, 2008), and including the millions who undergo modern plastic surgery each year today (American Society of Plastic Surgery, 2010; International Society of Aesthetic and Plastic Surgery, 2011). Are people who elect to surgically alter the embodied self merely dissatisfied with some perceived physical flaw, or are they pathological or mentally unsound? Are their goals overtly related to increasing the psychosocial advantage that comes with greater physical attractiveness, or are they more subtle and focused on the sense of self?

Aesthetic surgery can have positive psychological effects, including on self-esteem, body image, and quality of life (Imadojemu et al., 2013; Margraf, Meyer, & Lavallee, 2013; Shridharani, Magarakis, Manson, & Rodriguez, 2010), yet the characteristics and motivations of people who seek permanent surgical bodily alteration remain a topic of speculation and popular debate. With the exception of body dysmorphic disorder and gender, there is not enough clear scientific evidence to support the

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influence of any particular characteristic including body image (studied only on women seeking breast surgery), demographics, or any positive characteristics such as general well-being, on seeking out cosmetic surgery (Haas, Champion, & Secor, 2008). The surgical community portrays aesthetic procedures as empowering and life-enhancing, while societal commentators purport that those who seek aesthetic surgery are superficial, pathological, or oppressed victims of a youth-, beauty-, and even race-obsessed culture, often aiming to enhance resemblance to people of a dominant ethnicity or age group (Davis, 2003; Heyes & Jones, 2009). Social scientists are only just beginning to empirically understand the psychosocial health and aims behind surgical alterations of the embodied self. The present study seeks to illuminate previously unconfirmed and unexplored aspects of the mental health and aims of those who go under the knife for beauty in the first known large-scale study to compare surgery patients against both a representative group and those who would like or are interested in surgery, but have not gone through with it.

Despite the ease of gathering demographic data, knowledge about basic demographics such income, education, age, and sex in comparison with representative samples and with people who are dissatisfied with their looks but do not have surgery is lacking (Haas et al., 2008). One study described the typical surgery seeker as a university-educated 24-year-old woman with no prior history of plastic surgery, but was limited to rhinoplasty patients (Zahiroddin, Shafiee-Kandjani, & Khalighi-Sigaroodi, 2008). Some studies from the United Kingdom have examined factors in the likelihood of saying one would consider having cosmetic surgery in the future, such as being female (Swami, Chamorro-Premuzic, Bridges, & Furnham, 2009), or have determined that actual elective plastic surgery patients are more likely to be female than male, are in their 30s, and are likely employed (Cook, Rosser, Toone, James, & Salmon, 2006). However these studies do not compare those who do have cosmetic surgery with representative samples or those who are interested but choose not to go under the knife.

Some research indicates that seekers of aesthetic surgery tend to be more dissatisfied with their bodies in general, not just with the specific operated feature, than people who do not seek aesthetic surgery (Grossbart & Sarwer, 2003). However, existing studies reviewed in Grossbart and Sarwer (2003) showing general dissatisfaction are out of date and focused solely on breast augmentation (Baker, Kolin, & Bartlett, 1974; Beale, Lisper, & Palm, 1980; Schlebusch, 1989; Shipley, O'Donnell, & Bader, 1977). More recent research indicates that patients may not be more dissatisfied in general, but rather more dissatisfied with the specific feature they are seeking to change (Sarwer, Bartlett, et al., 1998; Sarwer, Wadden, Pertschuk, & Whitaker, 1998). Whether they place increased importance on body image in general as compared with those who do not seek surgery is not entirely confirmed, as patient studies so far have examined only breast surgery patients (Grossbart & Sarwer, 2003; Haas et al., 2008; Sarwer, Wadden, & Whitaker, 2002). One large-scale study of nonpatients indicated that there is no difference in body image in those interested in versus not interested in cosmetic surgery (except for those interested in liposuction, who do have lower body image; Frederick, Lever, & Peplau, 2007), but this study did not examine actual patients. Another study indicated that among college women, more body image importance and internalization of media images were related to favorable attitudes toward cosmetic surgery, but again did not assess the impact on actually undergoing surgery (Sarwer et al., 2005).

Clinical diagnoses may be an indicator of body satisfaction in cosmetic surgery patients. Indeed, seekers of cosmetic surgery tend to be more likely to be preoccupied with their own physical flaws to the clinical degree required for a diagnosis of body dysmorphic disorder (BDD), with approximately 5% to 15% of seekers of cosmetic surgery meeting criteria for BDD, in contrast with a prevalence rate of approximately 1% to 2% in the general population (Crerand, Franklin, & Sarwer, 2006; Sarwer & Spitzer, 2012). However, as 91% of aesthetic surgery patients with BDD do not find their symptoms alleviated postsurgery, a BDD diagnosis is actually considered a contraindication to aesthetic surgery (Crerand et al., 2006). That is, people seeking cosmetic surgery are discouraged from pursuing it in the presence of a BDD diagnosis, and are often declined surgery and encouraged to seek therapy instead.

Some studies indicate that seekers of aesthetic surgery may be more likely to display psychopathology in forms other than BDD as well. For example, in one study comparing cosmetic surgery patients to patients receiving other types of surgery, cosmetic surgery patients were more likely than non–cosmetic surgery patients to report a mental health diagnosis history (19% compared with 4%) and use of psychiatric medication (18% compared with 5%), with most reporting depression as the primary diagnosis (Sarwer et al., 2004). One review specifically of depression in aesthetic surgery patients indicated prevalence rates of about 20%, 5 times higher than found in the general population (Ambro & Wright, 2010), and another more general review across 65 studies found increased narcissistic (grandiosity, need for admiration; 25% of patients compared with 1% of general population) and histrionic personality (attention seeking and excessive/unstable emotions;10% of patients versus 1.8% of the population) disorders in addition to BDD (5–15%

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of patients versus 1–2% of population; Shridharani et al., 2010). Furthermore, women with breast implants were more likely to have been treated for depression presurgery than women receiving other types of cosmetic surgery and than population controls, and reported more sleep disturbances than women receiving other types of cosmetic surgery (Lipworth et al., 2009). However, despite research into depression and BDD, other disorders that may be related to the desire to change one's physical attractiveness to others, such as social phobia, have been neglected in the research. As aesthetic surgery alters one's appearance to others, it would seem highly relevant to understand whether body dissatisfaction and the desire for surgery are related to socially related fears and anxieties. Furthermore, there have been no known studies examining more positive aspects of general well-being in cosmetic surgery patients, such as joy, optimism, life satisfaction, or general overall quality of physical health. Well-being, including life satisfaction and positive mood, is not simply the absence of mental disorder, and is increasingly recognized as a vital part of human flourishing, deserving of greater attention (Ryan & Deci, 2001). One study of people who largely had never undergone cosmetic surgery indicated that lower life satisfaction is related to greater likelihood of being open to surgery, but did not examine actual patients or compare them to representative populations or people who might like to have surgery but do not actually undergo it (Furnham & Levitas, 2012).

Regarding the aims of aesthetic surgery patients, aside from the obvious goal of enhancing physical attractiveness (Grossbart & Sarwer, 2003), a few small-scale studies indicate that aesthetic surgery patients (Kinnunen, 2010) and psychologists (Grossbart & Sarwer, 1999) do indeed tend to frame the ultimate goals of aesthetic surgery in psychosocial terms. Interviews with 22 patients and 12 plastic surgeons in Finland indicated that consumers tend to frame the goal of aesthetic surgery as an investment in a better quality of life, indeed via enhancements aimed at increasing a youthful or racial (i.e., Finnish) ideal (Kinnunen, 2010). Psychologists discuss the aims as centering around the psyche (increasing self-esteem, well-being, etc.) or interpersonal or broader social functioning (improving relationships, employability, or perceptions by society of the person as a member of a certain ethnic or age group; Grossbart & Sarwer, 2003). In some cases, patients may be trying to attain a standard set on them by a family member, media, or a spouse. In other cases, they may be trying to meet their own standard of beauty by improving their self-perceived attractiveness, a factor that has little to do with objective attractiveness as rated by others (Grossbart & Sarwer, 2003). Which are the most common goals that aesthetic surgery patients aim to achieve? Do they differ from the aspirations of those who consider aesthetic surgery, but do not follow through? Despite efforts by plastic surgeons during intake to evaluate whether their patients hold realistic goals and expectations for surgery (Rohrich, 2000), to date no known systematic study of the prevalence of various goals in aesthetic surgery patients has been undertaken.

The goal of the present work is to provide the first known large-scale comparison-controlled examination of unconfirmed and understudied factors that distinguish people who undergo a wide range of types of cosmetic surgery from those who are merely interested but do not undergo it, and from the population as a whole, and to determine their aims in seeking surgery. Measures in this battery include demographics, feelings of attractiveness, body image importance, psychopathology (depression and social phobia), general well-being (joy in life, overall health, and life satisfaction), and open-ended and standard goals. Profiles and goals are assessed at presurgery, in a previously understudied population of adults in Germany, a country with low but increasing rates of cosmetic surgery. The present study offers a large patient sample with high participation rates, comparisons with people interested in but not undergoing surgery, and comparisons with characteristics of a representative group. Patients were expected to be largely female and to report lower self-perceived attractiveness and well-being, higher levels of body image importance, lower health, and greater depression and social phobia. Goals were expected to contain largely psychosocial themes.

Method

Study procedure

The study was evaluated and approved by the Ethics Committee of the German Society for Psychology (Deutsche Gesellschaft für Psychologie, Registration Number JM20022007DGPS, March 4, 2007) and was conducted between March 2007 and September 2009, as part of a larger quasi-experimental longitudinal examination of the effects of cosmetic surgery on psychosocial outcomes (Margraf et al., 2013). Data were collected at each of the nine participating hospitals using standardized questionnaires, which were typically completed online via SSL encryption or for some patients, on request, on paper and were returned by post. Participation took less than an hour at each time point.

Participants

Participants were informed in detail about the aims and methods of investigation before the start of the study, and consenting participants signed an informed consent form detailing data protection measures, the voluntary nature of

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participation, and the right to revoke the agreement at any time without notice for any reason. Participants in the surgery group received compensation for their time, whereas the participants in the interested group and representative group received a small gift and were entered into a drawing for one of three small prizes. There were no other stated benefits offered or given for participation.

Surgery group. The surgery group consisted of patients who elected to undergo aesthetic surgery, recruited through advertisements and the website of the Mang Medical One AG, and during consultations in the clinics. Exclusion criteria included previous plastic/aesthetic surgery, age younger than 18 years, and nonsurgical intervention (e.g., wrinkle treatments and hair transplantation, due to the different time course of this surgery). Although BDD is certainly of interest in understanding people who seek aesthetic surgery, it is a contraindication to surgery, and thus people who met full criteria for BDD were also necessarily excluded from surgery and thus from the study. A total of 676 patients were initially invited to participate, of whom 564 participated and 112 declined to participate. This represents a participation rate of 83.4%. The grounds for declining to take part were lack of interest (n = 67), lack of time (n = 19), too much effort (n = 14), language problems (n = 9), confidentiality concerns (n = 6), and other (n = 3, multiple entries possible). Of the 564 patients who declared themselves willing to participate, 18 were excluded because their age was above or below the cutoff. The final clinical sample comprised 546 patients (537 with complete data for the analyses on demographics and characteristics, 544 with complete data for goals).

Interested group. The first comparison group consisted of applicants for, and people interested in, aesthetic surgery, who had decided not to undergo surgery at the time of the study. This group served as a naturalistic control group, allowing for comparisons of demographics, mental health, and surgery aims with people who would like cosmetic surgery, but do not obtain it. The surgery interest comparison group was recruited via e-mail from the Mang Medical One address pool of people who had contacted Mang Medical One and expressed an interest in cosmetic surgery, but who had not been operated on. The exclusion criteria in the interested group were the same as in the clinical group. A total of 16,535 addresses were contacted via e-mail. As it was not possible to determine whether all e-mails reached their addressees, we cannot calculate a participation rate for the interested group. Of the total 296 persons who declared themselves willing to participate, 264 met the inclusion criteria for age (258 of these had complete data for the analyses on demographics and seekers, with 264 having complete data for analyses of goals). People in this group were not excluded for BDD. They gave the following information on the reasons for which no operation had yet been performed: financial reasons (61.1%), anxiety (12.2%), other reasons (17.5%; e.g., lack of time, lack of information).

Representative group. The second comparison group consisted of a representative sample of the population of adults in Germany and included 1135 participants between the ages of 18 and 65 with available data on sex and salary. This group allowed for demographic and mental health comparisons against the general population. This sample was recruited and assessed by an external institute (HCM AG) and administered an abbreviated battery of relevant questionnaires.

Measures

Attractiveness

Attractiveness compared with others. Perceptions of relative appearance as compared with others was assessed using a global single item in the format of a visual analog scale, based on the EuroQol Visual Analogue Scale (EuroQol Group, 2013). Patients are asked to indicate how good or poor they consider their general appearance to be in comparison to the appearance of other people using a scale with 100 (*perfectly beautiful people*) and 0 (*completely ugly*). Reliability and validity data are not available for this measure.

Body image investment. Investment in bodily appearance was assessed using five items from the German version (Grocholewski, Heinrichs, & Lingnau, 2007; Grocholewski, Tuschen-Caffier, Margraf, & Heinrichs, 2011) of the Appearance Schema Inventory–Revised (ASI-R; Cash, 2003; Cash, Melnyk, & Hrabosky, 2004), rated on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The inventory assesses self-evaluative salience (i.e., the extent to which people define themselves by and base their self-worth on their physical appearance) and motivational salience (i.e., the extent to which people attend to their appearance and take various measures to uphold it). Cronbach's alpha was .61. Past research indicates good convergent validity for the original 20-item scale in U.S. young adults (Cash et al., 2004), as well as convergent, divergent, and construct validities in German young adults and clinical populations (Grocholewski et al., 2011).

Psychopathology

Depression. Depression was assessed using six items from the Symptom Checklist-90–Revised Depression scale (Derogatis, 1994), rated on a scale ranging from 0 (*not at all*) to 3 (*strong*). Ratings were summed for a summary score between 0 and 18 points, with a clinical cutoff

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value of 7 points or more. Alpha was .84. Convergent validity for long and short scales has been established in German clinical populations (Prinz et al., 2008).

Social phobia. Social phobia was assessed using six items from the Liebowitz Social Anxiety Scale (Liebowitz, 1987), rated on a scale ranging from 0 (*not at all*) to 3 (*strong*). Ratings were summed for a summary score between 0 and 18 points, with a clinical cutoff value of 10 points or more. Alpha was .81. Convergent and divergent validities for the original 24-item interview and self-report versions are strong in U.S. clinical and nonclinical groups (Fresco et al., 2001).

Well-being

Joy in life. A feeling of general joy in life (e.g., "In the past few weeks have you felt completely happy?") was assessed via five items from the German-language *Berner Fragebogen zum Wohlbefinden* (BFW; Bern Questionnaire on Subjective Well-Being; Grob, 1995) on a scale ranging from 0 (*never*) to 4 (*often*). Scores were recoded 1 to 6, and scores across items were averaged. Cronbach's alpha in the present sample was .77. Construct and discriminant validities are established in German-speaking populations (Grob, 1995).

Quality of health. Overall current quality of health was assessed using the EuroQol Visual Analogue Scale (Brooks, 1996; EuroQol Group, 1990, 2013). Participants rated current health status on a scale ranging from 0 (*worst imaginable health*) to 100 (*best imaginable health*). Validity is indicated by convergence with the EQ-5D (Greiner et al., 2003) and WHO-5 and known clinical groups across several countries (Janssen et al., 2013).

Life satisfaction. Life satisfaction was assessed using six items from the Life Satisfaction Questionnaire (Trumpf et al., 2010) ranging from 0 (very unsatisfied) to 4 (very satisfied). Items assessed satisfaction in six different areas of life (i.e., health, money, looks, marriage/friendships, work, sex life).

Goals

Goal attainment scaling. Goals were assessed based on a classic method for scaling individual treatment goals (Kiresuk & Sherman, 1968), which is well suited for measuring change and evaluating courses of therapy. Patients were asked to briefly describe the personal goals they wanted to accomplish with the planned operation, defining up to five different targets in order of personal importance. For each target, participants also specified the extent to which they expected to reach the target with the operation (presurgery) and the extent to which they did reach the target (postsurgery) on a scale of 0% (*no expectation of meeting the goal/no attainment*) to 100% (*full expectation/full attainment*). Goal expectation results can be found in a prior study (Margraf et al., 2013). For the present study of goal content, the open-ended responses were coded and categorized using an inductive approach (Thomas, 2006) by trained graduate students after all data were collected. First, one graduate student examined the data and developed a set of codes. Then a second graduate student, blind to the first set of codes, independently examined the data and developed a set of codes. The two graduate students and three authors collaborated to achieve consensus on the codes, resulting in 21 subcategories that were grouped into 8 final superordinate categories (plus one code for no answer given): increase general well-being (i.e., feel more comfortable, increase life satisfaction), increase attractiveness (increase general attractiveness, increase attractiveness of a specific body part, look younger, eliminate a blemish), please others (appeal to others, appeal to a partner), increase self-esteem/worth, feel better about one's body (acceptance of body, feel more comfortable in my own skin), reduce shame, improve physical function/lose weight (reduce impairment, lose weight), improve interpersonal relations/success/sex, and other (wear the clothes one wants, fulfill a dream). Finally, both graduate students independently applied the final set of codes to coding the data set. Interrater reliability was strong, as indicated by the kappa for the first goal across the eight superordinate categories ($\kappa = .883$, $p < .001$, 808 cases). Codes from the first rater were used for the final analyses.

Standard goal items. The use of open questions minimizes examiner influence and enables the detection of the most salient themes. At the same time, answers can be subject to social desirability. Therefore, in a second step, participants were asked to respond to 10 standard items, developed for the purpose of this study by the first author, in consultation with cosmetic surgeons, assessing various realistic targets (i.e., "I'd like to feel comfortable in my own skin" and "I'd like to eliminate a long-felt blemish") and some potential unrealistic expectations (i.e., "I think I will become a new person," "I think that all my problems will be solved") by checking off which items represented additional goals they had. These combine the advantage of better standardization and easy evaluation with the possibility to obtain information that is not currently salient in the memory structure of the respondents, and possibly subject to a lesser degree of social desirability, but also perhaps influenced by the constraints of the question formulations. The combination of the two methods optimizes accurate detection of the goals. To assess which of these 10 standard items were unrealistic with respect to the success of the cosmetic surgery, five

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raters, all from the department of clinical psychology and with a PhD in clinical psychology, were asked to independently indicate to what degree they believe that each of the 10 standard questions is realistic on a scale from 1 (*completely realistic*) to 4 (*completely unrealistic*). Two items, "I think I'll become a new person" and "I think that all my problems will be solved," were rated as completely unrealistic (i.e., they both had a mean of 4.0, *SD* = 0). All other items had mean values between 1.2 and 3.2. Validity data are unavailable.

Data analysis

To analyze differences in psychological characteristics among the three samples, we used an analysis of covariance (ANCOVA) model with group membership (three levels: surgery, interested, representative) as the factor and sex, age, income group (low, high), and body mass index (BMI) as covariates. ANCOVAs were computed separately for each of the psychological measures. Two dependent variables were transformed as necessary to meet statistical assumptions of homoscedasticity and normality: quality of health (arcsin) and depression (square root). Patients were expected to be largely female (other demographics were exploratory) and to report lower self-perceived attractiveness and well-being, higher levels of body image importance, lower health, and greater depression and social phobia than the representative and interested groups, with larger differences in comparison to the representative group.

Goal frequencies are provided for both open-ended and closed questions. Furthermore, open-ended responses were analyzed using nominal regression models with group (surgery, interested) as predictor and additional covariates (see the discussion later). Outcome categories referred to the open-ended responses that had been subsequently recoded and are shown in Table 2. Outcome categories with five or fewer subjects in either group were removed for the statistical analyses. Standard goals were analyzed using logistic regression models with goal indication (yes/no) as outcome and group (surgery, interested) as predictor, including covariates. For all models we ran a model without covariates and a model with the covariates age, gender, income, and BMI. Goals were expected to contain largely psychosocial themes. Comparisons with the interested group were exploratory.

Results

Representativeness of surgery and interested groups for their respective target populations

Percentages of participants and decliners from the surgery and interested groups across sex (both groups), age (surgery group only), and surgery type (both groups) are presented in Table 1. For this comparison, data were available for 546 participants and 112 decliners with available data on sex, age group, and treatment type. The two samples did not differ with respect to the distributions of sex, age group, and treatment type: sex, $\chi^2(1) = 3.37$, $p = .07$; age group, $\chi^2(3) = 6.75$, $p = .08$; treatment type, $\chi^2(6) = 3.88$, $p = .69$.

In the interested comparison group, participants ($n = 267$) and decliners ($n = 16{,}239$, both with available data on sex and treatment type) did not differ by sex, $\chi^2(1) = 1.84$, $p = .18$, but did differ by treatment type, $\chi^2(6) = 24.2$, $p = .001$. Participants were more interested than decliners in eyelid surgery, liposuction, and breast lift surgeries, but were less interested in breast reduction and breast enlargement as compared with decliners.

Demographics. Information on the demographic composition across the three groups is presented in Table 1. Overall tests were significant among the three groups for all demographic characteristics: sex, $\chi^2(2) = 283$, $p < .001$; age group, $\chi^2(6) = 279$, $p < .001$; salary group, $\chi^2(2) = 7.54$, $p = .02$; mean age, $F(2, 1750) = 169$, $p < .001$; BMI, $F(2, 1680) = 81.9$, $p < .001$. This was primarily due to differences between the surgery and interested comparison groups on the one hand and the representative group on the other hand. Thus, in comparison to the representative group, participants in the surgery and interested groups both contained a higher percentage of females, were younger on average (Cohen's $d = 1.04$ for surgery:representative comparison, $d = 1.02$ for the interested:representative comparison), earned somewhat less, and had lower BMI ($d = 0.34$ for surgery:representative comparison, $d = 1.02$ for the interested:representative comparison). The surgery and interested groups did not differ from each other with respect to the distribution of sex, age, and salary ($p > .30$ for each χ^2 test performed). However, the subjects in the surgery group had a lower BMI than those in the interested group, $F(1, 748) = 19.9$, $p < .001$, $d = 0.33$.

Psychological health. Differences among the three groups regarding psychological outcomes are presented in Table 2. Most psychological outcomes differed significantly among the three groups, which is not surprising given the large sample sizes. Lower self-perceived attractiveness and well-being, higher levels of body image importance, lower health, and greater depression and social phobia were expected in the surgery group compared with the representative and interested groups, with larger differences in comparison to the representative group.

Some results were consistent with hypotheses, whereas some were unexpected. Consistent with hypotheses, values for general attractiveness were higher in the

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Table 1. Demographic Data Across Groups

Demographic	Group				
	Surgery participants (n = 546)	Surgery decliners (n = 112)	Interested participants (n = 264)	Interested decliners (n = 16,239)	Representative (n = 1,135)
			Sex		
Female	88	81	90	86	52
Male	12	19	10	14	48
			Age group		
18–24	27	19	22	—	10
25–34	36	34	37	—	17
35–44	22	25	26	—	27
45–65	14	22	15	—	45
			Net monthly income		
€0–1,500	60	—	64	—	55
>€1,500	40	—	36	—	45
			Treatment type		
Liposuction	25	22	24	21	—
Breast enlargement	32	32	21	26	—
Breast reduction	5	2	5	7	—
Breast lift	5	5	9	6	—
Eyelid surgery	8	11	10	6	—
Rhinoplasty	10	13	11	9	—
Other	15	15	20	24	—
Age (*M, SD*)	32.6 (10.2)	—	33.1 (9.9)	—	43.0 (13.1)
BMI (*M, SD*)	22.1 (3.2)[a]	—	23.4 (4.3)[b]	—	24.9 (4.2)[c]

Note: Values are percentages unless otherwise indicated.
[a]n = 525. [b]n = 239. [c]n = 1,097.

Table 2. Differences in Psychological Outcomes Among Surgery Group, Interested Group, and Representative Group

Outcome	F (df)[a]	M (SE)			Effect size d		
		Surgery	Interested	Representative	Surg:int	Surg:rep	Int:rep
			Attractiveness				
General attractiveness	21.7*** (1633)	65.1 (0.8)	62.3 (1.1)	70.4 (0.6)	0.10 (*ns*)	0.24***	0.29***
Body image importance (ASI-R)	112.9*** (1670)	3.69 (0.03)	3.76 (0.04)	3.21 (0.02)	0.08 (*ns*)	0.64***	0.59***
			Psychopathology				
Depression (SCL-90-R)[b]	15.6*** (1670)	1.79 (+0.14/–0.14)	3.02 (+0.26/–0.25)	2.75 (+0.13/–0.13)	0.23***	0.23***	0.05 (*ns*)
Social phobia (LSAS)	0.17 (*ns*) (1669)	5.70 (0.19)	5.65 (0.27)	5.56 (0.14)	0.01 (*ns*)	0.03 (*ns*)	0.02 (*ns*)
			Well-being				
Joy in life (BFW)	23.3*** (1671)	4.31 (0.05)	3.97 (0.08)	4.56 (0.04)	0.19***	0.17***	0.33***
Present health condition (group)[b]	16.4*** (1672)	87.3 (+0.72/–0.74)	84.2 (+1.1/–1.2)	81.2 (+0.62/–0.65)	0.13*	0.28***	0.10 (*ns*)
Life satisfaction (LSQ)	47.1*** (1675)	2.53 (0.03)	2.20 (0.05)	2.71 (0.02)	0.31***	0.21***	0.47***

Note: ASI-R = Appearance Schema Inventory–Revised; BFW = Bern Questionnaire on Subjective Well-Being; LSAS=Liebowitz Social Anxiety Scale; LSQ=Life Satisfaction Questionnaire; SCL-90-R = Symptom Checklist-90–Revised. Results are based on analysis of covariance, controlled for sex, age, income, and BMI. Effect sizes were calculated on the basis of the t values of the individual comparisons.
[a]Values in parentheses denote the denominator degrees of freedom; the nominator degrees of freedom is always 2. [b]Values were back-transformed, resulting in unequal standard errors. [c]Values corrected for multiple testing using the Bonferroni method.
*p < .05. ***p < .001.

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representative group than in the surgery and interested groups, with small effect sizes. Consistent with hypotheses, values for life satisfaction and for well-being were both highest in the representative group, but surprisingly were lowest in the interested group, with small to medium effect sizes. The largest differences among group means, based on the omnibus test, were obtained for body image importance. These values were higher in both the surgery and interested groups as compared with the representative group, consistent with hypotheses, with medium to large effect sizes. Effect sizes among group means for the other psychological outcomes (i.e., depression and overall health) were small to very small, and surprisingly favored the surgery group. Effects for social phobia were negligible. No group had a clinically significant mean depression score (i.e., 7 or greater) or social phobia score (i.e., 10 or greater).

As the sample was composed predominantly of females, an additional analysis was undertaken including only female participants. When only the subsample of female participants was analyzed, results closely resembled the results of the full sample, not surprisingly, as the surgery and interested groups each consisted primarily of females. When only females aged 45 years or younger were analyzed, results were again very similar to those obtained from the full sample. The subsample of males (all age groups), in contrast, revealed only significant results based on the omnibus test for the following outcomes: life satisfaction ($p < .001$), body image importance ($p < .001$), present health condition ($p < .05$), and general attractiveness ($p < .05$). Of the specific group comparisons across men only, only those that had the largest effect sizes in the full sample analysis remained significant: The representative group had higher life satisfaction than the interested group, but lower body image importance than both the surgery and interested groups. The other effects were likely nonsignificant due to the small sample sizes, especially for the surgery group (n = 67, 26, 462 for surgery, interested, and representative groups, respectively).

Surgery goals based on open-ended responses. Almost all patients specified their most important target goal. Response proportions declined with decreasing target importance from 99% (most important target) to 49% (least important target; Table 3 for proportions for first three goals). The proportion of responses for the fourth goal was 60% surgery group, 54% interested group, 58% total, and the proportion for the fifth goal was 51% surgery group, 45% interested group, 49% total. Proportions differed significantly between surgery and interested groups only for the second most important target goal ($p = .01$, based on chi-square tests), not for the other four target goals ($p > .05$ for each target goal).

We confined our analysis of open-ended responses to surgery goals to the most, second most, and third most important targets, because the average response proportion for these targets, averaged across surgery and interested groups, was at least 78% compared with the two least important targets reaching response proportions of at most 58% (Table 3).

Of the most important surgery goals, "feel better about/in one's own body" and "increase attractiveness" were clearly the most often specified targets with response proportions of 37% and 30%, respectively (Table 3). All other goals had response proportions of 16% or less. The distribution of response proportions of the most important surgery goals significantly varied between groups in both the unadjusted, $\chi^2(4) = 11.2$, $p = .024$, $n = 753$, and adjusted models, $\chi^2(4) = 9.79$, $p = .04$, $n = 697$. Thus "feel better about/in one's own body" was more frequently specified in the surgery group, whereas "increase general well-being" was more often specified in the interested group.

Of the second most important surgery goals, "increase attractiveness" and "increase self-esteem/worth were the most often specified targets, with response proportions of 26% and 22%, respectively (Table 3). All other targets had response proportions of 13% or less. The distribution of response proportions of the second most important surgery goals significantly varied between groups in the unadjusted model, $\chi^2(8) = 18.2$, $p = .02$, $n = 734$. Thus "feel better about/in one's own body" and "other" (reasons) were more frequently specified in the surgery group, whereas "increase self-esteem/worth," "improve physical function/lose weight," and "improve interpersonal relations/success/sex" were more often specified in the interested group. However, these differences were strongly reduced in the model adjusted for covariates, $\chi^2(8) = 13.4$, $p = .10$, $n = 680$, whereby BMI was the covariate that was solely responsible for this reduction: The average BMI was higher in the interested group (23.7) than the surgery group (22.2) and subjects with above average BMI had a particularly high probability to report the surgery goal "improve physical function/lose weight" as opposed to subjects with below average BMI.

Of the third most important surgery goals, "increase self-esteem/worth," "increase attractiveness," and "please others" were the most often specified targets, with response proportions of 22%, 15%, and 13%, respectively (Table 3). All other targets had response proportions of less than 6%. The percentage of nonresponses was 22%, and thus already quite high. The distribution of response proportions of the third most important surgery goals did not vary between groups, whether unadjusted, $\chi^2(7) = 9.73$, $p = .20$, $n = 610$, or adjusted for covariates, $\chi^2(7) = 9.61$, $p = .21$, $n = 566$.

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Table 3. Most Important, Second Most Important, and Third Most Important Surgery Goals—Number of Responses by Target Category and Group

		Most important goal						Secondary goal						Tertiary goal					
		n			%			*n*			%			*n*			%		
Type	Goal	S	I	Total	S	I	Total	S	I	Total	S	I	Total	S	I	Total	S	I	Total
Emotional/ physical	Feel better about/in one's own body	217	78	295	39.9	29.5	36.5	77	25	102	14.2	9.5	12.6	13	10	23	2.4	3.8	2.8
Physical	Increase attractiveness	154	86	240	28.3	32.6	29.7	148	64	212	27.2	24.2	26.2	81	41	122	14.9	15.5	15.1
Emotional	Increase general well-being	74	52	126	13.6	19.7	15.6	41	22	63	7.5	8.3	7.8	32	12	44	5.9	4.5	5.4
Emotional	Increase self-esteem/worth	46	21	67	8.5	8.0	8.3	114	61	175	21	23.1	21.7	130	45	175	23.9	17.0	21.7
Physical	Improve physical function/lose weight	15	10	25	2.8	3.8	3.1	11	12	23	2.0	4.5	2.8	14	12	26	2.6	4.5	3.2
Emotional	Reduce shame	13	3	16	2.4	1.1	2.0	16	9	25	2.9	3.4	3.1	14	4	18	2.6	1.5	2.2
Social	Please others	5	2	7	0.9	0.8	0.9	38	20	58	7.0	7.6	7.2	66	39	105	12.1	14.8	13.0
Social	Improve interpersonal relations/ success/sex	2	2	4	0.4	0.8	0.5	7	7	14	1.3	2.7	1.7	22	11	33	4.0	4.2	4.1
	Other	11	5	16	2.0	1.9	2.0	52	10	62	9.6	3.8	7.7	60	22	82	11.0	8.3	10.1
	No answer given	7	5	12	1.3	1.9	1.5	40	34	74	7.4	12.9	9.2	112	68	180	20.6	25.8	22.3
	Total	544	264	808	100	100	100	544	264	808	100	100	100	544	264	808	100	100	100

Note: I = interested group; S = surgery group. Percentages were obtained by dividing the number of responses (*n*) by the total number of responses as shown in the last row within the same column.

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Table 4. Number of Patients Agreeing on Predefined Standard Goals by Group

Goal of aesthetic surgery[a]	Number of subjects (%)			Test statistic	
	Surgery	Interested	Total	Unadjusted (odds ratio)	Adjusted for covariance
I'd like to feel comfortable in my own skin	514 (95)	254 (96)	768 (95)	1.18 (1.48) (*ns*)	0.28 (*ns*)
I'd like to eliminate a long-felt blemish	354 (65)	161 (61)	515 (64)	1.28 (0.84) (*ns*)	2.06 (*ns*)
I'd like to develop more self-esteem	303 (56)	170 (64)	473 (59)	5.59* (1.44)	5.01*
I think that the search for a partner will be easier/I'll better please my partner	138 (25)	74 (28)	212 (26)	0.65 (1.15) (*ns*)	1.08 (*ns*)
I think that with my altered appearance I'll get more attention/acceptance	57 (11)	62 (24)	119 (15)	22.64*** (2.62)	28.15***
I think I'll become a new person[b]	72 (13)	30 (11)	102 (13)	0.57 (0.84) (*ns*)	0.48 (*ns*)
I'll expect an improvement of the functional/ medical problems	49 (9.0)	46 (17)	95 (12)	11.52*** (2.13)	4.54*
I think that with my altered appearance I'll have more professional success	38 (7.0)	28 (11)	66 (8.2)	2.99 ns (1.58)	2.76 ns
I'll do my utmost to stop my aging process	46 (8.5)	17 (6.4)	63 (7.8)	1.04 (0.75) (*ns*)	1.79 (*ns*)
Other	44 (8.1)	0 (0)	44 (5.4)	36.03*** (—)	—[c]
I think that all my problems will be solved[b]	12 (2.2)	9 (3.4)	21 (2.6)	0.97 (1.57) (*ns*)	1.33 (*ns*)

Note: Goals are listed in order of decreasing importance based on the total number of namings.
[a]Goals were selected from a list of 10 standard goals; multiple answers were allowed. [b]Rated unrealistic. [c]Not performed.
*$p < .05$. ***$p < .001$.

The second and third most important surgery goals were more evenly distributed across categories compared with the most important goals, as shown by the Gini coefficient of inequality (Handcock & Morris, 1999), which was higher for most important goals (0.60) compared with second most important (0.44) and third most important (0.40) goals (values combined across surgery and interested groups).

Standard goals. Of the predefined standard goals that could be checked individually, "I'd like to feel comfortable in my own skin" was clearly the most favored one, with 95% of participants endorsing it (Table 4). The goals "I'd like to eliminate a long-felt blemish" (64%) and "I'd like to develop more self-esteem" (59%) were also checked by more than half of all participants, whereas all other goals were checked in 26% or fewer of all cases.

Proportions significantly varied between the two groups for four goals. More frequent endorsement was found in the interested group for goals "I'd like to develop more self-esteem," "I think that with my altered appearance I'll get more attention/acceptance," and "I'll expect an improvement of the functional/medical problems," whereas in the surgery group a higher proportion of patients endorsed the "other" item (Table 4). Adjusting for covariates led to comparable results.

Unrealistic goals. Two of the predefined standard goals were considered to by very unrealistic. These were "I think I'll become a new person" (13%) and "I think that all my problems will be solved" (2.6%). As shown in Table 4, the proportion of patients agreeing with these goals did not significantly vary between the two groups.

Discussion

The present study indicates that both people who undergo aesthetic surgery and those who are interested in surgery but do not undergo it hold generally realistic goals and are no less psychologically or physically healthy than people in the general population. They tend to be more likely to be female, were younger on average, earned somewhat less, and had lower BMI than people in the representative group. People in the surgery group also had a lower BMI than people in the interested group. Psychologically, controlling for sex, age, income, and BMI, the largest difference among groups was in body image importance, which was higher in both the surgery and interested groups than in the representative group, with medium to large effect sizes. The interested group had the lowest, and the representative group had the highest life satisfaction and joy in life, with small to medium effect sizes. The representative group provided higher self-ratings of general attractiveness than did the other two groups, with small effect sizes. Effect sizes among group means for the other psychological outcomes, including mental illness, were small to very small, and those for social phobia were negligible. This finding is important in that at least in patient samples where people with BDD have been excluded and standardized

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questionnaire measures used, there does not appear to be substantially more physical illness or psychopathology in the form of depression and social phobia than in the general population. Furthermore, even the interested group, which was not excluded based on BDD, did not show increased psychopathology. In general patients and people interested in cosmetic surgery presented as generally psychologically healthy. No group had an average depression score above the cutoff for clinical significance. In sum, people who undergo and who are interested in having aesthetic surgery tend to place more importance on body image, and tend to report less life satisfaction, less joy in life, and less self-perceived attractiveness than the general population, but at the same time are no less psychologically or physically healthy than people in the general population.

The results of this study are consistent with past research indicating that people who seek aesthetic surgery are generally dissatisfied with their appearance, tend to place increased importance on body image, may have lower self-esteem, and have a higher incidence of BDD (though consistent with the industry standard, people with BDD were turned down for surgery in the present study) than people in the general population. Seekers of aesthetic surgery in the present study did not report greater social phobia and no group reported clinically significant social phobia or depression, overall, in contrast to prior research. The surgery group reported slightly, but observably, lower and the interested group about equal levels of depression compared with the representative group, and no group had a mean depression score that was above the cutoff for clinical significance. The results for depression may be indicative of the empowering nature of surgery. It may be that engaging in aesthetic surgery when it is desired reduces depression by giving the patient hope, in contrast to the feelings experienced by those interested in surgery, but who do not receive it. It is interesting that they experience even less depression than the representative sample. This should be explored further in future research including personal interviews as a data collection method, as results on psychopathology may depend somewhat on the assessment measure. For example, in studies using interviews, patients tend to present with more psychopathology than found in the general population, whereas among studies using psychometrics (i.e., more reliable and valid standardized measures), patients seem to be no more likely to report psychopathology than population samples (Sarwer, Wadden, et al., 1998). At the same time, although paper and pencil measures tend to indicate less psychopathology than interview measures, conclusions are difficult to draw as many studies are retrospective or lack controlled comparisons (Grossbart & Sarwer, 2003), problems we attempted to address in the present study by assessing psychopathology prior to surgery and comparing results to a representative sample.

Furthermore, though effect sizes were small for overall health, people in the surgery group actually reported greater overall physical health than the representative group. This is the first examination of general self-perceived physical health in aesthetic surgery patients in comparison to representative controls and results suggest that patients are no more unhealthy than the general population, and perhaps even more so (this could also be an effect of presurgery screening, which may have disqualified people with certain health conditions from surgery).

Goal results indicated that the most frequent primary goal (spontaneously generated by 36.5% of participants, and endorsed by 95% of participants on the standard items) was a wish to "feel better about my body" or "feel more comfortable in my own skin." This goal, in contrast to the goals to "increase attractiveness" or "eliminate a physical flaw," is more psychological in nature in that it focuses on the emotional outcome of the surgery, rather than the purely physical outcome. Increasing attractiveness can imply an attracted other, thus implying an implicit social effect, though the content of this category tended to focus on the physical aspect rather than the social aspect (i.e., beautify, eliminate a flaw, make the part better looking, but not necessarily for someone else) and may also be intended to beautify for the self (Grossbart & Sarwer, 2003). Increasing self-esteem was also a highly salient emotional goal, listed as the secondary or tertiary goal by about 40% of participants, and endorsed by more than half. It is interesting that although very overt social goals were only occasionally spontaneously generated (pleasing others, improving interpersonal/sexual success), and were the least frequent of all the spontaneous goals, about a quarter of participants endorsed the item "I think that the search for a partner will be easier/I'll better please my partner." It may be that people's desire for achieving interpersonal attention/success through altered appearance lies behind a wall of social taboo, resulting in endorsement, but not spontaneous generation of this goal. Achieving the desired social outcome is perhaps also less predictable than feeling better about one's self or eliminating a blemish, and thus viewed as less realistic. Though it can be argued that any goals related to the alteration of physical appearance rather than function will have social implications, it seems most people choose to focus on goals that are more realistic and personal, rather than goals that involved directly currying favor from others. Secondary goals were more evenly distributed than primary goals, but still centered around personal emotional well-being and physical attractiveness over direct social goals. For those participants who listed a tertiary goal, increasing self-confidence

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was the most popular, with 21.7% of respondents indicating this goal. However, by the tertiary goal, pleasing others was also a more often cited goal, with 13% of respondents indicating this goal. Overall, for 62.4% of participants, a goal with an emotional component (to feel better about one's body, improve general feeling of well-being, increase self-esteem, reduce shame) was the most important surgery goal in the free responses (though feeling better in one's body could also refer to a physical feeling of comfort as well). The responses to the standard goals matched the pattern found in the free responses, with even more endorsements. "I'd like to feel comfortable in my own skin" was the most frequently endorsed standard goal (95%), followed by "I'd like to eliminate a long-felt blemish" (64%) and "I'd like to develop more self-esteem" (59%). It is interesting that overt goals to look more like the dominant racial group in the area (i.e., German Caucasian) did not make it into the list of free-responses, and therefore do not seem to figure prominently into people's conscious decision to undergo cosmetic surgery, at least in this sample.

There were just a few differences between the surgery and the interested group. In the free response goals, to "feel better about/in one's own body" was more frequently specified in the surgery group, whereas "increase general well-being" was more often specified in the interested group. Of the second most important surgery goals, to "feel better about/in one's own body" and "other" (reasons) were more frequently specified in the surgery group, whereas "increase self-esteem/worth," "improve physical function/lose weight" (this was due to higher BMI in interested group), and "improve interpersonal relations/success/sex" were more often specified in the interested group. The distribution of response proportions of the third most important surgery goals did not vary between groups.

On the standard goals, more frequent endorsement was found in the interested comparison group for goals "I'd like to develop more self-esteem," "I think that with my altered appearance I'll get more attention/acceptance," and "I'll expect an improvement of the functional/medical problems," whereas the surgery group a higher proportion of patients endorsed the "other" item. Adjusting for covariates led to comparable results. The two most unrealistic goals were not frequently endorsed (13% and 2.6%) and did not differ between the two groups. Overall, it appears that people who undergo cosmetic surgery are slightly more likely to have goals directly related to the body, as well as other, specific personal reasons, than those who are interested in surgery but do not undergo it. Those who do not undergo surgery are more likely to state goals related to general well-being or indirect social/emotional outcomes than those who opt for surgery. It would be interesting to know whether differences in goals and the realism of those goals predicts whether people who are interested in surgery follow through with it. Perhaps people with less direct goals are more likely believe that these goals can be also be worked on without surgery, and thus are more likely opt to wait or try other methods of improving well-being, self-esteem, and social success before surgery.

The present study had several strengths. It adds to prior research on the psychological characteristics of aesthetic surgery seekers by including large samples, a broad survey battery, and an extension of research to European populations, specifically in Germany. It is also the first known large-scale systematic study of the emotional and social goals of aesthetic surgery seekers, and expands on past theorizing and small studies that point to the often psychological and social nature of aesthetic surgery patient goals (Davis, 2003; Grossbart & Sarwer, 1999, 2003; Heyes & Jones, 2009; Kinnunen, 2010; Pruzinsky et al., 2006; Rohrich, 2000).

Although the present study had several strengths, it also had some limitations. It relied heavily on self-report, and the shared method variance may have contributed to some of the relationships. Furthermore, it was not able to address all areas of psychosocial functioning that could have been of interest in understanding the psychological health of aesthetic surgery seekers. For example, self-esteem, anxiety, and other forms of psychopathology were not assessed in the representative group, and therefore could not be compared among groups in this study. In addition, the present study was composed predominantly of females, seeking surgery across a broad spectrum of areas. Finally, potential surgery candidates with BDD were excluded from surgery, and thus from the study. This may not be a drawback, as although we were not able to assess BDD prevalence in potential surgery candidates, this sample provided a realistic assessment of people who actually receive surgery as they would in a naturalistic setting (where doctors would exclude BDD patients from surgery due to it being contraindicated).

Future large-scale comprehensive studies may wish to use psychological interviews and family-member-report measures in a more comprehensive battery in addition to some of the psychological self-report measures that were used in the present study. Future researchers may also wish to include larger numbers of males in the study, as well as larger numbers of people seeking each type of surgery, to better compare results across sex and surgery type.

In conclusion, although people who undergo and who are interested in having aesthetic surgery tend to place more importance on body image, and tend to report less life satisfaction, less joy in life, and less self-perceived attractiveness than the general population, they are no less psychologically or physically healthy than people in

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the general population, and hold generally realistic goals. The most important area for continued research in the study of the psychology of aesthetic surgery and in light of findings indicating positive effects of surgery on the well-being of those who seek it out (Margraf et al., 2013) is to examine the effects of psychotherapy in comparison to surgery. This should be examined in those with lower mental health, and given the emotional content of many patients' goals, it would be fruitful to also examine the effects of psychotherapy in improving appearance-related emotional well-being in those with highly emotional goal content. It may be that psychotherapy is highly effective for these would-be patients.

Author Contributions

J. Margraf developed the study concept. J. Margraf and A. H. Meyer contributed to the study design. Testing and data collection were supervised by J. Margraf and Mang Medical One. K. L. Lavallee and A. H. Meyer worked with graduate students to code the data, designed and performed the data analysis, and interpreted the analyses. K. L. Lavallee drafted the manuscript, A. H. Meyer drafted the critical analyses section, and A. H. Meyer and J. Margraf provided critical revisions. All authors approved the final version of the manuscript for submission.

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The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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