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INVESTIGATIVE REPORT

Shadows of Beauty – Prevalence of Body Dysmorphic Concerns in Germany is Increasing: Data from Two Representative Samples from 2002 and 2013

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Body dysmorphic disorder (BDD) is a psychosomatic disease associated with reduced quality of life and suicidal ideations. Increasing attention to beauty and the development of beauty industries lead to the hypothesis that BDD is increasing. The aim of this study was to test this hypothesis in two representative samples of Germans, assessed in 2002 and 2013. In 2002, *n* = 2,066 and in 2013, *n* = 2,508 Germans were asked to fill in the Dysmorphic Concern Questionnaire (DCQ), which assesses dysmorphic concerns. Subclinical and clinical dysmorphic concerns increased from 2002 to 2013 (subclinical from 0.5% to 2.6%, OR = 5.16 (CI95% = 2.64; 10.06); clinical from 0.5% to 1.0%, OR = 2.20 (CI95% = 1.03; 4.73). Women reported more dysmorphic concerns than men, with rates of 0.7% subclinical and 0.8 clinical BDD in women and 0.3% subclinical and 0.1% clinical BDD in men in 2002. In 2013, 2.8% subclinical and 1.2% clinical BDD were found in women and 2.4% subclinical and 0.8% clinical BDD in men. Further studies should assess predictors for developing a BDD and evaluate factors determining the efficacy of disease-specific psychotherapeutic and psychotropic drug treatments. ***Key words: cognititive behavior therapy; psychodynamic psychotherapy; body scheme; body image; dermatology.***

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The psychiatrist Morselli described body dysmorphic disorder (BDD) and introduced the term Dysmorphophobia as early as 1886 (1). Subsequently, other psychiatrists also described young women who feared, because of their imagined ugliness, they would not find a lover (2). There are now increasingly frequent publications on this phenomenon (3–6). In 1987, the clinical picture of BDD was included in the DSM-IV as an official disorder diagnosis in the USA (7). Meanwhile, BDD is accepted as an independent syndrome in the DSM-IV-R and also in the ICD-10 (8). In the ICD-10, BDD is assigned to somatoform disorders (9). In the DSM-5, it is newly included in the compulsive disorders category (10). Delineation from compulsive disorders, hypochondriacal disorders as well as dysmorphic disorders in anorexia nervosa or bulimia must be differential-diagnostically determined (11).

BDD is a chronic emotional disorder, in which the afflicted cannot stop brooding over a minimal or imagined flaw (12–15). They experience their appearance as so disfigured that they are ashamed and prevent others from seeing them. These patients spend several hours a day checking themselves and their appearance in the mirror (mirror-checking), or they avoid mirrors and mirroring surfaces (12). Moreover, the patients use cosmetic products to cover up the imagined flaw, or they excessively manipulate their skin (12, 13, 15–17). However, they are rarely satisfied with the result or in harmony with their self-image. This emotional disorder, projected to the skin surface, affects especially the face, nose, ears and secondary sex characteristics (15). Objective observers usually cannot see the flaw (DSM 5 criterion A). People with BDD show a need to constantly assure themselves that everything looks "as it should". Often, however, they avoid social contacts, public places, work and school. Many only leave the house at night (12, 17).

The BDD correlates with social withdrawal to an extent greatly exceeding normal shyness and may reach a clinical expression of social phobia (14, 18). The withdrawal can result in that the afflicted person no longer engage in or make new interpersonal contacts, are socially excluded, and become unable to work (19). Other comorbidities are eating disorders (20), anxiety and affective disorders (15, 21, 22). In this context, there is usually weight gain with subsequent diets. Suicidal reactions occur in about 15% of the cases in this vicious circle (23). The desire and implementation of cosmetic-dermatological and plastic-surgical interventions bring the corresponding risk of subsequent adverse events or lead to addiction to surgery (24, 25).

Various instruments are recommended for the diagnostic recording of BDD, some of which are used for

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clinical diagnostics or as screening questionnaires. There are two forms of interviews suitable to identify BDD. The structured Interview Diagnostic Module for BDD by Philipps et al. (17) (BDDDM) is recommended for clinical use. It is based on the DSM-4, and DSM-5 criteria, respectively and was also used in the representative studies by Rief et al. (26) and Buhlmann et al. (27). Moreover, there are semi-structured interviews, the so-called Yale-Brown Obsessive-Compulsive Scale (BDD-YBOCS) (28). The severity of the emotional symptoms and information for behaviour analysis can be obtained using these procedures. There are also questionnaires to record BDD: The DCQ was validated in Germany by Stangier et al. (29) and enables distinguishing between patients with a subclinical and clinical degree of BDD. It contains only 7 items and thus can be easily used as a screening instrument (see the Methods section for a precise description). In addition to the DCQ, two other questionnaires are used in the German-speaking region. The KDS-F (Körperdysmorpher Störungs-Fragebogen/Body Dysmorphic Disorder Questionnaire) with 43 items that can be categorized into 3 main scales and the KDS-K (short form of the KDS-F) (30). Buhlmann et al. (31) developed a questionnaire on BDD according to the criteria of the DSM-4 and validated it in 45 patients with BDD and control persons.

EPIDEMIOLOGY OF BODY DYSMORPHIC DISORDER

Some studies investigated the point-prevalence of BDD in the general population. In Germany, Rief et al. (26) found a frequency of 1.7%, whereas Stangier (32) reported a point-prevalence of 0.9%. Buhlmann et al. (27) found a point-prevalence of 1.8%. The differing data could be related to the different recording instruments that were used. Faravelli et al. (33) studied the prevalence exclusively in Florence, identifying 0.7% of the population, and Otto et al. (34) studied only women in the US in 7 US-American cities where data were recorded in a case-control study. Here, a prevalence of 0.7% was determined using structured interviews. In a North-American sample, Koran et al. (35) found a prevalence of 2.4%, using computer-assisted interviews meeting the criteria of the DSM-IV. Thus, BDD appears to be more frequent than, for example, hidradenitis suppurativa, which has a presumed prevalence of approximatively 1% of the population (36).

Considerably higher prevalences were found in specific settings. For example, it could be shown that in dermatological outpatient offices between 6.4 and 11.9% (29, 37–42) of the patients were affected, and also 5.7–7.0% of the plastic-surgery patients (43). In cosmetic-dermatological settings, BDD occurred

Table I. *Prevalences of body dysmorphic disorder (BDD) in various settings*

Setting	Prevalence	Instruments	*n*	Authors (ref)
General population	1.7% (Germany)	DSM-IV-criteria	2,552 national survey	Rief et al. 2006 (26)
	0.9% (Germany)	Dysmorphic Concern Questionnaire		Stangier 2007 (32)
	0.7% (only Florence)	Personal interview by general practitioner	2,066 national survey	Faravelli et al. 1997 (33)
	2.4% (USA- 1 City)	Computer-assisted structured interviews	673 interviews	Koran et al. 2008 (35)
	1.8 % (Germany)	DSM-4 criteria	2,048 telephone interview	Buhlmann et al. 2010 (27)
	2.1% (only women)	BDD Questionnaire (BDDQ)	2,891 Swedish women	Brohede et al. 2014 (59)
	0.8% (Germany)	BDD criteria DSM-V	2,129 national survey	Schieber et al. 2015 (5)
Dermatological offices	11.9%	Self-report questionnaire	268 dermatological patients	Phillips et al. 2000 (39)
	8.7%	Dysmorphic Concern Questionnaire	126 dermatological patients	Stangier et al. 2003 (41)
	9.0%	Dysmorphic Concern Questionnaire	156 patients	Stangier et al. 2003 (29)
	7.9%	Dysmorphic Concern Questionnaire	61	Ritter et al. 2013 (40)
	6.6%	Dysmorphic Concern Questionnaire	300	Wiedersich 2010 (42)
	6.7%	BDD Questionnaire + DSM-IV Interview		Conrado et al. 2010 (37)
	4.2%	Self-report BDD screening	200	Dogruk Kacar et al. 2014 (38)
Plastic surgery	7.0%	2 body image measures	100 women	Sarwer et al. 1998 (63)
	5.7%	Dysmorphic Concern Questionnaire	36	Wiedersich 2010 (42)
Cosmetic dermatology	6.3%	BDD-YBOCS + SCID-I	487	Altamura et al. 2001 (44)
	15.2%	Brief self-report questionnaire	46	Dufresne et al. 2001 (45)
	11.5%	Dysmorphic Concern Questionnaire	54	Wiedersich 2010 (42)
	14.0%	BDD Questionnaire + DSM-IV Interview	300	Conrado et al. 2010 (37)
	8.6%	Self-report BDD screening	200	Dogruk Kacar et al. 2014 (38)
	13.1%	BDD Structured Clinical Interview for DSM-IV (BDD SCID)	234	Dey et al. 2015 (64)
Patients with mental disorders	10%	Psychiatric interview	255 psychiatric patients	Brawman-Mintzer et al. 1995 (46)
	1.8% (Germany)	Self report DSM-IV criteria	318 depressed and 658 non-depressed	Otto et al. 2001 (34)
	10%	BDD module DSM-IV	350 psychiatric patients	Nierenberg et al. 2002 (48)
	1.9%	BDD module DSM-IV	155 German psychiatric patients	Kollei et al. 2011 (47)
Student population	5.3%	DSM-IVmodule criteria	133 German students	Bohne et al. 2002 (50)
	4.9%	Cross-sectional study	1,041 US students	Boroughs et al. 2010 (65)

in 6.3–15.2% of the patients (37, 38, 42, 44, 45). In psychiatric populations, between 0.5 and 10% of the patients are affected, (46–49), whereas a prevalence of about 4% has been reported in students (50, 51).

Table I presents an overview of studies to date on the prevalence of BDD in various settings.

So far, there are no studies on the prevalence of BDD which have answered the question of the extent to which the disorder has increased in frequency over the past years. Attractiveness seems increasingly important for professional and social integration. This makes it plausible that rejection in everyday life is more frequently attributed to personal appearance and physical flaws and more intensively perceived or assumed. For this reason, the present study is intended to check whether dysmorphic concerns and the tendency to BDD have increased. The DCQ, as a validated instrument, was used to determine the prevalence of BDD in two large representative samples in Germany.

METHODS

Representative sample

As part of a survey conducted by a professional institute (USUMA GmbH Berlin), persons in all parts of Germany were visited at home in the period of November to December 2002, and February to April 2013, respectively. The DCQ was used in this survey with a series of other psychosocial questionnaires. The data from the other questionnaires are being processed by the pertinent authors and are not part of the present study.

To obtain a representative sample of the population, a customary procedure in market research for sampling (random route) was used. First, the households to be questioned were selected. The target household in a certain region was selected by a randomization procedure using a multistep process (52). Within the target households, the person to be questioned was then determined using another randomized selection procedure (Schwedenschlüssel or Kish-Selection-Grid (53). In this procedure, each member of a household had the same chance of being selected for questioning. Target persons who were not reached on first contact had to be visited two more times at various times a day before they could be assigned to a drop-out reason. Differentiation was made between quality-neutral drop-outs, for example untenanted dwelling, and systematic drop-outs, when the person was not reached despite triple attempts. For the present study in 2013, 3,855 households were visited by trained interviewers (evaluable data from 2,508), while in 2002, 3,194 households were visited (evaluable data from 2,066). The selected sample corresponds to information from the Federal Bureau of Statistics (Statistisches Bundesamt (54, 55)). Table II compares the samples of the years 2002 and 2013, in which the DCQ data were evaluable.

Table II. *Characteristics of the representative samples in 2002 and 2013**

	2002 *n*=2,066 % (*n*)	2013 *n*=2,508 % (*n*)
Evaluable Dysmorphic Concern Questionnaire-Data	93.5 (1,934)	99.8 (2,504)
Women	53.4 (1,032)	53.2 (1,331)
Highest educational degree (MD=10)		
School education without university entrance diploma	86.7 (1,677)	81.8 (2,040)
University entrance diploma or higher	13.3 (257)	18.2 (454)
Employment		
Without job	8.5 (165)	5.7 (142)
Working	43.5 (842)	52.1 (1,304)
Not working	47.9 (927)	42.3 (1,058)
Partnership		
Living with partner	55.6 (1,076)	52.5 (1,314)
Without partner	44.4 (858)	47.5 (1,190)
Age		
<24 years	12.0 (232)	10.2 (256)
25–34 years	13.1 (253)	14.3 (359)
35–44 years	17.6 (340)	15.2 (381)
45–54 years	16.3 (315)	17.8 (445)
55–64 years	17.8 (345)	18.1 (453)
65–74 years	14.9 (289)	15.2 (381)
>75 years	8.3 (160)	9.1 (229)

*Self-reported by participants of the study.

Questionnaires

Dysmorphic Concern Questionnaire (DCQ). The DCQ in the German validation (29) was used in order to screen for BDD. The DCQ was developed from the General Health Questionnaire according to Goldberg (56) by Oosthuizen et al. (57). The DCQ consists of 7 items, which have to be rated on a 4–point scale from 0–3 (not at all, like most people, more than other people, much more than other people) (Example item: "been told by others/doctor that you are normal in spite of your strongly believing that something is wrong with your appearance or bodily functioning").

Stangier et al. (29) validated the DCQ in an unselected sample of 156 dermatological patients, additionally in 22 patients with clinically-proven BDD, 22 patients with disfiguring skin diseases and 21 patients with non-disfiguring skin diseases. A Cronbach's α of 0.85 was calculated for the German version of the DCQ. The one extracted factor in the factor analysis explained 53.8% of the variance.

The convergent validity was determined by correlations with depression ($r = 0.33$) and compulsive disorders ($r = 0.57–0.74$). Moreover, a discriminative validity could be examined across the various samples. A cut-off value of ≥ 14 represented the best compromise between sensitivity and specificity. Seventy-two percent of the BDD patients could be correctly assigned to the diagnosis of BDD using this value. DCQ values between ≥ 11 points and < 14 points indicate a possible BDD and are termed a subclinical form. These two cut-off values were also used in this study to differentiate between a subclinical or clinical form of BDD.

Statistical data analysis

Statistical analyses were performed using IBM SPSS Statistic (SPSS Version 22 for Windows 2013 (58)). χ^2-tests were performed to compare the frequency distributions. Afterwards, changes in the prevalence from 2002 compared to 2013 were determined by means of Odds ratios (OR; with confidence interval 95%). Moreover, the OR were determined for the comparison of degrees of the test variables (men/women; without university entrance diploma/ with university entrance diploma; with partner/without partner). Analyses of variance were used to compare differences between the two sample groups. Main differences were calculated at $\alpha = 0.05$, with η^2 as effect size.

RESULTS

A first evaluation was made using descriptive statistics regarding the point prevalence of BDD in the two representative samples. For this, the two cut-off values of the DCQ of ≥11–<14 for subclinical disfiguration and ≥14 as clinically-relevant disfiguration in the sense of a BDD were used. Comparison of the data from 2002 and 2013 revealed an increase in the presence of dysmorphic concerns.

While in 2002 0.5% of the subjects reported subclinical symptoms, 2.6% of the subjects in 2013 did (OR=5.16; CI95%=2.64; 10.06). An increase from 0.5% to 1% of those questioned could also be observed with respect to the frequency of clinically-relevant symptoms (OR=2.20; CI95%=1.03; 4.73). The frequency distribution of no, subclinical and clinical BDD differs significantly between the years 2002 and 2013 (χ^2 (2)=32.71; $p<0.001$).

The increase in prevalence of BDD is seen both in the subclinical and clinical form of BDD according to DCQ diagnostics in the entire sample. Both women and men more often reported subclinical symptoms in 2013 than in 2002 (women: OR=4.21 CI95%=1.87; 9.47; men: OR=7.38; CI95%=2.24; 24.35).

The subgroup without university entrance diploma also showed a higher prevalence of subclinical BDD in 2013 (OR=9.49; CI95%=3.79; 23.76), as did the subgroups with (OR=5.38; CI95%=2.09; 13.86) and without partner (OR=4.89; CI95%=1.90; 12.57).

Since the numbers regarding the prevalence in the individual age groups were small, no OR were determined in that case. Overall, however, it was observed that a more marked increase in prevalence is seen in the younger age groups (up to 54 years) than in the older groups.

With one exception, all comparisons between the degrees of the variables (men vs. women; without university entrance diploma/ with university entrance diploma; with partner/without partner) showed no noteworthy ORs. No statements can be made concerning an increase from 2002 to 2013 with respect to age because of the small sample size. In 2013, dysmorphic concerns appeared to be more important in the younger age group up to 54 years.

The two samples (2002 and 2013) are compared in Table III with respect to the frequency of subclinical and clinically-relevant body dysmorphic concerns.

In order to present changes in the scale values in the DCQ, independent of an increased prevalence of BDD, the DCQ means of the study group excluding subjects in the subclinical and clinical group are presented in Table IV. The main effects for sex (higher value for women: F (1; 4,301)=123.86; $p<0.001$) and age (F (6; 4,301)=5.80; $p<0.001$) and the interaction effect sex × age (F (6; 4,301) =2.33, $p<0.05$) were significant.

Table III. *Results of the study 2002 and 2013 of subclinical (≥11–<14) and clinical (≥14) body dysmorphic disorder (BDD) with regard to gender, education, partnership and age*

	2002		2013			OR (95% CI)
	Subclinical BDD	Clinical BDD	Subclinical BDD	Clinical BDD		2013/2002
Total sample, *n* (%)	10 (0.5)	9 (0.5)	65 (2.6)	25 (1.0)	χ^2 (2)=32.71; $p<0.001$	Subclinical: 5.16 (2.64; 10.06) Clinical: 2.20 (1.03; 4.73)
Women	7 (0.7)	8 (0.8)	37 (2.8)	16 (1.2)	χ^2 (2)=15.21; $p<0.001$	Subclinical: 4.21 (1.87; 9.47) Clinical: 1.59 (0.68; 3.73)
Men	3 (0.3)	1 (0.1)	28 (2.4)	9 (0.8)	χ^2 (2)=19.35; $p<0.001$	Subclinical: 7.38 (2.24; 24.35) Clinical: 7.11 (0.90; 56.26)
OR (95% CI) women/men	2.06 (0.53; 7.99)	7.06 (0.88; 56.59)	1.18 (0.71; 1.93)	1.58 (0.70; 3.59)		
University entrance diploma, *n* (%)						
Without	5 (0.3)	8 (0.5)	56 (2.7)	21 (1.0)	χ^2 (2)=38.03; $p<0.001$	Subclinical: 9.49 (3.79; 23.76) Clinical: 2.23 (0.98; 5.04)
With	5 (1.9)	1 (0.4)	8 (1.8)	4 (0.9)	χ^2 (2)= 0.60; ns	Subclinical: 0.91 (0.29; 2.81) Clinical: 2.27 (0.25; 20.43)
OR (95% CI) with/without	6.63 (1.91; 23.06	0.83 (0.10; 6.65)	0.63 (0.30; 1.34)	0.85 (0.29; 2.48)		
Partner, *n* (%)						
With	5 (0.5)	4 (0.4)	32 (2.5)	13 (1.0)	χ^2 (2)=18.42; $p<0.001$	Subclinical: 5.38 (2.09; 13.86) Clinical: 2.73 (0.89; 8.41)
Without	5 (0.6)	5 (0.6)	33 (2.8)	12 (1.0)	χ^2 (2)=14.33; $p<0.001$	Subclinical: 4.89 (1.90; 12.57) Clinical: 1.78 (0.62; 5.06)
OR (95% CI) without/with	1.26 (0.36; 4.36)	1.57 (0.42; 5.88)	1.14 (0.70; 1.87)	1.02 (0.47; 2.25)		
Age, *n* (%)						
<24 years	0 (0.00)	2 (0.9)	11 (4.3)	2 (0.8)		
25–34 years	4 (1.6)	0 (0.0)	19 (5.3)	3 (0.8)		
35–44 years	3 (0.9)	0 (0.0)	11 (2.9)	3 (0.8)		
45–54 years	3 (1.0)	0 (0.0)	14 (3.2)	5 (1.1)		
55–64 years	3 (0.9)	1 (0.3)	7 (1.5)	1 (0.2)		
65–74 years	1 (0.3)	0 (0.0)	9 (2.4)	1 (0.3)		
>75 years	2 (1.3)	0 (0.0)	3 (1.3)	1 (0.4)		

Odds ratio (OR) were not calculated due to the small numbers of participants in the age-subgroups.

Table IV. Dysmorphic Concern Questionnaire score in the total sample without subclinical and clinical cases, illustrated separately for men and women and age groups

	2002 (n = 1,915) Mean ± SD	2013 (n = 2,414) Mean ± SD
Total sample	0.99 ± 1.94	2.24 ± 2.54
Women	1.24 ± 2.16	2.74 ± 2.65
Men	0.72 ± 1.63	1.68 ± 2.28
Age		
<24 years	1.20 ± 2.21	2.52 ± 2.80
25–34 years	1.20 ± 2.10	2.56 ± 2.74
35–44 years	1.19 ± 2.10	2.10 ± 2.42
45–54 years	1.14 ± 2.17	2.36 ± 2.60
55–64 years	0.77 ± 1.56	2.18 ± 2.39
65–74 years	0.75 ± 1.68	2.05 ± 2.43
>75 years	0.66 ± 1.49	1.90 ± 2.39
Age – Women		
<24 years	1.87 ± 2.69	3.07 ± 2.82
25–34 years	1.49 ± 2.28	3.11 ± 2.80
35–44 years	1.48 ± 2.29	2.82 ± 2.62
45–54 years	1.47 ± 2.41	2.95 ± 2.73
55–64 years	0.89 ± 1.75	2.62 ± 2.52
65–74 years	0.84 ± 1.77	2.38 ± 2.46
>75 years	0.75 ± 1.62	2.19 ± 2.50
Age – Men		
<24 years	0.66 ± 1.54	2.02 ± 2.69
25–34 years	0.87 ± 1.81	1.82 ± 2.49
35–44 years	0.84 ± 1.81	1.32 ± 1.90
45–54 years	0.81 ± 1.83	1.69 ± 2.26
55–64 years	0.64 ± 1.34	1.72 ± 2.17
65–74 years	0.65 ± 1.57	1.69 ± 2.36
>75 years	0.32 ± 0.81	1.48 ± 2.16

But the primary interest in this study is the change value. As in Table III, a more marked increase in value from 2002 to 2013 is seen ($F(1; 4,301) = 285.06$; $p < 0.001$) and a significant interaction effect for sex × examination time ($F(1; 4,301) = 10.97$; $p < 0.001$) which in content shows a greater increase in DCQ values in women than in men. The other interaction effects (age × examination time and age × sex × examination time) were not significant.

DISCUSSION

The assumption that the prevalence of dysmorphic concerns increased in the years from 2002 to 2013 could be verified by this questionnaire study in which the data of two representative samples were compared. The point prevalence for subclinical or clinically-relevant BDD show an increase in dysmorphic concerns in the German population. The number of those affected subclinically according to the DCQ (≥ 11–< 14) increased from 0.5% to 2.6 % in 2013. This means that the risk of developing at least a subclinical BDD was increased by about a factor 5 (OR = 5.16). Clinical BDD according to DCQ (≥ 14) increased from 0.5% in 2002 to 1.0%, corresponding to a doubling of the risk (OR = 2.2).

In addition to the subclinical and clinical prevalence, the means of the subjects not assigned to these groups were compared. The means of these subjects have also more than doubled within the last about 10 years. Overall, thus, there is a marked increase in BDD symptoms at all examined levels. This corresponds to the hypothesis.

The prevalence rates of clinical BDD found in similar representative studies range between 0.7–2.4% (33, 35). The method of diagnostics used differed considerably in the studies so that a direct comparison is hardly possible. Some studies only recorded a selected sample. Faravelli et al. (33), for example, recorded the prevalence by means of personal interviews done by general practitioners in the geographic area of Florence, which is probably not representative for all of Italy. Moreover, recordings by general practitioners does not necessarily represent specialist-specific knowledge of the diagnostics. Koran et al. (35) performed their prevalence study in a computer-assisted survey in only one city in the US, so that here, too, no representativeness for the USA is to be assumed. Brohede et al. (59) included only women in their study and found clinically-relevant BDD in 2.1% of the subjects, applying the Body Dysmorphic Disorder Questionnaire (BDDQ) in structured clinical interviews. When the symptoms of BDD according to DSM-4 (26) or DSM-5 (5) were examined, in a representative sample similar to the one in this study, the authors found prevalence of 1.7% (26), or 0.8%, respectively (5). Since the fluctuations in the prevalence figures did not show considerable difference and ranged from 0.7–2.4% (see Table I), the values obtained in our study appear to correspond to those of similar studies and the differences attributable simply to the various methodological approaches in the recording.

Apart from total values, there were differences between men and women. In women, subclinical BDD increased from 0.7% in 2002 to 2.8% in 2013, while the clinical form increased from 0.8% to 1.2% in women, the ORs for the subclinical form was 4.21, while it was 1.59 for the clinical form. The ORs in the group of men were 7.38 for subclinical and 7.11 for clinical BDD. The prevalence increased for the subclinical group from 0.3% to 2.4% and for the clinical form from 0.1% to 0.8%. Only the increase (ORs) for the subclinical form was significant for both sexes. Apparently, more women than men with BDD are identified by the DCQ. On the other hand, men appear to have a greater increase in prevalence than women. With regard to the literature there is an equal frequency of BDD in women and men (27, 45, 60). In contradiction to this, in our study we found higher prevalence in women than in men in the samples of 2013 (2.8 % in women vs. 0.8 % in men). The differences between women and men are, however, not significant. Since the difference between women and men slightly decreased from 2002 to 2013, it must be assumed that men are increasingly affected. Contrary to this, the means of the DCQ increased more for women than for men, see Table IV.

Contrary to the primary expectations, there was an increase in the representative sample of BDD preva-

lence in the group of persons without University Entrance diploma. Persons without University Entrance diploma showed an increase in subclinical BDD from 0.3% in 2002 to 2.7% in 2013 and regarding the clinical form from 0.5% in 2002 to 1.0% in 2013. This result corresponds to an OR of 9.49 in the subclinical group, which is significant. The extent to which social developments in ideal beauty among people without University Entrance diploma may be a possible explanation, can only be hypothetically discussed.

The variable "Partnership" was also important when looking at the prevalence rates of BDD. A clear increase of BDD symptoms occurred in the group "With partner": Regarding the subclinical form there was an increase from 0.5% in 2002 to 2.5% in 2013 (OR 5.38) and regarding the clinical form we observed an increase from 0.4% in 2002 to 1.0% in 2013 (OR 2.73), but in the group "Without partner", the values regarding the subclinical form also increased from 0.6% in 2002 to 2.8% in 2013 (OR 4.89), regarding the clinical form from 0.6% in 2002 to 1.0% in 2013 (OR 1.78). However, here again, only the increases regarding the subclinical form became significant.

Different changes in the individual age groups were not statistically calculated due to the low number of cases. Apparently, however, dysmorphic concerns are possible in all age groups.

The DCQ means excluding subclinical and clinical subjects increased from 0.99 in 2002 to 2.24 in 2013. That means that dysmorphic concerns have apparently increased in the general population (see Table IV).

One limitation of the representative survey might be the use of the screening questionnaire DCQ, since no personal interviews according to DSM-5 criteria could be performed. As already mentioned in the introduction, established questionnaires for recording BDD are the Dysmorphic Concern Questionnaire (DCQ; 57), the BDD Diagnostic Module (BDDDM) and the BDD Modification of the Yale-Brown Obsessive Compulsive Scale (BDD-YBOCS) (28, 30). The DCQ is easy to use with 7 questions and a cut-off value. The last two instruments are more detailed, semi-structured clinical interviews, which are not suitable for questionnaire studies. The FKS (31) is based on the criteria of the DSM-4 and must be re-validated according to the new classification in the DSM-5.

Since there were several missing data in the DCQ (2002 median 132; 2013 median 4), data analyses refer to sample sizes of $n = 1{,}934$ for 2002 and $n = 2{,}504$ for 2013. Due to the very different numbers of missing data in the two groups, a check was made whether the dropouts were selective in 2002: essential sociodemographic data from subjects with and without missing DCQ values were compared. There were no differences between the groups with respect to sex (χ^2 (1) = 2.03, ns) and age (t (2,064) = 0.004, ns). Regarding the variable "Highest education level completed" (χ^2 (1) = 4.61, $p < 0.05$), there were more with lower education and less with university entrance diploma or higher educational level in the groups with missing DCQ values. Regarding the variable "Partnership" (χ^2 (1) = 6.11, $p < 0.05$ there were more subjects living with a partner than living alone in the group with missing DCQ values. The participants of the study mentioned their variables self-reported, there was no possibility for proofing their statements.

The study was conducted as a point prevalence study. At both times (2002 and 2013), the BDD was recorded with identical standardized questionnaires. The aim was primarily to identify differences between the years 2002 and 2013. One advantage of this comparison is that the same questionnaire was used twice at an interval of 11 years and thus the changes are largely independent of the method. For reasons of practicability, it was not possible to perform a clinical interview according to the criteria of the DSM-5 in our study. To this extent it remains questionable whether BDD was actually present in those subjects who reported relevant dysmorphic concerns, or whether some objectively disfigured individuals were among the subjects.

The increase in dysmorphic concerns in the German population apparently reflects a trend in the development of the frequency of BDD. This should lead to paying more attention to the clinical picture of BDD. The DCQ proved valuable as a screening instrument in this study, since comparable prevalence rates were found in other studies using other instruments. A clinical use appears sensible, since it can be assumed that prompt diagnostics and initiation of psychotherapy enables the doctor to secure greater effectiveness in relief of symptoms and of psychosocial consequences (24, 61, 62). The goal should therefore be to develop specific disorder-oriented therapeutic measures, which of course need to be examined in prospective therapy-comparative studies.

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