



Pós-GRADUAÇÃO EM CIRURGIA TRANSLACIONAL
ESCOLA PAULISTA DE MEDICINA - UNIFESP



RELATÓRIO FINAL DO PÓS-DOCTORADO

DISCIPLINA DE CIRURGIA PLÁSTICA

Nome do bolsista: Maria José Azevedo de Brito Rocha

Modalidade da bolsa: Pós-doutorado

Agência: CAPES

Programa CAPES: PNPd – Programa Nacional de Pós-Doutorado

Supervisora: Profa. Dra. Lydia Masako Ferreira

Título do projeto: Correlações clínicas e psicopatológicas entre traços de personalidade e transtorno dismórfico corporal em população candidata à mamoplastia de aumento

1. INTRODUÇÃO

O presente relatório refere-se às atividades desenvolvidas no pós-doutorado, no período de Outubro de 2016 a Fevereiro de 2018.

O projeto “Correlações clínicas e psicopatológicas entre traços de personalidade e transtorno dismórfico corporal em população candidata à mamoplastia de aumento”, foi desenvolvido no Programa de Pós-Graduação em Cirurgia Translacional da Escola Paulista de Medicina - Universidade Federal de São Paulo, dentro da área de concentração “Qualidade como método de avaliação” e linha de pesquisa que envolve a imagem corporal. Dando continuidade aos estudos sobre aspectos da imagem corporal - e sob a supervisão da Professora Doutora Lydia Masako Ferreira - foi objetivo deste projeto a aquisição de conhecimento científico, o aprimoramento acadêmico e de pesquisa científica, a integração das atividades de ensino e pesquisa e formação de novos pesquisadores com alunos de iniciação científica, aperfeiçoamento, mestrado e doutorado.

Durante o desenvolvimento do projeto de pós-doutorado, houve a participação das reuniões clínicas do Programa de Pós-Graduação em Cirurgia Translacional, às segundas-feiras, das 15:30 às 17:30, bem como do Ambulatório do Setor de Reconstrução Mamária da Disciplina de Cirurgia Plástica do Hospital São Paulo da Universidade Federal de São Paulo – Escola Paulista de Medicina, às segundas-feiras, das 10:00 às 12h:00.

No Ambulatório do Setor de Reconstrução Mamária foi realizada a avaliação clínica de pacientes candidatos à mamoplastia de aumento e aplicação de questionários de avaliação psicológica e psiquiátrica em três fases (pré-operatório e após dois e quatro meses da operação).

Um braço do projeto foi direcionado para o doutorado de um aluno “Sintomas de transtorno dismórfico corporal e traços de personalidade em mulheres candidatas à mamoplastia de aumento” (em andamento). No estudo para o doutorado a avaliação clínica e diagnóstica da depressão não foi incluída.

O pós-doutorado dever ser considerado um estágio acadêmico, mais do que uma especialização, realizado em uma universidade para aprimorar o nível de excelência em

uma determinada área, aperfeiçoando ainda mais os estudos do pesquisador em uma área específica. Isso significa que, este tempo, não se esgota nesta fase.

2. APRESENTAÇÃO CIENTÍFICA

A Cirurgia Plástica é a especialidade que se preocupa amplamente, mas não exclusivamente, com a reparação da superfície corporal. A cirurgia estética tem a finalidade de alterar a forma de estruturas do corpo com o objetivo de melhorar a aparência e a autoestima. É realizada para corrigir alterações fisiológicas, como o envelhecimento, alterações pós gravídicas, ou desvios da forma do corpo que não configuram doença, mas que causam alterações psicológicas (DE BRITO *et al.*, 2010; DE BRITO *et al.*, 2012; GUIMARÃES *et al.*, 2015).

Dentre os procedimentos em cirurgia plástica, as cirurgias das mamas figuram entre as mais realizadas, particularmente as cirurgias estéticas das mamas - as mamoplastias (JAVO & SORLIE, 2010a; VEIGA & FERREIRA, 2018). Segundo a *American Society for Aesthetic Plastic Surgery* (ASAPS), foram realizadas, nos Estados Unidos da América, 627.179 cirurgias estéticas das mamas, correspondendo a mais de 30% de todas as cirurgias plásticas de caráter não reconstrutivo realizadas naquele país em 2016 (AMERICAN SOCIETY FOR AESTHETIC PLASTIC SURGERY – ASAPS).

Segundo a *American Society of Plastic Surgeons* (ASPS), a mamoplastia de aumento com implantes é a cirurgia estética mais realizada nos Estados Unidos da América, com 290.467 procedimentos realizados em 2016, um aumento de 37% em relação ao ano 2000. O Brasil ficou atrás apenas dos Estados Unidos em número de cirurgias plásticas estéticas das mamas realizadas em 2016; foram 434.775 procedimentos, correspondendo a 14,1% do total mundial, segundo dados da *International Society of Aesthetic Plastic Surgery* (ISAPS). Dentre os procedimentos realizados em 2016, também no Brasil, a mamoplastia de aumento foi o mais realizado, com 217.085 cirurgias. Estes resultados mostram por um lado a aceitação social da Cirurgia Plástica e por outro o quanto a cirurgia estética das mamas tem sido associada a padrões estéticos e culturais de beleza (GUIMARÃES *et al.*, 2015; VEIGA & FERREIRA, 2018).

As mamas têm sido reconhecidas através dos tempos e em diferentes culturas como símbolo de feminilidade, sexualidade e maternidade com grande importância para a integridade física e psicológica das mulheres. O reconhecimento desta importância fez com que as distorções de tamanho e forma fossem consideradas anomalias mamárias, com amplo efeito deletério, tanto na esfera física, quanto emocional feminina (GUIMARÃES *et al.*, 2015).

A sociedade, ao superestimar a mama feminina como símbolo de feminilidade, sexualidade e erotismo, e ao mesmo tempo promulgar padrões irrealistas, encoraja as mulheres a avaliar seu valor pela aparência das mamas (KOFF & BENAVAL, 1998; VEIGA & FERREIRA, 2018).

As pacientes com pequeno volume mamário e que procuram a mamoplastia de aumento apresentam insatisfação com a imagem corporal, grande investimento na aparência pela baixa percepção da própria atratividade, ansiedade em relação à sexualidade e desejo de se sentirem mais confiantes e femininas nas relações sociais e afetivas (SHIPLEY, O'DONNELL, BADER, 1977; BIRTCHNELL & LACEY, 1988; BIRTCHNELL, WHITFIELD, LACEY, 1990; SARWER *et al.*, 2003; CRERAND, INFIELD, SARWER, 2009; MCCARTHY *et al.*, 2012; GUIMARÃES *et al.*, 2015). A baixa educação, a aceitação social da Cirurgia Plástica e a avaliação negativa da aparência foram referidas por JAVO & SORLIE (2010a), como principais variáveis para o interesse por procedimentos cirúrgicos de uma forma geral. Apontaram ainda como preditores, sintomas de Transtorno Dismórfico Corporal (TDC), preocupação e investimento psicológico com a aparência, histórico de *teasing* e gestações. Segundo os mesmos autores, mulheres interessadas em mamoplastia de aumento apresentavam fatores psicológicos mais complexos, associados ao seu interesse na cirurgia plástica, quando comparadas aos grupos que procuravam a abdominoplastia, lipoaspiração e rinoplastia (JAVO & SORLIE, 2010a). Num outro estudo, a análise regressiva confirmou que, a busca pela cirurgia plástica mostrou-se positivamente associada aos sintomas de TDC, preocupação com a imagem corporal, gestações, histórico de *teasing* sobre a aparência e aceitação social da Cirurgia Plástica (JAVO & SORLIE, 2010b), resultado que foi semelhante ao referido por SARWER *et al.* (2003) e por DE BRITO *et al.* (2016). Traços de personalidade, insegurança interpessoal, baixa autoestima, insatisfação com a imagem corporal e sexualidade, percepção da atratividade associada à magreza e estreita associação com

Transtornos Alimentares (TA), pobreza nos vínculos afetivos e sociais e baixo nível de atividade física foram acrescentados como fatores psicossociais que, motivavam a busca pela cirurgia plástica (JAVO & SORLIE, 2010b; NIKOLIC *et al.*, 2013).

JACOBSEN *et al.* (2004) observaram, entre candidatas a cirurgias estéticas, uma maior prevalência de tratamento psiquiátrico prévio entre mulheres candidatas a mamoplastia de aumento com implantes do que entre as candidatas à redução mamária ou outras cirurgias estéticas. Isso levou à recomendação de indicar avaliação psicológica pré-operatória para pacientes que desejam submeter-se à mamoplastia de aumento (ROHRICH, ADAMS, POTTER, 2007; MCLAUGHLIN, LIPWORTH, TARONE, 2003; MCLAUGHLIN, 2003; LIPWORTH *et al.*, 2009; VEIGA & FERREIRA, 2018).

Além disso, estudos mostraram que a busca pela mamoplastia de aumento podia ser um potencial marcador para psicopatologia, notadamente o TDC e que, mulheres com implantes mamários, fizeram mais psicoterapia, mais tratamentos com psicofármacos e tiveram mais internações psiquiátricas do que mulheres da população geral, ou candidatas a outras cirurgias estéticas (JACOBSEN *et al.*, 2004; CRERAND, INFELD, SARWER, 2007; DIDIE & PHILLIPS, 2007; LIPWORTH *et al.*, 2007; LIPWORTH & MCLAUGHLIN, 2010; VEIGA & FERREIRA, 2018).

Distúrbios da imagem corporal, sendo o mais comum o TDC, são características psicopatológicas encontradas em mulheres que buscam a mamoplastia de aumento (JAVO & SORLIE, 2010a; KALAAJI *et al.*, 2013), sugerindo a necessidade de uma estreita colaboração interdisciplinar entre cirurgiões plásticos, psicólogos e psiquiatras (MCGRATH, 2007; SPYROPOULOU & KONSTANTOPOULOU, 2011). Entre 3 e 15% das pacientes candidatas à mamoplastia de aumento apresentam algum grau de TDC (SARWER, 2007; CRERAND, INFELD, SARWER, 2007; VEIGA & FERREIRA, 2018).

A literatura sobre a efetividade das cirurgias estéticas das mamas é controversa. Enquanto alguns estudos apontam que os pacientes apresentam grande satisfação com os resultados, melhora da autoestima, sexualidade, qualidade de vida e alívio psicológico (SARWER, 2007; SAARINIEMI *et al.*, 2012; KALAAJI *et al.*, 2013; PENAUD & DE MORTILLET, 2013; GUIMARÃES *et al.*, 2015), outros autores observaram que os benefícios psicológicos são poucos (CRERAND, INFELD,

SARWER, 2009). Uma minoria sofre de excessiva insatisfação consistente com o diagnóstico de TDC, que pode estar contraindicada a mamoplastia de aumento (CRERAND, INFIELD, SARWER, 2009). Não obstante, limitações metodológicas dos estudos, que investigaram características psicossociais em mulheres que buscam a mamoplastia de aumento, impedem evidências e conclusões sobre aspectos psicológicos dessa população (CRERAND, INFIELD, SARWER, 2009). Além disso, os resultados positivos foram mesclados por sete estudos epidemiológicos que, identificaram uma relação entre os implantes mamários e suicídio, assinalando que, as taxas de suicídio entre mulheres com implantes mamários, seria duas a três vezes a taxa esperada na população geral (SARWER, 2007; SARWER, BROWN, EVANS, 2007; CRERAND, INFIELD, SARWER, 2009; SPYROPOULOU & KONSTANTOPOULOU, 2011), mostrando assim a importância de triagem psicológica e gestão de pacientes que buscam esse procedimento cirúrgico (SARWER, 2007; CRERAND, INFIELD, SARWER, 2009; FIGUEROA-HAAS, 2009). Por outro lado, a ausência de respostas sobre a etiologia para interpretar essa associação, é uma séria limitação na pesquisa (SPYROPOULOU & KONSTANTOPOULOU, 2011). Entretanto, a psicopatologia pré-operatória nessa população, suas motivações e expectativas, e características psicossociais são importantes fatores que, podem contribuir para a relação entre mamoplastia de aumento e risco de suicídio (SPYROPOULOU & KONSTANTOPOULOU, 2011).

Inúmeros estudos, em países como os Estados Unidos, o Canadá, a Suécia, a Finlândia e a Dinamarca, observaram um maior índice de suicídios entre mulheres que se submeteram à mamoplastia de aumento com implantes, quando comparadas a mulheres da população geral na mesma faixa etária (MAZUR, 1986; MCLAUGHLIN, LIPWORTH, TARONE, 2003; MCLAUGHLIN, 2003; PUKKALA *et al.*, 2003; KOOT *et al.*, 2003; JACOBSEN *et al.*, 2004; MCLAUGHLIN, WISE, LIPWORTH, 2004; BRINTON *et al.*, 2006; VILLENEUVE *et al.*, 2006; CRERAND, INFIELD, SARWER, 2007; LIPWORTH *et al.*, 2007; LIPWORTH & MCLAUGHLIN, 2010). As razões para esse aumento no risco de suicídio não são claras, mas características de personalidade predisponentes poderiam ser um fator de contribuição para esse risco aumentado (BRINTON *et al.*, 2006; MCLAUGHLIN, WISE, LIPWORTH, 2004).

É muito importante considerar o TDC como fator de risco para suicídio entre mulheres que se submetem à mamoplastia de aumento com implantes (VEIGA & FERREIRA, 2018). Isto é um desafio, uma vez que muitas mulheres com TDC não relatam os sintomas e o TDC muitas vezes não é diagnosticado e adequadamente tratado no pré-operatório (KLESMER, 2003; DE BRITO *et al.*, 2015; VEIGA & FERREIRA, 2018).

Por outro lado, modelos cognitivos comportamentais sugerem que certos traços de personalidade são fatores de risco para o desenvolvimento do TDC, embora a avaliação de traços de personalidade e TDC seja escassa. Contudo, traços de perfeccionismo, sensibilidade estética e inibição comportamental foram associados aos sintomas do TDC (SCHIEBER *et al.*, 2010). BARAHMAND, MOZDSETAN, NARIMANI (2010) relataram que a avaliação positiva da aparência está associada a traços narcísicos e histriônicos e a insatisfação com partes do corpo positivamente correlacionada com traços obsessivo-compulsivos. De acordo com os autores, o TDC parece ser uma manifestação mórbida de tendências perfeccionistas inflexíveis observadas em transtornos de personalidade obsessivo-compulsivo.

Dificuldades em aceitar os resultados cirúrgicos, disfunções sexuais e reações negativas foram associadas a características específicas de personalidade e por isso são necessários mais estudos (MEYER & RINGBERG, 1987). Traços de personalidade específicos desempenham papel na escolha da cirurgia e satisfação no pós-operatório, observados em cirurgias reconstrutivas pós mastectomias, ou seja, parece haver influência do tipo de personalidade tanto na motivação quanto no resultado de uma intervenção cirúrgica (OFFODILE *et al.*, 2015).

Traços de temperamento e personalidade estão associados a transtornos mentais e também ao nível de percepção (PAVAN *et al.*, 2013), sendo importante a identificação e gestão adequada desses traços, para que se mantenham os benefícios cirúrgicos. Traços de temperamento e personalidade podem ser definidos pela interação entre a predisposição genética e as experiências da vida. Traços temperamentais são dependentes de contextos sociais. Adolescentes inibidos são mais propensos a desenvolver sintomas de ansiedade social. Pacientes com TDC e ansiedade social relataram que o início da ansiedade social precedeu o TDC. Além disso, o transtorno de personalidade esquiva é o mais comum em indivíduos com

TDC, levando-os à inibição das relações afetivas e sociais. Em suma, temperamentos de esquiva, expressos em inibições, preocupação extrema, ou ansiedade, determinados geneticamente, podem ser um fator de risco para o desenvolvimento do TDC (VEALE & NEZIROGLU, 2010; DE BRITO *et al.*, 2016). Alguns traços de personalidade como astenia e tendência à auto-crítica, insegurança e perfeccionismo podem ser considerados fatores de predisposição para o desenvolvimento do TDC (PAVAN *et al.*, 2008; VEALE & NEZIROGLU, 2010; DE BRITO *et al.*, 2016).

A prevalência de transtornos de personalidade entre pacientes com TDC é relativamente alta (CRERAND, FRANKLIN, SARWER, 2006; DE BRITO *et al.*, 2014; DE BRITO *et al.*, 2016). Cerca de 50% dos indivíduos com TDC possuem transtorno de personalidade concomitante (MALICK, HOWARD, KOO, 2008; DINGEMANS *et al.*, 2012; DE BRITO *et al.*, 2014; DE BRITO *et al.*, 2016). O TDC é comum em pacientes com transtorno de personalidade *borderline*, o qual é caracterizado por impulsividade e comportamento agressivo (VINDIGNI *et al.*, 2002; PHILLIPS *et al.*, 2005; BELLINO *et al.*, 2006; FIORI & GIANNETTI, 2009; DE BRITO *et al.*, 2014; DE BRITO *et al.*, 2016). A presença de transtornos de personalidade, geralmente, reflete a gravidade dos sintomas do TDC, podendo estar associada ao desenvolvimento de seus sintomas (BELLINO *et al.*, 2006).

Transtornos de personalidade afetam o grau de expectativas e o comportamento dos pacientes que procuram procedimentos em cirurgia plástica, tanto em termos do vínculo terapêutico estabelecido com a equipe médica, como da percepção do resultado de satisfação (DE BRITO *et al.*, 2014; DE BRITO *et al.*, 2016), por isso a importância de avaliar traços de personalidade nessa população.

Fatores de risco para insatisfação com os resultados de cirurgias estéticas incluem transtornos com um componente psicológico, como a depressão e o TDC, mas também incluem transtornos não diagnosticados clinicamente e que podem contribuir negativamente no estado emocional da paciente, como baixa autoestima e ansiedade, além de fatores sociais como idade e estado conjugal (BRUNTON *et al.*, 2014; VEIGA & FERREIRA, 2018), ou traços de personalidade (DE BRITO *et al.*, 2014; DE BRITO *et al.*, 2016). Na prática clínica, é importante distinguir o TDC e suas manifestações de uma imagem corporal negativa ou alterada. Embora o TDC seja um

transtorno psiquiátrico relativamente frequente, é muitas vezes sub-diagnosticado (DE BRITO *et al.*, 2015).

Dessa forma, torna-se relevante identificar o perfil de mulheres que buscam a mamoplastia de aumento, através de aspectos sociodemográficos, traços de personalidade e sintomas de TDC, bem como o impacto terapêutico da cirurgia em termos de benefícios psicológicos.

Descrição das atividades realizadas: aulas ministradas

I.1. Tema: Validade e confiabilidade dos questionários - Metodologias de tradução, adaptação cultural e validação de um questionário. [Curso de Aperfeiçoamento em Pesquisa Científica em Cirurgia, Disciplina de Cirurgia Plástica, EPM-Unifesp] Carga horária: 1 hora (2016).

I.2. Tema: Validade e confiabilidade (Propriedades Psicométricas) dos questionários / Metodologias de tradução, adaptação cultural e validação de um questionário. [Curso de Aperfeiçoamento em Pesquisa Científica em Cirurgia, Disciplina de Cirurgia Plástica, EPM-Unifesp] Carga horária: 1 hora (2017).

I.3. Tema: Avaliação da Autoestima em Cirurgia Plástica [Programa de Pós-Graduação em Cirurgia Translacional, Disciplina de Cirurgia Plástica, EPM-Unifesp] Carga horária: 1 hora (2016).

I.4. Tema: Identificando o transtorno dismórfico corporal. Da pesquisa à prática clínica. [Programa de Pós-Graduação em Cirurgia Translacional, Disciplina de Cirurgia Plástica, EPM-Unifesp] Carga horária: 1 hora (2017).

I.5. Tema: Transtorno Dismórfico Corporal em Cirurgia Plástica e Dermatologia - Como identificar. [Programa de Pós-Graduação em Cosmiatria, Laser e Procedimentos, Hospital Israelita Albert Einstein, São Paulo] Carga horária: 2 horas (2017).

Congressos nacionais e internacionais: organização e apresentações

II.1. Organização do curso “A Psicopatologia e a Clínica dos Conflitos entre Mente e Corpo” no IV Congresso Internacional Clínica Psiquiátrica 2016, Hospital das Clínicas, Centro de Convenções Rebouças, São Paulo.

II.2. Apresentação oral no IV Congresso Internacional Clínica Psiquiátrica 2016 com o tema “Transtorno Dismórfico Corporal”, Hospital das Clínicas, Centro de Convenções Rebouças, São Paulo.

II.3. Apresentação oral no IV Congresso Internacional Clínica Psiquiátrica 2016 com o tema “Sintomas para transtorno dismórfico corporal e preocupações com o peso corporal em pacientes que procuram abdominoplastia” Hospital das Clínicas, Centro de Convenções Rebouças, São Paulo.

II.4. Apresentação oral no Simpósio Comemorativo de 25 anos do Programa de transtornos alimentares (AMBULIM): Dedicação e trabalho em equipe – Novos rumos e desafios (2017) com o tema “Transtorno dismórfico corporal”, Instituto de Psiquiatria do Hospital das Clínicas da Universidade de São Paulo, Anfiteatro Principal do Instituto de Psiquiatria da Faculdade de Medicina da USP, São Paulo.

II.5. Apresentação oral no XXIX Encontro Científico dos Acadêmicos de Medicina e VIII Congresso Goiano de Ética Médica (2017) com o tema “Identificação e conduta frente ao paciente com transtorno dismórfico corporal”, Universidade Federal de Goiás, Conselho Regional de Medicina do Estado de Goiás (CREMEGO), Goiânia.

II.6. Apresentação oral no IV World Congress of Plastic Surgeons of Lebanese Descent (2017) com o tema “Body dysmorphic disorder in plastic surgery”, Association of Plastic Surgeons of Lebanese Descent, Hotel Maksoud Plaza, São Paulo.

II.7. Apresentação oral no IV World Congress of Plastic Surgeons of Lebanese Descent (2017) com o tema “The Female Genital Self-Image Scale (FGSIS): Cross-cultural validation of the brazilian version in patients seeking plastic surgery”, Association of Plastic Surgeons of Lebanese Descent, Hotel Maksoud Plaza, São Paulo.

Coorientações em andamento de alunos – UNIFESP

III.1. Bárbara Caon. Título: Insatisfação corporal - um estudo em bailarinas. Nível: Iniciação científica.

III.2. Leandro do Couto Aguiar. Título: O efeito psicológico da cinta compressiva após abdominoplastia. Nível: Curso de Aperfeiçoamento em Pesquisa Científica em Cirurgia.

III.3. Ana Cláudia Neves Gonçalves. Título: *Female Sexual Function Index Adaptation For Breast Cancer Patients* (FSFI-BC): Tradução para a língua portuguesa do Brasil, adaptação cultural e validação. Nível: Curso de Aperfeiçoamento em Pesquisa Científica em Cirurgia.

III.4. José Batista da Cunha. Título: *Caregiver Work Limitations Questionnaire* (WLQ): Tradução para a língua portuguesa do Brasil, adaptação cultural e validação. Nível: Curso de Aperfeiçoamento em Pesquisa Científica em Cirurgia.

III.5. Tatiane de Sousa. Título: Tradução para a língua portuguesa do Brasil, adaptação cultural e validação do *BREAST-Q® - Breast Conserving Therapy Module*. Orientadora: Profa. Dra. Daniela Francescato Veiga. Nível: Mestrado.

III.6. Edson Luiz de Lima. Título: Síndrome de *Burnout* em residentes de cirurgia plástica. Orientadora: Profa. Dra. Lydia Masako Ferreira. Nível: Doutorado.

III.7. Eduardo Rodrigues Sucupira Pinto. Título: Transtorno dismórfico corporal e traços de personalidade em mulheres submetidas à mamoplastia de aumento. Orientadora: Profa. Dra. Lydia Masako Ferreira. Nível: Doutorado.

III.8. Elisa Mayumi Kokuba Aihara. Título: Avaliação das mamas, função sexual e atividade física após mamoplastia de aumento. Orientador: Prof. Dr. Miguel Sabino Neto. Nível: Doutorado.

Coorientações concluídas de alunos

IV.1. Iara Gama Esteves de Oliveira. Título: Tradução, adaptação cultural e confiabilidade do instrumento *Breast – Q Expectations Module (pre operative)*. Orientadora: Profa. Dra. Daniela Francescato Veiga. Nível: Mestrado.

IV.2. Tatiana Dalpasquale Ramos. Título: *The Body Dysmorphic Symptoms Scale*: tradução, adaptação cultural e validação. Orientador: Prof. Dr. Miguel Sabino Neto. Nível: Mestrado.

IV.3. Betina Zimmermann Fontes de Moraes. Título: O efeito da cinta compressiva no edema subcutâneo no abdome de pacientes submetidas à abdominoplastia. Orientador: Prof. Dr. Fábio Xerfan Nahas. Nível: Mestrado.

IV.4. Dione Batista Vila- Nova da Silva. Título: Características e número de demandas médico/paciente em Cirurgia Plástica em São Paulo, Rio de Janeiro e Rio Grande do Sul. Orientador: Prof. Dr. Fábio Xerfan Nahas. Nível: Doutorado.

IV.5. Cristiane Costa Fonseca. Título: Imagem corporal após mamoplastia redutora. Orientadora: Profa. Dra. Daniela Francescato Veiga. Nível: Doutorado.

IV.6. Elaine Cristina Faria. Título: Capacidade para o trabalho e produtividade de indivíduos com úlcera venosa. Orientadora: Profa. Dra. Daniela Francescato Veiga. Nível: Doutorado.

Participações em bancas (Unifesp e Univás)

V.1. Mestrado Acadêmico – 5 bancas

V.2. Mestrado Profissional – 14 bancas

V.3. Doutorado – 2 bancas

V.4. Qualificação de Mestrado Profissional – 2 bancas

Capítulos de livro

VI.1. **De Brito MJ**, Gama MG, Ferreira LM. A dor psíquica: influências da ansiedade na cicatrização de lesões teciduais. In: Gonçalves ACN, **De Brito MJA (org)**. Plantando o alívio da dor – fitoterapia, ansiedade e cicatrização. Machado: Rezende Office, 2017.

VI. 2. **De Brito MJ**, Cordás TA, Ramos TD, Ferreira LM. História do cabelo de Alan Pauls – O livro começa descrevendo os principais sintomas de um indivíduo que apresenta

uma grande insatisfação com uma região da aparência – o cabelo - revelando a extrema preocupação que se traduz em pensamentos obsessivos: “Não passa um dia sem que pense no cabelo. Está condenado a lidar, volta e meia, com o assunto. (...) escravo do cabelo (...)”, mesmo após a morte, ou seja, nem a morte livrá-lo-ia da vida do cabelo. O cabelo, o sofrimento subjetivo, era maior que a própria vida. O personagem carrega em si o sofrimento do sintoma da dismorfia corporal. In: Cordás TA, De Oliveira Gonzalez M (org). Personagens ou Pacientes II: clássicos da literatura mundial para refletir sobre a natureza humana. Porto Alegre: Artmed, 2018 (em andamento).

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VII. 2. Título: Transtorno Dismórfico Corporal – a mente que mente. Organizadoras: **Maria José Azevedo de Brito**, Táki Athanássios Cordás e Lydia Masako Ferreira. São Paulo: Editora Hogrefe, 2018.

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VIII.5. Ramos TD, **De Brito MJ**, Piccolo MS, Rosella MF, Sabino M Neto, Ferreira LM. Body Dysmorphic Symptoms Scale for patients seeking aesthetic surgery: A cross-cultural validation study. *Sao Paulo Med J*. 2016 Nov-Dec;134(6):480-490.

VIII.6. Sucupira E, Sabino Neto M, Dini GM, **De Brito MJ**, Ferreira LM. Short Mood and Feelings Questionnaire for screening children and adolescents in plastic surgery. *Sao Paulo Med J*. 2017 Nov-Dec;135(6):518-528.

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- IX. 2. Saudi Medical Journal
- IX. 4. Scientia Medica
- IX.5. Psicologia: Teoria e Pesquisa

Revisora do periódico:

- X. 1. Aesthetic Surgery Journal
- X.2. International Wound Journal

Software

XI.1. Sistema de suporte à decisão na identificação de risco do transtorno dismórfico corporal. **Registro de software nº BR 51 2017 001434-5.**

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PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Correlações Clínicas e Psicopatológicas entre Traços de Personalidade e Sintomas para Transtorno Dismórfico Corporal em População Candidata à Mamoplastia de Aumento

Pesquisador: Maria José Azevedo de Brito Rocha

Área Temática:

Versão: 2

CAAE: 55835016.0.0000.5505

Instituição Proponente: Universidade Federal de São Paulo - UNIFESP/EPM

Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 1.577.751

Apresentação do Projeto:

Trata-se de respostas de pendências apontadas no parecer inicial.

Número do Parecer: 1.550.475

DADOS DO PARECER

Nº CEP: 0599/2016

As mamas têm sido reconhecidas através dos tempos e em diferentes culturas como símbolo de feminilidade, sexualidade e maternidade com grande importância para a integridade física e psicológica das mulheres. O reconhecimento desta importância fez com que as distorções de tamanho e forma fossem consideradas anomalias mamárias, com amplo efeito deletério, tanto na esfera física, quanto emocional feminina. A sociedade, ao

superestimar a mama feminina como símbolo de feminilidade, sexualidade e erotismo, e ao mesmo tempo promulgar padrões irrealistas, encoraja as mulheres a avaliar seu valor pela aparência das mamas. As pacientes com pequeno volume mamário e que procuram a mamoplastia de aumento apresentam insatisfação com a imagem corporal, grande investimento na aparência pela baixa percepção da própria atratividade, ansiedade em relação à sexualidade e desejo de se sentirem mais confiantes e femininas nas relações sociais e afetivas. Estudos mostram que a busca

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Continuação do Parecer: 1.577.751

pela mamoplastia de aumento pode ser um potencial marcador para psicopatologia, notadamente o TDC. Inúmeros estudos, em países como os Estados Unidos, o Canadá, a Suécia, a Finlândia e a Dinamarca, observaram um maior índice de suicídios entre mulheres que se submetiam à mamoplastia de aumento com implantes, quando comparadas a mulheres da população geral na mesma faixa etária. Desta forma, torna-se relevante identificar o perfil de mulheres que buscam a mamoplastia de aumento em seus aspectos sociodemográficos, traços de personalidade e sintomas para TDC e depressão, bem como o impacto terapêutico da cirurgia em termos de benefícios psicológicos.

Objetivo da Pesquisa:

Identificar correlações clínicas e psicopatológicas entre traços de personalidade e sintomas para Transtorno Dismórfico Corporal (TDC) em população candidata à mamoplastia de aumento.

Avaliação dos Riscos e Benefícios:

Trata-se de respostas de pendências.

Comentários e Considerações sobre a Pesquisa:

Projeto de Pesquisa apresentado ao Programa de Pós Graduação em Cirurgia Translacional - pelo Departamento de Cirurgia/Cirurgia Plástica da Unifesp, campus São Paulo.

COORDENADOR: PROF. DR. MIGUEL SABINO NETO

Considerações sobre os Termos de apresentação obrigatória:

Trata-se de respostas de pendências.

Conclusões ou Pendências e Lista de Inadequações:

Pendências apontadas no parecer inicial:

1) Como este projeto está inserido dentro de um projeto anterior aprovado, favor apresentar carta de ciência/aprovação do pesquisador responsável do estudo anterior e esclarecer o que será utilizado do estudo anterior

2) Quanto ao TCLE:

2.1. Rever a informação dada, no campo "Riscos" no formulário da plataforma brasil e no TCLE, que indica que a pesquisa não pode causar riscos. Conforme orientação da CONEP, lembramos que qualquer pesquisa com seres humanos pode causar algum risco, por mínimo que seja. No que diz respeito a esta pesquisa, por exemplo, a entrevista/ questionário, embora não implique em riscos do ponto de vista clínico, pode causar constrangimento ou desconforto

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Continuação do Parecer: 1.577.751

emocional.

2.2. O TCLE deve ser adequado: apresentar em forma de convite; informar que o termo está sendo disponibilizado em 2 vias originais (não usar a palavra "cópias"), uma para ficar com a participante e outra para ficar com o pesquisador; todas as folhas devem ser numeradas (ex: 1/4, 2/4, etc.); deixar claro que, no momento da aplicação do TCLE, todas as páginas deverão ser rubricadas pelo pesquisador e pelo participante da pesquisa; o termo "paciente" deve substituído pelo termo "participante da pesquisa", conforme definição disposta no item II.10 da Resolução CNS nº 466 de 2012.

3) Rever o delineamento do estudo, não é observacional e sim de intervenção diagnóstica uma vez que poderão ser realizados os diagnósticos de transtornos dismórfico corporal e/ou depressão. Se isso ocorrer haverá alguma conduta / encaminhamento para tratamento?(neste caso, a cirurgia será suspensa ou adiada?)

r: pendencias esclarecidas.

Considerações Finais a critério do CEP:

O CEP informa que a partir desta data de aprovação, é necessário o envio de relatórios parciais (anualmente), e o relatório final, quando do término do estudo.

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

| Tipo Documento | Arquivo | Postagem | Autor | Situação |
|---|--|------------------------|-----------------------------------|----------|
| Informações Básicas do Projeto | PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_661969.pdf | 03/06/2016 22:12:57 | | Aceito |
| Projeto Detalhado / Brochura Investigador | ProjetoPesquisa_CEP.pdf | 03/06/2016 22:11:27 | Maria José Azevedo de Brito Rocha | Aceito |
| TCLE / Termos de Assentimento / Justificativa de Ausência | TCLE.pdf | 03/06/2016 22:09:01 | Maria José Azevedo de Brito Rocha | Aceito |
| Outros | Pendencias_CEP.pdf | 03/06/2016 22:07:28 | Maria José Azevedo de Brito Rocha | Aceito |
| Folha de Rosto | FolhadeRosto.pdf | 05/05/2016 22:47:34 | Maria José Azevedo de Brito Rocha | Aceito |
| Outros | CadastroCEP_HSP.pdf | 05/05/2016 22:46:23 | Maria José Azevedo de Brito Rocha | Aceito |

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Continuação do Parecer: 1.577.751

| | | | | |
|--------|---|------------------------|--------------------------------------|--------|
| Outros | CoordenadoriaEnsinoPesquisa_HSP_UNIFESP.pdf | 05/05/2016 22:44:33 | Maria José Azevedo de Brito Rocha | Aceito |
| Outros | Instrumentos.pdf | 24/02/2016 06:30:09 | Maria José Azevedo de Brito Rocha | Aceito |
| Outros | Protocolo.pdf | 24/02/2016 06:28:26 | Maria José Azevedo de Brito Rocha | Aceito |

Situação do Parecer:

Aprovado

Necessita Apreciação da CONEP:

Não

SAO PAULO, 06 de Junho de 2016

Assinado por:
Miguel Roberto Jorge
(Coordenador)

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Maria José Azevedo de Brito
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Lydia Masako Ferreira
(Orgs.)

Transtorno Dismórfico Corporal

A mente que mente

 hogrefe



Maria José Azevedo de Brito

Professora afiliada da Universidade Federal de São Paulo (Unifesp) e professora do mestrado profissional da Universidade do Vale do Sapucaí (Univás).



Táki Athanássios Cordás

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O transtorno dismórfico corporal (TDC) guarda em si um estigma quando comparado a outros transtornos mentais, sendo facilmente banalizado por confundir-se com vaidade e aparente futilidade. Por isso, não falar sobre ele nem identificar seus sintomas, acaba por adiar o tratamento dessa condição que provoca extremo sofrimento subjetivo.

A insatisfação corporal é produto de um processo mental que é deslocado para o corpo e o defeito passa a ser percebido como um problema físico. O TDC é um distúrbio complexo da imagem corporal que afeta de forma dramática a qualidade de vida de seus portadores. Procedimentos estéticos e cirúrgicos podem ser uma boa opção de tratamento para alguns indivíduos, desde que associados ao tratamento mental.

Nesta obra, direcionada a pacientes e seus familiares, educadores e estudantes das áreas de saúde que queiram aprender o que é e como lidar com o TDC, esse transtorno é descrito sob um novo olhar de diferentes especialistas em distúrbios da imagem corporal. Aspectos importantes são discutidos, como a preocupação e a insatisfação com a aparência física em seu extremo – quando um defeito percebido no corpo pode levar ao suicídio – que têm início na infância e na adolescência.

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ISBN 978-85-85439-64-4



Transtorno Dismórfico Corporal



De Brito / Cordás / Ferreira (Orgs.)



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Táki Athanássios Cordás
Lydia Masako Ferreira
(Orgs.)

Transtorno Dismórfico Corporal

A mente que mente

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Dados da International Society of Aesthetic Plastic Surgery (ISAPS) e da Sociedade Brasileira de Cirurgia Plástica (SBCP) revelam o crescimento do número de procedimentos cirúrgicos. O Brasil é o país que mais realiza cirurgias da face e de contorno corporal e extremidades, e o segundo em cirurgias da mama. Considerando o total de procedimentos, tanto cirúrgicos quanto minimamente invasivos mais realizados no mundo, o Brasil está em segundo lugar, logo atrás dos Estados Unidos.

O transtorno dismórfico corporal (TDC) é a condição psiquiátrica mais relevante para o aumento de tratamentos médicos com a aparência física em um contexto sociocultural que valoriza a atratividade. Paralelamente a essa observação, crescem os estudos e a impressão de que o diagnóstico de TDC em pacientes psiquiátricos é subestimado, sendo muito mais comum do que se imaginava. Sabemos que a insatisfação corporal é corriqueira e assume condição normativa na população de uma forma geral, instalando o culto aos corpos cuidados e uniformizados em um mesmo padrão de beleza, que pode levar a distúrbios da imagem corporal ao revelar a relação com a natureza dos ideais inatingíveis.

Mas até onde essa busca é indicada e necessária? Até onde é potencializada pelo desejo de perfeição?

Esse desencontro entre a mente e o corpo, razão do avassalador sofrimento subjetivo em que vive um indivíduo com TDC, traduz-se no desencontro do olhar. O outro não o vê, a família não o reconhece naqueles traços e detalhes. E ele olha para fora e não vê o que os outros veem. Nem os mais íntimos o reconhecem naquele corpo que o mutila. Sem feridas, sem traços, sem referências da própria imagem, o seu olhar separa-se da sua vista, e a ciência busca no conhecimento a captura de uma foto invisível. O TDC começa dentro e só se vê com a lente focada no que não se vê!

Reconhecer-se no TDC, ou conhecer o TDC, endereça o livro para aqueles que sofrem e para o público em geral.

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O Instituto Nacional da Propriedade Industrial expede o presente certificado de Registro de Programas de Computador, válido por 50 anos a partir de 1º de janeiro subsequente à data de Publicação: 01 de abril de 2016, em conformidade com o parágrafo 2º, artigo 2º da Lei Nº 9.609, de 19 de Fevereiro de 1998.

Título: **SISTEMA DE SUPORTE À DECISÃO NA IDENTIFICAÇÃO DE RISCO DO TRANSTORNO DISMÓRFICO CORPORAL**

Data de Criação: 01 de abril de 2016

Data de publicação: 01 de abril de 2016

Titular(es): MARIA JOSÉ AZEVEDO DE BRITO ROCHA

Autor(es): LYDIA MASAKO FERREIRA
/ MARIA JOSÉ AZEVEDO DE BRITO ROCHA
/ RAFAEL BEZERRA DE ARAUJO

Linguagem: CSS, HTML, JAVA, JAVA SCRIPT, JQUERY, SQL

Campo de Aplicação: CO-01, PR-03, PS-01, PS-02, SD-01, SD-06, SD-08

Tipo Programa: FA-01, IA-01, TC-01

Algoritmo Hash: SHA-512

Resumo Digital: EFE54F2BECAE2EF52B44570281BFBBBA5F54ED91AF17BF996D90A53A36F3B53E9BFA5AD4773EBD
93EEBE9945D9F813657CC430A23C54C5AA4402DEE34C9D6135

Expedido em: 21 de novembro de 2017

Aprovado por Julio Cesar Castelo Branco Reis Moreira



Body Dysmorphic Symptoms Scale for patients seeking esthetic surgery: cross-cultural validation study

Escala de Sintomas da Dismorfia Corporal para pacientes que buscam a cirurgia plástica: estudo de validação cultural

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KEY WORDS:

Body dysmorphic disorders.
Body image.
Surgery, plastic.
Psychiatry.
Therapeutics.

PALAVRAS-CHAVE:

Transtornos dismórficos corporais.
Imagem corporal.
Cirurgia plástica.
Psiquiatria.
Terapêutica.

ABSTRACT

CONTEXT AND OBJECTIVE: Rhinoplasty is one of the most sought-after esthetic operations among individuals with body dysmorphic disorder. The aim of this study was to cross-culturally adapt and validate the Body Dysmorphic Symptoms Scale.

DESIGN AND SETTING: Cross-cultural validation study conducted in a plastic surgery outpatient clinic of a public university hospital.

METHODS: Between February 2014 and March 2015, 80 consecutive patients of both sexes seeking rhinoplasty were selected. Thirty of them participated in the phase of cultural adaptation of the instrument. Reproducibility was tested on 20 patients and construct validity was assessed on 50 patients, with correlation against the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder.

RESULTS: The Brazilian version of the instrument showed Cronbach's alpha of 0.805 and excellent inter-rater reproducibility (intraclass correlation coefficient, ICC = 0.873; $P < 0.001$) and intra-rater reproducibility (ICC = 0.939; $P < 0.001$). Significant differences in total scores were found between patients with and without symptoms ($P < 0.001$). A strong correlation ($r = 0.841$; $P < 0.001$) was observed between the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder and the Body Dysmorphic Symptoms Scale. The area under the receiver operating characteristic curve was 0.981, thus showing good accuracy for discriminating between presence and absence of symptoms of body dysmorphic disorder. Forty-six percent of the patients had body dysmorphic symptoms and 54% had moderate to severe appearance-related obsessive-compulsive symptoms.

CONCLUSIONS: The Brazilian version of the Body Dysmorphic Symptoms Scale is a reproducible instrument that presents face, content and construct validity.

RESUMO

CONTEXTO E OBJETIVO: Rinoplastia é uma das operações mais procuradas por indivíduos com o transtorno dismórfico corporal. O objetivo deste estudo foi adaptar culturalmente e validar a Body Dysmorphic Symptoms Scale.

DESENHO E LOCAL: Estudo de validação cultural desenvolvido no ambulatório de cirurgia plástica de um hospital universitário público.

MÉTODOS: Oitenta pacientes consecutivos de ambos os gêneros que desejavam submeter-se à rinoplastia foram selecionados entre fevereiro de 2014 e março de 2015. Trinta pacientes participaram da fase de adaptação cultural do instrumento. A reprodutibilidade foi testada em 20 pacientes e a validade de construto em 50 pacientes, correlacionando-se a escala com a Yale-Brown Obsessive Compulsive Scale para transtorno dismórfico corporal.

RESULTADOS: A versão brasileira do instrumento mostrou alfa de Cronbach de 0,805 e excelente reprodutibilidade interobservador (coeficiente de correlação intraclassa, CCI = 0,873; $P < 0,001$) e intraobservador (CCI = 0,939; $P < 0,001$). Houve diferença significativa entre os escores totais de pacientes com e sem sintomas ($P < 0,001$). Observou-se forte correlação ($r = 0,841$; $P < 0,001$) entre a Yale-Brown Obsessive Compulsive Scale para transtorno dismórfico corporal e a Body Dysmorphic Symptoms Scale. A área sob a curva característica de operação do receptor (ROC) foi de 0,981, revelando boa acurácia para discriminar a presença de sintomas para transtorno dismórfico corporal; 46% dos pacientes apresentaram sintomas do transtorno dismórfico corporal e 54% dos pacientes apresentaram sintomas obsessivo-compulsivos moderados a graves relacionados com a aparência.

CONCLUSÃO: A versão brasileira da Body Dysmorphic Symptoms Scale é um instrumento reprodutível que apresenta validade de face, conteúdo e construto.

INTRODUCTION

More than 221,000 rhinoplasty procedures (or nose operations) were performed worldwide in 2013, mainly among Caucasians; about 163,600 of these procedures were performed on women.¹ Rhinoplasty is often sought by young people between 13 and 34 years of age.¹⁻⁵ Patients between 13 and 19 years account for 5% of all surgical cosmetic procedures performed.^{1,2} This shows the high level of social acceptance of esthetic surgery in general and of rhinoplasty in particular, as a means of physical enhancement in a culture in which physical attractiveness is highly valued, thus leading to greater concern regarding appearance based on an ideal standard body.⁴ However, the social importance of physical appearance also makes it difficult to diagnose body dysmorphic disorder.⁴

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V), body dysmorphic disorder can be described as preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to other people, and compulsive or repetitive behavior (e.g. checking one's appearance in a mirror, excessive grooming, skin picking and seeking reassurance) or mental acts (e.g. comparing one's appearance with that of others) in response to concerns regarding appearance. It causes clinically significant distress or impairment in important areas of functioning, with symptoms that are poorly explained by normal concerns regarding physical appearance or by concerns regarding body fat or weight, among individuals meeting diagnostic criteria for eating disorders. Body dysmorphic symptoms may be associated with muscle dysmorphia. Patients with body dysmorphic disorder may show different degrees of insight regarding their body.^{4,6}

Rhinoplasty is one of the most sought-after esthetic surgical procedures. Typical candidates include people with ethnically characteristic noses, teenagers and individuals with body dysmorphic disorder,^{3,5,7-11} which thus shows the social aspect of rhinoplasty. Rhinoplasty improves appearance through enhancing facial harmony. The inherent risks associated with the surgical process include respiratory problems, visible or palpable irregularities and dissatisfaction with the final outcome. Individuals with psychological or neurobiological vulnerability are more likely to show dissatisfaction with the surgical results, because their perception of the physical defect may be a symptom or contributory factor for development of a mental disorder.^{3,4} Rhinoplasty is also one of the cosmetic surgical procedures most frequently involved in lawsuits.^{5,7,9,10,12-14}

Despite indications of improvement in psychosocial wellbeing following rhinoplasty, the prevalence of body dysmorphic disorder in patients seeking this surgical procedure ranges from 12% to 33%^{10,13,15-18} and 52%.⁴ Although the prevalence of psychiatric disorders among rhinoplasty patients seems inconsistent in

the literature and requests for rhinoplasty should not be considered to be a symptom of a psychiatric disorder, screening for psychological conditions in selecting candidates for surgery is essential for a successful surgical cosmetic outcome.^{4,19-22}

Excessive concern for appearance may conceal psychopathological states that are not always easily identified and which may lead to iatrogenic and medico-legal problems if neglected.^{20,22} The Body Dysmorphic Symptoms Scale is a specific instrument that measures psychopathological symptoms of body dysmorphic disorder.²³ It is a short and easy-to-administer scale that captures specific information about body dysmorphic symptoms. Thus, cross-cultural validation of this patient-reported outcome measurement may help in relation to rapid screening for and identification of body dysmorphic disorder. Psychological disorders may not only affect the emotional and social life of patients, but also influence their satisfaction with the results from surgery.^{24,25}

OBJECTIVE

To translate into Brazilian Portuguese, culturally adapt and validate the Body Dysmorphic Symptoms Scale, by testing the psychometric properties, reproducibility and validity of the instrument, and to assess body dysmorphic disorder and levels of obsessive-compulsive symptoms among patients seeking esthetic surgery.

METHODS

This cross-cultural validation study was approved by our institution's Research Ethics Committee (approval no. 428.965/13) and was conducted in accordance with the Brazilian Ethical Review System for research involving human beings. It also conformed to the World Medical Association's Declaration of Helsinki (June 1964) and subsequent amendments. Written informed consent was obtained from all patients or their parents or legal representatives after the procedures had been fully explained to them and prior to their inclusion in the study; anonymity was assured.

Patients of both sexes at any age, seeking rhinoplasty and showing physical appearance associated with clinically significant subjective distress, were recruited at the plastic surgery outpatient clinic of a public university hospital in Brazil between February 2014 and March 2015. A psychologist with expertise in body dysmorphic disorder, who was also one of the authors of this study, performed the clinical assessment on all patients, in accordance with the descriptions in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V).⁶

Patients who were unable to understand the interview questions, those with severe physical deformities as a result of obesity, bariatric surgery, tumors or other conditions, those with psychotic disorders or previous history of body dysmorphic disorder, and those who had undergone psychiatric or psychological treatment were not included in the study.

The traditional protocol for determining an adequate sample size based on power analysis is not useful when the primary hypothesis focuses on psychometric measurement properties.²⁶ A sample size of at least 50 and not more than 100 subjects is adequate for representing and evaluating the psychometric properties of social construct measurements.²⁶ Thus, a total of 80 consecutive patients who met the study criteria were selected, of whom 30 participated in the cultural adaptation of the scale; 20 were included in the reliability analysis on the final version of the instrument; and these 20, together with 30 different patients, participated in the construct validity assessment against the Brazilian-Portuguese version of the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder. No patient declined to participate.

The cultural adaptation, reliability and validity phases of the study followed the methodology of Guillemain et al.²⁷⁻²⁹ and Gandek and Ware.³⁰

The psychologist with expertise in body dysmorphic disorder also applied the cross-culturally validated Brazilian-Portuguese version of the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder to patients participating in the construct validity study.³¹

The Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder is a 12-item semi-structured clinician-rated instrument that is designed to measure severity of body dysmorphic disorder symptoms among individuals showing excessive preoccupation and subjective distress with physical appearance.³¹ It is an outcome measurement for clinical studies and for treating body dysmorphic disorder.³² The 12 items are rated on a 0-4 scale, where 0 indicates no symptom and 4 indicates extreme body dysmorphic symptoms. The first 10 items assess excessive preoccupation, obsessions and compulsive behavior associated with dissatisfaction with physical appearance. The first three items are based on the body dysmorphic disorder diagnostic criteria and assess preoccupation, impairment of overall functioning, and subjective distress, which is related both to excessive preoccupation and to compulsive behavior. Items 11 and 12 assess insight and avoidance, respectively. The total score is calculated as the sum of ratings for the 12 items, thus yielding a maximum score of 48.³¹ The cutoff score of 19 for the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder has been correlated with sensitivity of 0.865 and specificity of 0.731.³¹

The Body Dysmorphic Symptoms Scale

The Body Dysmorphic Symptoms Scale is a 10-item self-report measurement of psychopathological symptoms of body dysmorphic disorder among people with excessive concern and anxiety about their physical appearance who seek cosmetic surgery.²³ The following are examples of the items: “Are you seriously concerned that one part of your body is defective?”, “Do you avoid looking at yourself in

the mirror to be less worried?” and “Do you try to hide or camouflage your defect with your hands, hair, makeup, or clothing?” Each item is answered “yes” or “no”. The overall score is the sum of positive responses. High scores indicate the presence of psychopathological factors associated with dissatisfaction with body image and symptoms of body dysmorphic disorder.²³

The present study was conducted after Dr. Perugi, the main author of the original version of the Body Dysmorphic Symptoms Scale,²³ granted us permission to translate, culturally adapt and validate the instrument for Brazilian Portuguese.

Translation

The Body Dysmorphic Symptoms Scale was translated from English into Brazilian Portuguese by two independent translators. Only one of the translators was informed about the study objectives, so as to achieve a conceptual rather than a literal translation of the scale. Both translations were evaluated by a multidisciplinary committee formed by two plastic surgeons, a psychiatrist and two psychologists with extensive experience of body image disorder and selection of candidates for cosmetic surgery. All items were checked by the multidisciplinary committee for possible mistakes made during the translation and were evaluated for content validity. A consensus Brazilian-Portuguese version of the instrument was then obtained by combining elements from both translations.²⁷

Idiomatic, semantic, conceptual and cultural equivalences were considered during the translation phase. The consensus version in Brazilian Portuguese was then back-translated into English by two independent translators who were unaware of the original tool or purpose of the study. Both back-translated versions were evaluated and compared with the original one by the same multidisciplinary committee, in order to correct possible errors or discrepancies made during back-translation.²⁸ This analysis resulted in development of the consensus version of the Body Dysmorphic Symptoms Scale in Brazilian Portuguese, which was appropriately adapted to the linguistic and cultural context of the target population, while maintaining all the essential characteristics of the original instrument in English.²⁹

Cross-cultural adaptation or pretesting

During the cultural adaptation phase, a psychologist with a doctoral degree and expertise in body dysmorphic disorder administered the consensus version of the Body Dysmorphic Symptoms Scale to the first 10 candidates for rhinoplasty and supervised a second psychologist during application of the instrument to the next 20 candidates. Interviews were conducted face to face. The cultural adaptation phase served to train the second psychologist for the inter-rater reliability phase.

The Body Dysmorphic Symptoms Scale was administered to 30 patients to test possible failures of the respondents to comprehend the items. After providing informed consent, the participants each had the opportunity to express their comprehension of the scale and suggest any changes that they considered necessary. All of the patients understood that the scale items were related to concerns and dissatisfaction with physical appearance.

In this phase, the face and content validity of the instrument were determined through a consensus reached by the multidisciplinary committee. Face validity evaluates whether the instrument measures what it was designed to measure and content validity relates to the degree to which each item is relevant in measuring the target content.^{30,33} The final version (**Appendix 1**) was obtained when the patients, translators and healthcare professionals reached a consensus.^{29,34}

Psychometric evaluation

After translation and cultural adaptation, the final version of the instrument was tested for reliability among 20 patients and for construct validity among the 20 patients together with 30 different patients, for a total of 50 patients.

Reliability

Test-retest reliability (reproducibility) is the ability of an instrument to produce stable or similar results from repeated administration when no change to the patient characteristics has occurred. It evaluates the extent to which variation in scores between assessments reflects real differences rather than random fluctuation.^{30,33}

The instrument was assessed by means of test-retest procedures in three interviews conducted by two independent interviewers (two experienced psychologists). Twenty patients were interviewed by psychologist #1 and the interview was repeated three hours later on the same day by psychologist #2. Two weeks later, the instrument was administered to the same patients by psychologist #1 only. Inter and intra-rater reliability analyses were performed. This phase of testing was used to verify the precision of the instrument for measuring the properties for which it was designed.^{28,29}

Validity

Construct validity is the process in which the correlation of a measurement with other variables is tested for theoretical consistency. In determining the construct validity, hypothesis testing indicates the direction and strength of the expected relationship.^{30,33} Our hypothesis was that preoccupation with physical appearance and excessive levels of body investment, together with clinically significant distress, among patients seeking cosmetic surgery, may be associated with symptoms of body dysmorphic disorder, which may be present at different levels of

severity. Construct validity was assessed among 50 patients (20 patients who participated in the reliability analysis together with 30 different patients) using convergent and discriminant validity analyses. Convergent validity was tested by correlating the Body Dysmorphic Symptoms Scale with the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder scores. Discriminant validity was determined by comparing the mean Body Dysmorphic Symptoms Scale scores of patients with and without body dysmorphic disorder symptoms.

A cutoff point for symptom severity and the corresponding sensitivity and specificity values were estimated through the receiver operating characteristic curve, which was constructed based on the clinical evaluation of body dysmorphic disorder, in accordance with the descriptions in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition.

Statistical analysis

Cronbach's alpha was used to evaluate the internal consistency of the reliability of the instrument.

Test-retest reliability and convergent validity were estimated using Pearson's correlation coefficient (*r*) and the intraclass correlation coefficient (ICC).

Discriminant validity was determined using Student's *t*-test for independent samples.

A cutoff point for symptom severity and the corresponding sensitivity and specificity values were estimated through the receiver operating characteristic curve. The kappa coefficient was also calculated.

The Statistical Package for the Social Sciences version 20.0 (SPSS Inc., Chicago, IL, USA) and Stata 12 software (StatCorp, College Station, Texas, USA) were used for data analysis. All statistical tests were performed at a significance level of 5% ($P < 0.05$). Data were expressed as mean \pm standard deviation (SD).

RESULTS

The Brazilian-Portuguese version of the Body Dysmorphic Symptoms Scale (**Appendix 1**) was administered to 80 patients. The flow diagram showing the initial recruitment and the final sample of patients is shown in **Figure 1**. The patients did not have any doubts about the items, which were considered easy to understand and clearly formulated. The mean time taken to respond to the questionnaire was five minutes.

Thirty-seven patients (37/80; 46%) met the diagnostic criteria for body dysmorphic disorder, according to the Body Dysmorphic Symptoms Scale, and 27 patients (27/50; 54%) showed moderate to severe appearance-related obsessive-compulsive symptoms.

The mean Body Dysmorphic Symptoms Scale score was 7.5 ± 1.0 (range, 6-9; $t = 12.3$; $P < 0.001$).

Overall, most patients were women (80%), Caucasians (75%) and single (58.8%). The mean age was 33.4 ± 11.8 years (range, 14–65); 55.1% reported spending three or more hours a day concerned about their physical appearance and 79% of patients reported that they began to experience body dissatisfaction during childhood and adolescence. Thus, the time that elapsed from the onset of body dissatisfaction to the patient's decision to seek cosmetic treatment was about 15 years. Also, 52.5% had completed high school education and 21% were semi-skilled workers.

The instrument showed good internal consistency (Cronbach's $\alpha = 0.805$). All items contributed favorably towards the internal consistency of the scale (Table 1).

The corrected item-total correlation was greater than 0.4, except for items 2, 9 and 10, thus indicating that the consistency between item scores and the overall score of the instrument was acceptable (Table 1).

According to the Body Dysmorphic Symptoms Scale, 56 patients (70%) reported that they compulsively checked their appearance in a mirror; 54 (67.5%) often tried to camouflage the perceived defect with their hands, hair or excessive makeup; 65 (81.3%) had previously sought esthetic surgical procedures;

30 (37.5%) were dissatisfied with the results from the previous esthetic surgery; 56 (70%) showed self-referential perceptions due to exaggeration of the perceived defect; and 54 (67.5%) had poor insight regarding their perceived defects, believing that they had real physical deformities for which esthetic surgery was needed. Psychosocial impairment was identified in 25 patients (31.3%), who avoided affective and social relationships; while 33 patients (41.3%) avoided looking in the mirror, thus showing aversion to their own image. Six patients (7.5%) showed aggressive and violent behavior towards their relatives and friends, and 12 (15%) were so distressed that they were at the point of having suicidal thoughts.

The Body Dysmorphic Symptoms Scale demonstrated excellent inter-rater reliability ($r = 0.909$; ICC = 0.873; $P < 0.001$) and intra-rater reliability ($r = 0.956$; ICC = 0.939; $P < 0.001$), as seen in Table 2.

There were significant differences in Body Dysmorphic Symptoms Scale scores between patients with and without body dysmorphic symptoms ($P < 0.001$). Patients without body dysmorphic symptoms had significantly lower Body Dysmorphic Symptoms Scale scores than those with body dysmorphic symptoms (Figure 2).

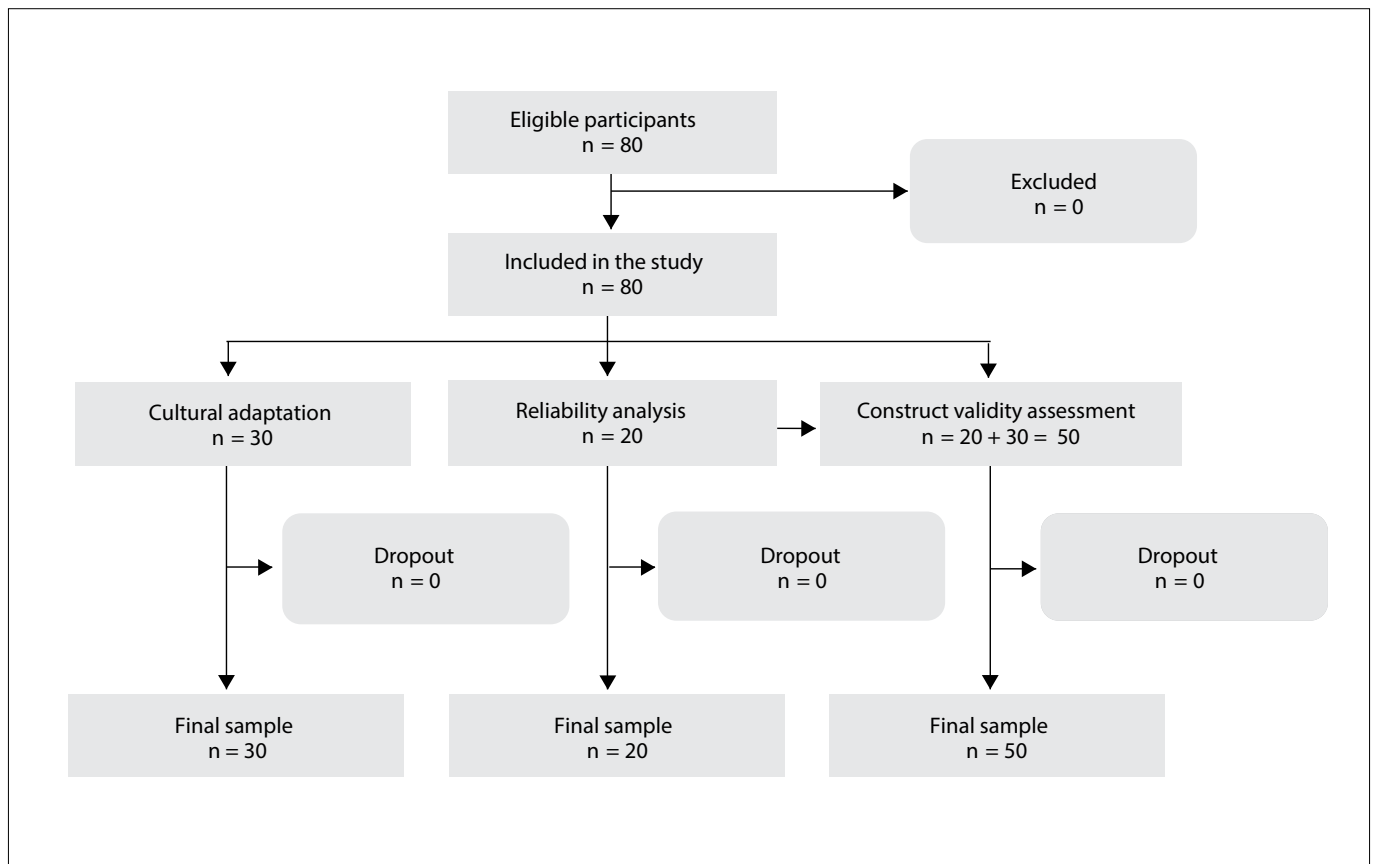


Figure 1. Flow diagram showing the initial recruitment and final sample of patients.

A strong positive correlation ($r = 0.841$; $P < 0.001$) was found between the Body Dysmorphic Symptoms Scale and the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder (Figure 3).

A cutoff score of 6 was determined for the Body Dysmorphic Symptoms Scale using the receiver operating characteristic curve (Figure 4); this was associated with sensitivity of 1.0 and specificity of 0.86. Scores of 6 and above indicate the presence of

Table 1. Internal consistency analysis for the Body Dysmorphic Symptoms Scale ($n = 80$)

| Items | | Corrected item-total correlation | Cronbach's alpha if item deleted |
|---------------------------------|---|----------------------------------|----------------------------------|
| Cronbach's alpha = 0.805 | | | |
| 1 | Are you seriously concerned that part of your body is not esthetically pleasing? | 0.631 | 0.770 |
| 2 | Do you perform long, detailed checking of yourself, carefully evaluating the part of your body that you do not like? | 0.354 | 0.803 |
| 3 | Do you completely avoid looking at yourself in the mirror and seeing this part that displeases you? | 0.408 | 0.798 |
| 4 | Do you believe that people are looking at you, especially at the part of your body that displeases you? | 0.591 | 0.775 |
| 5 | Do you try to hide the part of your body that concerns you by using makeup, clothing or other resources? | 0.592 | 0.774 |
| 6 | Do you believe that esthetic surgery can dramatically change your life, correcting the defect that concerns you? | 0.450 | 0.792 |
| 7 | Have you neglected or felt discouraged about performing your usual activities because of the defect that concerns you? | 0.523 | 0.783 |
| 8 | Have you previously received any treatments or undergone any surgery to correct this defect without obtaining satisfactory results? | 0.587 | 0.775 |
| 9 | Does this defect make you angry, impatient or aggressive, especially towards your relatives, friends or coworkers? | 0.283 | 0.806 |
| 10 | Are there are times when you feel so distressed with the defect that you see no meaning in life and wish to die? | 0.370 | 0.799 |

Table 2. Inter and intra-rater reliability for the Body Dysmorphic Symptoms Scale

| Reliability | Intraclass correlation | 95% confidence interval | P-value |
|-------------|------------------------|-------------------------|---------|
| Intra-rater | 0.939 | [0.855; 0.975] | < 0.001 |
| Inter-rater | 0.873 | [0.712; 0.947] | < 0.001 |

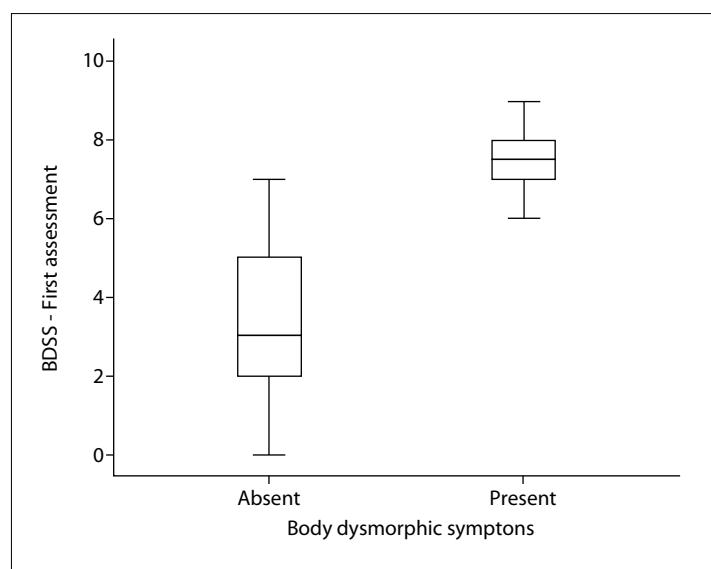


Figure 2. Distribution of patients with and without body dysmorphic symptoms, according to the Body Dysmorphic Symptoms Scale (BDSS).

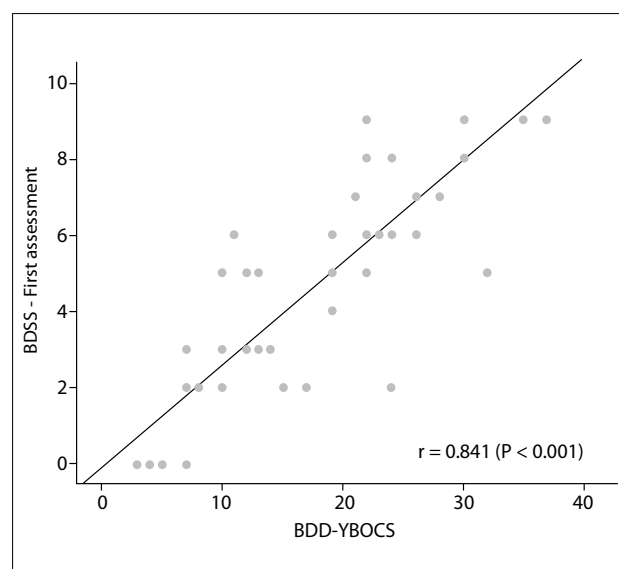


Figure 3. Correlation between the Body Dysmorphic Symptoms Scale (BDSS) and the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder (BDD-YBOCS).

psychopathological characteristics that were associated with dissatisfaction with body image and symptoms of body dysmorphic disorder. The area under the receiver operating characteristic curve (ROC) was 0.981, thus suggesting that the Body Dysmorphic Symptoms Scale presented very good accuracy for discriminating between presence and absence of body dysmorphic symptoms.

The kappa coefficient between the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder (for a cutoff point of 19) and the Body Dysmorphic Symptoms Scale (for a cutoff point of 6) was 0.721, thus showing that there was strong agreement between the cutoff points for severe body dysmorphic symptoms.

The final Brazilian version of the instrument was named Body Dysmorphic Symptoms Scale-Unifesp-EPM or BDSS-Unifesp-EPM (Escala de Sintomas da Dismorfia Corporal - Unifesp-EPM, in Brazilian Portuguese).

DISCUSSION

The Body Dysmorphic Symptoms Scale was translated into Brazilian Portuguese, culturally adapted and tested for reliability and construct validity. The general guidelines for cross-cultural adaptation of instruments were followed in order to ensure the quality of the cross-culturally adapted Brazilian version of the Body Dysmorphic Symptoms Scale (Appendix 1). Healthcare professionals who were experienced in managing patients with body dysmorphic disorder and rhinoplasty patients participated in the evaluation on this instrument.²⁷

The Brazilian-Portuguese version of the Body Dysmorphic Symptoms Scale was validated in a population sample of 80 cosmetic surgery patients and showed excellent internal consistency, test-retest reliability and intra-rater reliability. However, it was not possible to compare these results with those of the original scale or with the scientific literature because the psychometric properties of the scale were not assessed by the authors of the instrument,²³ or by Mühlbauer et al.,³⁵ who proposed a modification of item 6 regarding unrealistic expectations and called the instrument the Modified Pisa Body Dysmorphic Symptoms Scale.

The psychometric properties of the Body Dysmorphic Symptoms Scale were evaluated for the first time in the present study. A cutoff score of 6, which was determined using the receiver operating characteristic curve, was able to discriminate between patients with body dissatisfaction and those with body dysmorphic disorder. The cutoff score of 6 was associated with sensitivity of 1.0 and specificity of 0.86, thus indicating that the Brazilian version of the Body Dysmorphic Symptoms Scale is a specific instrument for identifying body dysmorphic symptoms. This tool may be used preoperatively, in screening the candidates for esthetic surgery procedures.

In order to assess construct validity, it is recommended in the literature that the instrument should be compared against

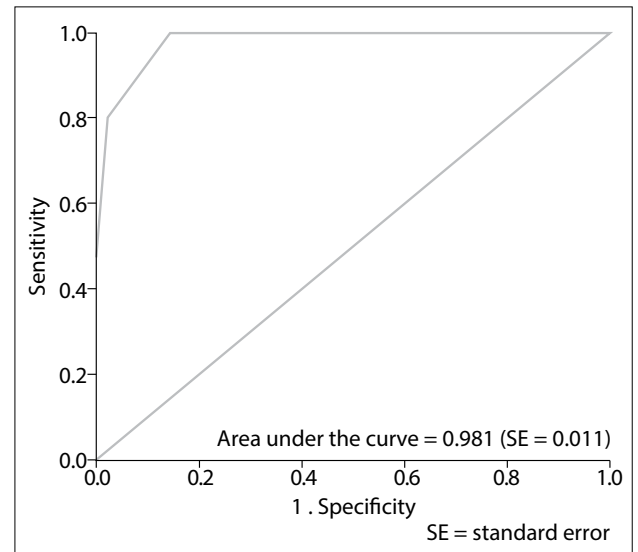


Figure 4. Receiver operating characteristic curve for the Brazilian version of the Body Dysmorphic Symptoms Scale.

a similar tool, so as to evaluate the relationships of comparable constructs with similar operational concepts.³⁰ Thus, the Body Dysmorphic Symptoms Scale was compared against the cross-culturally validated Brazilian-Portuguese version of the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder, which measures the degree of dissatisfaction with a given physical feature and the severity of body dysmorphic symptoms.³¹ The strong correlation between the two instruments indicates that the Body Dysmorphic Symptoms Scale was able to measure the severity of body dysmorphic symptoms, and that both instruments are able to detect patterns of neuro-cognitive deficits (obsessive thoughts and compulsive behavior) that are present in body dysmorphic symptoms. However, the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder is a semi-structured, longer and more complex tool that is designed to be applied by professionals who do not have much background within mental health, with regard to selecting patients who are seeking esthetic and surgical procedures, whereas the Body Dysmorphic Symptoms Scale is a short and easy-to-administer scale that also captures specific information about body dysmorphic symptoms.

The assessment of discriminant validity showed that there was a significant difference in mean Body Dysmorphic Symptoms Scale scores between patients with and without body dysmorphic symptoms. A larger number of patients reported high scores for items 1, 2, 4, 5 and 6, thus showing dissatisfaction with their body image with regard to compulsive behavior (e.g. checking their appearance in a mirror and excessive grooming) and mental acts (e.g. comparing their appearance with that of others) in combination with subjective distress, which are the factors that most

interfere with the overall functioning of patients with body dysmorphic disorder. The levels of subjective distress and psychosocial impairment that are associated with physical appearance may be the most important parameters to be assessed among cosmetic surgery patients.²² About 81% of the patients believed that cosmetic surgery would solve all their problems relating to the distress caused by their physical appearance (item 6), and 67% of the patients were convinced that a perceived defect was really present and had fixed ideas about their perception (item 1). This belief appeared to be related to exaggeration of the defect rather than to a delusional perception, but in 70% of the patients it enhanced self-referential ideas (item 4).^{4,19}

Items 2, 9 and 10 of the Body Dysmorphic Symptoms Scale presented corrected item-total correlation values of less than 0.4, which suggested that these items had a weak correlation with the other items of the scale. This may have related to the presence of body dysmorphic symptoms (as described in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, in the diagnostic criteria for body dysmorphic disorder A and B) in this population (item 2), and may have indicated that the patients in this study did not have any auto or hetero-aggressive behavior (items 9 and 10). In fact, 70% of the patients responded positively to item 2 and only 7.5% and 15% responded positively to items 9 and 10, respectively, which were the items with the lowest scores in the instrument.

The prevalence of body dysmorphic symptoms was 46% in the study sample (according to the Body Dysmorphic Symptoms Scale), and 54% of the patients had moderate to severe appearance-related obsessive-compulsive symptoms, according to the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder. Most of the patients began to experience body dissatisfaction during childhood and adolescence, and were spending three or more hours a day on appearance-related concerns and behavior, and showed higher levels of subjective distress. The fact that 58.8% of the patients were single, 52.5% had only completed secondary education and 21% were semi-skilled workers may suggest that the disorder caused psychosocial impairment over time among these patients. Picavet et al.¹³ identified moderate to severe appearance-related obsessive-compulsive symptoms in 33% of their patients seeking rhinoplasty, also using the Yale-Brown Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder. The high prevalence of body dysmorphic symptoms found in the present study is similar to those found in previous studies.^{3,4}

The participants' mean age was 33 years at the time of the interview, which was not associated with the onset of body dysmorphic symptoms and thus was consistent with the literature.^{1-5,13,23} The time that elapsed from the onset of body dissatisfaction to the patient's decision to seek cosmetic treatment (about 15 years) was very similar to that of patients seeking

mental health treatment, thus showing the different behaviors and profiles of this population.³⁶ In other words, patients with body dysmorphic disorder may take different paths; those who seek cosmetic surgery will not necessarily seek psychiatric treatment later.³⁶ Most of the patients were women and Caucasians, which is in agreement with previous studies.^{1,4}

The limitations of this study include its small sample size and the fact that most of the patients were women. In addition, the study was conducted on a clinical population that usually has greater disease severity, given that higher rates of disease severity have been observed in clinical samples than in the general population.³⁷⁻³⁹ This may have affected the cutoff score on the Body Dysmorphic Symptom Scale, which may be different in other situations. Further studies with a larger number of patients and involving multiple centers are necessary in order to evaluate and compare the prevalence of body dysmorphic symptoms among patients seeking plastic surgery, so as to enable development of care and treatment strategies for this population.

CONCLUSION

The cross-culturally validated Brazilian-Portuguese version of the Body Dysmorphic Symptoms Scale is a reliable instrument that shows face, content and construct validity. It is a useful tool that can contribute towards screening candidates with body dysmorphic disorder for cosmetic surgery. The prevalence of moderate to severe body dysmorphic and appearance-related obsessive-compulsive symptoms is high among patients seeking esthetic rhinoplasty.

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Sources of funding: None

Conflicts of interest: None

Date of first submission: March 16, 2016

Last received: April 6, 2016

Accepted: April 16, 2016

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Appendix 1. Translated version of the Body Dysmorphic Symptoms Scale

1. Você está seriamente preocupado(a) de que uma parte do seu corpo é defeituosa?
() sim () não
2. Você se observa no espelho de forma atenta e repetida?
() sim () não
3. Você evita olhar-se no espelho para não ficar tão preocupado(a)?
() sim () não
4. Você se preocupa que outras pessoas possam estar observando, falando ou zombando de seu defeito?
() sim () não
5. Você tenta esconder ou camuflar seu defeito com as mãos, maquiagem ou roupas?
() sim () não
6. Você acredita que uma cirurgia plástica poderá mudar radicalmente a sua vida, corrigindo o defeito que lhe incomoda?
() sim () não
7. Você negligenciou suas atividades normais por causa do defeito?
() sim () não
8. Este defeito lhe causa raiva, impaciência, agressividade, principalmente no relacionamento com parentes, amigos ou colegas de trabalho?
() sim () não
9. Nesses momentos, você quebra algum objeto, dá murros ou chuta paredes e portas?
() sim () não
10. Seu desespero é tamanho a ponto de desejar morrer, ferir-se ou prejudicar-se em função desse desespero?
() sim () não

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Reply: The Continuous Nature of Body Dysmorphic Symptoms and Plastic Surgery

Sir:

We would like to thank Dr. van der Lei and Dr. Bouman for their interest in our study. With regard to our article on the prevalence of body dysmorphic disorder symptoms in patients seeking abdominoplasty, rhinoplasty, and rhytidectomy,¹ we would like to point out that most patients with body dysmorphic disorder first seek treatment from plastic surgeons instead of psychiatrists or psychologists because they are distressed by their perceived physical defect and do not believe that they have a mental disorder. Unfortunately, few psychiatrists or experts who make first contact with these undiagnosed patients recognize the condition, and therefore the prevalence of body dysmorphic disorder is probably underestimated.^{1,2}

Body dysmorphic disorder is not equivalent to dysmorphic concern, which refers to a broader construct. Body dysmorphic disorder involves symptoms that reflect an excessive concern with slight defects or flaws in appearance or perceived defects not observable by others.³ The distinction among body dissatisfaction, subclinical body dysmorphic disorder symptoms, and body dysmorphic disorder requires the evaluation of various factors, including level of subjective distress and impairment of global functioning.^{1,3,4} For this reason, the clinical assessment of body dysmorphic disorder, according to the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*, a classification of the degree of severity of the defect from the point of view of both plastic and non-plastic surgeons, and the Body Dysmorphic Disorder Examination were used to classify the participants into those with and without body dysmorphic disorder symptoms.¹ Thus, the terms body dysmorphic disorder, body dysmorphic disorder symptoms, and body dissatisfaction were not used interchangeably, but placed contextually in a continuum, because body image-related psychopathology has no obvious discontinuity between normal and pathologic, thus revealing the dimensionality of symptoms.

In this study, complaints about the shape of the abdomen were associated with body weight and shape. Body mass index was one of the variables related to the severity of body dysmorphic disorder symptoms; the more severe the symptoms of body dysmorphic disorder, the higher the level of concern with body weight and shape. Note that patients seeking abdominoplasty were preoperatively included in the study, not only those who in fact underwent surgery. In addition, candidates with severe physical deformities as a result of obesity and bariatric

surgery were excluded from the sample. Approximately 28 percent of patients with body dysmorphic disorder symptoms who had excessive concerns about nonobservable or slight defects associated with severely negative body image and extreme distress and were dissatisfied with their body weight actually had a normal weight.

Body dysmorphic disorder symptoms were identified in candidates for different plastic surgery procedures of different ages.¹ To state that “patients with a diagnosis of body dysmorphic disorder are hardly present among the group of, for example, abdominoplasty patients”⁵ is to ignore the reality of cosmetic surgery patients and that the expression of body dissatisfaction in the contemporary world has changed and therefore may affect the expression of dissatisfaction with specific body areas in patients with body dysmorphic disorder. Clinical observations of patients with this profile and the dimensional identification and classification of body dysmorphic disorder symptoms have opened new perspectives and possibilities for research and treatment on body dysmorphic disorder in cosmetic surgery.

DOI: 10.1097/PRS.0000000000002444

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this communication.

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The Effect of Normovolemic and Hypervolemic Hemodilution on a Perforator Flap with Twisted Pedicle Model: Experimental Study in Rats

Sir:

We meticulously read the recent article entitled “The Effect of Normovolemic and Hypervolemic Hemodilution on a Perforator Flap with Twisted Pedicle Model: Experimental Study in Rats” by Amoroso et al.¹ in the *Journal*. In this article, the authors did a great job investigating the effect of hemodilution on the survival rate of perforator flaps with twisted pedicle in rats.

The defects needing flap transplantation have usually undergone severe damage, and have abysmal blood supply and nutrient metabolism. For better survival of the transplanted flap, both sufficient blood supply and abundant nutrients carried by the blood circulation are required. The authors proved that hemodilution improved the peripheral vascular pattern of the pedicle-twisted flap; however, improved blood perfusion does not necessarily represent better nourishment. Because the blood supplied to the flap and its recipient site was diluted, and because the oxygen and nutrients were diminished, the clinical outcome may not be as good as was expected.

Meanwhile, the authors designed a normovolemic hemodilution group and a hypervolemic hemodilution group, but did not describe the difference between the experimental results of these two groups throughout the whole article. Also, their choice of the degree of hemodilution (the mean hematocrit value after hemodilution) was not explained. How should hemodilution be established in human patients, especially those with underlying cardiovascular and cerebrovascular diseases? How should the extent of hemodilution be determined? How should its short-term and long-term complications be prevented? These questions must be answered before advancing the protocol or even putting it into clinical practice in the future.

In addition, we are still curious regarding several aspects. First, the authors mentioned that twisting pedicles at 90, 180, and 270 degrees had no effect on flap survival. How were their histologic and microangiographic results? Was there any difference? Second, the

authors mentioned that a 30% solution of lead oxide was injected through the cannulation of the carotid artery, but their description that “with each flap usually requiring 20 to 25 ml of solution” is confusing, and we would like to know more details about the consistency of injection velocity and volume among experimental rats, which could significantly influence the vascular pattern of flaps manifested by microangiography. Third, the viability of the flap correlates with both its arterial inflow and its venous outflow. The authors also emphasized in the article that venous outflow is more affected by pedicle twisting than is arterial inflow. However, according to the result, hemodilution improved arterial inflow (microangiographic result and partial necrosis rate) in subgroup IV but had no significant effect on venous congestion. Is it saying that hemodilution might improve arterial insufficiency other than venous congestion? What has to be mentioned particularly is that, through the whole article, “hypervolemic” might be mistakenly substituted by “hypovolemic” several times as we noticed, and the typos could be misleading.

DOI: 10.1097/PRS.0000000000002445

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this communication.

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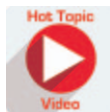
The Effect of Normovolemic and Hypervolemic Hemodilution on a Perforator Flap with Twisted Pedicle Model: Experimental Study in Rats

Sir:

We read with respect the recent article entitled “The Effect of Normovolemic and Hypervolemic Hemodilution on a Perforator Flap with Twisted

Body Dysmorphic Disorder in Patients Seeking Abdominoplasty, Rhinoplasty, and Rhytidectomy

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Background: Body dysmorphic disorder may negatively affect self-perception of body shape and lead patients to seek cosmetic surgery. This study estimates the level of body dissatisfaction and prevalence of body dysmorphic disorder symptoms in candidates for three plastic surgical procedures.

Methods: Three hundred patients of both sexes divided into three groups (abdominoplasty, $n = 90$; rhinoplasty, $n = 151$; and rhytidectomy, $n = 59$) were classified as having ($n = 51$, $n = 79$, and $n = 25$, respectively) or not having ($n = 39$, $n = 72$, and $n = 34$, respectively) body dysmorphic disorder symptoms, based on the Body Dysmorphic Disorder Examination, which was administered preoperatively.

Results: Prevalence rates of body dysmorphic disorder symptoms in the abdominoplasty, rhinoplasty, and rhytidectomy groups were 57, 52, and 42 percent, respectively. Significant between-group differences were observed regarding age ($p < 0.001$), body mass index ($p = 0.001$), and onset of body dysmorphic disorder symptoms ($p < 0.001$). Within-group differences in body dysmorphic disorder severity were observed in the abdominoplasty ($p < 0.001$), rhinoplasty ($p < 0.001$), and rhytidectomy ($p = 0.005$) groups. Body dysmorphic disorder severity was significantly associated with degree of body dissatisfaction (mean Body Dysmorphic Disorder Examination total scores; $p < 0.001$), avoidance behaviors ($p < 0.001$), sexual abuse ($p = 0.026$), suicidal ideation ($p < 0.001$), and suicide attempt ($p = 0.012$).

Conclusions: Abdominoplasty candidates showed the highest prevalence; rhytidectomy candidates exhibited the highest percentage of severe cases, and rhinoplasty candidates had the lowest percentage of severe cases. (*Plast. Reconstr. Surg.* 137: 462, 2016.)

Body dysmorphic disorder is a relatively common and often severe psychiatric disorder that is possibly underdiagnosed and underreported.^{1,2} According to the *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition), body dysmorphic disorder is characterized by a preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to others, and repetitive behaviors (e.g., mirror checking, excessive grooming, skin picking, reassurance seeking) or mental acts (e.g., comparing his or her appearance with that

of others) in response to appearance concerns. It causes clinically significant distress or impairment in important areas of functioning, and its symptoms are not better explained by normal concerns with physical appearance or by concerns with body fat or weight in individuals meeting diagnostic criteria for eating disorders. Body dysmorphic disorder symptoms may be associated with muscle dysmorphia, and body dysmorphic disorder

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Received for publication February 23, 2015; accepted September 17, 2015.

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DOI: 10.1097/01.prs.0000475753.33215.8f

Disclosure: *The authors have no financial interest to declare in relation to the content of this article.*

A “Hot Topic Video” by Editor-in-Chief Rod J. Rohrich, M.D., accompanies this article. Go to PRSJournal.com and click on “Plastic Surgery Hot Topics” in the “Videos” tab to watch.” On the iPad, tap on the Hot Topics icon.

patients may show different degrees of insight regarding body dysmorphic disorder beliefs.³

Individuals with body dysmorphic disorder are unable to see the “bigger picture,” as they are overfocused on small details.^{4,5} This neural dynamic seems to have an impact on thinking and overall perception, which in individuals with body dysmorphic disorder appears fragmented, affecting their level of insight.⁵ The level of concern can be estimated by evaluating the time patients spend on their appearance; it affects the perception of the physical defect, which is overestimated in body dysmorphic disorder patients. Thus, a focused attention and negative self-evaluation, always associated with physical appearance, and impaired recognition of facial and emotional expressions further enhance their self-referenced ideas.^{5,6} The early onset of symptoms is associated with increased severity of psychological abnormality.^{2,5,7}

High suicidal ideation (80 percent) and suicide attempt (24 percent) rates are found among patients with body dysmorphic disorder.^{8–10} In addition, impulsive traits in body dysmorphic disorder patients may lead to increased levels of health-risk behaviors, including aggressiveness, self-destructiveness associated with substance abuse, indebtedness, eating disorders, repeated hospitalizations, obsessive desire to undergo cosmetic procedures, and extreme behaviors such as “do-it-yourself” cosmetic surgery, which consists of severe self-inflicted procedures performed in an attempt to correct a perceived defect.^{1,11}

Individuals with body dysmorphic disorder frequently seek cosmetic surgery to correct perceived defects and reduce the extreme dissatisfaction with their physical appearance.^{12,13} Body dysmorphic disorder is one of the most common psychiatric conditions found in patients seeking cosmetic surgery,¹⁴ with prevalence rates varying from 7 to 53 percent,^{7,15–17} and rhinoplasty being one of the most sought-after cosmetic procedures.^{13,18} Rhinoplasty accounts for approximately 22 percent of all complaints against plastic surgeons, appearing along with abdominoplasty and liposuction as the procedures most frequently involved in lawsuits.^{19,20}

Abdominoplasty, rhinoplasty, and rhytidectomy are often sought at different times of life and stages of body image development.^{21,22} Previous studies have found that body dysmorphic disorder may manifest initially during adolescence and early adulthood, and after menopause.^{23,24} Phillips et al.² stated that body dysmorphic disorder occurs in adulthood and that, although older persons

show body dysmorphic disorder symptoms, there are no studies in this age group.

Levels of subjective distress and psychosocial impairment associated with physical appearance may be the most important factors to be evaluated in cosmetic surgery patients¹ and have been used to classify body dysmorphic disorder symptoms into two categories: “mild to moderate” and “severe.”^{1,13} The presence of body dysmorphic disorder is not an exclusion criterion for cosmetic surgery; therefore, some patients with mild to moderate symptoms of body dysmorphic disorder may benefit from cosmetic procedures.¹³ Clinical observations of patients with this profile have opened new perspectives and possibilities for research on body dysmorphic disorder in cosmetic surgery.^{1,13,25}

In fact, it is difficult to draw firm conclusions regarding the psychological characteristics of cosmetic surgery patients and, perhaps most importantly, how these characteristics relate to postoperative outcome. Thus, the careful screening of candidates for cosmetic procedures is very important to identify those with body dysmorphic disorder. The purpose of this study was to evaluate the prevalence and severity of body dysmorphic disorder symptoms in patients seeking abdominoplasty, rhinoplasty, and rhytidectomy.

PATIENTS AND METHODS

This study was approved by the institutional research ethics committee and conducted between February of 2009 and August of 2011. Written informed consent was obtained from all patients before their inclusion in the study, and anonymity was ensured.

Three hundred patients of both sexes seeking abdominoplasty ($n = 90$), rhinoplasty ($n = 151$), or rhytidectomy ($n = 59$) were consecutively selected at the plastic surgery outpatient clinic of a university hospital in Brazil. Patients unable to understand the interview questions and those with severe physical deformities as a result of obesity, bariatric surgery, tumors and other conditions, psychotic disorders, or previous history of body dysmorphic disorder, or patients who had undergone psychiatric or psychological treatment, were excluded from the study. The patients were evaluated by the authors, including a psychologist, two psychiatrists, and two plastic surgeons. All data evaluated here were retrieved by administering the Brazilian version of the Body Dysmorphic Disorder Examination.²⁶ The Body Dysmorphic Disorder Examination and the clinical assessment for body

dysmorphic disorder³ were used to classify the participants into those with and without body dysmorphic disorder symptoms. Sociodemographic (e.g., name, sex, age, and ethnicity) and clinical characteristics (e.g., history of previous cosmetic procedures, psychological/psychiatric treatment, and sexual abuse) of the study population were also obtained through a clinical interview. A psychologist with expertise in body dysmorphic disorder and screening of plastic surgery candidates (M.J.A.B.) performed the clinical assessment of all patients and applied the Body Dysmorphic Disorder Examination.

The 34-item Body Dysmorphic Disorder Examination is a specific questionnaire that measures symptoms of severely negative body image.^{26,27} The items are grouped into six domains assessing preoccupation and negative self-evaluation of appearance, self-consciousness and embarrassment, excessive importance given to appearance in self-evaluation, avoidance of activities (e.g., avoidance of public and social situations or physical contact with other persons), body camouflaging (e.g., use of camouflage strategies involving style of clothing, the wearing of accessories, use of makeup, and changes in body posture in an attempt to hide the perceived defect), and body checking (e.g., self-inspection, reassurance seeking, and comparing self to others).^{1,28} The items are rated on a scale ranging from 0 to 6, with 0 indicating the absence of negative body image symptoms in the previous 4 weeks. Scores of 1 to 6 represent the frequency (number of days) or intensity (mild to severe) of symptoms. The Body Dysmorphic Disorder Examination total score ranges from 0 to 168; a cutoff score greater than or equal to 66 indicates a high degree of dissatisfaction with appearance and is usually associated with a diagnosis of body dysmorphic disorder.²⁷ Besides measuring body dissatisfaction, the Body Dysmorphic Disorder Examination includes specific items for the diagnosis of body dysmorphic disorder, and to meet diagnostic criteria, patients must respond with a score of 4 or greater on these items. Patients with body dysmorphic disorder symptoms were classified as having mild to moderate or severe symptoms,^{1,13} based on their level of subjective distress and avoidance behavior (Body Dysmorphic Disorder Examination).¹

The classification of the physical deformity perceived by the patient was performed independently and in person by two experienced plastic surgeons, who are not authors of this article, and two observers, who were not plastic surgeons. Plastic surgeons are specialists able to observe even

small aesthetic defects or variations from the ideal standard of beauty valued by a given culture. Thus, the intention was to classify the degree of severity of the defect from the point of view of both plastic surgeons and lay persons (non-plastic surgeons). Consensus between non-plastic surgeons was achieved through a review of the photographs of patients. There was no disagreement between the classifications of both plastic surgeons.

Statistical Analysis

Between-group comparisons of patients with and without body dysmorphic disorder symptoms were made using the parametric *t* test and non-parametric tests, including the Mann-Whitney test, chi-square test, and Fisher's exact test. Comparisons related to the presence of body dysmorphic disorder symptoms and of sociodemographic characteristics among the three groups were performed with a chi-square test and the Kruskal-Wallis test. Severity of symptoms (moderate or severe) was analyzed using the *t* test, the chi-square test, and Fisher's exact test.

SPSS Version 17.0 (SPSS, Inc., Chicago, Ill.), Minitab 16 (Minitab, Inc., State College, Pa.), and Microsoft Office Excel (Microsoft Corp., Redmond, Wash.) software were used for data analysis. All statistical tests were performed at a significance level of 5 percent ($p < 0.05$). Data are expressed as mean \pm SD.

RESULTS

Overall, most patients were women, Caucasian, single, or divorced, with secondary education. The distribution of some characteristics of the participants according to the type of procedure requested is shown in Table 1.

For patients in the three groups, the most common previous plastic surgery procedures, in descending order, were blepharoplasty, mammoplasty (including breast reduction, augmentation, and mastopexy), rhinoplasty, mini-facelift, abdominoplasty, liposuction, face lift, and otoplasty. Patients in the rhytidectomy group had undergone more plastic surgery procedures of the face, such as blepharoplasty, and fewer other plastic surgery procedures than those in the rhinoplasty and abdominoplasty groups.

Prevalence rates of body dysmorphic disorder symptoms in the abdominoplasty, rhinoplasty, and rhytidectomy groups were 57, 52, and 42 percent, respectively, without significant differences between groups (chi-square = 2.967; $p = 0.227$). The abdominoplasty group showed the highest

Table 1. Age, Sex, and Body Mass Index Distribution According to the Type of Procedure Requested (n = 300)

| Characteristics | Groups | | |
|----------------------------------|--------------------|-----------------|------------------|
| | Abdominoplasty (%) | Rhinoplasty (%) | Rhytidectomy (%) |
| No. | 90 | 151 | 59 |
| Mean age ± SD, yr | 38 ± 11 | 34 ± 12 | 51 ± 10 |
| Sex | | | |
| Women | 84 (93) | 116 (77) | 56 (95) |
| Men | 6 (7) | 35 (23) | 3 (5) |
| Mean BMI ± SD, kg/m ² | 26 ± 4 | 24 ± 4 | 25 ± 3 |

BMI, body mass index.

degree of body dissatisfaction and number of body dysmorphic disorder symptoms of the three groups. Significant differences ($p < 0.001$) in presence or absence of body dysmorphic disorder symptoms (based on total Body Dysmorphic Disorder Examination scores) were observed within all groups (Fig. 1).

Patients with body dysmorphic disorder symptoms in all three groups reported high Body Dysmorphic Disorder Examination total scores, corresponding to a high degree of body dissatisfaction, without significant differences between groups ($p = 0.488$), as shown in Table 2.

However, between-group differences were found in the following variables: comparing self to appearance of other persons ($p = 0.038$), reassurance seeking regarding preoccupation with physical appearance ($p = 0.038$), self-inspection of body areas ($p = 0.022$), and inhibition of sexuality ($p = 0.018$) (Table 2). Significant between-group

differences were observed in age ($p < 0.001$), body mass index ($p = 0.001$), and onset of body dysmorphic disorder symptoms ($\chi^2 = 66.588$; $p < 0.001$) among patients with body dysmorphic disorder symptoms (Tables 2 and 3).

It was found that preoccupation and dissatisfaction with physical appearance began at age 40 years or earlier in 90 percent of abdominoplasty patients, at childhood or adolescence in 90 percent of rhinoplasty patients, and at age older than 40 years in 52 percent of rhytidectomy patients (Table 2). There were significant differences in body dysmorphic disorder symptom severity between groups ($p = 0.018$). The rhytidectomy group had the highest percentage (64 percent) and the rhinoplasty group had the lowest percentage (38 percent) of patients with severe symptoms (Table 2).

Body dysmorphic disorder severity was significantly associated with degree of body

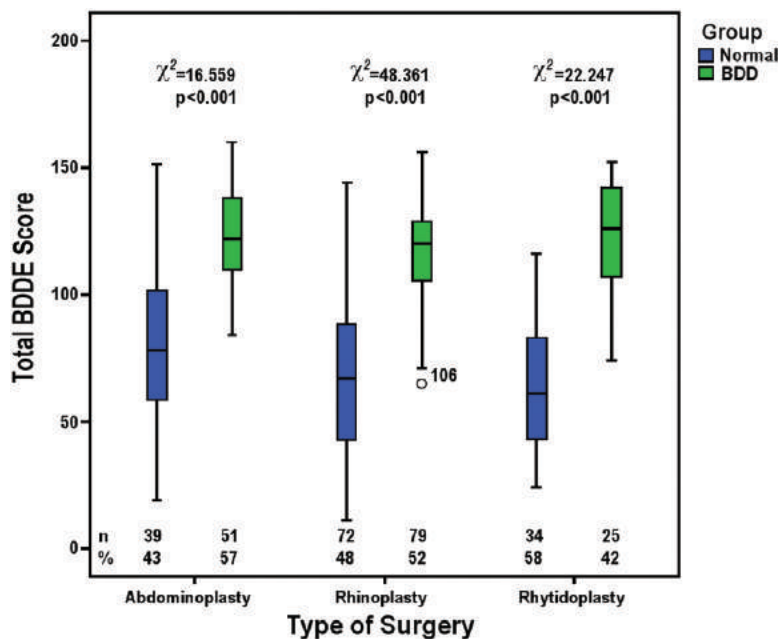


Fig. 1. Frequency distribution of mean body dysmorphic disorder total scores among groups.

Table 2. Comparison of Clinical Characteristics of Patients with Body Dysmorphic Disorder Symptoms among Groups

| Variables | Groups* | | | Statistics |
|--|--------------------|-----------------|------------------|------------------------------|
| | Abdominoplasty (%) | Rhinoplasty (%) | Rhytidectomy (%) | |
| No. of patients | 51 | 79 | 25 | |
| Body dissatisfaction† | | | | |
| BDDE total score | 120 ± 26 | 118 ± 20 | 123 ± 21 | $H = 1.44; p = 0.488$ |
| Level of concern (obsessive characteristics)† | | | | |
| Time spent with appearance | | | | |
| <1 hr/day | 4 (8) | 6 (8) | — | $\chi^2 = 2.620; p = 0.623$ |
| 1–3 hr/day | 8 (16) | 9 (11) | 4 (16) | |
| >3 hr/day | 39 (76) | 64 (81) | 21 (84) | |
| Defect severity†‡ | | | | |
| Real | — | — | — | $\chi^2 = 5.454; p = 0.065$ |
| Exaggerated | 42 (82) | 73 (92) | 19 (76) | |
| Nonobservable | 9 (18) | 6 (8) | 6 (24) | |
| Perception of self-reference | 49 (96) | 76 (96) | 25 (100) | —§ |
| Types of behaviors (compulsive characteristics)† | | | | |
| Checking | | | | |
| Comparing self to others | 43 (84) | 68 (86) | 16 (64) | $\chi^2 = 6.543; p = 0.038$ |
| Reassurance seeking | 23 (45) | 37 (47) | 14 (56) | $\chi^2 = 6.543; p = 0.038$ |
| Mirror checking | 49 (96) | 75 (95) | 24 (96) | $\chi^2 = 0.112; p = 0.945$ |
| Self-inspection | 50 (98) | 69 (87) | 25 (100) | $\chi^2 = 7.656; p = 0.022$ |
| Avoidance and inhibition | | | | |
| Mirror avoidance | 30 (59) | 39 (49) | 11 (44) | $\chi^2 = 1.801; p = 0.406$ |
| Body camouflaging | 49 (96) | 73 (92) | 24 (96) | $\chi^2 = 0.942; p = 0.624$ |
| Avoid public situations | 27 (53) | 46 (58) | 14 (56) | $\chi^2 = 0.352; p = 0.839$ |
| Avoid social situations | 29 (57) | 51 (65) | 16 (64) | $\chi^2 = 0.832; p = 0.660$ |
| Avoid physical activities | 27 (53) | 36 (46) | 16 (64) | $\chi^2 = 2.700; p = 0.259$ |
| Avoid physical contact | 48 (94) | 74 (94) | 24 (96) | $\chi^2 = 0.189; p = 0.910$ |
| Inhibition of sexuality | 42 (82) | 65 (82) | 17 (68) | $\chi^2 = 2.683; p = 0.018$ |
| Self-inflicted procedures¶ | | | | |
| Skin picking and trichotillomania | 4 (8) | 7 (9) | 2 (8) | $\chi^2 = 0.048; p = 0.976$ |
| Severity of symptoms† | | | | |
| Moderate | 21 (41) | 49 (62) | 9 (36) | $\chi^2 = 8.063; p = 0.018$ |
| Severe | 30 (59) | 30 (38) | 16 (64) | |
| Concerns and dissatisfaction with physical appearance | | | | |
| Onset of symptoms | | | | |
| Childhood/adolescence | 25 (49) | 71 (90) | 7 (28) | $\chi^2 = 66.588; p < 0.001$ |
| 18–40 yr | 21 (41) | 5 (6) | 5 (20) | |
| >40 yr | 5 (10) | 3 (4) | 13 (52) | |
| History of abuse | | | | |
| Teasing and bullying | 35 (69) | 73 (92) | 7 (28) | $\chi^2 = 42.371; p < 0.001$ |
| Sexual abuse | — | 5 (6) | 1 (4) | —§ |
| Substance abuse (alcohol and drugs) | 10 (20) | 31 (39) | 2 (8) | $\chi^2 = 11.755; p = 0.003$ |

H, Kruskal-Wallis test; χ^2 , chi-square test; BDDE, Body Dysmorphic Disorder Examination.

*Mean ± SD or no. (%).

†Data obtained using the Body Dysmorphic Disorder Examination.

‡According to the psychologist's assessment based on the Body Dysmorphic Disorder Examination.

§The difference in the values of *n* for each group does not allow between-group comparisons.

||Data obtained during clinical interviews conducted by mental health professionals.

dissatisfaction (mean Body Dysmorphic Disorder Examination total scores, $p < 0.001$), avoidance behaviors ($p < 0.001$), sexual abuse ($p = 0.026$), suicidal ideation ($p < 0.001$), and suicide attempt ($p = 0.012$) (Table 4).

DISCUSSION

The prevalence of body dysmorphic disorder symptoms found in the study population was different and greater than in previous studies on

cosmetic surgery,^{7,15,16,29} but similar to that reported by Vindigni et al.,¹⁷ suggesting that body dysmorphic disorder is a common mental disorder that is difficult to diagnose in medical practice.^{1,2} Rhinoplasty was the most sought-after cosmetic procedure, which is consistent with other studies.^{16,18,29–32} However, this result was not related to the severity of symptoms, as also observed by some authors.^{7,16,31}

Significant differences in mean age and body mass index were found between the three groups, indicating that different influencing factors may

Table 3. Characteristics of Patients with Body Dysmorphic Disorder Symptoms for the Three Groups

| Characteristics | Groups* | | | Statistics |
|------------------------|--------------------|-----------------|------------------|------------------------|
| | Abdominoplasty (%) | Rhinoplasty (%) | Rhytidectomy (%) | |
| No. of patients | 51 | 79 | 25 | |
| Age, yr | 37 ± 10 | 33 ± 11 | 52 ± 10 | $H = 39.25; p < 0.001$ |
| BMI, kg/m ² | 25 ± 04 | 23 ± 04 | 26 ± 04 | $H = 14.14; p = 0.001$ |

H, Kruskal-Wallis test; BMI, body mass index.

*No. or mean ± SD.

Table 4. Variables versus Severity of Body Dysmorphic Disorder Symptoms

| Variable | Symptoms Severity* | | Statistics | <i>p</i> |
|--|--------------------|------------|-------------------|----------|
| | Moderate (%) | Severe (%) | | |
| No. of patients | 79 | 76 | | |
| Patient characteristics† | | | | |
| BMI (kg/m ²) | 24 ± 04 | 25 ± 04 | $t = 2.15$ | 0.033 |
| Body dissatisfaction‡ | | | | |
| Mean BDDE total score | 109 ± 16 | 131 ± 22 | $t = 6.95$ | <0.001 |
| Behaviors‡ | | | | |
| Avoidance and inhibition | | | | |
| In public situations | 22 (28) | 65 (86) | $\chi^2 = 52.332$ | <0.001 |
| In social situations | 30 (38) | 66 (87) | $\chi^2 = 39.236$ | <0.001 |
| During physical activities | 25 (32) | 54 (71) | $\chi^2 = 24.070$ | <0.001 |
| Of physical contact | 70 (89) | 76 (100) | $\chi^2 = 9.192$ | <0.001 |
| History of abuse† | | | | |
| Sexual | 1 (1) | 5 (7) | Fisher's | 0.026 |
| History of suicidal ideation or suicide attempt† | | | | |
| Suicidal ideation | 1 (1) | 13 (17) | Fisher's | <0.001 |
| Suicide attempt | — | 6 (9) | Fisher's | 0.012 |

BMI, body mass index; BDDE, Body Dysmorphic Disorder Examination; Fisher's, Fisher's exact test.

*Mean ± SD or no. (%).

†Data obtained during clinical interviews conducted by mental health professionals.

‡Data obtained using the BDDE.

be involved in the expression of body dysmorphic disorder symptoms. Factors such as pregnancy (abdominoplasty); history of abuse, including teasing/bullying and sexual abuse (rhinoplasty); and preoccupation about aging (rhytidectomy) contributed to the expression and maintenance of the disorder. Constantian and Lin³³ reported the impact of history of abuse or neglect on the development of dysfunctional behaviors, masking the type and intensity of body dissatisfaction in patients seeking rhinoplasty. The same authors also highlighted the role of trauma history in the patient's perception of and satisfaction with the results of surgery.³⁴

The percentage of patients who reported a history of teasing/bullying and substance abuse (alcohol and other drugs) was higher in the rhinoplasty group than in the other groups. In the abdominoplasty group, there was an association between history of teasing/bullying and body dysmorphic disorder symptoms; a significantly higher percentage of patients with body dysmorphic disorder symptoms reported substance abuse (alcohol and other drugs) compared with

those without symptoms. This may be related to the onset of body dissatisfaction in childhood/adolescence, reported by 49 percent of abdominoplasty patients with body dysmorphic disorder symptoms.

Although the mean age of patients in the abdominoplasty and rhinoplasty groups was similar to that found in patients with body dysmorphic disorder symptoms who sought cosmetic surgical procedures,^{7,17,35} those in the rhytidectomy group had an older mean age. This may be related to the fact that there are no studies evaluating symptoms of body dysmorphic disorder in this specific population.² These data suggest a bimodal distribution of the disorder, in that it tends to manifest itself in childhood/adolescence and early adulthood, with the second manifestation occurring in patients older than 40, in contrast to most studies reporting disease onset in adolescence.

Body dysmorphic disorder may be initially manifested in adolescence and early adulthood, and after menopause,^{23,24} as seen in the three study groups. The late onset of body dysmorphic disorder symptoms has been considered

uncommon, except when associated with life events, such as weight loss or aging,³⁶ as identified in patients in the rhytidectomy group. As in previous studies,^{37–39} both body dissatisfaction and body dysmorphic disorder symptoms were more prevalent in women, showing increased body image investment in this gender and the possible influence of sociocultural factors in preoccupation with appearance.^{35,40,41}

In the study population, the body area of greatest dissatisfaction was the breast, followed by the abdomen, nose, and wrinkles. Thus, breast size, changes in body contour, the non-Caucasian nose, and aging were the most common complaints in patients with body dysmorphic disorder symptoms. The eyes, face, and skin were areas of body dissatisfaction reported, especially by rhytidectomy patients, indicating a possible association with aging. However, all patients showed a high degree of preoccupation with the abdomen. This may indicate the influence of sociocultural factors on the beauty standards and general body dissatisfaction in this population.

Sociocultural factors may affect the onset, progression, and prevalence of this disorder; thus, dissatisfaction with different parts of the body in body dysmorphic disorder patients may be specific but also show diversity,⁴² as in the present study. Further investigations are necessary to determine the impact of sociocultural factors on body image concerns in Brazil,⁴³ such as estimates of prevalence of body dysmorphic disorder symptoms obtained. In contrast, the high prevalence of body dysmorphic disorder found in this study may be associated with the dimensional classification of body dysmorphic disorder symptoms (i.e., level of subjective distress and avoidance behavior associated with dissatisfaction with physical appearance) used to assess symptom severity.^{1,13}

Patients with body dysmorphic disorder responded to the extreme preoccupation and distress in relation to their physical appearance with checking behaviors, such as comparing self to appearance of other persons, reassurance-seeking regarding the perceived defect, and self-inspection of body areas, with significant differences between groups. The degree of preoccupation with appearance was also expressed as inhibition and avoidance behavior, especially in sexuality. These behaviors characterize defense mechanisms which, in a dysfunctional phobic manner, are expected to provide and ensure safety to the patients.

The degree of preoccupation affected the perception of the physical defect, which was

overestimated in all cases. The negative self-perception of body shape and distorted interpretation of facial and emotional expressions enhanced perception of self-reference in most patients.^{6,44,45} In addition, withdrawal from affective and social life, observed in more severe cases, suggested that these patients had psychological vulnerability and low self-esteem, as seen in previous studies.^{46,47} Severe body dysmorphic disorder may present with delusional beliefs about appearance-associated avoidance behavior, time-consuming camouflaging behavior, and social withdrawal.

According to Koran et al.³⁹ and Phillips et al.,² anxiety and impaired affective and social functioning are factors that differentiate body dysmorphic disorder patients from those with normal appearance concerns. These factors were used in this study to classify body dysmorphic disorder symptoms as moderate or severe, revealing different functioning levels among the study population. In fact, although there were no significant differences in the prevalence of body dysmorphic disorder symptoms between surgical groups, significant between-group differences were found in symptom severity regarding the following variables: weight, avoidance behavior in public and social situations and during physical activities and physical contact, history of sexual abuse, suicidal ideation, and suicide attempt. Similarly, Altamura et al.⁴⁸ identified a high prevalence of suicidal ideation in patients with severe body dysmorphic disorder symptoms. Constantian and Lin³³ found a relationship between history of sexual abuse and the possible presence of body dysmorphic disorder in patients who had undergone secondary rhinoplasty, indicating aspects of psychopathology in cosmetic surgery patients.³³

The relationship between history of emotional abuse (teasing/bullying, sexual abuse), substance abuse (alcohol and other drugs), and severity of symptoms in patients with body dysmorphic disorder has been described in the literature.^{33,34,49} This may explain the relationship between history of abuse and suicide attempt found in this study. All patients who experienced sexual abuse in childhood and adolescence had severe body image disturbance, consistent with previous studies.^{33,34} A correlation of suicidal ideation and suicide attempt with degree of psychosocial impairment caused by body dysmorphic disorder was observed in the study population and reported by other authors.^{38,50}

Inhibition of sexuality in rhytidectomy patients with body dysmorphic disorder symptoms appeared to be related more to loneliness than to

inhibition resulting from shame and embarrassment with physical appearance, as identified in the other groups. All patients in the rhytidectomy group had self-reference perceptions and checking behaviors (body inspection and search for reassurance), which may reveal the importance of others' opinions. None of the rhytidectomy patients spent less than 1 hour per day with appearance, indicating the degree of concern in this age group. Our results suggest an overall dissatisfaction among these patients, higher than that identified in the other groups. Patients in the rhytidectomy group had more previous plastic surgery operations of the face and fewer other plastic surgery operations than those in the rhinoplasty and abdominoplasty groups. Also, most rhytidectomy patients reported the onset of body dissatisfaction after age 40 years, and age and aging-related factors, such as wrinkles and sagging skin, as their main concerns. This reflects the severity of body dysmorphic disorder symptoms in rhytidectomy patients and may indicate that age was a factor related to the onset of body dissatisfaction and possible development and late expression of body dysmorphic disorder symptoms, suggesting a late onset of the disorder.

All patients with body dysmorphic disorder symptoms reported inhibition of sexuality, as described by other authors.^{7,51} These patients avoided close contact because of shame and embarrassment regarding perceived flaws, inhibiting the possibility of social and emotional relationships, which is consistent with other studies.^{39,52,53} Such behaviors may also be associated with history of sexual abuse or neglect, according to Constantian and Lin.³³

The classification of body dysmorphic disorder severity may provide information to assist surgeons when deciding whether or not to operate. Patients with subclinical body dysmorphic disorder symptoms who do not meet all *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition) criteria for body dysmorphic disorder or those who present "core" body dysmorphic disorder symptoms but no significant impairment in overall functioning (e.g., absence of avoidance behaviors) may undergo cosmetic and surgical treatments.^{13,25} However, patients with severe body dysmorphic disorder symptoms, who meet all *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition) criteria for body dysmorphic disorder, should not undergo cosmetic surgical procedures, but instead should be referred to psychological and pharmacologic treatment. After a period of treatment, patients may be reassessed for body dysmorphic disorder severity and referred to a plastic surgeon if their condition has improved.^{5,25,54}

Signs and symptoms that indicate the presence or risk of body dysmorphic disorder and that may help surgeons in the decision-making process during the selection of patients for cosmetic surgery are listed in Table 5.⁵ Patients who can articulate their problems realistically and describe their motivations and expectations likely do not have body dysmorphic disorder.⁵

The results highlighted the importance of preventing risk factors that may trigger body dysmorphic disorder in vulnerable and young individuals,^{46,52} showing the relationship between body image development and body dysmorphic

Table 5. Signs and Symptoms of the Presence or Risk of Body Dysmorphic Disorder in Plastic Surgery Patients Based on the *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition) Diagnostic Criteria for Body Dysmorphic Disorder*

| Symptom | Meaning of Symptom |
|--|---|
| Unusual demanding behavior | Perfectionism |
| Excessive requests for cosmetic procedures | Body dissatisfaction, lack of awareness of their morbid state of mind |
| Dissatisfaction with previous cosmetic procedures | Level of body image concerns and body dissatisfaction |
| Expectation that cosmetic surgery will solve all problems | Unrealistic expectations |
| Excessive preoccupation with minor or nonexistent appearance features | Selective perception |
| Impairment in affective and social relationships | Impairment in overall functioning |
| Belief that all people's comments and behavior are related to their appearance | Perception of self-reference |
| Persistent reassurance of perceived defect | Discrepancy between self-perception of attractiveness and their ideal appearance standard |
| Strategies or behaviors attempting to hide or divert attention from the perceived defect | Camouflaging |
| Poor insight, conviction of the existence of the perceived defect | Lack of awareness of their morbid state of mind |

*American Psychiatric Association. Obsessive-compulsive and related disorders. In: *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed. Arlington, Va: American Psychiatric Association; 2013.

disorder symptoms.³⁸ Body dysmorphic disorder occurred in candidates for different plastic surgery procedures of different age groups. The results may also suggest that the expression of body dissatisfaction in the contemporary world has changed and therefore may affect the expression of dissatisfaction with specific body areas in patients with body dysmorphic disorder.

Further studies on the diagnosis of psychopathological symptoms in all specialties of cosmetic surgery are important and necessary. A careful screening of cosmetic surgery candidates may contribute to patient satisfaction after surgery^{1,33,34,55} and improvement in their quality of life.

CONCLUSIONS

A high prevalence of body dysmorphic disorder symptoms was found among candidates for the three plastic surgical procedures. The abdominoplasty group showed the highest degree of body dissatisfaction and greatest number of body dysmorphic disorder symptoms; the rhinoplasty group had the lowest percentage and the rhytidectomy group had the highest percentage of severe cases. The diagnosis of body dysmorphic disorder is not a contraindication to aesthetic plastic surgery. The dimensional identification and classification of body dysmorphic disorder symptoms provides a new perspective for decision support, revealing that aesthetic plastic surgery can be considered as a treatment for patients with mild to moderate body dysmorphic disorder symptoms with no significant impairment in overall functioning.

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Body Contouring

Prevalence of Body Dysmorphic Disorder Symptoms and Body Weight Concerns in Patients Seeking Abdominoplasty

Aesthetic Surgery Journal
2016, 1–9
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journals.permissions@oup.com
DOI: 10.1093/asj/sjv213
www.aestheticsurgeryjournal.com
OXFORD
UNIVERSITY PRESS

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Abstract

Background: Body dysmorphic disorder (BDD) is one of the most common psychiatric conditions found in patients seeking cosmetic surgery, and body contouring surgery is most frequently sought by patients with BDD.

Objectives: To estimate the prevalence and severity of BDD symptoms in patients seeking abdominoplasty.

Methods: Ninety patients of both sexes were preoperatively divided into two groups: patients with BDD symptoms ($n = 51$) and those without BDD symptoms ($n = 39$) based both on the Body Dysmorphic Disorder Examination (BDDE) and clinical assessment. Patients in the BDD group were classified as having mild to moderate or severe symptoms, according to the BDDE. Body weight and shape concerns were assessed using the Body Shape Questionnaire (BSQ).

Results: The prevalence of BDD symptoms was 57%. There were significant associations between BDD symptoms and degree of body dissatisfaction, level of preoccupation with physical appearance, and avoidance behaviors. Mild to moderate and severe symptoms of BDD were present in 41% and 59% of patients, respectively, in the BDD group. It was found that the more severe the symptoms of BDD, the higher the level of concern with body weight and shape ($P < .001$). Patients having distorted self-perception of body shape, or distorted comparative perception of body image were respectively 3.67 or 5.93 times more likely to show more severe symptoms of BDD than those with a more accurate perception.

Conclusions: Candidates for abdominoplasty had a high prevalence of BDD symptoms, and body weight and shape concerns were associated with increased symptom severity.

Level of Evidence: 3

Accepted for publication May 28, 2015.



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Body dysmorphic disorder (BDD) is one of the most common psychiatric conditions found in patients seeking cosmetic surgery,¹⁻⁷ and body contouring surgery is most frequently sought by patients with BDD⁷⁻⁹ and those with eating disorders.^{9,10} Sarwer and Crerand,⁹ and Grossbart and Sarwer¹¹ found that eating disorders and BDD were prevalent in plastic surgery patients and may be considered contraindications to surgery.

Recent studies have suggested a change in the expression of body dissatisfaction^{7,12,13} and, therefore, concerns about weight and body contour, and disordered eating behaviors can make the diagnosis of BDD difficult.^{13,14} This aspect has been identified and highlighted by the American Psychiatric Association (APA) in the diagnostic criteria for BDD described in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5).¹⁵

According to the DSM-5, BDD is characterized by a preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to others, and repetitive behaviors (eg, mirror checking, excessive grooming, skin picking, and reassurance seeking) or mental acts (eg, comparing his or her appearance with that of others) in response to concerns about physical appearance. BDD causes clinically significant distress or impairment in important areas of functioning, and its symptoms are not better explained by normal concerns with physical appearance or by concerns with body fat or weight in individuals meeting diagnostic criteria for eating disorders. BDD symptoms may be associated with muscle dysmorphia and patients with BDD may show different degrees of insight regarding BDD beliefs.¹⁵

Abdominoplasty is frequently performed to improve body contour after pregnancy or major weight loss.^{16,17} This surgery treats the aesthetic units of the abdomen, namely, the epigastrium, lower abdomen, flanks, and mons pubis.¹⁷⁻¹⁹

Physiological changes, such as aging and pregnancy, or alterations in body contour caused mainly by increases in body mass index (BMI) may lead to functional and psychological changes expressed as high levels of embarrassment in social and personal relationships.^{16,17,20} However, an excessive preoccupation with appearance can conceal psychopathological traits that are not always easy to recognize and may result in iatrogenic and medico-legal problems if neglected.²¹⁻²⁵ Therefore, it is very important to carefully assess candidates for cosmetic procedures to identify those with this condition.^{5,26}

For patients with a slight perceived defect who seek cosmetic surgery, degrees of behavior impairment and emotional distress seem to be more accurate indicators of BDD.^{6,26,27} Avoidance behaviors and social withdrawal have been appointed as contributors to BDD severity^{6,7} and chronicity.²⁸⁻³⁰ Therefore, the classification of BDD severity in the present study was based on this concept.

The purpose of the study was to evaluate the prevalence and severity of BDD symptoms in patients seeking abdominoplasty.

METHODS

This study was approved by the Research Ethics Committee of the Universidade Federal de São Paulo (UNIFESP), Brazil, and performed in accordance with the ethical standards of the 1964 Declaration of Helsinki and its subsequent amendments. Written informed consent was obtained from all patients prior to their inclusion in the study. Patient anonymity was assured. The study was conducted between February 2009 and August 2010.

Patients of both sexes, who expressed a desire to undergo abdominoplasty, were recruited at the outpatient facility of the Abdominal Plastic Surgery Unit of the São Paulo Hospital, UNIFESP.

Patients unable to understand the interview questions and those with severe physical deformities as a result of obesity, bariatric surgery, tumors and other conditions, psychotic disorders, previous history of BDD, or who had undergone psychiatric or psychological treatment were excluded from the study.

Ninety patients who met participation criteria and agreed to participate were included in the study. The participants were divided into two groups: patients with BDD symptoms (BDD group; $n = 51$) and those without BDD symptoms (non-BDD group; $n = 39$), according to the Brazilian version of the Body Dysmorphic Disorder Examination (BDDE)³¹ and clinical assessment of BDD.¹⁵ All patients were clinically assessed by the same psychologist (first author) with expertise in BDD and screening of plastic surgery candidates, who administered the BDDE. Body weight and shape concerns were assessed using the Body Shape Questionnaire (BSQ).³² Sociodemographic (eg, name, sex, age, and ethnicity) and clinical characteristics (eg, history of previous cosmetic procedures, psychological/psychiatric treatment, and abuse) of the study participants were obtained through a clinical interview. All participants were evaluated by the authors, including two psychologists, one psychiatrist, and three plastic surgeons. The questionnaires were administered preoperatively.

The 34-item BDDE is a specific questionnaire that measures symptoms of severely negative body image.³³ The items are grouped into 6 domains assessing preoccupation and negative self-evaluation of appearance, self-consciousness and embarrassment, excessive importance given to appearance in self-evaluation, avoidance of activities (eg, avoidance of public and social situations or physical contact with other persons), body camouflaging (eg, use of camouflage strategies involving style of clothing, the wearing of accessories, use of makeup, and changes in body posture in an attempt to hide the perceived defect),

and body checking (eg, self-inspection, reassurance seeking, and comparing self to others).²⁶ The items are rated on a 0 to 6 scale, with 0 indicating the absence of negative body image symptoms in the previous 4 weeks. Scores of 1 to 6 represent the frequency (number of days) or intensity (mild to severe) of symptoms. The BDDE total score ranges from 0 to 168; a cutoff score of ≥ 66 indicates a higher degree of dissatisfaction with appearance and is usually associated with diagnosis of BDD.³³

Besides measuring body image dissatisfaction, the BDDE includes specific items for the diagnosis of BDD and patients are required to have a score of 4 or greater on these items to meet diagnostic criteria.^{31,34} Patients without BDD symptoms were defined as those who had a score of 3 or less on the specific items and those who did not meet criteria for BDD according to the DSM-5 during the clinical interview.

Patients with BDD symptoms were classified as having mild to moderate or severe symptoms,^{6,7,26} based on their level of subjective distress and avoidance behavior.²⁶

The classification of the physical deformity perceived by the patient was performed independently and in person by two experienced plastic surgeons, who are not authors of this paper, and two observers, who were not plastic surgeons. The intention was to classify the degree of severity of the defect from both the point of view of plastic surgeons and that of lay persons (non-plastic surgeons). Plastic surgeons are specialists able to observe even small aesthetic defects or variations from the ideal standard of beauty valued by a given culture. Consensus between non-plastic surgeons was achieved through a review of the photographs of patients. There was no disagreement between the classifications of both plastic surgeons.

The BSQ assesses concerns of body weight and shape in the past 4 weeks. Items are rated on a 6-point Likert-type scale ranging from “never” to “always” and grouped into 4 domains, including self-perception of body shape, comparative perception of body image, attitude concerning body image alterations, and severe alterations in body perception.³²

Statistical Analysis

Comparisons between groups were made using *t* test, the Mann-Whitney test, chi-square test, and Fisher’s exact test. The *t*-test for independent samples was used to compare the means between groups, and analysis of variance (ANOVA) was applied to compare data from more than two variables. The Brown-Forsythe test was used when variances were heterogeneous.

The Cramer’s *V* coefficient was calculated to measure the strength of associations between categorical variables. The Kolmogorov-Smirnov test and Shapiro-Wilk *W*-test were used to test for normality. Levene’s test was performed to test homoscedasticity of variances. Dunnett’s

multiple comparison test was applied to identify differences in mean values if significant differences were detected by ANOVA.

Ordered logistic regression was used to analyze the relationship between the four BSQ domains and BDD symptoms. The level of significance was set at a *P*-value of $\leq .05$, and BSQ domains showing statistical significance were included into the final logistic regression model. The Mantel-Haenszel method was used to test for trends between BDD symptoms and the BSQ total score.

The Statistical Package for the Social Sciences (SPSS) 20.0 (SPSS Inc., Chicago, IL) and Stata 12 (StatCorp, College Station, TX) were used for data analysis. All statistical tests were performed at a significance level of 5% ($P < .05$). Data are expressed as mean \pm SD.

RESULTS

Most patients were women (women, $n = 84$, 93.3%; men, $n = 6$, 7%), had a mean age of 38 ± 11 years (range, 20-66 years), a mean BMI of 26 ± 4 kg/m² (range, 18.3-41.3 kg/m²), and secondary or higher education ($n = 72$, 80%). No significant differences in sociodemographic characteristics were found between groups (Table 1).

There were significant differences in mean BDDE total score and number of patients scoring > 66 between groups, showing a significant association between BDD symptoms and body dissatisfaction (Table 2).

Mild to moderate (without avoidance behavior) and severe (with avoidance behavior) symptoms of BDD were present in 41% and 59% of patients, respectively, in the BDD group.

Significant differences in patient perception of the defect severity ($P = .024$) and perception of self-reference ($P < .001$) were found between groups, revealing an association between level of preoccupation with physical appearance and BDD symptoms (Table 2).

There were also significant associations of BDD symptoms with some avoidance behaviors, including avoidance of mirrors ($P = .005$), social situations ($P = .008$) and physical contact ($P < .001$), and inhibition of sexuality ($P < .001$) (Table 2).

The majority of participants (90%) expressed the desire to undergo not only abdominoplasty, but also other cosmetic surgeries.

All patients with BDD symptoms ($n = 51$) reported extreme dissatisfaction with their abdominal region and desired to undergo additional cosmetic surgery in other parts of the body. The most common complaints were body weight and deformities of the nose, breast, and face.

Complaints of dissatisfaction with different parts of the body were not normally distributed in both the BDD group (*S-W* = 0.835; $P < .001$) and non-BDD group (*S-W* = 0.880; $P < .001$). Patients with BDD symptoms showed dissatisfaction

Table 1. Sociodemographic Characteristics of Patients According Group Distribution

| Characteristics | Groups | | | P Value |
|------------------------------|------------------------|--------------------|------------------|---------|
| | Non-BDD Group (n = 39) | BDD Group (n = 51) | Test Statistics | |
| Age (years) | 39 ± 11 | 37 ± 10 | t = 0.76 | .451 |
| BMI (kg/m ²) | 26 ± 5 | 25 ± 4 | t = 0.61 | .545 |
| Education Level | N (%) | N (%) | | |
| Incomplete primary education | 2 (5) | 1 (2) | $\chi^2 = 1.297$ | .523 |
| Complete primary education | 5 (13) | 10 (20) | | |
| Secondary education | 17 (43) | 24 (47) | | |
| Some higher education | 10 (26) | 11 (21) | | |
| College degree | 5 (13) | 5 (10) | | |

SD, standard deviation; BMI, body mass index.

with a significantly ($Z = -2.337$, $P = .019$) greater mean number of parts of the body (2.36 ± 1.19) compared with those without BDD symptoms (2.36 ± 1.01).

Patients in both groups reported that dissatisfaction with their body image began before the age of 40 years, especially during adolescence and early adulthood ($P = .460$; $\chi^2 = 1.555$). A higher proportion (49%) of patients in the BDD group experienced the onset of BDD symptoms during adolescence.

Patients in the BDD (69%) and non-BDD (33%) groups reported some experience of being teased and bullied, with a significant difference between groups ($P = .001$; $\chi^2 = 11.061$).

No significant association was found between history of substance abuse (alcohol and other drugs) and BDD symptoms ($P = .061$). However, a higher proportion (20%) of patients with BDD reported substance abuse compared with that (5%) of patients without BDD.

Dissatisfaction With Body Image Associated With Body Weight and Shape

There were significant differences in the distribution of BSQ total scores across the levels of body image concern measured by the BDDE, and in mean BSQ domain scores between groups (Table 3). BSQ total scores for patients without body image concerns were significantly lower than those of patients with mild to moderate concerns, which in turn were significantly lower than the scores of patients with severe body image concerns (Table 3).

A significant association was found between presence of BDD symptoms and both the BSQ total and domain scores, with the comparative perception of body image ($V = 0.570$; $P < .001$) and self-perception of body shape ($V = 0.520$; $P < .001$) domains showing the strongest association. The

higher the level of concern with body weight and shape, the more severe were the BDD symptoms ($P < .001$; Mantel-Haenszel test).

Logistic regression showed that patients having distorted self-perception of body shape or distorted comparative perception of body image were respectively 3.67 (odds ratio (OR) = 3.670; $P = .011$; 95% IC, 1.35-9.94) or 5.93 (OR = 5.932; $P = .001$; 95% IC, 2.15-16.39) times more likely to show more severe symptoms of BDD than those with a more accurate perception when the effects of the other variables were controlled (Tables 4 and 5).

Only patients in the BDD group ($n = 51$; 57%) had concerns about body weight and shape, with 17%, 21%, and 19% of them having mild, moderate, and severe levels of concern, respectively.

It also was found that 53%, 42%, and 20% of all participants reported high levels of concern on the self-perception of body shape, comparative perception of body image, and attitude concerning body image domains of the BSQ, respectively.

Overall, significant associations were found between dissatisfaction with body image and BSQ total scores ($P < .001$), self-perception of body shape ($P < .001$; $\chi^2 = 16.61$), and comparative perception of body image ($P < .006$; $\chi^2 = 7.46$) scores. There was no association between attitude concerning body image ($P = .114$) and severe alterations in body perception ($P = .063$).

DISCUSSION

The high prevalence of BDD symptoms (57%) in the study population shows the importance of the abdomen in the assessment of body image and its impact on mental health.¹⁶ The prevalence rate was different and greater than those of previous studies on cosmetic surgery.^{1,4,35,36} This may be

Table 2. Comparison of Clinical Characteristics of Patients Between Groups

| Variable | Non-BDD Group (n = 39) | BDD Group (n = 51) | Test Statistics | P Value |
|---|------------------------|--------------------|-------------------|---------|
| Dissatisfaction with appearance | | | | |
| BDDE total score (mean ± SD) | 83 ± 33 | 120 ± 26 | t = 5.87 | <.001* |
| | N (%) | N (%) | | |
| BDDE scores >66 | 26 (67) | 50 (98) | $\chi^2 = 16.559$ | <.001* |
| Level of preoccupation (obsessive characteristics) ^a | | | | |
| Defect severity ^a | | | | |
| Real | 5 (13) | — | | |
| Exaggerated | 30 (77) | 42 (82) | $\chi^2 = 7.456$ | .024* |
| Non-observable | 4 (10) | 9 (18) | | |
| Perception of self-reference | 14 (36) | 48 (94) | $\chi^2 = 34.952$ | <.001* |
| Types of behaviors (compulsive characteristics) ^a | | | | |
| Checking | | | | |
| Comparing self to others | 28 (72) | 43 (84) | $\chi^2 = 2.080$ | .149 |
| Reassurance seeking | 18 (46) | 24 (47) | $\chi^2 = 0.007$ | .932 |
| Mirror checking | 35 (90) | 49 (96) | $\chi^2 = 1.425$ | .233 |
| Body inspection | 39 (100) | 50 (98) | Fisher's test | .999 |
| Avoidance and Inhibition | | | | |
| Mirror avoidance | 12 (31) | 31 (61) | $\chi^2 = 7.980$ | .005* |
| Camouflage strategies | 32 (82) | 47 (92) | $\chi^2 = 2.104$ | .147 |
| Avoidance of public situations | 13 (33) | 27 (53) | $\chi^2 = 3.441$ | .064 |
| Avoidance of social situations | 12 (31) | 30 (59) | $\chi^2 = 6.989$ | .008* |
| Avoidance of physical activities | 21 (54) | 27 (53) | $\chi^2 = 0.007$ | .932 |
| Avoidance of physical contact | 15 (38) | 46 (90) | $\chi^2 = 27.084$ | <.001* |
| Inhibition of sexuality | 28 (72) | 51 (100) | $\chi^2 = 16.388$ | <.001* |

^aData obtained using the Body Dysmorphic Disorder Examination (BDDE). ^bAccording to the psychologist's assessment based on the BDDE. *Statistical significance ($P < .05$).

attributed to sociocultural factors, which may affect the onset and progression of this condition. The results also indicated that the social importance of physical appearance, which can be corrected with plastic surgery, can make diagnosis of BDD difficult.

In this study, patients with BDD symptoms reported dissatisfaction with a significantly greater number of parts of the body compared with patients without BDD symptoms, indicating an overall dissatisfaction with body image. This also indicates that an overlap of clinical symptoms of BDD and body dissatisfaction with body areas (size of the stomach, hips, and thighs) may occur, representing a challenge for the differential diagnosis of BDD and eating disorders.¹³

Fontenelle et al³⁷ suggested that systematic investigations should be performed to determine the impact of sociocultural factors on body image concerns in Brazil, such as the estimate of prevalence of BDD symptoms obtained in this study. Veale³⁸ highlighted that, in a culture that values appearance, increased levels of preoccupation with body image based on an ideal body model may stimulate individuals to seek cosmetic procedures. Cansever et al³⁹ observed that the prevalence of BDD may be affected by differences in physical appearance among different cultures, suggesting that complaints of dissatisfaction with different parts of the body in patients with BDD may be specific, but also show diversity, as found in the present study.

Table 3. Distribution of BDDE Total Scores According to Levels of Body Image Concern and BSQ Domain Scores in Both Groups

| Scores | Mean | SD | Median | N |
|--|--------------------|------|--------|----|
| BDDE total | 104.9 | 32.8 | 110.0 | 90 |
| BSQ total | | | | |
| Absent | 81.4 ^a | 30.4 | 80.0 | 39 |
| Mild | 106.4 ^b | 19.2 | 103.0 | 15 |
| Moderate | 121.5 ^b | 18.2 | 117.0 | 19 |
| Severe | 138.9 ^c | 13.1 | 144.0 | 17 |
| $F_{3,80} = 37.74; P < .001$ | | | | |
| BSQ domains | | | | |
| Self-perception of body shape | | | | |
| Non-BDD group | 83.8 | 30.5 | 81.0 | 43 |
| BDD group | 124.2 | 20.7 | 127.0 | 47 |
| $t = -7.28; P < .001$ | | | | |
| Comparative perception of body image | | | | |
| Non-BDD group | 88.9 | 31.1 | 88.5 | 52 |
| BDD group | 126.8 | 20.0 | 131.5 | 38 |
| $t = -7.02; P < .001$ | | | | |
| Attitude concerning body image | | | | |
| Non-BDD group | 98.8 | 32.4 | 100.5 | 74 |
| BDD group | 132.9 | 15.8 | 134.0 | 16 |
| $t = -6.26; P < .001$ | | | | |
| Severe alterations in body perception | | | | |
| Non-BDD group | 98.2 | 32.3 | 100.5 | 72 |
| BDD group | 131.7 | 17.8 | 134.0 | 18 |
| $t = -5.90; P < .001$ | | | | |

^{a,b,c}different letters indicate significant differences between mean values ($P < .05$).

A significant association was found between severity of BDD symptoms and level of preoccupation ($P = .009$; $\chi^2 = 9.425$), which was excessive for all patients in the BDD group. A negative self-perception of body image may have increased the perception of self-reference in these patients. Mood disturbances and excessive preoccupation with appearance may not always be associated with changed behavior.^{13,26} Thus, distress is not always clearly expressed in the behavior of patients with BDD.²⁶ The observation of this phenomenon allowed us to assess the degree of global functioning impairment and to classify patients in the BDD group as having mild to moderate (41%) or severe (59%) BDD symptoms.

Concerns with body weight and shape were associated with severity of BDD symptoms, which is in agreement with the findings of other investigators.⁴⁰ No eating disorder symptoms were found among the participants, as measured by the attitude concerning body image domain (assessing appearance-related behaviors, which may help detect extreme cases of eating disorders) and severe alterations in the body perception domain (assessing negative feelings toward body-image disturbance, such as anorexia nervosa) of the BSQ. Both domains were not associated with severity of BDD symptoms.

Despite dissatisfaction with their body weight and shape, only 18% of patients reported performing regular physical

Table 4. Complete Logistic Regression Model Measuring the Relationship Between BDD Symptoms and the Four BSQ Domains

| BSQ domains | OR | SE | Z | P > Z | 95% CI |
|--|-------|-------|------|--------|----------------|
| Self-perception of body shape | 3.153 | 1.665 | 2.17 | .030* | [1.120-8.875] |
| Comparative perception of body image | 4.123 | 2.289 | 2.55 | .011* | [1.389-12.241] |
| Attitude concerning body image alterations | 3.377 | 3.144 | 1.31 | .191 | [.545-20.938] |
| Severe alterations in body perception | 1.082 | .875 | 0.10 | .923 | [.221-5.284] |

OR, odds ratio; SE, standard error; CI, confidence interval. *Statistical significance ($P \leq .05$).

Table 5. Final Logistic Regression Model Measuring the Relationship Between BDD Symptoms and Two BSQ Domains

| BSQ domains | OR | SE | Z | P > Z | 95% CI |
|--------------------------------------|-------|-------|------|--------|----------------|
| Self-perception of body shape | 3.670 | 1.866 | 2.56 | .011* | [1.355-9.944] |
| Comparative perception of body image | 5.932 | 3.076 | 3.43 | .001* | [2.147-16.388] |

OR, odds ratio; SE, standard error; CI, confidence interval. *Statistical significance ($P \leq .05$).

activities. Similarly, Javo and Sørlic⁴¹ found that women seeking abdominoplasty were the most dissatisfied with appearance, but at the same time considered their appearance as less important compared to those seeking different cosmetic procedures. This may predict weight gain after abdominoplasty in these patients.^{42,43}

Patients with BDD symptoms had a changed relationship with their body, especially expressed as avoidance of physical contact with other people, as also reported by Constantian and Lin.² Changed and negative self-perception of body shape may have led these patients to an extreme dissatisfaction with their physical appearance. Self-perception of the body is an indicator of mental health and changes in this parameter may indicate severe BDD symptoms, as observed in this study.

The comparative perception of body image domain of the BSQ was used to assess levels of inhibition and embarrassment when exposing the body. Results showed the extent to which avoidance behaviors may interfere with the severity of BDD symptoms and a behavior pattern in patients seeking abdominoplasty similar to that identified in a previous study.¹⁶ All patients with BDD symptoms experienced inhibition of sexuality, which is in agreement with other investigators.¹⁴ Patients reported avoiding close contact with other persons due to shame and embarrassment about the perceived defects,² reducing possible affective relationships and social interactions, which increase the severity of symptoms.

In this study, complaints about the shape of the abdomen and breast were associated with body weight and shape, and with pregnancy in some cases; requests for rhinoplasty were associated with ethnicity, and for facial cosmetic procedures were associated with concerns about aging. Complaints about body weight suggested that BDD symptoms may also be associated with weight concerns.⁴⁰ We found that 28% of patients with BDD symptoms and

who were dissatisfied with their body weight had a normal weight (BMI range, 18.5-24.99 kg/m²), showing that their concern was not real. Recent studies have included clinically significant concerns with body weight as symptoms of BDD.^{12,40} This result may also be related to the fact that most of the candidates for abdominoplasty are women.¹⁰

Previous studies have emphasized the role of adverse childhood experiences in the development of BDD.^{2,3,44} In the BDD group, 69% of patients reported some experience of being teased and bullied. Dissatisfaction with physical appearance as a reaction to environmental interference, such as the phenomenon of teasing and bullying, has been observed by other authors.^{2,3,38,45,46} It has been suggested that an insecure style of interpersonal attachment might result in body dissatisfaction⁴⁰ and therefore be also a motivation for cosmetic surgery,⁴¹ as observed by the association of teasing and bullying experiences with BDD symptoms. The mean age (38 ± 11 years) of the participants at the time of the interview was not significantly associated with the onset of BDD symptoms, but this does not mean that the desire for aesthetic improvement has not been considered before.

Patients were classified as having or not having BDD symptoms using the BDDE as a screening tool. The Brazilian version of the BDDE in the interview format has been validated in a population sample of candidates for cosmetic surgery.³¹ Although it requires time to be administered⁴⁶ and an experienced examiner,³⁴ the instrument allows accurate evaluation of patients with BDD, who usually complain of great difficulty in being understood and often hide their symptoms, unless directly questioned. The BDDE covers a broader spectrum of symptoms and aspects of body image, and has been used in several studies.^{40,46} Some studies have observed that specific screening instruments are able to detect BDD symptoms and criticized the DSM-IV, Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), and

Mini International Neuropsychiatric Interview-Plus (MINI-Plus) because they fail to diagnose the disorder.^{14,47}

Our study has limitations, including a small sample size, the fact that most patients were women, and that the Structured Clinical Interview for DSM (SCID) was not included. Further studies with a larger number of patients and involving multiple centers are necessary to evaluate and compare the prevalence of BDD symptoms in patients seeking abdominoplasty to allow the development of care and treatment strategies for this population.

CONCLUSIONS

This was the first study exclusively assessing BDD symptoms in patients seeking abdominoplasty. A high prevalence of BDD symptoms was found among candidates for abdominoplasty, and body weight and shape concerns were significantly associated with severity of BDD symptoms. Systematic studies on the diagnosis of psychopathological symptoms in all specialties of plastic surgery are important and necessary. A careful screening of candidates for cosmetic surgery may contribute to patient satisfaction after surgery and improvement in their quality of life.

Disclosures

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Funding

The authors received no financial support for the research, authorship, and publication of this article.

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Breast Hypertrophy, Reduction Mammoplasty, and Body Image

Aesthetic Surgery Journal
2018, 1–8
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journals.permissions@oup.com
DOI: 10.1093/asj/sjx271
www.aestheticsurgeryjournal.com

OXFORD
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Abstract

Background: Body image dissatisfaction is one of the major factors that motivate patients to undergo plastic surgery. However, few studies have associated body satisfaction with reduction mammoplasty.

Objectives: The aim of this study was to evaluate the impact of breast hypertrophy and reduction mammoplasty on body image.

Methods: Breast hypertrophy patients, with reduction mammoplasty already scheduled between June 2013 and December 2015 (mammoplasty group, MG), were prospectively evaluated through the body dysmorphic disorder examination (BDDE), body investment scale (BIS), and breast evaluation questionnaire (BEQ55) tools. Women with normal-sized breasts were also evaluated as study controls (normal-sized breast group, NSBG). All the participants were interviewed at the initial assessment and after six months. Data were analyzed before and after six months.

Results: Each group consisted of 103 women. The MG group had a significant improvement in BDDE, BIS, and BEQ55 scores six months postoperatively ($P \leq 0.001$ for the three instruments), whereas the NSBG group showed no alteration in results over time ($P = 0.876$; $P = 0.442$; and $P = 0.184$, respectively). In the intergroup comparison it was observed that the MG group began to invest more in the body, similarly to the NSBG group, and surpassed the level of satisfaction and body image that the women of the NSBG group had after the surgery.

Conclusions: Reduction mammoplasty promoted improvement in body image of women with breast hypertrophy.

Level of Evidence: 2

Editorial Decision date: December 21, 2017.



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Presented at: Women's Health 2015: The 23rd Annual Congress in Washington, DC in April 2015.

The wish to change breast size is a complex and multifactorial one; variables such as beauty ideal, self-confidence, self-esteem, and body image have led women of all age groups to seek plastic surgery.¹⁻⁶

Body image is the representation of one's physical appearance, the result of a combination of perceptual-neural processes, environmental, social, and psychological factors. It is expressed through the degree of care and satisfaction with one's body.⁶

Breast hypertrophy is characterized by enlarged breasts, disproportionate to the woman's biotype. The body imbalance caused by the hypertrophy leads to physical dysfunctions, psychological disorders, and a sense of social inadequacy.⁷⁻¹² Several studies have shown that breast hypertrophy leads to postural changes, shoulder and spinal pain, and functional limitations, which at more advanced degrees can impair even the activities of daily living.⁷⁻⁹

Excess volume and skin flaccidity limit physical activity and reduce women's ability to work, as well as their productivity.¹²⁻¹⁴ Breast hypertrophy can also interfere with women's affective and social relations by triggering feelings of insecurity regarding their own bodies, expressed as behaviors of avoidance of outdoor activities, or in public and social settings and situations of intimacy. This dynamic generates feelings of low self-esteem and anxiety, which can lead to depression. Women with breast hypertrophy report the difficulty of finding clothes that fit the size of their breasts and claim that they often avoid social situations because they feel inadequate.^{5,7,10,11,15,16} Therefore, excess breast volume may be associated with morbidity levels that go beyond a simple esthetic alteration and require effective treatment.^{13,17,18}

Reduction mammoplasty aims at decreasing breast size, and restoring the symmetry of the female chest dimensions. With advances in surgical techniques and increasingly positive results, plastic surgery is now considered a means of transforming one's external appearance and a resource capable of improving dissatisfaction with body image. Thus, it is believed that reduction mammoplasty can bring significant benefits to body image and emotional health.^{6,16,19}

Despite several studies on the positive effects of reduction mammoplasty on the physical, psychological, and social aspects,^{8-12,20} few studies have investigated the effects of breast hypertrophy and reduction mammoplasty on body image.²¹⁻²³ Thus, the aim of this study was to evaluate the impact of breast hypertrophy and reduction mammoplasty on body image.

METHODS

This was an observational study carried out between June 2013 and June 2016, involving 206 women, 103 with normal-sized breasts (normal-sized breast group - NSBG) and 103 with breast hypertrophy with scheduled reduction mammoplasty (mammoplasty group - MG). The project was

approved by the Ethics Committees of Universidade Federal de São Paulo (CAAE: 30223214.2.0000.5505, Opinion n. 639.052/2014) and of Universidade do Vale do Sapucaí (CAAE: 15167713.9.0000.5102 Opinion n. 303.366/2013).

The MG group was a convenience sample, consisting of all patients scheduled for reduction mammoplasty at the plastic surgery service funded by the Brazilian Public Health System (SUS) of a Brazilian university hospital. The women from the NSBG group were selected from the Gynecology - Family Planning outpatient clinics of the same hospital and during the same evaluation period as the MG group.

Women between 18 and 55 years of age and body mass index (BMI) < 30 kg/m², with breast hypertrophy according to the criterion of Sacchini et al,²⁴ who met the eligibility criteria and had already had the operation scheduled from June 2013 to December 2015 were included in the study. The criterion of Sacchini et al²⁴ considers the mean measurements of the distance between the mammary papilla and the inframammary fold and between the nipple and the lateral border of the sternum. A mean value < 9 cm indicates small breasts, between 9 and 11 cm, breasts of normal volume and > 11 cm large breasts, with hypertrophy. The patients were evaluated after the previously scheduled surgery to avoid the bias of overestimating breast alteration in preoperative evaluations aiming to obtain free surgery through the public health system.

For inclusion in the NSBG group, the women should have breasts considered of normal size according to the same index (mean between 9 and 11 cm). Normal-sized breast refers to a medium-sized breast, proportional to the woman's biotype.²⁴ To be included in this group women should not have undergone any previous surgical procedure on the breasts, and not have the wish to apply for plastic surgery.

The exclusion criteria for both groups were age < 18 or > 55 years, BMI > 30 kg/m², pregnancy, childbirth or breastfeeding within one year, menopause, current or past history of psychiatric treatment, uncontrolled acute or systemic diseases, breast disease diagnosed or under investigation, or prior breast surgeries.

Prior to data collection, all volunteers were informed about the study objectives and ethical aspects, ensuring their anonymity, confidentiality of the received information, and the freedom to withdraw their participation at any time during the study. All those who agreed to participate signed the Free and Informed Consent form.

Firstly, a physical examination was performed to assess BMI and breast size.^{25,26} Next, the participants' sociodemographic, economic, and clinical data were collected. Finally, three body image assessment tools that have been validated for use in Brazil, were applied through an interview guided by the researchers. The tools body dysmorphic disorder examination (BDDE),²⁷⁻²⁹ body investment scale (BIS),^{30,31} and breast evaluation questionnaire (BEQ 55)³² were used.

The BDDE investigates negative aspects of body image, such as concern over and excessive importance assigned to one's physical appearance, negative self-assessment, shame, embarrassment and avoidance behaviors in public and social situations, or situations of physical contact, use of camouflage strategies and body-checking behaviors.²⁷⁻²⁹ The tool was culturally validated to be used in interviews²⁷ and is also capable of detecting symptoms of body dysmorphic disorder (BDD).^{18,28,29,33} The presence of BDD symptoms are classified as mild to moderate and severe according to the studies by de Brito et al³⁴ and Félix et al.³⁵

The BIS assesses the emotional investment in one's body. This scale consists of 20 items, which evaluate factors such as body image, body care, and body touch. A high score indicates positive feelings about one's body.^{30,31}

The breast evaluation questionnaire (BEQ 55) consists of 55 items that evaluate the satisfaction with the size, shape, and firmness of one's breasts, in relation to the sexual, social, or professional aspects, as well as the degree of comfort with one's general appearance, breast appearance when covered by clothes, in a bathing suit, and naked, when alone or in the presence of others. It also assesses the importance of breast size to oneself and to other people in one's relationships. The higher the score obtained in this questionnaire, the greater the satisfaction with one's breasts. The BEQ 55 was culturally validated for Brazil among the plastic surgery population.³²

In the MG group, the evaluations were carried out at the preoperative appointment at the outpatient clinic at least two weeks before the surgery (to prevent preoperative anxiety and nervousness from influencing responses) and at the six-month postoperative return. In the NSBG group, the interview was performed during the appointment at the outpatient clinic after physical evaluation to include the participants in the study and six months later, by scheduled appointment. All women, from both groups, were reminded of their sixth month return visit by telephone on the week of the appointment.

The patients in the MG group were operated on by the same team of surgeons. The surgical technique used was a standardized and conventional one, with the breast reduction procedure being performed with a resulting inverted "T" scar and flap with superomedial pedicle for the elevation of the areola-papillary complex.^{9,22,36}

Statistical Analysis

The SPSS program (Statistical Package for Social Sciences, Inc., Chicago, IL), version 19.0, was used for the statistical analyses. Quantitative data were described as means and standard deviations. For the inferential statistics, the chi-square test was used to compare the groups regarding the socioeconomic profile, the *t* test for comparison of ages and BMI, the paired *t* test was used to analyze breast size, and analysis of variance (ANOVA) with

Table 1. Physical and Sociodemographic Characteristics of the Assessed Groups

| | Group | | P-value |
|------------------------|--------------------------------|-----------------------|----------------------|
| | Normal-sized breasts (n = 103) | Mammoplasty (n = 103) | |
| Age (years) | | | <i>t</i> test |
| Mean ± SD | 32.50 ± 11.35 | 33.73 ± 11.27 | 0.435 |
| Range | 18 - 55 | 18 - 55 | — |
| Schooling level, n (%) | | | chi-square |
| Elementary school | 7 (6.8%) | 25 (24.3%) | — |
| High school | 46 (44.7%) | 52 (50.5%) | <0.001* |
| College/university | 29 (28.2%) | 18 (17.5%) | — |
| Postgraduate | 21 (20.4%) | 8 (7.8%) | — |
| Marital status, n (%) | | | chi-square |
| Single | 63 (61.2%) | 40 (38.8%) | — |
| Married | 35 (34%) | 51 (49.5%) | — |
| Divorced | 4 (3.9%) | 8 (7.8%) | <0.001* |
| Widowed | 1 (1%) | 4 (3.9%) | — |
| Children, n (%) | | | chi-square |
| Yes | 41 (39.8%) | 66 (64.1%) | <0.001* |
| No | 62 (60.2%) | 37 (35.9%) | — |
| Sacchini Index (cm) | | | Paired <i>t</i> test |
| Mean ± SD | 9.95 ± 0.90 | 14.46 ± 1.77 | <0.001* |
| Range | 7.50 - 10.75 | 11.50 - 19.50 | — |
| Resected weight (g) | | | |
| Mean ± SD | N/A | 732.05 ± 362.01 | — |
| Range | N/A | 300 - 2700 | — |

N/A, not applicable; SD, standard deviation. **P* ≤ 0.05.

repeated measurements was used to analyze the scores of body image questionnaires. The obtained scores were compared between the MG and NSBG groups (intergroup comparison) and within the same group (intragroup comparison) over the six-month period. The means were adjusted statistically by mixed-effect models to consider the observed sociodemographic differences. The level of significance used for all analyses was set at 5%.

RESULTS

There were no losses or exclusions in either of the groups, and all 206 volunteers (103 NSBG women and 103 MG

patients) completed the follow up. The participants' ages ranged from 18 to 55 years in both groups (mean, 32.5 years [NSBG] and 33.7 years [MG]). Table 1 presents the sociodemographic characteristics of women in both groups.

Only two (1.94%) of the 103 patients submitted to the mammoplasty had postoperative complications. Both had a small surgical wound dehiscence, which was resolved with dressings without the need for any complementary surgical procedure. In both cases, the complication was completely resolved at the six-month assessment. Table 2 describes the results of the comparison of intra- and intergroup BMI before and after six months, with means adjusted for the differences of the groups in relation to age, marital status, schooling, and children. Patients in the MG group had a higher BMI than those in the NSBG group at the first evaluation ($P < 0.001$) and showed weight gain after the surgery ($P = 0.016$) (Table 2).

Regarding body image assessment, Table 3 shows the results obtained for the BDDE, BIS, and BEQ55 questionnaire comparisons, with means adjusted for the differences in the groups regarding age, marital status, schooling, and children. In the intergroup comparisons, significant differences were observed between the NSBG and the MG groups for BDDE and BEQ55 scores, both at the initial assessment and after 6 months ($P < 0.001$ for all the comparisons) and for the BIS scores at the initial assessment only ($P < 0.001$). In the intragroup comparison, no significant difference was observed between the initial evaluation and after 6 months in the NSBG group, for any of the applied tools. But the MG group showed improvement at the 6-month postoperative period ($P < 0.001$ for the three questionnaires) (Table 3).

Table 4 refers to the BDDE assessment in relation to negative body image symptoms.

DISCUSSION

The results showed improvement in the different body image aspects assessed in women who underwent reduction mammoplasty. The normal-sized breast group (NSBG) showed more positive feelings in the first interview than the women who underwent reduction mammoplasty (MG). However, after the intervention, the MG patients were so satisfied with the surgical intervention outcome that they were as satisfied as or even more satisfied than the women in the NSBG group, as demonstrated by the scores of BEQ55.

The choice of a group of women with normal-sized breasts and no surgical interventions aimed to compare the MG group with a representative sample of the female population without alterations in breast volume and evaluate whether body image and the satisfaction of the women with breast hypertrophy would reach a similar level after

Table 2. BMI Comparison Over Time in the NSBG and MG Groups

| Variable/assessment moment | Group | | Intergroup comparisons (ANOVA) |
|--------------------------------|--------------------------------|-----------------------|--------------------------------|
| | Normal-sized breasts (n = 103) | Mammoplasty (n = 103) | |
| BMI (kg/m ²) | | | |
| Before | 22.84 ± 0.33 | 24.61 ± 0.26 | <0.001* |
| Range | 16.90 - 28.12 | 20.43 - 28.80 | — |
| After | 22.95 ± 0.40 | 25.18 ± 0.31 | <0.001* |
| Range | 17.24 - 29.72 | 20.14 - 34.55 | — |
| Intragroup comparisons (ANOVA) | 0.699 | 0.016* | — |

SE, standard error. # Adjusted for age, marital status, level of schooling, and children. * $P < 0.05$.

the intervention to that observed in the group of women with normal-sized breasts.

The present study did not include women with BMI above 30 kg/m², which characterizes obesity, in either group.²⁵ As obesity can influence body image, it was decided not to include obese women so that any changes in body image could be attributed to breast size, not obesity. We also did not include women with a history of psychiatric treatment, because the aim of the study was to evaluate women with similar characteristics that differed regarding breast size. Mental status, although compensated by treatment, could influence the responses to the questionnaires. If the patients were undergoing psychiatric treatment, symptom improvement could be attributable to the therapy or medication and not to the surgical correction of the breast hypertrophy.

The NSBG group showed more positive symptoms in relation to body image, higher level of satisfaction with the body and breasts, and similar results regarding emotional investment in the body. It is noteworthy that the NSBG group volunteers, as expected, maintained their scores for the three questionnaires at the second evaluation demonstrating that this group did not change over time. On the other hand, the MG group, which initially disclosed dissatisfaction with body image, not only improved after surgery, but showed more positive feelings about the body when compared to the NSBG group.

Previous studies that used other tools to assess body image,^{16,37,38} as well as investigations that used the BDDE to assess the effects of breast hypertrophy and reduction mammoplasty on body image,²²⁻²⁴ agreed with the results obtained in this study. All of them observed that women with hypertrophic breasts had a negative body image, were dissatisfied with their appearance, were insecure, were ashamed to expose their bodies, and showed social problems due to

Table 3. Comparison Within and Between Groups of the Scores of the BDDE, BIS, and BEQ Questionnaires*

| Scores/evaluation period | Group | | Intergroup comparison (ANOVA) |
|-------------------------------|--------------------------------|-----------------------|-------------------------------|
| | Normal-sized breasts (n = 103) | Mammoplasty (n = 103) | |
| BDDE | | | |
| <i>Before</i> | | | |
| Mean ± SE | 37.43 ± 3.77 | 87.04 ± 2.92 | <0.001* |
| Range | 32.12 - 41.40 | 81.61 - 90.89 | — |
| <i>After</i> | | | |
| Mean ± SE | 37.99 ± 2.08 | 24.13 ± 1.61* | <0.001* |
| Range | 33.59 - 38.66 | 20.35 - 25.42 | — |
| Intragroup comparison (ANOVA) | 0.876 | <0.001* | — |
| BIS | | | |
| <i>Before</i> | | | |
| Mean ± SE | 82.99 ± 1.21 | 71.35 ± 0.94 | <0.001* |
| Range | 81.52 - 84.45 | 70.32 - 73.26 | — |
| <i>After</i> | | | |
| Mean ± SE | 81.94 ± 1.00 | 83.71 ± 0.77* | 0.157 |
| Range | 80.39 - 82.94 | 82.99 - 85.54 | — |
| Intragroup comparison (ANOVA) | 0.442 | <0.001* | — |
| BEQ | | | |
| <i>Before</i> | | | |
| Mean ± SE | 197.75 ± 4.57 | 114.93 ± 3.53 | <0.001 |
| Range | 191.64 - 202.47 | 109.30 - 120.13 | — |
| <i>After</i> | | | |
| Mean ± SE | 203.82 ± 4.40 | 230.68 ± 3.41* | <0.001* |
| Range | 199.39 - 209.98 | 226.95 - 237.54 | — |
| Intragroup comparison (ANOVA) | 0.184 | <0.001* | — |

P obtained from repeated measures ANOVA. ANOVA, analysis of variance; BDDE, body dysmorphic disorder examination; BEQ, breast evaluation questionnaire; BIS, body investment scale; SE, standard error. * Values in mean ± standard error, adjusted for age, marital status, education, and motherhood.

the condition. They also described that the reduction mammoplasty resulted in greater satisfaction with breast shape, size, and symmetry. According to the authors, the patients reported feeling more feminine, attractive, confident, and less inhibited in sexual and social relationships. It was observed that the new breast became, over time, integrated

into the body image and the women started to show greater satisfaction with their bodies as a whole. These results show that the positive rearrangement of the body image was not restricted to the breasts alone, but resulted in an overall feeling of well-being in relation to the body.^{16,22,23,37,38}

The six-month reevaluation period was defined in this study, as this is the mean time for complete healing. Moreover, a reassessment after this period was described as an adequate period of time for the patient to fully incorporate the new breast size into her perception.^{9,15,23,37,38}

Although some studies suggest that body image improvement occurs as early as after the third month of the intervention, the mammoplasty benefits were observed in both the short- and long-term assessments, showing that the positive change is almost immediately observed and remains over time.^{15,21-23,38} Several studies^{15,21-23} have suggested an assessment for longer and more frequent periods to observe patient behavior, as well as body perception and image readjustment that occurs after the surgery.

The NSBG group showed positive scores for body image at the first interview, which persisted at the second evaluation, showing that the degree of satisfaction with the body was maintained throughout the six-month period. This fact was confirmed in these patients, whose breasts were within the normal anatomical limits, since they did not manifest the desire to undergo plastic surgery.

The studies by Kerrigan et al³⁹ and Collins et al⁴⁰ also compared the body image of women submitted to mammoplasty with those with normal-sized breasts. Both studies observed that women with normal-sized breasts evaluated their appearance more positively when compared to those with breast hypertrophy. However, none of these studies carried out a second interview after a period of time or investigated body dysmorphic disorder symptoms in this specific population.

The age of the study population ranged from 18 to 55 years. This variation was established with the purpose of assessing women who were living the same period of life (ie, adulthood). As each age category has specific body image characteristics, women older than 55 years who were likely to be approaching or were already going through menopause were excluded, as well as women under the age of 18, who were still undergoing the body transformations of adolescence.⁴¹

The patients showed significant variation in resected tissue weight. Studies such as those by Collins et al,⁴⁰ Spector et al,⁴² Saarieniemi et al,⁴³ and Gonzalez et al⁴⁴ observed that the amount of resected tissue is not a main factor influencing body image. These studies^{40,42-44} indicated benefits such as symptom relief and patient well-being even after small reductions.^{2,3,20}

It was observed that the MG patients had a higher BMI than those in NSBG group at the first evaluation and showed weight gain after the surgery. Other authors also

Table 4. Severity of Negative Body Image Symptoms in the NSBG and MG Groups

| Patients, n (%) | MG Preoperative | MG 6 months postoperative | NSBG 1st interview | NSBG 2nd interview |
|------------------|--------------------|------------------------------|-----------------------|-----------------------|
| No symptoms | 56 (54.36%) | 103 (100%) | 102 (99.02%) | 103 (100%) |
| Mild to moderate | 37 (35.92%) | 0 | 0 | 0 |
| Severe | 10 (9.70%) | 0 | 1 (0.97%) | 0 |

observed weight excess in patients with breast hypertrophy and postintervention maintenance or gain of measurements.^{9,21,44} In these studies, the weight excess was justified due to the existence of inadequate eating habits and sedentary lifestyle, which were maintained after the intervention.^{45,46} However, it is worth mentioning that these same studies stated that patients with high BMI have benefits in relation to body satisfaction after the surgery, emphasizing that the problems related to breast hypertrophy are comprised of a combination of factors and that the criteria leading to a positive body image are very subjective. Thus, excess of weight, when present, might not prevent the improvement with body satisfaction and gratification.^{9,21,44}

The groups differed regarding level of schooling, marital status, and motherhood. A limitation of the present study was that the researchers had difficulty controlling the socio-demographic profile in the groups. Although intervals for age and body mass index were defined, the criteria for eligibility included breast size (normal volume and hypertrophy) and absence of previous surgical interventions in the breasts, with social status or other demographic variables not being considered for the selection. Studies in adults that investigate the influence of variables such as level of schooling, income, marital status, and motherhood on body image are rare in the literature. These studies are not clear regarding the influence of these variables on body image, or declared there was no correlation.^{35,47} However, to minimize biases in the present study due to the identified differences, a statistical mechanism, the mixed-effects model, was used to neutralize the contrasts.

A high prevalence of negative body image symptoms, which characterized body dysmorphic disorder (BDD), was observed in patients with breast hypertrophy submitted to mammoplasty.⁶ Metcalfe et al⁴⁸ indicated the presence of BDD in patients submitted to reconstructive breast surgery. Although the population of the present study did not have the degree of deformity caused by mastectomy, such as that studied by Metcalfe et al,⁴⁸ nevertheless, breast hypertrophy characterizes a clearly observable deformity and the authors were careful to assess the symptoms for BDD. However, six months after the surgery, complete remission of negative body image symptoms was observed in all patients (extreme concern and dissatisfaction with body image associated with clinically significant distress) was verified, confirming positive impact of mammoplasty in the assessed population.

Only one patient in the NSBG group had negative body image symptoms, which characterize BDD. After further investigation, it was observed that this dissatisfaction was related to the hip region and not to the breasts. As no intervention was performed to solve this problem, this condition remained after 6 months. It is noteworthy that after the study completion, this patient was instructed to undergo a medical consultation for further investigation. The literature indicates divergent points of view regarding the indication of plastic surgery for patients with BDD symptoms. Retrospective studies have questioned the benefits of performing plastic surgery in these patients.^{21,49} However, prospective studies have suggested that surgery may result in the reduction and even remission of negative body image symptoms in patients with mild to moderate symptoms of BDD.^{29,33-35,50,51}

The present study had some limitations, which should be considered in the interpretation of its results. One of them was the quasi-interventional design with convenience sampling. A randomized clinical trial, in which women with breast hypertrophy would be randomly allocated to undergo or not the reduction mammoplasty would increase the external validity of the study. However, this type of design makes patient selection difficult, since many women do not accept the possibility of being allocated to the group that does not undergo the surgical procedure, since all of them have breast hypertrophy and wish to be treated for this condition. Thus, considering that all surgeries were performed through the public health system, at no cost to patients, it was considered that evaluating patients who already had their scheduled surgeries who would be submitted to the operation regardless of their participation in the study would reduce the risk of responses that would increase the symptoms in order to obtain the surgery.

Since the studied groups had a selection bias, as they had different sociodemographic profiles, it would be advisable for future studies to consider these criteria for group choice. The wide age range was also a limiting factor. As previously described, the desires are different in each period of life. Even though the study involved only adult women, the age variation within this group was broad, interfering with the comparison, since the perspectives and desires of a 20-year-old young woman are different from those of a 50-year-old woman.

Another limitation was the time of follow up. Although previous studies,^{9,15,23,43} considered six months as an adequate length of time for good follow up, the study follow-up period was a limiting factor. As body image is

influenced by labile variables and undergoes constant reconstruction, it would be interesting to follow its evolution for more fragmented periods, as well as in the long term. The follow up predicted in the original project, which was approved by the Ethics Committee, consisted of only six months. However, there is an intention to evaluate these patients later on. For this purpose, it will be necessary to submit a new project to the Ethics Committee for approval. If authorized, as the contact data of the volunteers are recorded in both the files of the present study and in the hospital records, the researchers can contact the women to perform a new interview at a late follow up period.

Although it has been described that the main factor that motivates the search for plastic surgery is the dissatisfaction with one's body image,^{6,19,37,43} few studies have investigated the effects of breast hypertrophy and reduction mammoplasty on body image,²¹⁻²³ mainly evaluating the different nuances that this construct can express. Moreover, no study that used the BIS or BEQ questionnaires for this type of evaluation has been published to date. The present study was also innovative as it compared women submitted to reduction mammoplasty with those with normal-sized breasts at two different times.

CONCLUSION

Women with breast hypertrophy were more dissatisfied with their breasts and more satisfied with their bodies and breast size after reduction mammoplasty to the point of surpassing the level of satisfaction and body investment of women with normal sized-breasts and no intervention. Moreover, breast reduction promoted an improvement in body image and the remission of symptoms of body dysmorphic disorder among those who had these symptoms.

Disclosures

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Funding

The authors received no financial support for the research, authorship, and publication of this article.

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Table 1 Patient demographics.

| Case number | Site of lesion | History of trauma | Age at onset | Age at diagnosis | Delay to diagnosis (months) | Gender | Recurrence |
|-------------|----------------------------------|-------------------|--------------|------------------|-----------------------------|--------|------------|
| 1 | Right deltoid | Yes (Injection) | 3 | 9 | 72 | Female | No |
| 2 | Left abdomen 1 cm from umbilicus | No | 10 | 16 | 72 | Female | No |
| 3 | Left deltoid | Yes (Injection) | 4 | 12 | 108 | Male | No |
| 4 | Right occipital scalp | Yes (Injury) | 2 | 6 | 48 | Female | No |
| 5 | Right occipital scalp | No | 6 | 7 | 22 | Male | No |

starting and diagnosis was 64.4 months (22–108 months). All patients underwent a treatment margin wide local excision and reconstruction with a skin graft as necessary.

The delay in diagnosis mirrors that in the literature. Three of our patients sustained a wound prior to the development of the tumour (vaccination or traumatic) and therefore were presumed to be scar related. There is a documented association of DFSP and scars and therefore, in any scar that is changing or progressing, DFSP should be considered as a differential diagnosis. A delay of at least 22 months leads to larger lesions with more associated morbidity when managed surgically. DFSP is considered a borderline malignancy which rarely metastasises but is locally aggressive and therefore wide excision margins are recommended, and if this is not possible then MOHS surgery. Paediatric DFSP has an excellent prognosis when recognised early and completely excised and therefore early diagnosis is paramount.

All our patients are doing well, remain in follow up and have no sign of recurrence by at least 2 years post excision. Hopefully our experience will educate clinicians to consider paediatric DFSP when managing a paediatric patient with an unusual lesion or changing scar.

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<http://dx.doi.org/10.1016/j.bjps.2017.07.003>

Brazilian Portuguese version of the Female Genital Self Image Scale (FGSIS) for women seeking abdominoplasty



Dear Sir,

Female body image is a multifaceted construct associated with satisfaction with specific body parts (e.g., abdomen, arms, thighs, among others), body size, and feeling comfortable showing the body to the partner or others.^{1,2} These perceptions and feelings about the body are influenced by socio-cultural aspects and personal views, and may affect sexual performance and satisfaction.³ Changes in body image are particularly evident in women who have experienced changes in the body, including pregnancy, weight gain, serious diseases such as cancer, and aging. Plastic surgery may provide a means to restore self-esteem and well-being in these patients, and improve their social, sexual and work performance. De Brito et al.⁴ found that abdominoplasty results in increased exposure of the clitoris, better sexual functioning, and improvement in self-esteem.

The Female Genital Self Image Scale is a self-reported instrument composed of 7 items assessing the women's feelings and perceptions about their genitalia. The items are rated on a 4-point-Likert-type scale ranging from "strongly disagree" (1) to "strongly agree" (4), yielding a possible range of 7–28, with higher scores indicating a more positive genital self-image.⁵

This study was approved by the Institutional Research Ethics Committee and carried out in accordance with the ethical standards laid down in the Helsinki Declaration of 1975, as revised in 1983. Written informed consent was obtained from all participants prior to their inclusion in the study and anonymity was assured. General guidelines for cross-cultural adaptation of quality-of-life instruments were followed to ensure quality of the cross-culturally adapted Brazilian Portuguese version of the FGSIS. The study was conducted between March 2012 and February 2013.

A total of 100 women from 18 to 50 years of age, who expressed a desire to undergo abdominoplasty and were sexually active were consecutively selected from the outpatient facility of an abdominal plastic surgery unit of a university hospital. Most patients were married (56%), 86% with a mean of 2 children, the mean age was 30.5 ± 5.43 , the mean BMI was 23.7 ± 2.9 .

The mean FGSIS score was 22.8 ± 3.9 , showing that patients were overall satisfied with their genital appearance and functioning.

The FGSIS showed a good intra-rater (ICC 0.89, $p < 0.001$) and inter-rater (0.83, $p < 0.001$) reliability. The Cronbach's alpha was 0.81. Construct validity demonstrated poor correlation with Sexual Quotient-Female version and Rosenberg Self-Esteem scale, thus, factor analysis was performed showing a KMO of 0.66 and factor loading greater than 0.8 for every item on the scale, meaning that all items should be maintained in the translated instrument.

The FGSIS provides a rapid and objective assessment of female genital self-image. The short time required to complete the instrument allows it to be used in large studies and a valid measure to assess female genital satisfaction in plastic surgery settings.

Conflict of interest statement

None.

Acknowledgments

This research did not receive any specific grant from funding agencies in the public, commercial, or not for profit sectors. Financial support was provided by the Institutional Scholarship Program for Undergraduate Research (PIBIC-UNIFESP) and by São Paulo Research Foundation (FAPESP) (2011/23017-0) in the form of undergraduate and doctoral scholarships.

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<http://dx.doi.org/10.1016/j.bjps.2017.07.007>

Putting the heart into microvascular training: The micropump, a practical “heart-like” device to enhance vascular anastomosis non-living simulation



Dear Sir,

Non-living simulation models, such as silicon tubes and chicken vessels, are effective tools in learning how to achieve a structurally patent microvascular anastomosis. However, assessing its physiological patency is less straightforward in these conditions. The lack of physiological feedback and flow in non-living models renders them systematically inferior to living animal models, both in the deliberate practice of technique, and in assessing the ultimate outcome.

The use of pulsatile flow to improve feedback in non-vital anastomosis training is not new. Schoffl et al. successfully used a Rietschle Thomas Technology membrane pump on *ex vivo* porcine coronary arteries in 2006.¹ The same pump was used by Phoon et al., on *ex vivo* chicken thighs in 2010.² Their membrane pump created a valuable learning environment, but was expensive at \$220.¹ We have developed a cheaper alternative, the “Micropump”, to replicate pulsatile, physiological “heart-like” flow for use in microvascular training.

The “Micropump” design utilises a commercially available fish tank pump (\$34.90) combined with a network of tubes and connectors to drive a pulsatile, dynamic circulation through a targeted vessel. The height of the reservoir dictates the pressure, which is comparable to human parameters and the micropump with a variable frequency (cycles/minute) provides variable pulsatile flow (ml/min). Two types of fluids are used to simulate “blood”: Artificial blood (82-0135, simulated arterial blood, Nalgene) in 0.9% saline and liquid latex (Ward's Natural Science, Rochester, New York). The Micropump device apparatus is shown in [Figure 1](#), and a demonstration of pulsatility with variable flow in [Video 1](#).

The following is the supplementary data related to this article:

Supplementary video related to this article can be found at <http://dx.doi.org/10.1016/j.bjps.2017.08.004>.

A variety of training vessel materials can be used: synthetic or *ex vivo*. They are attached to the pump using 7/0 nylon suture to variable gauge cannulae: 14 g, 18 g and

Short Mood and Feelings Questionnaire for screening children and adolescents for plastic surgery: cross-cultural validation study

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KEY WORDS:

Adolescent.
Self-image.
Surgery, plastic.
Depression.
Triage.

ABSTRACT

CONTEXT AND OBJECTIVE: Patient-reported outcome measurements assessing the emotional state of children and adolescents who seek plastic surgery are important for determining whether the intervention is indicated or not. The aim of this study was to cross-culturally adapt and validate the Short Mood and Feelings Questionnaire (child/adolescent and parent versions) for Brazilian Portuguese, test its psychometric properties and assess the emotional state of children and adolescents who seek plastic surgery.

DESIGN AND SETTING: Cross-cultural validation study conducted in a plastic surgery outpatient clinic at a public university hospital.

METHODS: A total of 124 consecutive patients of both sexes were selected between September 2013 and February 2014. Forty-seven patients participated in the cultural adaptation of the questionnaire. The final version was tested for reliability on 20 patients. Construct validity was tested on 57 patients by correlating the Short Mood and Feelings Questionnaire (child/adolescent and parent versions) with the Strengths and Difficulties Questionnaire and the Rosenberg Self-Esteem scale.

RESULTS: The child/adolescent and parent versions of the Short Mood and Feelings Questionnaire showed Cronbach's alpha of 0.768 and 0.874, respectively, and had good inter-rater reliability (intraclass correlation coefficient, ICC = 0.757 and ICC = 0.853, respectively) and intra-rater reliability (ICC = 0.738 and ICC = 0.796, respectively).

CONCLUSIONS: The Brazilian-Portuguese version of the Short Mood and Feelings Questionnaire is a reproducible instrument with face, content and construct validity. The mood state and feelings among children and adolescents seeking cosmetic surgery were healthy.

INTRODUCTION

Childhood and adolescence are difficult times because of the enormous pressure imposed by society on people to conform to arbitrary standards of physical appearance.^{1,2} Standards of beauty help to shape thoughts, which may lead to discrepancy between what is conceived as ideal and the actual personal reality and also to higher demand for plastic surgery.³

Physical and emotional changes during adolescence may lead to dissatisfaction with physical appearance.^{4,5} At present, adolescents tend to seek esthetic and surgical procedures influenced by their peers or to improve interpersonal relationships and increase their feelings of inclusion in a social group.⁴

According to the American Society of Plastic Surgeons, about 283,000 cosmetic plastic surgeries were performed on adolescents aged between 13 and 19 in 2012.⁶ In Brazil, there was an increase of 141% in the number of plastic surgical procedures performed on adolescents between 14 and 18 years.^{7,8} The most common cosmetic procedures sought by girls, both in Brazil and worldwide, are liposuction and breast augmentation, and by boys are gynecomastia and otoplasty for correction of prominent ears.^{4,6} According to some authors, improvement in physical appearance is directly associated with increased self-esteem and self-confidence among adolescents.^{1,9}

Thus, indications for plastic surgery may help some adolescents who feel different and uncomfortable in their own body to break out of social isolation.^{4,9} In fact, plastic surgery leads to psychological changes by modifying the physical appearance, and therefore is considered to be a psychological intervention.¹⁰⁻¹² Thus, its impact is not only esthetic but also, especially, psychosocial. It is known that esthetics produces individual and social wellbeing.^{9,13}

Body dysmorphic concerns may result in social anxieties and emotional conflicts among children and adolescents.^{1,2} Moreover, the presence of physical characteristics and appearance differing from the cultural standard of beauty may trigger bullying, which in turn causes psychological disorders among vulnerable individuals. Thus, the perception of a defect or flaw in physical appearance may contribute towards development of a mental disorder in individuals with neurobiological vulnerability and psychological fragility.³

Depression is the most common psychological disorder in contemporary society,¹⁴ with a prevalence of 2% among children and 4% to 8% among adolescents.^{14,15} The World Health Organization reported that depression is the most common disorder among children and adolescents between 10 and 19 years of age and is the predominant cause of disability in both genders. Suicide is one of the three leading causes of death in this age group.¹⁶ Mental health problems during childhood and adolescence are common and may be associated with various difficulties, including behavioral, emotional, social and academic functioning problems, thus affecting the development and use of potential resources.¹⁷

Excessive concern regarding appearance may conceal psychopathological states that are not always easily identified and may lead to iatrogenic and medico-legal problems if neglected.¹⁸ Thus, validation of patient-reported outcome measurements can help in rapidly screening and identifying depression among children and adolescents, since psychological disorders may not only affect their emotional, social and academic life,¹⁹ but also influence patient satisfaction with the results of surgery.^{20,21}

OBJECTIVE

To translate, culturally adapt and validate the Short Mood and Feelings Questionnaire (child/adolescent and parent versions)²² for Brazilian Portuguese; to test the psychometric properties, reproducibility and validity of the instrument; and to assess the emotional state of children and adolescents who seek plastic surgery.

METHODS

This study was approved by the Institutional Research Ethics Committee of Universidade Federal de São Paulo (approval number 32664) and was conducted in accordance with the Brazilian Ethical Review System for research involving human beings. It also conformed to the 1964 Declaration of Helsinki and its subsequent amendments. Written informed consent was obtained

from all patients and their parents or legal representatives after the procedures had been fully explained to them and prior to their inclusion in the study. Patient anonymity was assured. This study was conducted between September 2013 and February 2014.

Patients were consecutively recruited at the Plastic Surgery Outpatient Clinic of the “Jesus” Municipal Hospital and Barra Day Hospital in Rio de Janeiro (Brazil). The parents or legal representatives of the patients also participated in the study. The eligibility criteria were that patients of both sexes, aged between 8 and 17 years, showing preoccupation with physical appearance associated with subjective distress, and who were seeking plastic surgery, could be included. The exclusion criteria were lack of ability to understand the interview questions and presence of psychotic disorders.

A convenience sample (non-probability sample) of all consecutive patients who met the study criteria was selected to participate in the study. We assessed the highest possible number of eligible patients during the study period; none declined participation. Out of the 124 patients admitted, 47 participated in the cultural adaptation of the scale, 20 were included in the reliability analysis on the final version of the instrument and 57 participated in the construct validity assessment. The construct validity was assessed through correlating the Short Mood and Feelings Questionnaire, in its child/adolescent and parent versions, with the Strengths and Difficulties Questionnaire and the Rosenberg Self-Esteem scale. The participants in each phase were not included in the other phases of the study.

The number of patients participating in the cultural adaptation, reliability and validity phases was similar to that used in previous studies evaluating the psychometric properties of social construct measurements in plastic surgery populations,²³⁻²⁹ and was in accordance with the methodology internationally accepted and used for translation, cultural adaptation and validation of instruments.³⁰⁻³⁴ According to Sapnas and Zeller,³⁴ the traditional protocol for determination of an adequate sample size based on power analysis is not appropriate for studies assessing the psychometric properties of social construct measurements; a total sample size of 50 subjects or more is adequate for representing the study population.³⁴

The instrument

The present study was conducted after Dr. Angold, the author of the original version of the Short Mood and Feelings Questionnaire, granted permission to translate, culturally adapt and validate the instrument for Brazilian Portuguese.

The Short Mood and Feelings Questionnaire²² is derived from the Mood and Feelings Questionnaire,³⁵ which was developed to assess depressive signs and symptoms among children and adolescents between 8 and 17 years of age.^{36,37}

The Short Mood and Feelings Questionnaire is a brief self-report instrument for screening for depressive symptoms and for

assessing moods and feelings among children and adolescents; it is also available in a parent version. Thirteen items involving affective and cognitive components are rated on a scale from 0 to 2, where 0 indicates no symptom and 2 indicates depressive symptoms. The total score is calculated as the sum of ratings for the 13 items, with higher scores indicating mental health impairment of greater severity.

Translation

The original version of the Short Mood and Feelings Questionnaire was translated from English into Brazilian Portuguese by two independent translators. Only one of the translators was informed about the objectives of the study, so as to obtain a conceptual rather than literal translation of the scale.³⁰ Both translations were evaluated by a multidisciplinary group composed of two plastic surgeons, a psychologist and an anesthesiologist. All items were checked for possible mistakes made during the translation and were evaluated for content validity. A Brazilian Portuguese consensus version of the questionnaire was then obtained by combining elements from both translations. The consensus version was adequately adapted for linguistic context and care was taken to preserve all essential characteristics of the original instrument. Idiomatic, semantic, conceptual and cultural equivalences were considered during the translation phase.

Next, the consensus version was back-translated into English by two independent translators who did not have any knowledge about the original questionnaire or purpose of the study. Both back-translated versions were evaluated and compared with the original questionnaire by the same multidisciplinary group, to check for possible errors made during back-translation. A consensus back-translated version was created and compared with the original English version, and minor differences were resolved by discussion. This analysis resulted in development of consensus version 1 of the Short Mood and Feelings Questionnaire in Brazilian Portuguese, which was appropriately adapted to the linguistic and cultural context of the target population, while maintaining all the essential characteristics of the original questionnaire in English.

Cultural adaptation or pretesting

Version 1 of the questionnaire was administered to 20 patients and their respective parents, who were interviewed separately, to test for possible failures of the respondents to comprehend the items. After these patients had given informed consent for their participation, they were given the opportunity to express their comprehension of the questionnaire and suggest any changes they considered necessary. All patients and parents understood that the questionnaire items related to emotional state.

The interview data were collected and evaluated by the multidisciplinary team, and then version 2 of the scale was created,

including adaptations that were necessary for patients and parents to properly understand all items. When patients failed to understand the meaning of an item, the question was reworded, while always maintaining the same semantic concept, so that the essential structure of the instrument was unchanged.

Version 2 of the scale was then administered to 27 different patients and their respective parents. The final version was obtained when patients, translators and healthcare professionals reached a consensus (Appendix 1).

Psychometric evaluation

After translation and cultural adaptation, the final version was tested for internal reliability and for face, content and construct validity, on 20 and 57 target patients and parents, respectively.

Reliability

Cronbach's alpha (α) was used to evaluate the internal consistency and reliability of the instrument. It indicates the degree to which a set of items measures a single latent construct, thus determining the internal consistency or average correlation of items in a survey instrument and estimating its reliability.

Cronbach's alpha ranges from 0 to 1. Alpha values greater than 0.7 indicate acceptable to high reliability.^{38,39} When the overall Cronbach's alpha value is low (< 0.7), an item-by-item analysis should be carried out to evaluate whether an item should be excluded from the scale to increase the consistency of the instrument. The item-by-item analysis is performed by observing the correlation of each item with the other items of the instrument (item-total correlation) and by calculating "alpha if item deleted" for each item. If the item-total correlation is low and the alpha value if item deleted is higher than the overall alpha, it may be appropriate to remove this item from the scale.

Test-retest reliability (reproducibility) is the ability of an instrument to produce stable or similar results from repeated administration when no change in the patients' characteristics has occurred.³³ Studies have reported retesting as early as a few hours after baseline testing.²⁴⁻²⁸ The longer the time that elapses is, the lower the measured reliability will be, and the more likely it will be that knowledge or attitudes have in fact changed.⁴⁰ The instrument was tested for test-retest reliability (reproducibility) in three interviews conducted by two independent interviewers. Twenty patients and parents were interviewed by investigator 1 and the interview was repeated by investigator 2 three hours later, on the same day. After two weeks, the instrument was administered to the same patients and parents by investigator 1 only. Inter and intra-rater reliability analyses were performed. This phase of testing is used to verify the precision of the instrument in measuring the properties for which it was designed.^{31,32}

Statistical analysis on test-retest reliability was performed using the intraclass correlation coefficient (ICC) and Pearson's correlation coefficient (r).

Validity

In this study, face validity was determined through a consensus reached by the multidisciplinary group responsible for the Brazilian version of the questionnaire during its cultural adaptation.

Content validity is defined as the degree to which items are representative of the construct of interest. The content validity of the instrument was examined in each phase of the study by the multi-professional group and determined through reaching a consensus.

Construct validity was tested on 57 patients and respective parents. This is the process in which the correlation of a measurement with other variables is tested for theoretical consistency. Construct validity was tested by comparing the Short Mood and Feelings Questionnaire with scales that are considered to be associated with mood and feelings, using convergent and divergent validity analyses.

Convergent validity refers to the degree to which two measurements of constructs that theoretically should be related are in fact related. Assessment of convergent validity does not require use of a gold standard. It was measured by studying the correlations between domains of the child/adolescent and parent versions of the Short Mood and Feelings Questionnaire and the child and parent versions of the Strengths and Difficulties Questionnaire.^{17,41} The Strengths and Difficulties Questionnaire has 25 items grouped into five subscales (emotional symptoms, conduct problems, hyperactivity-inattention, peer problems and prosocial behavior subscales) that assess positive and negative attributes of children and adolescents between 4 and 16 years of age. Higher scores on the prosocial behavior subscale reflect strengths, whereas higher scores on the other four subscales reflect difficulties. The instrument is available in three versions (child, parents and teachers).¹⁷ The correlation between the Short Mood and Feelings Questionnaire and the Strengths and Difficulties Questionnaire was tested using Pearson's linear correlation.

Divergent validity demonstrates that the construct of interest (e.g. depression) is different from other constructs that might be present in the study (e.g. loss of self-esteem). Assessment of divergent validity does not require use of a gold standard. Divergent validity was determined by comparing scores on the Short Mood and Feelings Questionnaire, in its child/adolescent and parent versions, with scores on the Rosenberg Self-Esteem scale,²³ using Pearson's linear correlation. The Rosenberg Self-Esteem Scale is a 10-item measurement of self-esteem distributed over two domains: self-confidence and self-deprecation. The total score ranges from 0 to 30, where 0 indicates the highest level of self-esteem and 30 indicates the lowest level of self-esteem.

The Kolmogorov-Smirnov test was used to test the data for normal distribution. The Wilcoxon test was performed to evaluate differences in mean scores between the child/adolescent and parent versions of the Short Mood and Feelings Questionnaire, because the data were not distributed normally. Student's t test for independent samples was used for comparisons of mean scores in the child/adolescent version of the Short Mood and Feelings Questionnaire, between age groups.

To evaluate the responsiveness of the Short Mood and Feelings Questionnaire, floor and ceiling effects were considered to be present if more than 10% of the respondents achieved the lowest or highest possible score, respectively.

The IBM Statistical Package for the Social Sciences, version 20.0 for Windows (IBM Corp., Armonk, NY, USA), and the Stata 12 software (Stata Corp, College Station, Texas, USA) were used for data analysis. All statistical tests were performed at a significance level of 5% ($P < 0.05$). Data were expressed as mean \pm standard deviation (SD).

RESULTS

A convenience sample of 124 consecutive patients of both sexes was selected to participate in the study. No patient declined to participate. The flow diagram showing the initial recruitment and the final sample of patients is shown in **Figure 1**.

Overall, most patients 63.7% ($n = 79$) were boys; 48.4% ($n = 60$) were Caucasians; 86.3% ($n = 107$) had completed their primary education; the mean age was 12.1 ± 2.5 years; and 91.9% ($n = 114$) of the legal guardians who completed the parent version of the Short Mood and Feelings Questionnaire were the child's natural parents (**Table 1**).

Cultural adaptation or pretesting

The purpose of the cultural adaptation or pretest was to evaluate whether the items of the translated instrument were clearly formulated. Thus, the 47 patients who participated in the pretest were not included in the statistical analysis.

Version 1 of the questionnaire was administered to 20 patients and respective parents. All the respondents understood that the items were about emotional states relating to mood and feelings. However, 20% ($n = 4$) of the children and adolescents and 15% ($n = 3$) of the parents did not understand the term "restless" ("inquieta" in Brazilian Portuguese) in item 4 (version 1), so the term was changed to "agitated" ("agitado" in Brazilian Portuguese) in both the child/adolescent and the parent version of the instrument.

The Short Mood and Feelings Questionnaire version 2 was then applied to another 27 children and adolescents and their parents, and the cross-cultural equivalence of the scale was retested. The patients and their parents had no doubts about the questionnaire items and found the instrument easy to understand. The mean time taken to answer the questionnaire was five minutes.

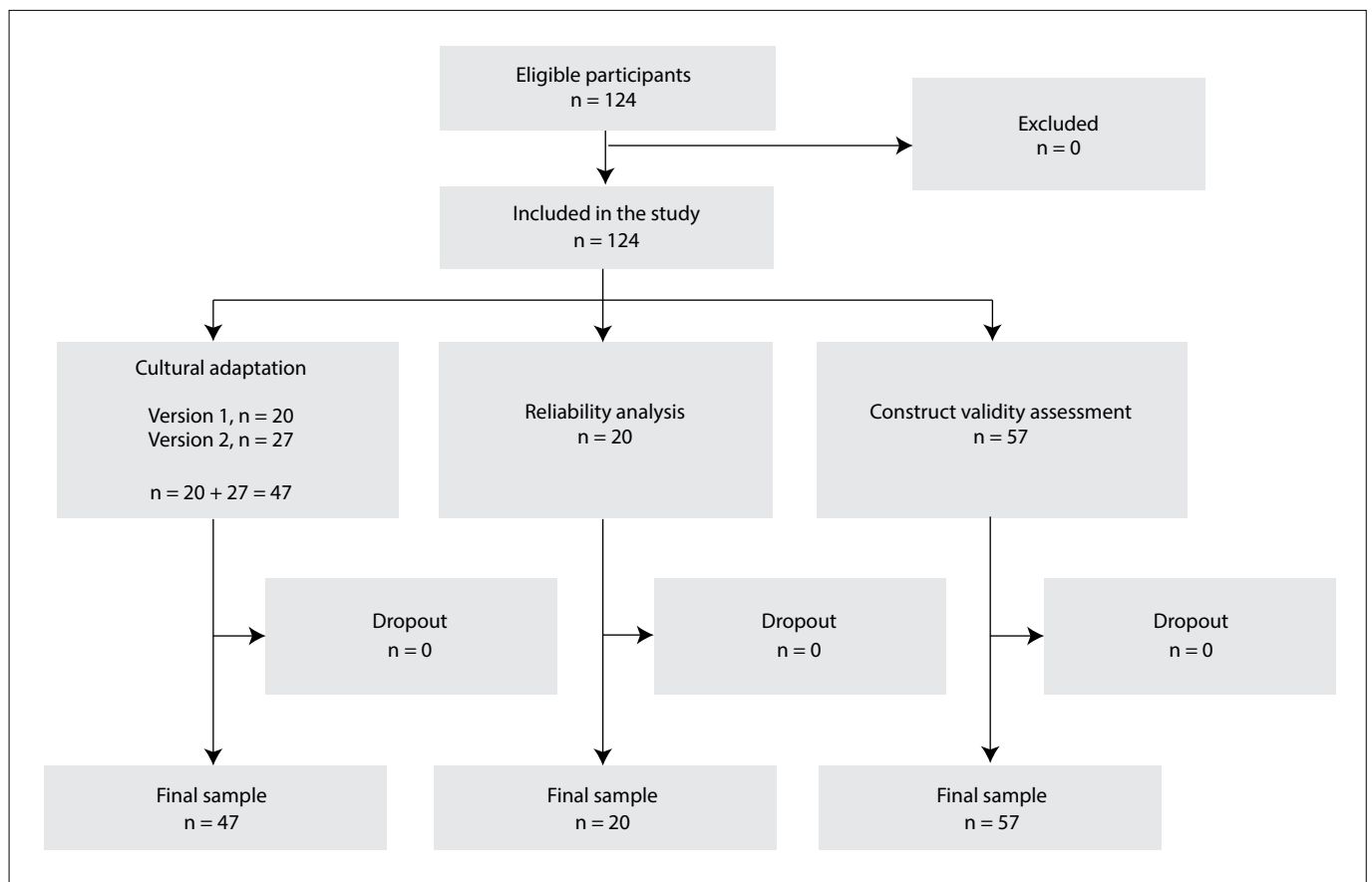


Figure 1. Flow diagram showing the initial recruitment and final sample of patients.

Table 1. Characteristics of the children and adolescents in each phase of the study

| Characteristics | Pretest 1 (n = 20) | Pretest 2 (n = 27) | Test-retest (n = 20) | Validity (n = 57) | Total (n = 124) | P ¹ |
|---|-----------------------|-----------------------|-------------------------|----------------------|--------------------|----------------|
| Gender | 20 (100%) | 27 (100%) | 20 (100%) | 57 (100%) | 124 (100%) | |
| Girl | 10 (50.0%) | 8 (29.6%) | 6 (30.0%) | 21 (36.8%) | 45 (36.3%) | 0.500 |
| Boy | 10 (50.0%) | 19 (70.4%) | 14 (70.0%) | 36 (63.2%) | 79 (63.7%) | |
| Ethnicity | 20 (100%) | 27 (100%) | 20 (100%) | 54 (100%) | 121 (100%) | |
| Caucasian | 13 (65.0%) | 3 (11.1%) | 14 (70.0%) | 30 (55.6%) | 60 (49.6%) | < 0.001 |
| Black/mixed race | 7 (35.0%) | 23 (85.2%) | 5 (25.0%) | 24 (44.4%) | 59 (48.8%) | |
| Asian | 0 (0%) | 1 (3.7%) | 1 (5%) | 0 (0%) | 2 (1.7%) | |
| Education level | 20 (100%) | 27 (100%) | 20 (100%) | 57 (100%) | 124 (100%) | |
| Primary | 17 (85.0%) | 26 (96.2%) | 17 (85.0%) | 48 (85.7%) | 107 (87.7%) | 0.483 |
| Secondary | 3 (15.0%) | 1 (3.8%) | 3 (15.0%) | 8 (14.3%) | 15 (12.3%) | |
| Kinship of respondents of the parent version | 20 (100%) | 27 (100%) | 20 (100%) | 56 (100%) | 123 (100%) | |
| Son | 19 (95.0%) | 24 (88.9%) | 19 (95.0%) | 52 (92.9%) | 114 (92.7%) | 0.419 |
| Stepson | 0 (0%) | 1 (3.7%) | 0 (0%) | 2 (3.6%) | 3 (2.4%) | |
| Brother | 0 (0%) | 0 (0%) | 1 (5.0%) | 1 (1.8%) | 2 (1.6%) | |
| Foster child | 0 (0%) | 0 (0%) | 0 (0%) | 1 (1.8%) | 1 (0.8%) | |
| Grandson | 0 (0%) | 2 (7.4%) | 0 (0%) | 0 (0%) | 2 (1.6%) | |
| Nephew/niece | 1 (5.0%) | 0 (0%) | 0 (0%) | 0 (0%) | 1 (0.8%) | |
| Age (years) mean (SD) | 12.0 (2.6) | 12.3 (2.6) | 12.6 (2.5) | 12.0 (2.5) | 12.1 (2.5) | 0.787 |

¹Fisher's exact test or analysis of variance. SD = standard deviation.

Questionnaire scores

The mean scores on the Short Mood and Feelings Questionnaire, in the child/adolescent version ($n = 77$) and the parent version ($n = 77$) were 6.1 ± 4.4 and 6.9 ± 5.6 , respectively. This showed that although the patients were dissatisfied with their physical appearance, they were mentally healthy. No significant difference was observed between scores from the child/adolescent and parent versions of the Short Mood and Feelings Questionnaire ($P = 0.407$; Wilcoxon test), and only a low correlation was found between the two versions of the instrument ($r = 0.268$; $P = 0.019$).

No significant age-related differences in scores from the child/adolescent version of the Short Mood and Feelings Questionnaire were found between children up to 11 years of age and those 12 years and older ($P = 0.139$; Student's *t* test), thus showing that age had no impact on the degree of body dissatisfaction.

Internal consistency

The child/adolescent version of the Short Mood and Feelings Questionnaire ($n = 77$) showed acceptable internal consistency ($\alpha = 0.768$). All items contributed to the internal consistency of the scale, except for item 4, which showed an α of -0.086 , thus indicating almost complete absence of correlation of this item with the others. Deletion of item 4 (I felt very agitated) increased the internal consistency ($\alpha = 0.808$), as shown in Table 2. The parent version of the Short Mood and Feelings

Questionnaire ($n = 77$) showed good internal consistency ($\alpha = 0.874$), with all items contributing favorably towards the internal consistency of the scale (Table 2).

No floor or ceiling effect was present for the child/adolescent and parent versions of the Short Mood and Feelings Questionnaire, thus showing that both versions had good responsiveness.

Test-retest reliability

Inter-rater and intra-rater reliability were investigated in a sample of 20 patients and respective parents. The child/adolescent version of the Short Mood and Feelings Questionnaire demonstrated good inter-rater reliability ($r = 0.808$; ICC = 0.757; $P < 0.001$) and intra-rater reliability ($r = 0.801$; ICC = 0.738; $P < 0.001$), as seen in Table 3. The parent version of the Short Mood and Feelings Questionnaire also had good inter-rater reliability ($r = 0.894$; ICC = 0.853; $P < 0.001$) and intra-rater reliability ($r = 0.816$; ICC = 0.796; $P < 0.001$), as listed in Table 4.

Construct validity

Construct validity was evaluated in a sample of 57 adolescent patients and their parents. There was a low correlation between the child/adolescent version of the Short Mood and Feelings Questionnaire and the child version of the Strengths and Difficulties Questionnaire ($r = 0.295$; $P = 0.044$), and a moderate correlation between the child/adolescent version of the

Table 2. Internal consistency analysis. Statistical summary of scores from the child/adolescent and parent versions of the Short Mood and Feelings Questionnaire (SMFQ) ($n = 77$)

| SMFQ items | | Child/adolescent version | | Parent version | |
|---|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| | | Corrected item-total correlation | Cronbach's alpha if item deleted | Corrected item-total correlation | Cronbach's alpha if item deleted |
| Cronbach's alpha = 0.768 (child version) | | | | | |
| Cronbach's alpha = 0.874 (parent version) | | | | | |
| 1. | I felt miserable or unhappy | 0.264 | 0.766 | 0.669 | 0.858 |
| 2. | I didn't enjoy anything | 0.578 | 0.737 | 0.457 | 0.870 |
| 3. | I felt so tired that I just used to sit down without doing anything | 0.438 | 0.748 | 0.354 | 0.876 |
| 4. | I felt very agitated | -0.086 | 0.808 | 0.443 | 0.871 |
| 5. | I felt worthless | 0.626 | 0.731 | 0.700 | 0.857 |
| 6. | I cried a lot | 0.423 | 0.752 | 0.567 | 0.864 |
| 7. | It was hard to think or to concentrate | 0.386 | 0.754 | 0.568 | 0.864 |
| 8. | I hated myself | 0.444 | 0.749 | 0.470 | 0.869 |
| 9. | I was a bad person | 0.393 | 0.755 | 0.395 | 0.872 |
| 10. | I felt lonely | 0.456 | 0.747 | 0.610 | 0.861 |
| 11. | I thought that nobody loved me | 0.552 | 0.739 | 0.645 | 0.859 |
| 12. | I thought that I would never be as good as other children or adolescents | 0.462 | 0.746 | 0.710 | 0.855 |
| 13. | I did everything wrong | 0.421 | 0.751 | 0.562 | 0.864 |

Short Mood and Feelings Questionnaire and the Rosenberg Self-Esteem scale ($r = 0.495$; $P < 0.001$).

A moderate correlation was found between the parent version of the Short Mood and Feelings Questionnaire and the parent version of the Strengths and Difficulties Questionnaire ($r = 0.581$; $P < 0.001$).

DISCUSSION

The Short Mood and Feelings Questionnaire²² is a brief self-report questionnaire that captures specific information about depressive symptoms and can serve as a decision-support system for selecting children and adolescents as candidates for plastic surgery. In contrast to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5), which is intended for use by psychiatrists in making diagnoses of mental disorders such as depression, the Short Mood and Feelings Questionnaire is a brief, easy-to-use, objective screening tool that can be administered by healthcare professionals in general, thus allowing symptom tracking.

General guidelines for cross-cultural adaptation of quality-of-life instruments were followed to ensure quality in the cross-culturally adapted Brazilian version of the Short Mood and Feelings Questionnaire (Appendix 1). Patients and healthcare professionals who were experienced in management of plastic surgery patients participated in the evaluation of this instrument.³⁰

The Brazilian Portuguese version of the Short Mood and Feelings Questionnaire was validated in a population sample of esthetic surgery patients ($n = 77$). The most common complaint among these children and adolescents was prominent ears, as reported by other researchers,^{4,6,42-44} and the main motivation for seeking otoplasty was marked psychological and social distress, a finding consistent with previous studies.^{42,44} The mean age of

12 years was similar to what was found by Rhew et al.⁴⁴ in a validation study on the Short Mood and Feelings Questionnaire.

The 47 patients who were interviewed to assess the cross-cultural equivalence of the translated Short Mood and Feelings Questionnaire³² found that the instrument was easy to understand. The mean time taken to answer to the questionnaire was five minutes.

The instrument showed good internal consistency (child/adolescent version, $\alpha = 0.76$; parent version, $\alpha = 0.87$), compared with the original instrument (child/adolescent version, $\alpha = 0.85$; parent version, $\alpha = 0.87$),²² as well as good inter-rater reliability (child/adolescent version, ICC = 0.76; parent version, ICC = 0.85), compared with the original scale (child/adolescent version, ICC = 0.73; parent version, ICC = 0.75),³⁵ and intra-rater reliability (child/adolescent version, ICC = 0.73; parent version, ICC = 0.79).

Item 4 of the Short Mood and Feelings Questionnaire had to be changed in both the child/adolescent and parent versions, and negatively affected the internal consistency of the scale. Similarly, Lundervold et al.⁴⁵ found excellent internal consistency for all items of the Short Mood and Feelings Questionnaire, except for item 4. Sharp et al.⁴⁶ reported that items 3, 4 and 7 had no discriminatory power, especially for high scores, but contributed towards screening for patients reporting low scores from the Short Mood and Feelings Questionnaire. The variables of restlessness and tiredness, which are assessed in these items, may be related to changes to sleep-wake pattern during adolescence, resulting from physiological and psychological factors.⁴⁷ In this study, the lowest scores reported were for items 3, 4 and 7, which assessed restlessness, tiredness and concentration problems, respectively, which are symptoms of depression.⁴⁵ The low scores indicated that despite the distress with their physical appearance, the patients were mentally healthy.

Table 3. Inter and intra-rater reliability of the child/adolescent version of the Short Mood and Feelings Questionnaire (SMFQ-C) ($n = 20$)

| SMFQ-C | Intraclass correlation coefficient (ICC) | | | Pearson's correlation coefficient | | |
|-------------------------|--|----------------|---------|-----------------------------------|----------------|---------|
| | ICC | 95% CI | P | r | 95% CI | P |
| Inter-rater reliability | 0.757 | [0.489; 0.896] | < 0.001 | 0.808 | [0.499; 0.971] | < 0.001 |
| Intra-rater reliability | 0.738 | [0.455; 0.886] | < 0.001 | 0.801 | [0.587; 0.929] | < 0.001 |

CI = confidence interval; ICC = intraclass correlation coefficient; r = Pearson's correlation coefficient.

Table 4. Inter and intra-rater reliability of the parent version of the Short Mood and Feelings Questionnaire (SMFQ-P) ($n = 20$)

| SMFQ-P | Intraclass correlation coefficient (ICC) | | | Pearson's correlation coefficient | | |
|-------------------------|--|----------------|---------|-----------------------------------|----------------|---------|
| | ICC | 95% CI | P | r | 95% CI | P |
| Inter-rater reliability | 0.853 | [0.670; 0.939] | < 0.001 | 0.894 | [0.642; 0.981] | < 0.001 |
| Intra-rater reliability | 0.796 | [0.561; 0.914] | < 0.001 | 0.816 | [0.472; 0.944] | < 0.001 |

CI = confidence interval; ICC = intraclass correlation coefficient; r = Pearson's correlation coefficient.

The validity of the instrument was tested by comparing the Short Mood and Feelings Questionnaire with similar tools.³³ The Brazilian versions of the Strengths and Difficulties Questionnaire and the Rosenberg Self-Esteem scale are cross-culturally adapted and validated instruments that measure aspects of mental health. The moderate and low correlations of the Short Mood and Feelings Questionnaire with the Rosenberg Self-Esteem scale and the Strengths and Difficulties Questionnaire, respectively, indicated that the study participants were mentally healthy. The children and adolescents reported a mean score of 9.9 ± 3.9 on the Rosenberg Self-Esteem scale, thus indicating good self-esteem, which is a mental health indicator. Individuals with good self-esteem are less likely to have depression.¹²

The fact that the Strengths and Difficulties Questionnaire assesses various emotional problems and is not specific to depressive symptoms may explain the low correlation between the two questionnaires. The moderate correlation between the parent version of the Short Mood and Feelings Questionnaire and the parent version of the Strengths and Difficulties Questionnaire suggested that parents provided a more rigorous evaluation of both the mental condition of their children⁴⁷ and their own subjectivity. However, the correlation between parent and child perception showed that although there was an affective bond between them, there was also independence of affections and presence of individuality. Parents can be a relevant source of information.⁹ Children often cannot adequately express their feelings about physical issues that may be affecting them emotionally. This highlights the importance of validating the child/adolescent and parent versions of the Short Mood and Feelings Questionnaire.

Although the Strengths and Difficulties Questionnaire assesses emotional problems and the Rosenberg Self-Esteem Scale measures self-deprecation, these instruments were not designed to specifically measure depressive signs and symptoms among children and adolescents. Thus, the Short Mood and Feelings Questionnaire is a valuable screening tool for rapid and simple detection of mental health impairment among children and adolescents, and may provide support for selecting patients for plastic surgery procedures.

This study was conducted mostly on boys and the main motivation for seeking plastic surgery was prominent ears. This is a limitation on the generalization of the results. Further studies are necessary to test the performance of the Short Mood and Feelings Questionnaire in different populations of children and adolescents.

CONCLUSIONS

The Short Mood and Feelings Questionnaire was translated, culturally adapted and validated for Brazilian Portuguese and was named the "Short Mood and Feelings Questionnaire-Escola Paulista de Medicina/UNIFESP" or SMFQ-EPM/UNIFESP. It is

a reliable instrument, showing face, content and construct validity. The Short Mood and Feelings Questionnaire indicated that the mood state and feelings of children and adolescents seeking cosmetic surgery were healthy.

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Sources of funding: None

Conflicts of interest: None

Date of first submission: February 5, 2017

Last received: April 13, 2017

Accepted: May 3, 2017

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Appendix 1. Brazilian Portuguese version of the Short Mood and Feelings Questionnaire (SMFQ) for children/adolescents and parents**QUESTIONÁRIO CURTO SOBRE HUMOR E SENTIMENTOS****Versão para autoavaliação**

Este formulário se destina a registrar seus sentimentos e ações recentes.

Para cada pergunta, pedimos que marque como você se sentiu ou agiu nas duas últimas semanas.

Se a afirmação refletir seu sentimento a maior parte do tempo, marque a coluna VERDADE. Se for verdadeira apenas algumas vezes, marque a coluna ALGUMAS VEZES. Se a afirmação não se aplicar a você, marque a coluna NÃO É VERDADE.

| | Verdade | Algumas vezes | Não é verdade |
|---|---------|---------------|---------------|
| Eu me senti muito mal ou infeliz | | | |
| Eu não gostava de absolutamente nada | | | |
| Eu me senti tão cansado/a que só ficava sentado/a sem fazer nada | | | |
| Eu me senti muito agitado/a | | | |
| Eu me senti como se não valesse mais nada | | | |
| Eu chorei muito | | | |
| Achei difícil raciocinar ou me concentrar | | | |
| Eu me odiei | | | |
| Eu fui uma pessoa má | | | |
| Eu me senti sozinho/a | | | |
| Eu pensei que ninguém me amava de verdade | | | |
| Eu pensei que nunca chegaria a ser tão bom/a como as outras crianças/adolescentes | | | |
| Eu fiz tudo errado/a | | | |

QUESTIONÁRIO CURTO SOBRE HUMOR E SENTIMENTOS**Versão para avaliação de pais/responsáveis**

Este formulário se destina a registrar seus sentimentos e ações recentes.

Para cada pergunta, pedimos que marque como você se sentiu ou agiu nas duas últimas semanas.

Se a afirmação refletir seu sentimento a maior parte do tempo, marque a coluna VERDADE. Se for verdadeira apenas algumas vezes, marque a coluna ALGUMAS VEZES. Se a afirmação não se aplicar a você, marque a coluna NÃO É VERDADE.

| | Verdade | Algumas vezes | Não é verdade |
|---|---------|---------------|---------------|
| Ele/a se sentiu muito mal ou infeliz | | | |
| Ele/a não gostava de nada | | | |
| Ele/a se sentiu tão cansado/a que só ficava sentado/a, sem fazer nada | | | |
| Ele/a se sentiu muito agitado/a | | | |
| Ele/a se sentiu como se não valesse mais nada | | | |
| Ele/a chorou muito | | | |
| Ele/a achou difícil raciocinar ou se concentrar | | | |
| Ele/a se odiou | | | |
| Ele/a achou que era uma pessoa má | | | |
| Ele/a se sentiu sozinho/a | | | |
| Ele/a pensou que ninguém o/a amava de verdade | | | |
| Ele/a pensou que nunca chegaria a ser tão bom/a como as outras crianças | | | |
| Ele/a achou que fazia tudo errado | | | |



ELSEVIER



CORRESPONDENCE AND COMMUNICATION

Brazilian Portuguese version of the Short Mood and Feelings Questionnaire (SMFQ) for screening children and adolescents seeking plastic surgery[☆]

Dear Sir,

The development of patient-reported outcome (PRO) measures to assess emotional state in children and adolescents seeking plastic surgery is important to determine whether the intervention is indicated or not. According to the American Society of Plastic Surgeons, nearly 236,000 cosmetic plastic surgeries were performed in adolescents aged between 13 and 19 in 2012.¹ In Brazil, there was an increase of 141% in the number of plastic surgeries performed in adolescents between 14 and 18 years. The most common cosmetic surgeries sought by girls both in Brazil and worldwide are liposuction and breast augmentation, and by boys, are gynecomastia and otoplasty for correction of prominent ears.^{1,2} According to some authors, improvement in physical appearance is directly associated with increased self-esteem and self-confidence among adolescents.^{2,3}

Thus, indications for plastic surgery may help some adolescents who feel different and uncomfortable in their own body to break out of social isolation.^{2,3} However, concerns with appearance may also conceal psychopathological states not always easily identified that may lead to iatrogenic and medico-legal problems if neglected. Thus, the validation of a PRO measure can help in the rapid screening and identification of depression in children and adolescents, as psychological disorders may not only affect their emotional well-being, but also their satisfaction with surgery outcome.⁴

In order to have an appropriate instrument to assess the emotional state in children and adolescents seeking plastic

surgery in Brazil, the Short Mood and Feelings Questionnaire (SMFQ) child/adolescent and parent versions⁵ were translated, culturally adapted, and validated to Brazilian Portuguese, and their psychometric properties, reproducibility and validity were tested.

The SMFQ is a brief, self-report instrument for screening depressive symptoms, assessing moods and feelings in children and adolescents (SMFQ-C); it is also available in the parent version (SMFQ-P). Thirteen items involving affective and cognitive components are rated on 0–2 scale, where 0 indicates no symptom and 2 indicates depressive symptoms. The total score is calculated as the sum of ratings for the 13 items, with higher scores indicating more severe mental health impairment.⁵

The study was approved by the Research Ethics Committee of the Universidade Federal de São Paulo and performed in accordance with the Brazilian Ethical Review System on research involving human beings and the 1964 World Medical Association Declaration of Helsinki and subsequent amendments. Written informed consent was obtained from all patients and parents or legal representatives after the procedures had been fully explained and prior to their inclusion in the study; anonymity was assured. General guidelines for cross-cultural adaptation of quality-of-life instruments were followed to ensure quality of the cross-culturally adapted Brazilian Portuguese version of the SMFQ.

A total of 124 patients of both sexes, aged between 8 and 17 years, seeking plastic surgery were consecutively selected at the plastic surgery outpatient clinic of two hospitals in Brazil between September 2013 and February 2014. Patients unable to understand the interview questions and those with psychotic disorders were excluded from the study. Overall, most patients (87.7%) were boys, 49.6% were Caucasians, had complete primary education, the mean age was 12.1 ± 2.5 years, and 92% of the legal guardians who completed the SMFQ-P were the child's natural parents. The correction of prominent ears was the most sought-after aesthetic surgery among boys.

The mean SMFQ-C and SMFQ-P scores were 6.3 ± 4.8 and 7.0 ± 5.8 , respectively, showing that although the patients were dissatisfied with their physical appearance, the mood state and feelings of children and adolescents seeking cosmetic surgery were mentally healthy. No

[☆] The study was performed at the Division of Plastic Surgery of the Universidade Federal de São Paulo, São Paulo, Brazil.

significant age-related differences in SMFQ-C scores were found between children up to 11 years of age and those 12 years and older ($P = 0.139$; Student's *t* test), showing that age had no impact on the degree of body dissatisfaction.

The SMFQ-C and SMFQ-P versions had a Cronbach's alpha of 0.768 and 0.874, respectively. The SMFQ showed good inter-rater (SMFQ-C, ICC = 0.757, $P < 0.001$; SMFQ-P, ICC = 0.853; $P < 0.001$) and intra-rater reliability (SMFQ-C, ICC = 0.738, $P < 0.001$; SMFQ-P, ICC = 0.796; $P < 0.001$). Construct validity was tested correlating the SMFQ with the Strengths and Difficulties Questionnaire for children (SDQ-C) and parents (SDQ-P) and the Rosenberg Self-Esteem (RSE) scale. A moderate correlation ($r = 0.495$; $P < 0.001$) was observed between the SMFQ-C and the RSE, and between the SMFQ-P and the SDQ-P ($r = 0.581$; $P < 0.001$). Moderate and low correlations of the SMFQ with the RSE and SDQ indicate that the study participants were mentally healthy. The moderate correlation between the SMFQ-P and SDQ-P suggests that parents provided a more rigorous evaluation of both the mental condition of their children and their own subjectivity. However, the correlation between parent and child perception showed that although there was an affective bond between them, there was also independence of affections and presence of individuality.

The SMFQ⁵ is a brief and self-report questionnaire that captures specific information about depressive symptoms and can serve as a decision-support in the selection of children and adolescents candidates for plastic surgery.

Conflict of interest statement

None.

Role of the funding source

None.

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