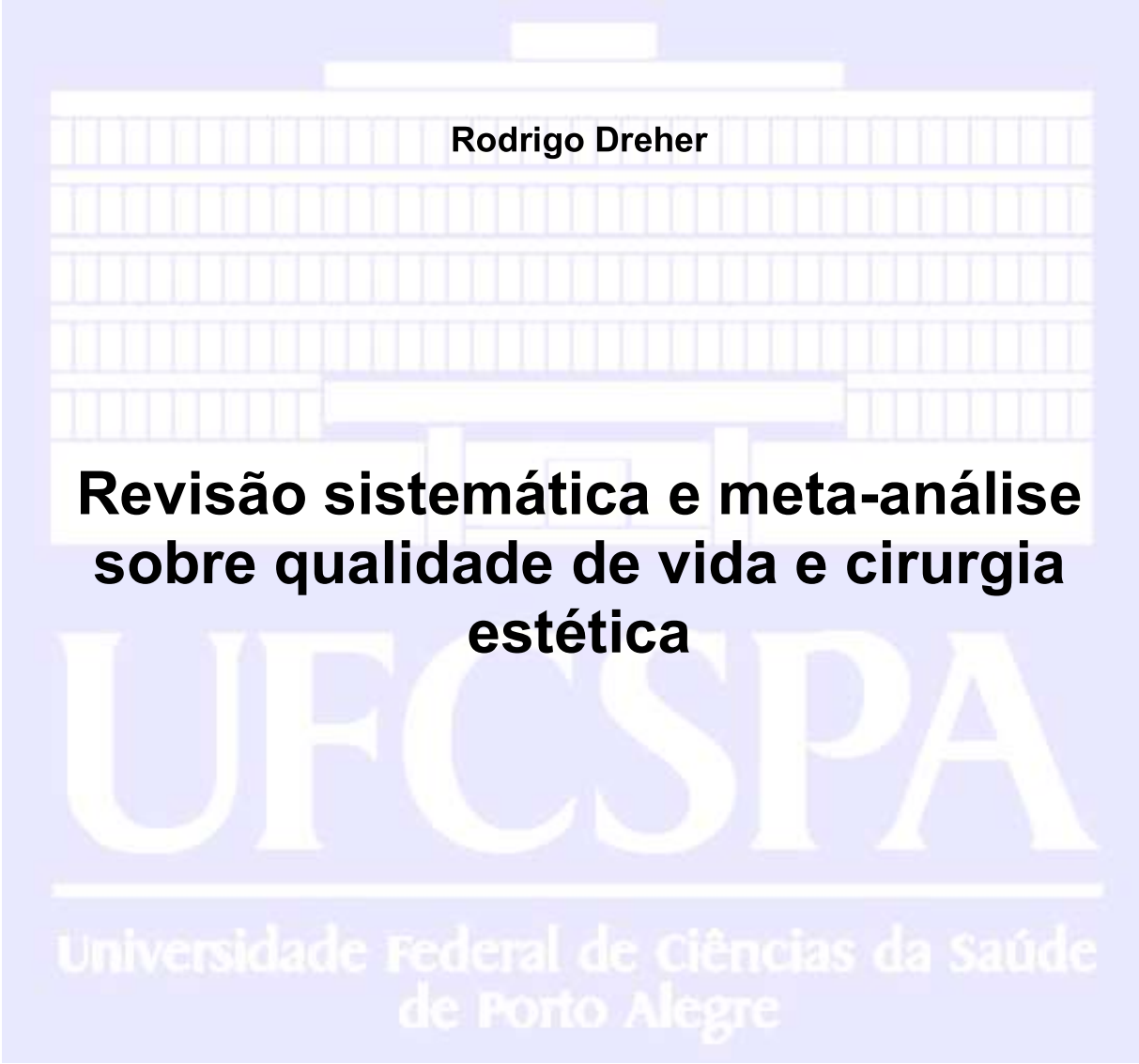


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SAÚDE**



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**Revisão sistemática e meta-análise
sobre qualidade de vida e cirurgia
estética**

UFCSPA
**Universidade Federal de Ciências da Saúde
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CERTIFICADO

Certifico que **Rodrigo Dreher** apresentou a dissertação de Mestrado no dia 11/10/2016, intitulada **“Revisão Sistemática e Meta-análise sobre Qualidade de Vida e Cirurgia Estética”**, orientada pelo professor Ygor Arzeno Ferrão e coorientada pelo professor Pedro Bins Ely, junto ao Programa de Pós-Graduação em Ciências da Saúde da Universidade Federal de Ciências da Saúde de Porto Alegre, tendo sido considerado **aprovado**.

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Resumo

A insatisfação com o corpo gera sintomas psíquicos e físicos em certas pessoas. Ela também é a motivação para uma busca de mudança nas características físicas que incomodam o indivíduo. A cirurgia plástica é a especialidade médica com a qual conseguimos moldar a nossa a nossa forma corporal visando à alteração dessas mesmas características. A mensuração de quanto e como esta mudança afeta a vida da pessoa encerra algumas dificuldades, uma vez que a subjetividade é um componente importante na apreciação da beleza. Medidas antropométricas e avaliação por pares profissionais de fotos pré e pós-operatórias foram os métodos de avaliação dos resultados da cirurgia plástica por um tempo, todavia estes métodos não levaram em consideração a percepção do próprio paciente. Na última década, cresceu o foco no paciente e a melhora na qualidade de vida passou a ser um desfecho considerado como indicador do sucesso da intervenção estética e as pesquisas sobre qualidade de vida assumiram um papel importante na avaliação das intervenções em cirurgia plástica. A qualidade de vida inclui os domínios físicos, social, psicológico, emocional ou espiritual que devem ser acessados para se conhecer este estado de bem-estar. Muitos instrumentos foram desenvolvidos para aferição da qualidade de vida após uma intervenção estética e hoje temos escalas que medem de forma geral e de forma específica, isto é, uma escala para cada tipo de procedimento estético. Os estudos sobre este tem apresentaram resultados diferentes com alguns comprovando a melhora da qualidade de vida após a intervenção e outros falhando não demonstrado esta associação. Ainda, a melhora não foi uniforme

segundo as pesquisas e tampouco uma comparação entre os tipos de cirurgias estéticas na qualidade de vida foi realizada. O magnitude do efeito da cirurgia estética ainda é desconhecido e com isso vislumbramos a oportunidade de realizarmos uma meta-análise com a mensuração do tamanho do efeito da cirurgia plástica nesta variável.

Observamos uma melhora global nas pessoas submetidas à cirurgias plásticas e vimos que, dentre os procedimentos estudados, a mamoplastia redutora é a que gera maior ganho na qualidade de vida dos pacientes.

Palavras-chave: qualidade de vida, cirurgia plástica, cirurgia estética, meta-análise.

Abstract

Body image dissatisfaction may generate psychological and physical symptoms in some people. It is the main motivation for patients to pursue anatomic changes in the physical characteristics that bother the individual. Plastic surgery is the way in which we modify our body shape in order to feel more comfortable with it. The measurement of how much and how this change affects a person's life has certain difficulties, since subjectivity is a component in the appreciation of beauty. Anthropometric measurements and peer review of pre and postoperative images were the methods used to evaluate the results of plastic surgery for a long time. Lately, quality of life improvement has become an indicator of success regarding aesthetic intervention. Quality of life includes the physical, social, psychological, emotional or spiritual development that must be accessed to meet this welfare state. A myriad of tools have been developed to assess the quality of life and today we have general and specific scales to measure it, i.e., a scale for each type of cosmetic procedure. Studies have shown different results with some proving the improvement of quality of life in subjects who underwent aesthetic plastic surgery, while others have failed in this regard. Still, the improvement is not uniform according to the polls, nor a comparison of the types of cosmetic surgery was performed. The magnitude of the effect in cosmetic surgery in quality of life is still unknown and that is why we glimpse the opportunity to conduct a meta-analysis to measure it.

Key words: Surgery, Plastic; Quality of Life; Meta-analysis; Systematic Review.

Revisão da literatura

A busca por uma satisfação maior com a aparência é o objetivo de quem procura por cirurgia estética. Insatisfação com alguma parte do corpo pode causar muitos efeitos negativos, tanto físicos, quanto psicossociais nos pacientes. As pessoas que julgam ter algum aspecto estético insatisfatório podem reportar dificuldades em participar de atividades sociais, atividades físicas ou dormir, além de reportarem baixa autoestima, incômodo na vida sexual e insatisfação com a imagem corporal. Em geral, ocorre uma falta de bem estar com a anatomia de seu corpo (1).

A avaliação dos resultados em cirurgia estética apresenta algumas dificuldades. Como a finalidade dela é tornar algo belo ou mais atraente, torna-se preciso definir o que seria “beleza”, sobretudo um padrão de beleza corporal. A busca por um padrão antropométrico de face consideradas belas já foi tentada previamente, porém falhou no seu intento. Os autores do estudo buscaram medidas de proporção como indicadores de faces atraentes e, como resultado, ele apresenta um índice de proporção facial, onde as faces cujas medidas se encaixavam neste índice foram consideradas sadias, porém não necessariamente foram classificadas como atraentes(2). Mesmo com esta dificuldade encontrada no estudo citado anteriormente, achamos outras duas tentativas de medidas antropométricas para medir o desfecho de cirurgias estéticas da face, ambas buscando medidas antropométricas como padrão de

beleza. Em amostra de registros fotográficos de duas idades diferentes das mesmas pessoas, buscou-se características faciais de cada uma delas a fim de se descobrir um padrão de acordo com as respectivas idades. Tapias e colaboradores, (1999) também utilizaram o recurso de análise fotográfica para avaliar os resultados de cirurgias de face para encontrar um fórmula matemática de beleza (3, 4). Podemos ver, então, outra característica dos estudos apontados é que eles centravam-se na opinião do cirurgião ou de avaliadores externos julgando as diferenças estéticas do pré e do pós-operatório. Com o passar do tempo, a percepção do paciente passou a ter mais importância e começou a ser estudada, principalmente a subjetividade na avaliação do desfecho da cirurgia, como constatou uma revisão sistemática realizada por Pusic e cols. (2007). Os autores identificaram 227 questionários utilizados em cirurgia de mama, entre eles questionários de saúde em geral, oncológicos, substituto, etc. No final, concluem que há uma falta de escalas validadas e confiáveis em cirurgias cosméticas e reconstrutivas de mama (5). Dentro da abordagem sobre a subjetividade do resultado da cirurgia estética, tem sido levados em consideração a qualidade de vida e aspectos psicológicos como autoestima, imagem corporal e transtornos psiquiátricos principalmente (5, 6).

Desde 1949 a OMS define saúde como o bem-estar físico, mental e social (7). Como foi comentado anteriormente, a busca de uma satisfação maior com a sua aparência e a melhora deste bem-estar é um dos fatores motivadores nos pacientes que buscam a cirurgia plástica. Este bem-estar tem se tornado um desfecho importante por determinar a qualidade de vida da pessoa e tem sido estudado nos tratamentos médicos, inclusive nas cirurgias

estéticas. A qualidade de vida inclui os domínios físicos, social, psicológico, emocional ou espiritual que devem ser verificados para se conhecer este estado de bem-estar. Estudos já demonstraram que o sofrimento psicológico é maior em pacientes de cirurgia plástica no período pré-operatório comparados com a população normal, tanto que em estudos de avaliações pós-operatórias, os achados evidenciam melhora deste sofrimento (1, 8-10). A melhora da satisfação com a aparência e a melhora da autoestima também já foram relatadas em estudos prévios com 90% das pacientes permanecendo satisfeitas mesmo com dois anos de pós-operatório (11, 12). Essa melhora da autoestima e a satisfação com a aparência geral pareceram ser piores em pacientes que apresentavam problemas psicológicos antes da cirurgia(13, 14).

Ocorre, porém, uma variação nos resultados encontrados nesses estudos sobre qualidade de vida e procedimentos estéticos. Em geral, apenas um ou outro domínio apresentou melhora, dependendo do estudo e do tipo de procedimento, destacando também que o tamanho da variação da melhora também não se mostrou uniforme entre os estudos.

Ching e cols. realizaram uma revisão sobre instrumentos que avaliam os desfechos em cirurgia estética. Ele identificaram que a maioria destes instrumentos avaliam os aspectos psicológicos nas cirurgias. Um total de 34 instrumentos foram achados e dentre estes, 8 foram sobre qualidade de vida e outros referiram-se à imagem corporal, tais como: *Body Dysmorphic Disorder Examination – Self Report (BDDE-SR)*, *Body Attitude Scale*, *Body Cathexis Scale*, *Body Image Inventory (BII)*, *Breast Chest Ratings Scale (BCRS)*, *Facial*

Appearance Sorting Scale Test (FAST), Multidimensional Body-Self Relations Questionnaire (MBSRQ) e o *Repertory Grid, Semantic Differential Test*. Sobre Depressão ou sintomas depressivos, os questionários mais comuns foram o *Beck Depression Inventory*, o *Center for Epidemiologic Studies Depression Scale (CED-S)*, *Hamilton Depression Scale* e o *Montgomery and Asberg Depression Rating Scale*. O questionário *California Psychological Inventory (CPY)*, *Rorschach*, *Brief Symptom Inventory*, *Minnesota Multiphasic Personality Index* e o *Psychiatric Interview* verificaram a condição psiquiátrica geral (15). O bem estar psicológico é medido pelo *Life Satisfaction Index*, *Tennessee Self Concept Scale*, *Ways of Coping Scale*. A autoestima foi auferida pelos *Rosenberg's Self-Esteem Scale*, *Self-Esteem Inventory* e o *Ziller Social Self-Esteem Test*. Outras doenças, como esquizofrenia, e inventários de personalidade foram avaliados com o *Edward Personal Preference Schedule*, o *Selective Vocabulary Test*, *Crown Crisp Experimental Index*, *Thematic apperception Test*, *Social Interaction Self-Statement Test*. Especificamente sobre qualidade de vida em geral, os autores encontraram os seguintes instrumentos: *Health Measurement Questionnaire*, *Short Form 36 (SF-36)*, *EuroQol (EQ-5D)*. Questionários específicos para cirurgias estéticas também foram encontrados, sendo eles: *Derriford Scale (DAS59)*, *Rhinoplasty Outcomes Evaluation (ROE)*, *Facelift Outcomes Evaluation (FOE)*, *Blepharoplasty Outcomes Evaluation (BOE)* e o *Skin Rejuvenation Outcomes Evaluation*. Reavey e colaboradores (2011) pesquisaram em sua revisão quais instrumentos eram utilizados para a avaliação do sucesso dos procedimentos cirúrgicos cosméticos (16). Seu estudo foi voltado também para o processo de criação destes instrumentos, seus conteúdos e a *performance* psicométrica.

Ele identificou os instrumentos utilizados em cirurgia plástica tanto geral, como para procedimentos específicos para determinadas cirurgias. São eles: para lipoaspiração *The Freiburg Questionnaire on Aesthetic Dermatology and Cosmetic Surgery [FQAD]*, um para cirurgia plástica em geral (*the 59-item Derriford Appearance Scale [DAS-59]*), e três para mamoplastia redutora (*the Breast Reduction Assessed Severity Scale Questionnaire [BRASSQ]*, *Breast Related Symptoms questionnaire [BRS]*, and *the BREAST-Q reduction module*).

Outra revisão similar foi feita por Kosowski e colaboradores (2009) (17) em procedimentos de face, tanto cirúrgicos como não-cirúrgicos. Seu objetivo era similar à revisão sistemática já citada acima, focada nos instrumentos. Ele encontrou os seguintes questionários: *Rhinoplasty Outcomes Evaluation (ROE)*, *Facelift Outcomes Evaluation (FOE)*, *Blepharoplasty Outcomes Evaluation (BOE)*, *Skin Rejuvenation Outcomes Evaluation (SROE)*, *Facial Lines Treatment Satisfaction Questionnaire (FTS)*, *Facial Lines Outcomes Questionnaire (FLO-7)*, *Glasgow Benefit Inventory (GBI)*, *Facial Appearance Sorting Test (FAST)*, *Derriford Appearance Scale 59 (DAS-59)*, *Derriford Appearance Scale 24 (DAS-24)*.

Revisões sistemáticas e meta-análise tem um papel cada vez mais importante na saúde, sendo agrupamento de informações confiáveis para auxílio nas tomadas de decisão. As meta-análises aumentam o poder das análises, pois conseguem vencer as fraquezas dos ensaios clínicos. Elas nos fornecem conteúdo clínico relevante para definição de condutas e apontar novos caminhos nas pesquisas científicas (18-20). São revisões em que o viés

é reduzido através de um processo sistemático de identificação dos estudos, análise, síntese e, se for indicado, a agregação estatística dos resultados de um tópico específico. Quanto mais rigoroso for o processo de revisão, melhor será a qualidade da pesquisa sintetizada. Esses resumos de estudos relevantes auxiliam o médico a manter-se atualizado na literatura de uma forma confiável, pois a busca da informação segue uma metodologia reproduzível. Isso permite a translação da evidência científica para a prática médica (21).

Com a intenção de melhorar a qualidade das publicações de revisões sistemáticas e meta análises de ensaios clínicos, foram publicados o QUORUM (quality of reporting meta-analysis) e o PRISMA *statement* (preferred reporting items for systematic reviews and meta-analysis), que são guias com um conjunto mínimo de itens necessários para o relato de revisões sistemáticas e meta-análises. Ambos são usados largamente e contribuíram para a melhoria desse tipo publicação (22, 23)

Conforme citado anteriormente, há poucas revisões sobre o tema desfechos de cirurgia estéticas, mais especificamente sobre resultados psicológicos, como qualidade de vida e autoestima. As revisões existentes não realizaram meta análises, tampouco procuraram medir o tamanho do efeito dos procedimentos na qualidade de vida dos indivíduos. Como já foi citado anteriormente, há uma variedade de instrumentos usados no estudo e isto pode dificultar a realização de meta-análises. Para contornarmos isso, a medida do tamanho de efeito ou a diferença de padrão de médias (*standardized mean difference-SMD*) possibilita a comparação de resultados de questionários diferentes. A diferença de padrão de médias é usada quando os trabalhos relatam eficácia em medidas contínuas. Ele também é chamado de

índice de Cohen (d), que freqüentemente é utilizado como sinônimo do tamanho de efeito (24). Com esta estatística há a possibilidade de avaliar o efeito das intervenções estéticas na qualidade de vida, mesmo que esta tenha sido mensurada por escalas diversas.

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Objetivo

O presente projeto visa uma revisão sistemática da literatura e meta-análise sobre a melhora na qualidade de vida após a realização das cirurgias estéticas mais realizadas segundo a Sociedade Americana de Cirurgia Plástica no ano de 2014.

Objetivos específicos

1- agrupamento da informação sobre a variação na qualidade de vida após um procedimento de cirurgia estética.

2- verificar o tamanho do efeito obtido por cada uma das cirurgias na melhora da qualidade de vida dos indivíduos.

3- comparar o tamanho do efeito da mamoplastia redutora com as demais cirurgias estéticas.

4- verificar o tamanho do efeito na modificação dos escores de cada um dos sumários físico e mental e dos oito domínios do *SF-36* em geral e em comparação da mamoplastia redutora e demais cirurgias estéticas.

Artigo

O artigo foi submetido à um periódico chamado *Aesthetic Surgery Journal* antes de ser aceito *Plastic and Reconstructive Global Open*.

Quality of life and aesthetic plastic surgery: a systematic review and meta-analysis.

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Quality of Life and Aesthetic Plastic Surgery: A Systematic Review and Meta-analysis

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Background: Quality of life (QoL) is an important outcome in plastic surgery. However, authors use different scales to address this subject, making it difficult to compare the outcomes. To address this discrepancy, the aim of this study was to perform a systematic review and a random effect meta-analysis.

Methods: The search was made in two electronic databases (LILACS and PUBMED) using Mesh and non-Mesh terms related to aesthetic plastic surgery and QoL. We performed qualitative and quantitative analyses of the gathered data. We calculated a random effect meta-analysis with Der Simonian and Laird as variance estimator to compare pre- and postoperative QoL standardized mean difference. To check if there is difference between aesthetic surgeries, we compared reduction mammoplasty to other aesthetic surgeries.

Results: Of 1,715 identified, 20 studies were included in the qualitative analysis and 16 went through quantitative analysis. The random effect of all aesthetic surgeries shows that QoL improved after surgery. Reduction mammoplasty has improved QoL more than other procedures in social functioning and physical functioning domains.

Conclusions: Aesthetic plastic surgery increases QoL. Reduction mammoplasty seems to have better improvement compared with other aesthetic surgeries. (*Plast Reconstr Surg Glob Open* 2016;4:e862; doi: 10.1097/GOX.0000000000000833; Published online 15 September 2016.)

Abstract

Background: Quality of life is an important outcome in plastic surgery. However, authors use different scales to address this subject, making it difficult to compare the outcomes. In order to address this discrepancy, the aim of this study was to perform a systematic review and a random effect meta-analysis.

Methods: the search was made in 2 electronic databases (LILACS and PUBMED) using Mesh and Non-Mesh terms related to aesthetic plastic surgery and quality of life. We performed qualitative and quantitative analysis of the gathered data. We calculated a random effect meta-analysis with Der Simonian and Laird as variance estimator to compare pre and postoperative quality of live standardized mean difference. In order to check if there is difference between aesthetics surgeries, we compared reduction mammoplasty to other aesthetic surgeries in a subgroup analysis.

Results: Out of 1715 identified, twenty studies were included in the qualitative analysis and 17 went through quantitative analysis. The effect of all aesthetic surgeries show that quality of life improved after surgery. The overall standardized mean difference (SMD)=3.06. The physical summary (PS) SMD=0.53 and mental summary (MS) SMD=0.46 for aesthetic surgeries but reduction mammoplasty (RM). Reduction mammoplasty had an overall SMD=1.93; PS SMD=0.7 and MS SMD=0.52.

Conclusion. Aesthetic plastic surgery increases quality of life. Reduction mammoplasty seems to have a better improvement compared to others aesthetic surgeries.

Introduction

Quality of life (QoL) is an important outcome in health sciences. Since plastic surgeons do not deal with mortality and morbidity in aesthetic procedures, patient perception and the impact on quality of life became an important outcome(1). More and more, authors have searched for changes in the scores of patient related outcomes questionnaires after aesthetic surgery. However, studies results show a large heterogeneity. Some authors show a small overall improvement, while others demonstrate increased scores just in some specific domains of the questionnaires (2-6). This disparateness may be caused because studies use different instruments, have small samples and also because analyses different surgeries that might have different improvement (7). To deal with all these information, systematic reviews and meta-analysis are essentials tools to create knowledge and bring information to everyone involved in the decision making process in health care. They increase the power of the analysis as they overcome the weaknesses of clinical trials and can be used to compare results from different instruments (8, 9).

There are very few reviews of quality of life and aesthetic surgery and they only depict the surgeries made and which questionnaires have been used. None of them gathered data and performed a meta-analysis or measured the size effect (10-13). The lack of this kind of information creates a new research field in plastic surgery. Based in this scenario, the authors performed a review of the literature of quality of life evaluation in aesthetic surgery and a continuous data meta-analysis.

Material and method

Search strategy

The search included the electronic databases and reference crosschecking process. The studies were identified through PubMed (which encompasses Medline, Premedline, and HelthSTAR) and Lilacs. The PubMed search was run using the Mesh terms: (Quality of life) AND (mammoplasty OR liposuction OR rhinoplasty OR abdominoplasty). Additionally the PubMed search was run with non-Mesh terms: (quality of life) AND (rhytidoplasty OR facial surgery OR aesthetic plastic surgery OR mastopexy OR facial lift). The same process was repeated in the Lilacs database. Author chose these terms because we found that they encompass the most common aesthetic procedures according to the American Society of Plastic Surgery statistics of 2014 (<http://www.plasticsurgery.org/Documents/news-resources/statistics/2014-statistics/plastic-surgery-statsitics-full-report.pdf>). Language was limited to English, Spanish, Italian, French and Portuguese. The search was conducted in June 2015. Additionally, the same search process was redone in January 2016 and no other studied was included. The list of references of included studies was searched looking for additional studies without any paper included.

Only prospective studies with pre and postoperative data of aesthetic surgeries from validated quality of life questionnaires were included in this review. Trials of plastic surgery after massive weight loss and breast reconstruction were excluded, since they were considered reconstructive surgery.

This meta-analysis report methodology was performed according to PRISMA statement guidelines (14).

Data extraction

Two investigators independently extracted data using a standardized form. Discrepancies were resolved by discussion and, if there was not consensus, the decision was made by a third reviewer. Collected data were: number of subjects; mean and standard deviation (sd) of the age; which was the used QoL questionnaire and its statistical parameters (mean; standard deviation; mean variation; variation standard deviation and the p-value). As we found different questionnaires, we analyzed each questionnaire in order to classify the domain according to the Medical Outcome Studies 36-item Short Form Health Survey (SF-36) domains. The SF-36 is a well known and widely used in health sciences. This construct is divided in 8 domains, which are role-physical (RP), physical functioning (PF), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role-emotional (RE) and mental health (MH). The first four domains comprehend the physical summary and the last ones the mental summary (15). The summaries reflect the physical and mental health respectively. When there was more than one kind of surgery analyzed separately in the study, authors considered its results individually in the quantitative analysis. After the qualitative analysis, data were separated and analyzed in 3 different groups. The first group is the overall quality of life, which included the studies that have questionnaires with just one reported result (only one general domain), the second group is formed with papers that report their results based on both summaries mental and physical and the third group with

researches with the eight domains of the SF-36. We calculated the standardized mean difference between pre and postoperative quality of life among aesthetics surgeries. As the majority of the studies were in reduction mammoplasty patients, we compared this procedure with all others aesthetic surgeries together. Efforts were made to reach authors in order to collect missing data. We made at least three attempts to contact each of the selected articles to review data. Only 3 (15%) replied, 2 (10%) sending their database and one apologizing because he could not find his data.

Statistical analysis

Summarized results were reported as standardized mean difference (SMD) and Confidence interval of 95% (CI 95%). Authors also performed a random effect meta-analysis with Der Simonian and Laird as variance estimator and used the R software (version 3.1.2), package meta v 4.2-0(16).

Results

Search results are displayed in figure 1. All the steps of the systematic review are shown. Out of 1715 studies screened, 20 papers met the inclusion criteria (table 1) and 17 went through quantitative analysis. There were not enough number of studies with the Breast Q and as it is a specific scale and in order to keep homogeneity, we excluded them from the qualitative analysis (17, 18) and the lack of data prevented us to include another one (19).

The majority of the authors chose the SF-36 questionnaire (n=10) to access quality of life. It is a general instrument and largely used in health

sciences. Others scales utilized were Breast Q (n=2), Derrifor Appearance Scale [DAS-59] (n=1), 15 Dimensional health related quality of life instrument [15-D] (n=3), Euroqol 5 dimensions [EQ-5D] (n=1), The Satisfaction with Life Scale [SWLS] (n=1), Functional Assessment of Chronic Illness Therapy [FACIT] (n=1) and *Fragen zur Lebenszufriedenheit* [FLZ] (n=1). Reduction mammoplasty was evaluated in 12 studies and it was the most common procedure evaluated.

Quantitative analysis is shown in figures 2, 3 and 4. All 3 groups had improvement in quality of life. Reduction mammoplasty showed a statistically higher increase in quality of life compared to other aesthetic surgeries in physical functioning and social functioning domains of SF-36.

Discussion

To our knowledge, this is the first meta-analysis of quality of life and aesthetic surgery. Even though the controversy in literature(2, 6, 20, 21), our analysis shows that aesthetic plastic surgery improves quality of life in overall aspects, even in physical or mental domains. It is an important outcome to access, in order to quantify the success of the treatment. Studies identified in our search had sample size between 18-228 individuals and only 4 papers have more than 100 subjects (2, 21-23). Small studies tend to present beta error, so meta-analysis addresses this limitation, increasing the statistical power.

According to our findings, reduction mammoplasty is the most studied aesthetic surgery concerning QoL. As there were few studies with each one of the other aesthetics procedures, it was not possible to compare the differences

between each surgery technique. However, we could compare reduction mammoplasty to all other surgeries together.

This review found a lack of standardization of instruments, as we observed that 8 different questionnaires for QoL were used in the selected papers. Only two studies used Breast-Q, unfortunately, this prevented us to compare both specific to generic scales to find out if there is a difference between their capacity to measure the QoL findings. Otherwise, the use of a generic scale such as SF-36 has some advantages, as it is the most used instrument in the literature accessing QoL, allowing comparisons of the effect size to another conditions not related to mammoplasty that may have important impact on QoL, such as other plastic surgeries than breast procedures, psychiatric conditions, dermatological disease, etc. Besides, this fact could raise the idea that the impact of aesthetic surgery in quality of life has external validity. If it is possible to show improvement using generic questionnaire, this improvement should not be underestimated.

Our data shows that reduction mammoplasty had better improvement in SF and PF domains of SF-36 as compared to the other aesthetics surgeries (figure 4, A and F). Domains' scores such as BP, VT and RP (figure 4; C, E and G) showed a tendency to be higher in mammoplasty, however this difference did not reached a significant level. In a closer view of these studies, it could be seen that Shakespeare et al. (24) study had the lowest scores, forcing down the SMD. New researches could address if cultural differences such as body image concerns could explain this discrepancy, as it is a British study, while the others are from North America. Another find in this study is that the majority of the patients had been advised to seek mammoplasty by a health professional or

because of physical discomfort. Only a few patients had emotional complaints like depression or dissatisfaction with their body.

We also expected that the domains related to physical health would improve more in patients with enlarged breasts, because physical symptoms use to be important complaints (25, 26). According to our findings, only PF of the physical summary of SF-36 questionnaire showed statistical difference, that is, improved even more in mammoplasty than in other surgeries.

In order to increase the number of subjects, we had to compare similar domains of different scales to measure quality of life. For example, Cingi et al (2011) applied the EQ-5D scale and one of its domains is Pain/Discomfort and we compared this to the BP domain of SF-36 (22). It is possible that we have done some misinterpretation, although this was an alternative to include and compare the data of these studies.

The few researches with others aesthetics surgeries did not allowed us to perform comparative analysis between each aesthetic procedure. Such information may help surgeons to be prepared for the patients reactions after surgery, because patients undergoing reduction mammoplasty maybe would show more satisfaction with the post operative result while compared to liposuction or facelift patients.

Conclusion

Our study shows that aesthetic plastic surgery improved people's quality of life. Patient reported outcomes are a key factor in addressing the effectiveness of plastic surgery. Although most researchers used general health

scales of quality of life, specific questionnaires should be developed in order to discriminate peculiarities of each procedure and compare if they are more reliable to address quality of life in aesthetic plastic surgery. We still need more studies with aesthetic surgeries other than reduction mammoplasty toward compare the magnitude of different procedures, helping surgeons to understand what aid patients' health the most.

Disclosure

The first author received a governmental fund (CAPES) as a post-graduate Master of Science Degree student. The authors have no conflicts of interest with the presented content.

Table 1. Characteristics of included studies for qualitative analysis.

Author/year	n	Questionnaire	Surgery	Results Domains* (p)
Fatemi 2012(25)	75	SF-36	Rhynoplasty	PF (0.047) BP (0.01)
Coriddi 2013(26)	38	Breast Q	Reduction Mammoplasty	All domains (0.001)
Coriddi 2013(27)	59	Breast Q	Augmentation mammoplasty	All domains (0.001)
Litner 2008(28)	93	DAS-59	Face and Rhynoplasty	Physical (0.01) Mental (0.01)
Saariniemi 2012(29)	62	15-D	Reduction mammoplasty	NS
Saariniemi 2011(30)	29	SF-36	Reduction mammoplasty	NS
Thoma 2007(29)	40	SF-36	Reduction mammoplasty	NS
Shakespeare 1996(25)	88	SF-36	Reduction mammoplasty	PF, VT, GH, SF, MH (0.001)
Kerrigan 2000(31)	165	SF-36	Reduction mammoplasty	NS
Tykkä 2008(32)	89	15-D	Reduction mammoplasty	Overall (0.001)
Cingi 2011(33)	168	EQ-5D	Rhynoplasty	BP, SF (0.01)
Alves 2005(34)	32	SF-36	Face	VT (0.001), GH (0.007), SF (0.01),
Bolton 2003(35)	30	SWLS	Abdominoplasty	NS
Thoma 2013(2)	124 121	SF-36	Vertical RM Inverted T RM	
Smeets 2009(36)	36 32	FACIT	Liposuction Abdominoplasty	Overall (0.001) Overall (0.001)
Papadopoulos 2007(37)	228	FLZ	Aesthetic Surgery	NS
Iwuagwu 2006	37	SF-36	Reduction mammoplasty	Physical (0.001) Mental (0.001)
Valtonen 2014	64	15-D	Reduction mammoplasty	Overall (0.001)
Sabino Neto 2007	35	SF-36	Mammoplasty ²	NS
Klassen 1996(6)	56	SF-36	Reduction mammoplasty	All domains (0.001)
	24	SF-36	Pinnaplasty	PF(0.021), SF(0.044), MH(0.008)
	38	SF-36	Rhinoplasty	NS
	18	SF-36	Abdominoplasty	SF (0.019)

Abbreviations: n- number of subjects, * significant statistically, PF - physical function, BP VT – vitality, SF social function, RE – role emotional, GH – general health, bodily pain. 1- included reduction mammoplasty, breast augmentation and gynaecomastia. 2- asymmetry. NS-not significant result.



PRISMA 2009 Flow Diagram

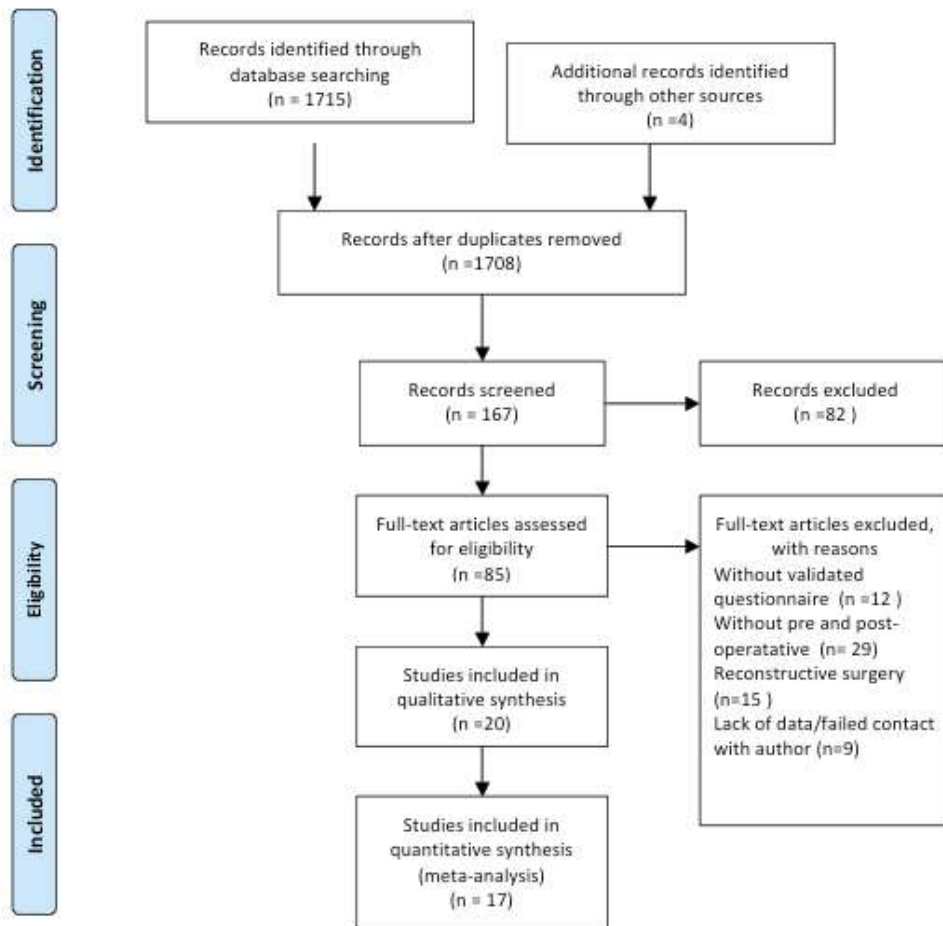


Figure 1. Sistematic Review flow chart.

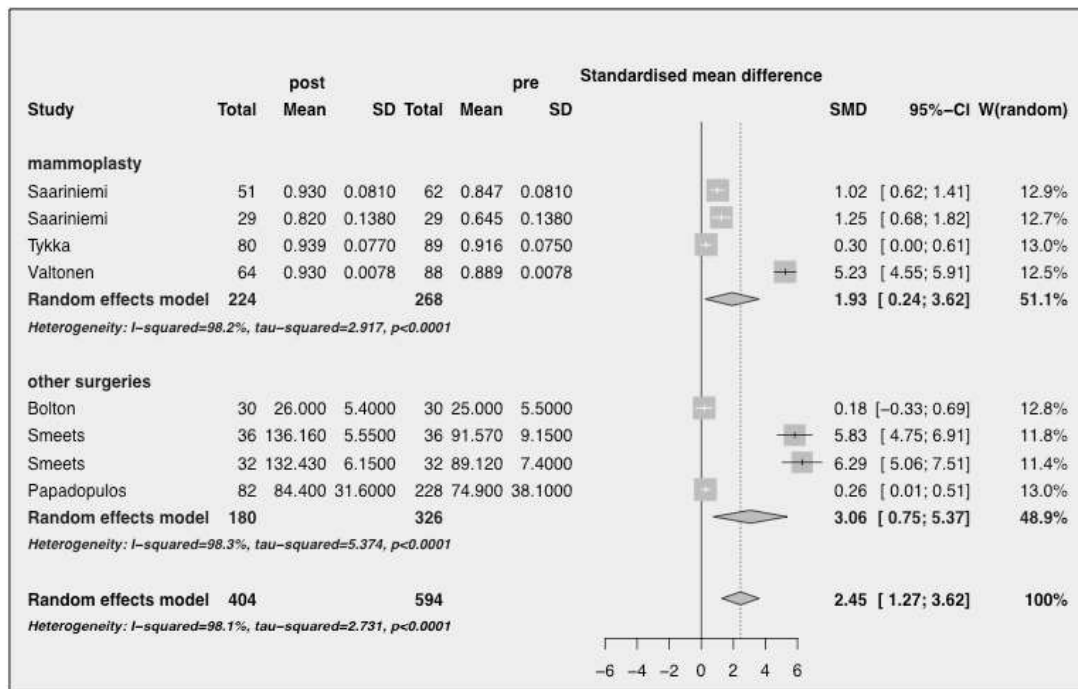


Figure 2. Forest plot of Overall group

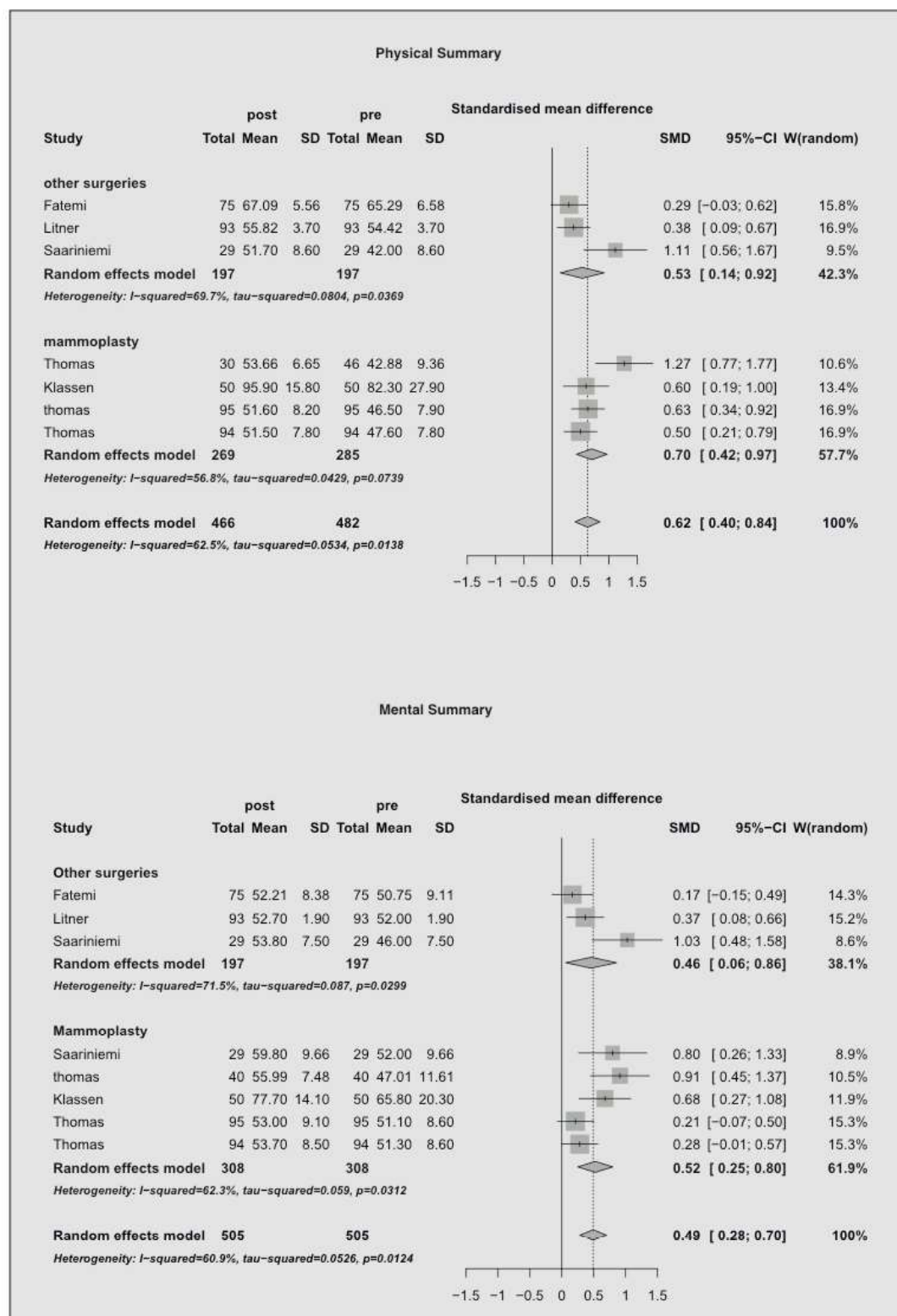


Figure 3. Mental and Physical Summaries Forest Plot

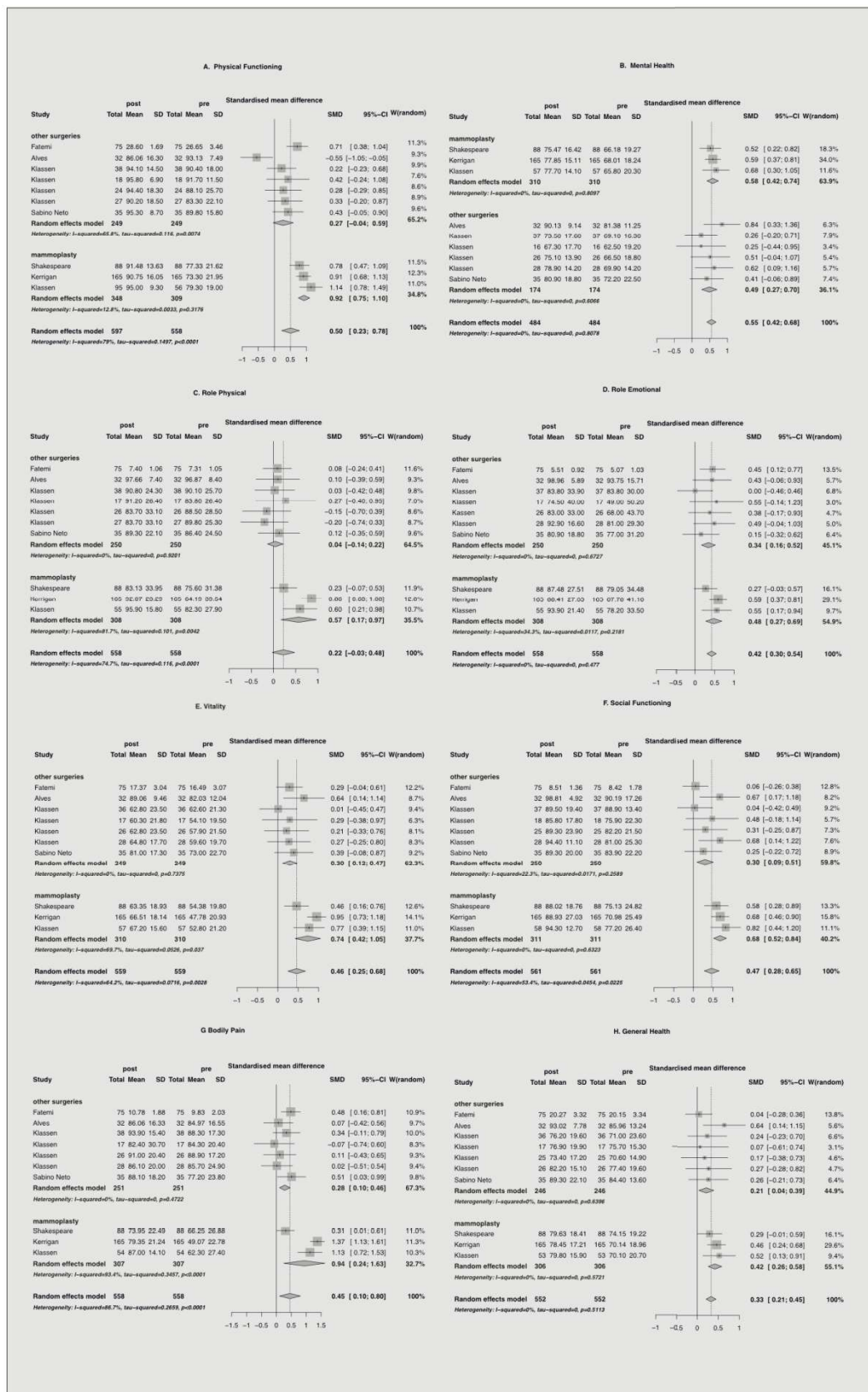


Figure 4. SF-36 Domains Forest Plot

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Conclusões

Nosso estudo mostra que a cirurgia plástica estética melhora a qualidade de vida das pessoas. A pesquisa deste incremento na qualidade de vida é um fator fundamental para conhecermos a eficácia da cirurgia plástica. A maioria dos pesquisadores usam escalas gerais de saúde para a pesquisa de qualidade de vida em cirurgia plástica, o que reforça o impacto dessa intervenção na qualidade de vida dos pacientes. Se o benefício da intervenção pode ser identificado por um instrumento geral, pode-se concluir que a intervenção é clinicamente relevante. A vantagem do uso de instrumentos de qualidade de vida gerais é de permitir a comparação das técnicas como foi desenvolvida nessa revisão sistemática e meta-análise. No entanto, instrumentos gerais de qualidade de vida podem falhar em identificar benefícios pontuais de cada procedimento. Existem alguns questionários específicos que apresentariam a vantagem de serem mais sensíveis às alterações do procedimento estudado. Outros questionários específicos devem ser desenvolvidos a fim de discriminar peculiaridades de cada procedimento e comparar se estes questionários são mais confiáveis na acesso da qualidade de vida em cirurgia plástica estética.

Identificamos 20 estudos que permitiram identificar que a qualidade de vida melhora após a cirurgia plástica estética. Esse benefício ocorre tanto nos questionários com uma dimensão, bem como aqueles com várias dimensões. Além disso, a melhora pode ser percebida em dimensões de aspecto físico e aspecto mental. Contudo esses achados não são constantes, com cada trabalho achando diferenças em domínios diferentes.

A magnitude dessa intervenção, segundo nossos achados pode ficar

entre $-0,055$ até $6,19$, variando conforme o tipo de intervenção e o tamanho amostral. A maioria dos estudos identificados foram com a mamoplastia redutora, portanto só foi possível comparar esse tipo de cirurgia com as demais cirurgias. Mais estudos são necessários, especialmente com procedimentos diferentes da mamoplastia redutora, a fim de compararmos a magnitude de diferentes procedimentos, ajudando cirurgiões a entender melhor as reações dos pacientes aos atos cirúrgicos.