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# Determining the Psychological Outcomes of Penile Augmentation Surgery

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**ABSTRACT**

**Introduction:** The desire for a larger penis is a common aspiration among many men, often leading them to pursue surgical procedures to increase its length, such as sectioning of the suspensory ligament. However, the psychological effects of this surgery are inadequately addressed in current literature. This study aims to retrospectively evaluate the psychological outcomes and motivations behind penile enlargement surgery.

**Methods:** Patients who either underwent penile augmentation surgery (intervention group) or had scheduled surgery, but hadn't undergone the procedure yet (control group) were asked to complete a questionnaire. This questionnaire included the Portuguese versions of three validated instruments: the Beliefs About Penis Size Scale (BAPSS), the Self-Esteem and Relationship Questionnaire (SEAR-Q), and the Male Genital Self-Image Scale (MGSIS). Additionally, it included questions regarding motivations for undergoing surgery, individual perceptions of one's penis, and any surgical complications experienced.

**Results:** The primary motivations for seeking this surgery were the desire for a larger penis and improvement of self-esteem. Men who underwent penile augmentation surgery (n=19) scored higher on average on the MGSIS and SEAR-Q questionnaires, indicating greater satisfaction and comfort with the appearance and size of their penis compared to men in the control group (n=13). Additionally, scores on the BAPS scale were acceptable and similar in both groups. Despite the length improvements and low complication rates, the results do not appear to be dependent on the degree of penile size increase achieved.

**Conclusions:** Penile augmentation surgery seems to be a safe and reliable method for increasing penis length. It is associated with enhanced confidence, self-esteem, and satisfaction with genital appearance. However, its impact on male sexual function remains uncertain.

**Key Words:** Penis size; Genital Self-image; Plastic Surgery; Sexuality; Patient Reported Outcomes.

**RESUMO – Versão Extensa**

**Introdução**

O tamanho do pénis tem sido considerado como um símbolo de masculinidade e desempenho sexual ao longo do tempo e das civilizações. Em resultado disso, alguns homens sentem-se envergonhados com o tamanho do seu órgão genital, sendo que do ponto de vista psicológico, a questão crucial pode não ser o tamanho real do seu pénis, mas sim a perceção do mesmo sobre o seu pénis em relação ao de outros homens. Neste sentido, tem-se constatado um aumento da popularidade e da procura por procedimentos estéticos para aumentar o tamanho peniano, seja em comprimento ou largura. No entanto, faltam estudos quanto às motivações dos homens que a eles recorrem ou à satisfação com os resultados dos procedimentos.

A prinicipal causa para a atribuição desta desmedida importância do sexo masuclino ao seu órgão sexual acredita-se poder estar associada a três temas chave: a pornografia, a comparação com amigos/colegas e as provocações relacionadas com a aparência (*"appearance-related teasing"*). Curiosamente, esta pressão social é exercida essencialmente por influência de outros homens, uma vez que uma percentagem significativamente superior de mulheres está satisfeita com o tamanho do pénis dos seus parceiros, em comparação com a percentagem de homens satisfeitos com o tamanho do seu próprio órgão genital.

Neste sentido, mesmo com um pénis que se encontra dentro da faixa normal em termos de dimensões, muitos homens que procuram procedimentos de aumento peniano apresentam uma perceção e expectativas irrealistas relativamente ao pénis. Mesmo após receberem aconselhamento psicossexual, alguns homens continuam a sentir ansiedade ou vergonha em relação ao tamanho peniano, podendo, alguns destes casos, enquadrar-se no espectro das dismorfias corporais.

Não havendo ainda muitos dados disponíveis, os critérios de seleção e indicações para cirurgia permanecem em constante debate. O próprio sucesso cirúrgico e o impacto psicológico são discutíveis para muitos autores. Nesse sentido, as revisões mais recentes consideram o aumento peniano estético como controverso e investigacional. Assistiu-se contudo a uma melhoria técnica das cirurgias disponíveis, sendo que os

procedimentos mais populares atualmente permitem resultados físicos efetivos, duradouros e satisfatórios.

Na Cirurgia Plástica, é uma das especialidade médicas em que fatores psicológicos mais influenciam a satisfação com os resultados da cirurgia. A compreensão destes fatores que influenciam a satisfação do paciente permite aos profissionais modelar os aspetos que afetam adversamente os seus pacientes. Uma vez que a perceção psicológica de melhoria é tão ou mais mais significativa para os pacientes, do que os resultados físicos propriamente ditos, poderão estes constituir um melhor medidor do benefício de uma intervenção do que medidas físicas objetivas. Deste modo, o desenvolvimento e uso de questionários que medem qualidade de vida, autoimagem genital e satisfação com cada procedimento na população masculina é muito importante.

Assim sendo, o objetivo geral deste estudo prende-se com a determinação dos *outcomes* psicológicos da cirurgia de aumento peniano, designadamente na auto imagem, auto-estima, relacionamentos e função sexual e o grau de influência do físico na satisfação dos homens intervencionados.

**Métodos:**

Foi realizada uma revisão da literatura para determinar a informação disponível sobre os *outcomes* psicológicos da cirurgia de aumento peniano, tendo sido desenvolvido um questionário pela equipa de investigadores, composto por instrumentos validados internacionalmente.

Neste sentido, a escala previamente validada, *Beliefs About Penis Size Scale* (BAPSS), foi formalmente traduzida para português (através do método *translation and back-translation*), tendo a tradução obtida sido analisada e aperfeiçoada por uma equipa clínica constituída por uma cirurgiã plástica, um urologista e um psicólogo; a versão portuguesa de *Self-Esteem and Relationship Questionnaire* (SEAR-Q) foi adaptada para homens.

Todos os pacientes submetidos a cirurgia de aumento peniano por secção do ligamento suspensor do pénis entre janeiro de 2015 e janeiro de 2023 (grupo de intervenção) e pacientes com indicação cirúrgica sobreponível e cirurgia agendada,

mas que ainda não tinham realizado o procedimento (grupo controlo) foram convidados a responder a um questionário em formato digital contendo os dois instrumentos mencionados anteriormente. O questionário inclui adicionalmente a versão em português da *Male Genital Self-Image Scale* (MGSIS) e questões sobre as motivações para realizar a cirurgia, a percepção individual do próprio pénis e a ocorrência de complicações.

Todos os homens incluídos no estudo são pacientes da clínica LMR – Cirurgia Plástica em Lisboa. Estes foram contactados telefonicamente e convidados a participar no estudo após ter sido dada informação detalhada sobre o âmbito e objetivo do projeto, bem como a garantia de anonimato.

As respostas foram obtidas até dia 30 de novembro de 2023 e analisadas de acordo com as recomendações de cada autor, conforme originalmente descrito. Nesse sentido, foram identificadas as principais razões pelas quais os participantes procuraram a clínica, bem como as componentes psicométricas mais afetadas pela intervenção cirúrgica, comparando o grupo intervencionado com o grupo controlo.

**Resultados:**

Foram incluídos 19 homens no grupo de intervenção e 13 no grupo controlo. Demograficamente, neste estudo verificou-se que os homens do grupo controlo variaram dos 20 aos 60 anos de idade, com uma média de 40,62 anos, sendo similar ao grupo de intervenção, que com uma variação dos 23 aos 67 anos, teve uma média de idades de 40,1 anos. Além disso, a maioria dos homens em ambos os grupos autoferenciou-se como heterossexual (Grupo intervencionado n=19, 94,7%; Grupo controlo, n=13, 100%) e trabalhador tempo inteiro (Grupo intervencionado, n=19, 94,7%; Grupo controlo, n=13, 76,9%).

Para ambos os grupos, as principais motivações para agendar cirurgia foram o desejo de melhorar a imagem genital e aumentar a sua autoestima. Um aumento médio de 2,54 ± 1,0 cm (29,1%) foi registado, sendo que variou de 1,1 a 4,4 cm em termos de comprimento peniano observado. Foram registadas três complicações *minor* (15,8% dos homens do estudo) e nenhuma complicação *major*. Mais de metade (63,2%) dos pacientes referiu um aumento na sua confiança após o procedimento.

As versões portuguesas de BAPSS e SEAR-Q demonstraram uma elevada consistência interna (α=0.91 e α=0.94, respetivamente). Verificou-se ainda uma correlação evidente entre as escalas MGSIS e SEAR-Q (0,79; p<0,001), bem como MGSIS e a Satisfação Geral com o Pénis (0,52; p=0,002) e, por fim, MGSIS e BAPSS (-0,49; p=0,004). Relativamente a SEAR-Q, foi observada uma correlação moderada com a Satisfação Geral com o Pénis (0,48; p=0,006) e a BAPSS (-0,50; p=0,004). Por outro lado, não se observou uma correlação entre o tamanho inicial ou final do pénis, bem como do aumento absoluto e relativo do seu tamanho ou a ocorrência de complicações com nenhuma das pontuações totais obtidas em cada escala psicológica utilizada.

As pontuações médias obtidas para a MGSIS e para a SEAR-Q foram superiores no grupo intervencionado (pontuação total = 22,1 e 78,9, respetivamente) quando comparadas com as pontuações obtidas pelo grupo controlo (pontuação total = 19,6 e 65,1, respetivamente).

Verificou-se ainda que em BAPSS, a pontuação total foi ligeiramente inferior no grupo de homens intervencionados, apesar de no grupo controlo as pontuações serem altas e muito semelhantes.

**Conclusões:**

As versões portuguesas de *BAPS Scale* e *SEAR-Questionnaire* demonstraram elevada consistência interna e validade concorrente/divergente. Estes dados permitem-nos validar os referidos questionários para a avaliação das componentes psicológicas originalmente descritas na população masculina portuguesa.

As pontuações, em média, superiores no grupo intervencionado traduzem uma importante associação entre a realização de cirurgia de aumento peniano e uma maior satisfação com a aparência genital, bem como uma diminuição evidente na vergonha percepcionada com o pénis.

Finalmente, apesar de ganhos físicos consistentes e significativos e, em média, as escalas refletirem uma melhoria individual nos *outcomes* psicológicos, estes não parecem estar relacionados com o grau de aumento peniano alcançado nem com a ocorrência de complicações.

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## INTRODUCTION

## DOES PENILE SIZE MATTER?

An individual's emotional/psychological feelings regarding their own genitals is commonly referred to as "genital self-image". Each one's own perspective is derived from their experiences, whether directly or indirectly, involving their genitalia (Berman et al., 2003).

In regard to the male genitalia, the penis size has been considered as a sign of masculinity and sexual power across times and civilizations (Schifano et al., 2022). As a result of this, men might feel embarrassed about their perceived penile sizes, whether in an external (by receiving negative evaluations by a sexual partner or by other men in changing rooms or showers) or internal way (by negative self-evaluations of their own genital attractiveness) (Veale et al., 2015).

### Actual Penis Size

Finding a set of universal penile dimensions' measurements that apply to all men worldwide is a very difficult task. However, Wessells et al. (1996), tried to define guidelines of normal penile length and circumference (girth) to assist patients considering penile augmentation.

The most important contribution this study gave us was the definition of how penile measurements should be performed. Measurements of the length should be made from the pubo-penile skin junction to the meatus, circumference at the mid shaft and fat pad depth by pushing the tape into the pubic bone. Stretched flaccid length (an indirect estimation of the erect penile length) was measured from the pubo-penile skin junction to the meatus under maximal extension of the phallus. Full erection length and circumference was measured after a period of privacy and self-stimulation.

In an attempt to construct nomograms for flaccid and erect penis length and circumference, Veale et al. (2015) performed a systematic review with up to 15.000 men in which they defined a value for a flaccid pendulous penis (mean 9,16 ± 1,57 cm) and stretched length (13,24 ± 1,89 cm), erect length (13,12 ± 1,66 cm), flaccid circumference (9,31 ± 0,90 cm) and erect circumference (11,66 ± 1,10 cm). However,

this review observed there was a relatively small number of erect measurements in clinical settings and a great variability in flaccid stretched length was observed.

In the most recent systematic review that evaluated data from up to 56.000 men in seventy-five studies published between 1942 and 2021, Belladelli et al. (2023) estimated the flaccid length as 8,70 cm (95% CI, 8,16 – 9,23 cm), stretched length as 12,93 cm (95% CI, 12,48 – 13,39 cm) and erect length as 13,93 cm (95% CI, 13,20 – 14,65 cm).

This study also concluded there was an increase in the average erect penile length in men from 1992 to 2021, seen across several geographic regions and populations. Still, no change was identified in stretched or flaccid penile lengths. These flaccid measurements, whether stretched or not, presented a wide variability in different studies. The goal of a stretched penile length measurement is to approximate the penile length during an erection. However, a noted significant asymmetry in stretched penile lengths was observed, suggesting clinical heterogeneity in those reports. Thus, penile size estimations in the flaccid state may be inaccurate. Nonetheless, some measurements of penile erect states included self-reports from each patient, which should be looked at with caution.

This report also identified penile measurements variations across the globe. Longer measurements were observed in sub-Saharan Africans, intermediate in Europeans, South Asians, and North Africans, and smaller in East Asians. However, the cause for differences remains unknown and as globalization continues, these reports may lessen with time. (Belladelli et al., 2023)

**Penis size Dissatisfaction**

From a psychological perspective, the crucial issue for a patient may not be the actual penis size, but rather a man's perception of the size of his penis relative to other men's, there has been an increase of empirical studies to assess the association between men's beliefs about their penis size and satisfaction with their penis or psychological wellbeing, but there is still a lot of scattered information.

A rising number of men are seeking cosmetic procedures to increase the size of their penis, whether in length or girth, due to dissatisfaction with their genitalia. However, the social and cultural factors that influence the male community to consider the necessity for these kinds of procedures are scarcely well understood. (Sharp & Oates, 2019)

As previously mentioned, a great deal of men consider that the size of the penis is directly proportional to its sexual power (Francken et al., 2002). But why is this correlation so well present in our society? Throughout history there have been a great deal of figures and associations of the penis size to manhood. Nonetheless, why is it still so present nowadays?

From previous studies, there were three main themes agreed throughout every research to state their influence in men to perceive a bigger than reality importance attached to the penis size: pornography, comparison with peers and indirect appearance-related teasing (Sharp & Oates, 2019).

Since pornography is considered to be the most readily available source of penile imagery for males and male actors' penises are atypically large in these performances, prolonged exposure to these images may induce men to overestimate the average penis size while underestimating the size of their own penis (Lever et al., 2006; Sharp & Oates, 2019). This, together with the exaggerated reactions that other porn actors (whether male or female) sometimes produce in regard to these larger penises, could mislead men about what is considered desirable and sexually satisfying experience (Sharp & Oates, 2019).

In terms of comparison, research tells us that men usually tend to compare their penis to their peers'. This most commonly happens with fellow members of sporting teams or gym members in a locker room setting and, as a result, they might feel their own penis is smaller in comparison. Also, in sexual situations, homosexual men are mentioned to compare their penis with their partners' (Sharp & Oates, 2019).

Putting all of this in perspective, having a small penis is a source of mockery. Furthermore, jokes and teasing comments made about small penises on mainstream media and the representation of "Bigger is Better" or "Size Matters" captions in sports

newspapers, magazines or advertisements serve to reinforce that having a large penis is necessary for masculinity. (Lever et al., 2006; Sharp & Oates, 2019b)

But as a matter of fact, are men and women more satisfied with bigger penises? Lever et al. (2006), with a sample of 52,031 heterosexual men and women, found that most men (66%) characterized their own penis size as average. Fully 86% of men who rated themselves as large were satisfied with their penis size, compared with only 54% of men who rated themselves as average and 8% of men who rated themselves as small. Similarly, 45% of men desired a larger penis, especially those who believed their penis was smaller than average (91%) or average sized (46%). Nonetheless, most men were more likely to be satisfied with their erect penis size (83%) and overall penis size (71%) than with their flaccid penis size (51%).

Despite that, most women (84%) were satisfied with their partners' penis size, with only 14% wishing their partner had a larger penis, and 2% wanted their partner to have a smaller one. A much higher percentage of women were satisfied with their partner's penis size than the percentage of men who were satisfied with their own penis size (84% vs. 55%, respectively) (Francken et al., 2002; Lever et al., 2006). This gives us the impression that women tend to attach less importance to the size of the penis than men do, or than men think women do.

In previous research it was also proved that negative body attitudes towards muscularity, body fat, height, and genitals are associated with lower sexual esteem (i.e., an individual's confidence in themselves as a sexual partner) and sexual avoidance, leading to greater sexual dissatisfaction and insecurity about sexual competence (Morrison et al., 2005; Van Den Brink et al., 2018). However, as these data are correlational in nature, the direction of its causality is still unclear.

In conclusion, concerns about penis size should not be ignored. While some men may be candidates for penile surgery or hormonal treatments due to their conditions (for example, micro-penis), it's essential to determine whether a patient's complaint of a perceived small penis is objectively justified. Even with penises that fall within normal range, many men still seek out penile enhancement procedures due to their unrealistic

expectations, which are normally eased through psychosexual education and reassurance that their penises are normal-sized. (Shamloul, 2005)

**“Small Penis Syndrome” and Penile Dysmorphic Disorder**

Some men may still vigorously experience feelings such as anxiety or shame over their penis size and develop conditions related to a psychologically distorted impression of their penis, even after receiving counseling and treatment.

“Small Penis Syndrome” (SPS) (also known as “Small Penis Anxiety” (SPA) or “Locker Room Syndrome”) is a condition defined by anxiety about the genitals being observed, directly or indirectly (when clothed) due to the concern that the flaccid penis length and/or girth is less than the normal for an adult male, despite evidence from a clinical examination to counter this concern (Wylie & Eardley, 2007).

Some men with “Small Penis Syndrome” may be diagnosed with Body Dysmorphic Disorder (BDD) or Dysmorphophobia. This is a mental disorder characterized by obsessive compulsive thoughts regarding several features of the face or body (Diagnostic and Statistical Manual of Mental Disorders, 2013). Sometimes, men's genitalia are the main focus and the term "Penile Dysmorphic Disorder" (PDD) is used to describe the condition in which the size or shape of the penis is the primary, if not an exclusive, source of significant distress, embarrassment, or disability for those men (Veale, Miles, Read, et al., 2015a). SPS is not included under the APA nomenclature, but men with SPA may be at risk of BDD (Falcone et al., 2023).

The origin of these preoccupations is much debated and there are no correct answers. Researchers presume that these may start when men were younger and saw a bigger penis of an older sibling, friend, or even their father, often the first penis that a child sees. Alternatively, they may start later, after a breakdown of a relationship or following hurtful comments made by their partner during intimacy. (Mondaini & Gontero, 2005; Wylie & Eardley, 2007).

Several investigations have identified males who were submitted to penile enhancement surgeries as having PDD; however, these reports were not grounded in validated screening scales or structured diagnostic interviews for BDD. Nonetheless,

due to the fact that individuals with Body Dysmorphic Disorder often have a high degree of dissatisfaction with the results of the plastic surgery, this is usually considered as a contraindication for cosmetic surgery.

Nowadays, there are still no case series or controlled trials of any psychological or physical intervention for males with anxiety related to their perceived small penis, with or without PDD. (Shamloul, 2005; Spyropoulos et al., 2007a) This might be explained by the lack of adequate outcome measures after cosmetic procedures. It is challenging to determine the effect size of any treatment, so measures that can be used in reviews and controlled trials to assess men who are anxious about the size of their penis must be developed and validated. These measures should also be potentially sensitive to change following any intervention, whether physical or psychological (Veale, Miles, Read, et al., 2015a).

Recently, some researchers tried to create scales to properly identify patients who would significantly benefit from augmentation phalloplasty. However, in order to be useful clinical tools and assess patient eligibility for this kind of surgery, those need to be tested on a greater number of patients in randomized settings by additional researchers (Spyropoulos et al., 2007a).

Summarizing, thorough evaluations should be performed and standard protocols created to determine patient appropriateness for penile enhancement surgery when assessing men presenting with complaints of a small penis. (Davis et al., 2012; Ghanem et al., 2013; Spyropoulos et al., 2007)

## MALE COSMETIC SURGERY IN THE CURRENT SOCIETY

Historically, patients who sought out aesthetic and cosmetic procedures were predominantly women, with the vast majority of plastic surgery procedures being still targeted towards them, and little to no attention addressed towards men (Sinno et al., 2016). Also, since a long time ago due to sex stigmatization, men tended to have an unfavorable opinion towards aesthetic and cosmetic surgeries. However, because of generational changes and the increased acceptance of men undergoing cosmetic procedures, the number of men interested in nonsurgical and surgical aesthetic procedures have grown (Lem et al., 2023).

Several variables contribute to men's increasing investment on appearance enhancement, which includes their wives' encouragement to see a cosmetic surgeon. This can be explained because studies suggest that women tend to accept cosmetic surgery more readily than men, due to higher expectations regarding their physical appearance. As a result, women are now introducing men to the options and benefits (Sinno et al., 2016).

In a recent survey about the motivations for aesthetic procedures, almost half of the men questioned would have a treatment done to ‘‘feel better about themselves,’’ about a quarter of those men would have a procedure to please their partner, another quarter would like to appear less tired, and another quarter would like to improve their appearance for their career (Lem et al., 2023).

Nonetheless, the increase of men interested in cosmetic surgery has not been followed by the study of this population, their motivations nor their satisfaction regarding these procedures and most study samples have a problem with their gender representation. It has been thought whether most studies can be generalized to the larger population of individuals who seek and receive cosmetic enhancement. For example, most studies related to patient’s satisfaction are assessing exclusively women undergoing breast reduction or other specific women’s procedures, and it is not necessarily the case (indeed it is arguably highly unlikely) that results from this group would pertain to men undergoing other procedures (Honigman et al., 2004).

It is essential that with an increase in the number of men requesting aesthetic surgery, so should our understanding and awareness of the influences that motivate them to alter their bodies (Rashid et al., 2021).

## COSMETIC PENILE AUGMENTATION

As the demand for penile size enhancement has grown over time, numerous surgical and non-surgical methods have been created to meet this demand. In recent years, surgery to augment either the length or girth of the penis has become increasingly common, especially in private settings (Vardi & Lowenstein, 2005). However, the discussion about this topic has always been an issue regarding the ethical considerations and indications for such procedures (Vardi & Lowenstein, 2005). Due to the wide variety of techniques for penile enhancement, whether for length or for girth, this controversial discussion has increased (Vyas et al., 2020).

In what is related to recommendations to perform penile augmentation, Wessells et al. (1996) defined a value of 2 standard deviations from the mean to be considered a normal penile dimension and, therefore, only recommend surgery in interested patients that had a flaccid length of less than 4 cm or stretched length of less than 7,5 cm. However, no definitive value is still available or acceptable to every physician.

Past reviews considered Cosmetic Penile Augmentation as controversial, stating that no reliable data was available regarding the criteria for success or complication rates of these techniques. However, in recent years, there has been an increased number of studies that tried to access these exact parameters with an improvement in knowledge of expected gains. Average increases of 1,5 to 4 cm in length and 3 to 4 cm in girth are described in the literature (Ghanem et al., 2013b; Li et al., 2006; Spyropoulos et al., 2007b). On the other hand, most publications report a low rate of serious complications, such as penile retraction, decreased penile sensation, penile asymmetry (Vardi et al., 2008; Vyas et al., 2020) and high satisfaction rates.

Nonetheless, most studies have heterogeneous methodology when reporting penile dimensions, outcomes and patient satisfaction, lacking the use of validated psychological outcome measurement instruments and methodologies to assess patient selection and satisfaction rates were not standardized or often were not reported at all.

There is still a long path in what comes to the assessment and improvement of the psychological concerns of men who are submitted to these kinds of surgeries.

**Surgical Penile Lengthening Techniques**

Sectioning the suspensory ligament of the penis is the most popular surgical technique for lengthening the penis. This procedure is often performed with ancillary methods to enhance results. (Alter et al., 2011; Vardi et al., 2008) These supplementary techniques include pubic skin advancement through various plasties, utilization of spacers within the ligament space, and abdominal or suprapubic liposuction/lipectomy, all aimed at maximizing the gains achieved through ligamentolysis.

***Suspensory Ligament Release***

The suspensory ligament of the penis is a deep structure that joins the cavernous bodies of the penis to the pubic symphysis. It is speculated to have a role in penile support and stabilization at the specific angle, required for vaginal penetration and sexual intercourse (Vardi et al., 2008).

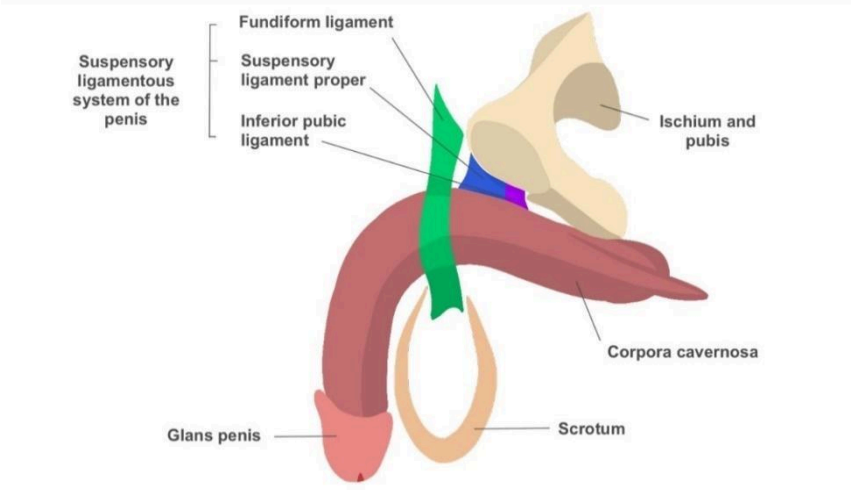


***Figure 1*** *- Sagittal view of the suspensory ligament system of the penis. The fundiform ligament is represented in green, the suspensory ligament proper is represented in blue, and the inferior pubic ligament is represented in purple (Ramos et al., 2021).*

During the erection the penis' arteries are widened to provide the organ with more blood, while the venous vessels are vasoconstricted, allowing the *corpus cavernosa* to be filled with blood. As a result, it enlarges and stiffens, causing the mobile portion of the penis to protrude outside the body. By releasing the lateral components of this ligament, which requires an infrapubic incision, a forward movement of the cavernous bodies is produced at the expense of the penis' root detachment. This enables the

penis to achieve its maximum extracorporeal projection, recruiting all the mobile portion of the organ. (Littara et al., 2019; Ramos et al., 2024)

The elongation is considered purely apparent, since the length of the penis, in its three components (root, body and glans) remain unvaried; there is just a greater protrusion of the organ. For this reason, the elongation is in fact significantly more visible at rest than during erection (Perovic & Djordjevic, 2000). Nevertheless, the operation produces a visible increase in the length of the penis as expected by the patient (Littara et al., 2019).

Studies report variable increases in penile length, varying from 1,1 to 4,3 cm (Falcone et al., 2023; Ramos et al., 2024), with patient and partner satisfaction rates ranging from 30 to 65% (Campbell & Gillis, 2017).

The possible complications of this procedure are described in Table 1 (Littara et al., 2019). Complications such as decreased angle of elevation of the erect penis, paradoxical penile shortening, and penile instability are relatively rare (Vardi et al., 2008). This technique can also be combined with ancillary surgical procedures.

Table 1. Possible complications of Suspensory Ligament Section

| Complication | (N=322) Total (%) | Complication | (N=322) Total (%) |
|---|---|---|---|
| **Loss of erectile function** | 0 | **Seroma** | 0,62 |
| **Decrease of erectile function (temporary)** | 0,93 | **Dehiscence** | 0 |
| **Penile oedema** | 0 | **Loss of sensation (mild)** | 0,93 |
| **Long-standing haematoma** | 0,93 | **Fibrosis** | 0 |
| **Superficial infection** | 0,31 | **Paradoxical penile shortening** | 0 |
| **Deep infection** | 0 | **No increase in length** | 0 |
| **Delayed wound healing** | 1,24 | **Penile deformity** | 0 |
| **Penile curvature** | 0 | **Disfiguring advancement of suprapubic hairy skin** | 0,62 |
| **Decreased erection angle (instability)** | 0,62 | **Hypertrophic wound scarring** | 0,93 |
| **Keloid** | 0,31 | **Scrotalization** | 0 |

***Inverted V-Y Skin Plasty***

This ancillary technique is used to elongate the penis skin, or rather the body covering of the soft parts, with an incision made above the penis root (Panfilov, 2006). This incision is typically an upside-down V, which is closed in an upside-down Y-shape, leading to the lengthening of the dorsal skin by bringing lateral tissue to the midline (Campbell & Gillis, 2017).

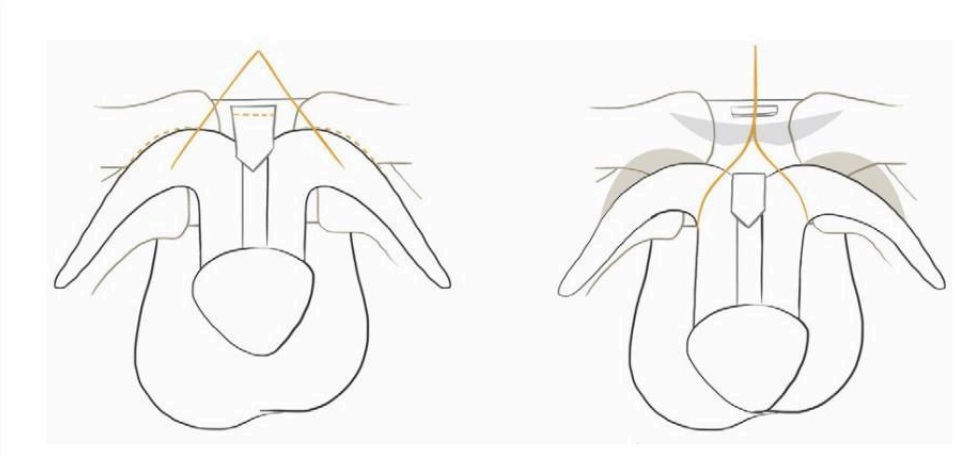

***Figure 2*** *- Penile elongation using the V-Y advancement technique with a dorsal inverted V-shaped incision closed as a "Y" to obtain length of the dorsal skin. An additional suspensory ligament release and partial release of the corpora cavernosa is depicted. (Campbell & Gillis, 2017)*

This strategy is used to reduce losses in penile length acquired with suspensory ligament release. However, it is difficult to determine the average length achieved by V-Y advancement as it is typically combined with other procedures (Campbell & Gillis, 2017).

***Local Skin Flaps***

This ancillary technique consists in local fasciocutaneous flaps interposed between the dorsum of the penis and the pubic bone to function as a spacer. It is used to prevent reattachment and shortening of the penis and its previously sectioned suspensory ligament after surgery. Through its utilization, there is a recreation of a new suspensory ligament, but in its new forward position.

### *Abdominal or Suprapubic Liposuction/Lipectomy*

In some cases, the penile length is considered small because of the abundant coverage presented by pubic fat or a protruding abdomen. It involves the removal of extra adipose tissue that partially covers the proximal region of the penis. This creates an aesthetically pleasing “lengthening” due to the greater exposure of the mobile portion/root of the penis in obese patients or patients with adipose tissue localized to the mons pubis (Alter et al., 2011; Falcone et al., 2023; Vardi et al., 2008).

## Surgical Penile Girth Enhancement

### *Autologous Fat Injection*

Although it is not a technique for increasing the length of the penis, it is the most commonly used procedure for increasing penile girth and is often associated with the sectioning of the suspensory ligament. This technique entails collecting fat from a donor area (usually the abdomen or the thighs and injecting it into the Dartos Fascia of the penis (Panfilov, 2006; Vardi et al., 2008). After the harvesting of the adipose tissue, a refinement by decantation, filtration, or slow centrifugation is applied for purification and increased fat survival. (Strong et al., 2015; Egro et al., 2022) The quantity to be implanted varies considerably depending on the space to be filled, but always considering that about 30% of the graft would be reabsorbed within the first/second month. After the injection, immediate digital manipulation of the penis will encourage a uniform distribution of fatty tissue (Littara et al., 2019).

In a retrospective about the girth study  increase after autologous fat injection, an average increase of 2-3.5 cm (+ 20-35%) in penile circumference was observed (Kang et al., 2012). No statistically significant decrease was observed in the International Index of Erectile Function scores and no serious adverse events were reported; a postoperative survey revealed that over 75% of patients were satisfied (Falcone et al., 2023).

**Combined elongation and enlargement Techniques**

Ligamentolysis associated with a cutaneous V-Y plasty is the main and most common method of surgical elongation of the penis (Littara et al., 2019), since it guarantees a better aesthetic result. However, it can also be performed with a girth enhancement technique, such as Autologous Fat Injection in the same surgical period.

This procedure is usually conducted with the patient under general anesthesia or deep sedation (Panfilov, 2006). Complications of V-Y advancement with ligamentolysis include scarring and poor aesthetic demarcation (Vyas et al., 2020).

Patients who are submitted to both girth enhancement and elongation phalloplasty report higher levels of satisfaction than those who just have one procedure, which is likely due to the existence of a greater overall penile volume (Littara et al., 2019; Monreal, 2015).

**Nonsurgical Techniques**

***Psychotherapy/Psychosexual Education***

An important goal of psychotherapy is to address motivations and expectations of patients regarding penile augmentation surgery. Men might feel a disparity between their actual and ideal penile sizes, internalizing the idea that their penises should be bigger. The main goal should be to normalize the idea of genital shape and size diversity (Falcone et al., 2023).

***Vacuum Devices***

The vacuum device is a mechanical device that draws blood from the circulation and inserts it into the *corpora cavernosa* by using negative pressure produced through a suction pump. It increases arterial flow, which alters growth factors and apoptosis, boosting the corpora cavernosa's oxygenation. (Bettocchi et al., 2022) Few researches have been done on the use of vacuum devices for solely cosmetic reasons, despite the fact that there is a lot of medical literature on their usage for radical prostatectomy patients' rehabilitation. However, those conducted were unsuccessful with low increase in penis size and satisfaction rates (Aghamir et al., 2006). In conclusion, there

is not sufficient data to verify the true advantage of vacuum therapy for improving the appearance of the penile region.

***Traction Therapy***

Penile traction devices (PTD), as vacuum devices, have been explored both as an independent strategy or in combination with surgery to improve its results (Campbell & Gillis, 2017). A penile extender is a device composed of two rings that are adjusted to hold the penis in traction, causing it to “stretch”. One is located at the base of the penis and the other below the glans. Although there are studies that demonstrate their effectiveness in increasing penile length, bigger patient cohorts and longer follow-up are required to assess the stability of the results, as well as any complications. (Bettocchi et al., 2022).

***Injectable Fillers***

Some of the most commonly used fillers appear to significantly enhance penile girth and are typically injected between the dartos and the deep fascia of the penis. These include Hyaluronic Acid (HA) gel, Polymethylmethacrylate (PMMA) microspheres and Poly-L-lactic acid. Although temporary, application of crosslinked HA, the most common filler for penile girth enhancement, has become increasingly popular due to its biocompatibility, more lasting effect over time (up to two years) and low rate of mild adverse effects. An average increase of 1,2 to 3,5 cm in penile girth has been reported with good/reasonable satisfaction rates, depending on the selected filler (Falcone et al., 2023).

## PATIENT-REPORTED OUTCOMES IN AESTHETIC SURGERY

Aesthetic surgery is a visual specialty that strives to help patients achieve their desired goals for enhancement (Colwell et al., 2024), in which patient satisfaction may be the most important outcome (Clapham et al., 2010).

However, long-term follow-up is a recognized challenge because satisfied patients are less inclined to keep follow-up appointments. In addition, the lack of widely adopted validated tools for longitudinal assessment of results, make the availability of long-term outcomes scarce across studies (Colwell et al., 2024).

The understanding of factors that influence patient satisfaction allows practitioners to change aspects of their care that adversely affect their patients (Clapham et al., 2010). A surgical intervention, especially in plastic and reconstructive surgery, can often provide objective measures, for example, breast size reduction after bilateral reduction mammaplasty. These measurements do not describe how a particular intervention affects the patient's life, from their point of view (Sharma et al., 2019).

Consequently, patients' perception and report of their ability to function in real life is more meaningful to patients themselves and is perhaps a better measure of the benefit of an aesthetic intervention, rather than objective measures of function (Sears & Chung, 2012).

Patient satisfaction with procedures and changes in psychosocial status are two different, although related, issues. Patients can be satisfied with their appearance change following the operation, but may experience no change in psychological characteristics. (Honigman et al., 2004)

This is where Patient-reported Outcomes Measures (PROMs) can have an important role. These are validated questionnaires that are completed by patients after and ideally before, allowing comparisons of outcomes pre and post procedure. These enable physicians to assess the efficacy of a clinical intervention from the patients' perspective (Kingsley & Patel, 2017; Sears & Chung, 2012).

It is important that plastic surgeons understand the scientific issues surrounding the appropriate development and use of questionnaires that measure quality of life in a

specific population group (Cano et al., 2009; Sharma et al., 2019). Furthermore, these should be validated on patients with similar demographics to that of the local population in which it will be used. Another issue that may reduce patient acceptability and lead to poor compliance are the use of multiple questionnaires or too many questions in one instrument (Sharma et al., 2019).

In addition, patient questionnaires that are not formally developed or tested (*ad hoc* questionnaires) may pose reasonable questions, but unless they are psychometrically tested, we cannot be confident about their reliability or validity. To correctly identify and measure these various dimensions, we should ideally develop a surgery-specific instrument that considers multiple domains. (Pusic et al., 2007).

The ultimate goal of outcome reporting programs is to make the information available to the public (Clapham et al., 2010). This is especially relevant for plastic surgery; patients will be able to compare outcomes data from different techniques in making their decisions about which treatment to seek. The scarcity of satisfaction research in various cosmetic procedures, the narrow evaluation of satisfaction and psychological outcomes and the use of unvalidated instruments are current barriers preventing plastic surgery patient satisfaction studies from producing meaningful results (Clapham et al., 2010).

## GOALS

There has been a lot of controversy when talking about the actual benefit men who are submitted to Penile Augmentation Surgery experience. Previous studies have demonstrated that these procedures might not necessarily positively influence men who are concerned with the size of their penises, may not meet their expectations, and may face complications that they would not be willing to accept, given the benefit they feel they have achieved.

However, there are still few studies to ever apply validated questionnaires in these populations and assess which are the real psychological and physical impacts these men experience. Our hope with this study is to fill in the gap in the evaluation of the psychological outcomes in Penile Cosmetic Surgery.

### Main Goal

Our main goal while conducting this study was to gain a comprehensive understanding of the psychological effects of Penile Augmentation Surgery (whether by division of the suspensory ligament alone or with autologous fat injection), in their numerous psychometric properties including genital self-image, physical/psychological well-being and sexual and relationship functionality using previously validated patient-reported outcome measures (PROMs) and open-ended questions, filling the gap that is felt in the assessment of these outcomes.

### Specific Goals

I. To understand the psychological and functional concerns, as well as most common motivations shared by men who seek Penile Augmentation Surgery.

II. To translate and validate the Portuguese version of the BAPS Scale.

III. To validate the Portuguese version of the SEAR-Questionnaire to men.

IV. To identify the demographic variations of the population who request Penile Augmentation Surgery.

V. To evaluate, in an open-ended format, patient satisfaction with Penile Augmentation Surgery, possible complications and positive impacts in their life.

VI. To evaluate, retrospectively, the penile size changes in patients submitted to Penile Augmentation Surgery.

VII. To evaluate, retrospectively, the patient satisfaction with genital appearance in men submitted to Penile Augmentation Surgery using the Male Genital Self-Image Scale (MGSIS).

VIII. To evaluate, retrospectively, the patient perceived shame with genital appearance in men submitted to Penile Augmentation Surgery using the Beliefs About Penis Size Scale (BAPSS).

IX. To evaluate, retrospectively, the patient's psychosocial well-being and functionality in men submitted to Penile Augmentation Surgery using the Self-Esteem and Relationship Questionnaire (SEAR-Q).

X. To evaluate the correlation between the variation in penile length with the psychological outcomes after Penile Augmentation Surgery.

## METHODS

### Participants

A sample of men who self-referred to "Clínica LMR – Cirurgia Plástica" for penile augmentation surgery and completed an initial assessment with the main investigator, Dr Alice Varanda Pereira, a senior Plastic Surgeon with more than 10 years' experience in performing the surgery were recruited and divided into two groups: an intervention group, all men who underwent penile augmentation surgery between January 2015 and January 2023, evaluated at least 6 months after surgery. In the control group, we invited all men who visited the clinic between January 2021 and March 2023 and expressed the desire to undergo the aforementioned surgery, who were proposed for it with equivalent indication, but had not yet been submitted to the procedure.

Out of the 19 participants who underwent surgery and accepted to participate, six (6) of them were only submitted to length augmentation procedure through section of the suspensory ligament and V-Y advancement (Littara et al., 2019) and thirteen (13) were submitted to the procedure simultaneously with girth augmentation through autologous fat injections (Kang et al., 2012b).

The exclusion criteria for the study were:

1. Having undergone penile augmentation surgery less than 6 months ago;
2. Not proficient in Portuguese;
3. Did not agree to participate and to sign the Informed consent.

Those in the control group were excluded by meeting the points 2 and 3, as well as having all the criteria to be included in the waiting list for the penile enhancement procedure.

### Procedure

The first step to begin this study was to determine our main goals. Afterwards, a literature review was conducted to determine what is known about the psychological outcomes of the penile augmentation surgery and a questionnaire was developed by

the team of researchers, which consisted of established and validated questionnaires used internationally, to evaluate the main goal of this study.

As a partnership with “Clínica LMR - Cirurgia Plástica'', the team proceeded to obtain all the necessary documentation for the conduction of this study. This included a written authorization from the clinic’s director to proceed with the study, a confidentiality agreement that was created and signed by every member of the team and an informed consent which was written according to the recommendations offered by the local Ethics Committee. This last one also included all the criteria required by the clinic. The study was then submitted to the Ethics Committee of *Centro Académico de Medicina de Lisboa* (CAML.)

All patients were contacted by phone by the principal investigator and invited to participate in the study. During this contact, all details of the study were explained, including its context and goals, as well as the guarantee of anonymity. For those who agreed to proceed with the study, an anonymous personal code was provided, used to enter the online questionnaire containing the previously discussed assessment scales. This questionnaire was sent to them via email, alongside with the informed consent. The completion of the questionnaire was considered as informed consent.

Responses were collected until the 30th November 2023 and analyzed according to the recommendations of each author, as originally described. In this regard, the main reasons for which participants sought the clinic were identified, as well as the psychometric components most affected by the surgical intervention, comparing the intervention group with the control group.

To maintain the agreed confidentiality, only the second author of the study, a researcher who was completely independent of the patient’s treatment, had access to the complete survey data of the online data bank. This was important, since the first author performed the penile augmentation procedure in the study participants.

**Length Measurements**

Written clinical records and photographic records, including all pre and post operative photos, were consulted. For the latter, measurements of penile length were carried out

in centimeters using *ImageJ* software and the presence of a known scale in the photographic record (e.g., a disposable measuring tape). The length measurement was done along the dorsal face of the flaccid penis curvature, from the pubo-penile skin junction to the tip of the glans (Veale, Miles, Bramley, et al., 2015; Wessells et al., 1996). The girth measurement was done only pre-operatively.

**Measures**

A blank copy of the resulting questionnaire is available as supplemental material (Attachments) and contains the measures outlined below.

***Demographic Variables***

Participants were asked questions to assess their demographic characteristics. The variables evaluated included age, sexual orientation, marital status, highest level of education and employment status.

***Motivations for Surgery***

Patients were asked to recall their motivations to undergo penile augmentation surgery in an open-ended question format ("Which were the reasons to consider the penile augmentation surgery?"). The responses were coded for themes by the authors independently of each other (Sharp et al., 2022; Sharp & Oates, 2019).

***Importance Attached to Penis Size***

Participants were asked to rate their level of conviction with the phrase "Penis size does not matter" on a 7-point Likert-type scale, ranging from 1 (Strongly Disagree) to 7 (Strongly agree). Higher scores indicated less importance placed on penis size (Veale et al., 2014).

***Satisfaction with the Penis (SWP)***

Participants were asked to rate their current satisfaction with penile size, appearance, and function on a 7-point Likert-type scale ranging from 1 (Extremely Dissatisfied) and 7 (Extremely Satisfied) (Sharp & Oates, 2019a; Veale et al., 2014). Overall satisfaction with their own penis was gauged based on the assessment of these 3 items.

In addition, the intervention group was asked two open-ended questions ("What positive impacts did penile augmentation surgery have in your life?" and "What complications arose after the penile augmentation surgery?") to assess whether they had any positive or negative impacts/complications (Sharp et al., 2023). In order to confirm any surgical complication, those were investigated through the consultation of the patients' clinical records, to assure that they were registered by the surgeon, whether they had been valued or not by the physician. In each consultation, the doctor specifically asked if there were any complications experienced, including instability in the positioning of the penis when erect or flaccid, or changes in the characteristics of the erection, including its angle. The responses were coded by themes by the authors independently of each other.

***Male Genital Self-Image Scale (MGSIS)***

The original Male Genital Self-Image Scale (MGSIS) (Herbenick et al., 2013) translated and adapted to Portuguese (Mendes et al., 2021) has been proved to present psychometric robustness in the assessment of genital self-image.

The Portuguese version of MGSIS is composed of 7 self-response items, in which participants rate their level of agreement with each item on a 4-point Likert-type scale, ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). The sum of the 7 items generates an overall score ranging from 7 to 28, with higher scores indicating greater satisfaction with men's genital self-image.

The original scale reports a high internal consistency with a Cronbach's alpha of 0.93 and the Portuguese adaptation a value of 0.87. These values give a good reliability to the scale.

***Beliefs About Penis Size Scale (BAPSS)***

The original Beliefs About Penis Size Scale (BAPSS) (Veale et al., 2014) has been used to measure various manifestations of shame about their perceived small penis and extreme self-consciousness. The original study showed that this instrument has a strong positive correlation with the overall satisfaction with penile size and the

importance attached to it. It can provide practitioners with an understanding of their patient's beliefs about their penis size.

The BAPS scale was generated from an initial item pool of 18 items based on clinical interviews and case reviews of eight men who were preoccupied and anxious about their penis size (and whose sizes were in the normal range). This instrument consists of 10-questions in which the respondent is asked to rate how strongly he agrees or disagrees with each of the statements, using a five-point Likert scale from 1 ("Strongly disagree") to 5 ("Strongly agree"). The total range of the final version is 10–50. A higher score therefore represents a greater level of shame about penis size (Veale et al., 2014).

Two of the items measure internal self-evaluative beliefs (such as being "abnormal"). There are three items that describe a social cognitive component with predictions such as being talked about by others. There are three items on anticipated consequences of a small penis size such as having to avoid situations where they may be naked. Lastly, there are two items on extreme self-consciousness - for example, the belief that others will be able to see the size of their penis even when they are not naked.

The original scale reports a high internal consistency with a Cronbach's alpha of 0.95.

Since there was no Portuguese validated translation for men, a formal translation and back translation was made. This was performed by a team composed of a Portuguese-English bilingual and two Portuguese proficient in English language. The obtained scale was then evaluated by a team of five doctors (four specialists in Plastic Surgery and one Urologist) and a psychologist. This review motivated some adjustments to make the resulting questionnaire more suitable for the general population as well as making the language more accurate.

***Self-Esteem and Relationship Questionnaire (SEAR-Q)***

The original Self-Esteem and Relationship Questionnaire (SEAR-Q) (Cappelleri et al., 2004) has been validated as a measure of the emotional impact that Erectile Dysfunction can have on men. However, this questionnaire has been translated into Portuguese and validated to assess the emotional impact of urinary incontinence in

women (Pais Ribeiro & Raimundo, 2005). With that in mind, this instrument is an adaptation of the previously validated Portuguese scale, but with the original intent of evaluating the psychosocial well-being and functioning as well as the sexual functioning of men. This scale was then evaluated by the previously mentioned team of doctors to certify its clarity for the general population.

The SEAR-Q provides a three-level assessment that includes an overall assessment, a domain-specific assessment (Sexual Relationship and Confidence domains) and an assessment of components (Self-Esteem and Overall Relationship subscales of the Confidence domain) of a domain. It is composed of a 14-item Likert-type scale ranging from 1 (Almost Never/Never) to 5 (Almost Always/Always) and participants rate the frequency with which they agreed with each item during the previous four weeks. All questions are phrased positively except for questions 8 and 11.

As the original author described, the intent of not wording all items positively or all items negatively was to avoid a bias toward agreement, that is, a tendency of respondents to agree with items irrespective of their content. Each domain (Sexual Relationship, items 1–8; Confidence, items 9–14), subscale (Self-Esteem, items 9–12; Overall Relationship, items 13 and 14), and overall scores (items 1–14) were computed by summing their respective items. Each domain score, subscale score and overall score was transformed onto a 0–100 scale using the following equation, as described in the original study (Cappelleri et al., 2004).

***Transformed score** = 100 x [**Actual raw score – Lowest possible raw score**) / **Possible raw score range**]*

Higher scores indicated a more favorable response (0 = least favorable, 100 = most favorable).

The original scale reports a high internal consistency with Cronbach's alpha value for the Sexual Relationship domain, the Confidence domain, and overall score were 0.91, 0.86 and 0.93, respectively. Cronbach's values for the Self-Esteem and Overall Relationship subscales of the Confidence domain were 0.82 and 0.76, respectively. The Portuguese version exhibits values of internal consistency ranging from 0.73 to 0.92 for the domains and subscales but has a 0.90 Cronbach alpha to the overall score.

**Statistical Analysis**

The data were analyzed with IBM SPSS Statistics version 28.0 (IBM SPSS Inc., Chicago, IL) for the statistical analysis. The Cronbach *alpha* was calculated for all the scales that didn't have a previously validated Portuguese questionnaire for this population to assess the reliability of these instruments. A mean comparison and a Mann-Whitney U test was applied for the remaining descriptive analysis of each scale. Finally, the correlation between each scale itself and each scale to the major physical outcomes were analyzed through Spearman's rho correlation Test. All values shown are rounded to a maximum of two decimal places.

## RESULTS

### Groups

As mentioned before, participants were divided into two groups, men who underwent penile augmentation surgery in the past (intervention group) and men with a surgical indication considered equivalent who were waiting to undergo the procedure at the time they accepted to participate in the study (control Group).

A total of 47 men underwent penile augmentation surgery between January 2015 and January 2023, in Clínica LMR – Cirurgia Plástica", in Lisbon, by the same surgeon, using the same surgical technique. The research team was able to contact 32 of those men, of which 19 of them accepted to participate, filling out the questionnaire by the deadline in November 2023. This gave us a 59,4% response rate.

For the control group, a total of 31 men visited the clinic and expressed their desire to be submitted to the surgery between January 2021 and March 2023. We were able to contact 27 men, from which 13 filled out the online questionnaire. The response rate was 48.1%.

### Demographic Data

Men from the intervention group had a mean age of 40,05 years old (ranging from 23 to 67 years of age) which was similar to the control group with mean age of 40,62 years old (ranging from 20 to 60 years of age).

Most patients were heterosexual men (Intervention group, n=19, 94,7%; Control group, n=13, 100%) with only one (1) person to report being homosexual between the two groups (who belonged to the intervention group). In relation to marital status, in the intervention group the majority of men was in a relationship, whether registered or non-marital (n=19, 63,2%), as in the control group (n=13, 53,8%). When asked about their work status, the sample predominantly self-reported as working in a full-time job in both samples (Intervention group, n=19, 94,7%; Control group, n=13, 76,9%). Finally, about the highest level of education, the population was distributed across all categories. The description of the variables are highlighted in Table 2.

Table 2. Demographic Data (n=32)

| Variable | Intervention Group (n=19) | | Control Group (n=13) | |
|---|---|---|---|---|
| **Age** (Mean, in years) | 40,05 | | 40,62 | |
| **Sexual Orientation** | **Nº** | **Percentage (%)** | **Nº** | **Percentage (%)** |
| Heterosexual | 18 | 94,74 | 13 | 100 |
| Homosexual | 1 | 5,26 | 0 | 0 |
| **Marital Status** | **Nº** | **Percentage (%)** | **Nº** | **Percentage (%)** |
| Single | 4 | 21,05 | 5 | 38,46 |
| Married (registered or non-marital partnership) | 8 | 42,11 | 3 | 23,08 |
| Relationship (neither registered nor non-marital partnership) | 4 | 21,05 | 4 | 30,77 |
| Divorced/Separated | 2 | 10,53 | 1 | 7,69 |
| Widowed | 1 | 5,26 | 0 | 0 |
| **Highest Level of Education** | **Nº** | **Percentage (%)** | **Nº** | **Percentage (%)** |
| Primary School (9th grade) | 5 | 26,32 | 3 | 23,08 |
| Secondary School (12th grade) | 5 | 26,32 | 4 | 30,77 |
| University Undergraduate Degree | 7 | 36,84 | 2 | 15,38 |
| University Master Degree | 1 | 5,26 | 4 | 30,77 |
| University Postgraduate Degree | 1 | 5,26 | 0 | 0 |
| **Work Status** | **Nº** | **Percentage (%)** | **Nº** | **Percentage (%)** |
| Full-time job | 18 | 94,74 | 10 | 76,92 |
| On temporary leave | 0 | 0 | 1 | 7,69 |
| Unemployed | 0 | 0 | 1 | 7,69 |
| Retired | 1 | 5,26 | 1 | 7,69 |

**Penile Dimensions**

Sixteen participants (84,21%) completed both pre and immediate postoperative penile length size measurements. The mean flaccid length preoperative was 9,32 ± 1,82 cm (ranging from 6,10 cm to 12,85 cm) and it increased to 11,86 ± 1,72 cm (ranging from 8,72 cm to 14,50 cm) in the immediate postoperative period. The average increase was 2,54 ± 1,01 cm, a 29,06% increase, ranging from 1,12 cm to 4,40 cm.

Seven participants (43,75%) performed preoperative penile girth size measurements. The mean flaccid girth/perimeter preoperative was 3,29 ± 0,57 cm (ranging from 2,59 cm to 4,05 cm).

When asked directly about it, most patients verbalized having the subjective sensation of greater enlargement in the flaccid penis than when erect, although no objective measurements of erection were made.

### Motivations

Patients provided a range of reasons to be submitted to penile augmentation surgery. As provided in Table 3, the most common motivation (and most common sole motivation) was to change their penile size or appearance. The next common causes were to improve their self-confidence or self-esteem, the desire to have and give more sexual pleasure, and, finally, due to feelings of inferiority towards others.

The four (4) themes agreed on are “Change Penile Size/Appearance”, “Improve Confidence”, “Sexual Reasons” and “Feelings of Inferiority”.

Table 3. Motivations for Penile Augmentation Surgery by theme (n=32)

| Theme | Examples | Nº (%) | Nº (%) as sole reason |
|---|---|---|---|
| **Change penile size / appearance** | "To have more length and thickness."; "Dissatisfaction with penis size." | 17 (63.1%) | 8 (31.5%) |
| **Improve confidence** | "Improve self-esteem"; "I didn't feel like a whole man." | 11 (21.1%) | 6 (10.5%) |
| **Sexual reasons** | "Difficulty in interacting with women in a sexual sense."; "Sexual pleasure in the relationship for both of us." | 9 (26.25%) | 3 (10.5%) |
| **Feelings of inferiority** | "When I was in school, I didn't take showers during physical education classes out of embarrassment."; "I felt inferior." | 8 (31.5%) | 2 (10.5%) |

### Importance Attached to Penis Size

As seen in Table 4, we can observe the distribution of the importance given to the penis size, valued from 1 (Totally disagree that the penis size doesn’t matter) to 7 (Totally agree that the penis size doesn’t matter). Men from the intervention group gave more value to the penis size – 2,11 score (Moderately disagree) on average – compared to men from the control group, who valued on average 3,23 (Slightly disagree). In general, it is observed a high valorization of the penis size by this sample of men, with an average score of 2,56.

Table 4. Importance attached to Penis Size (n=32)

| Totally Agree - n (%) | | Moderately Agree - n (%) | | Slightly Agree - n (%) | | Neither Agree nor Disagree - n (%) | |
|---|---|---|---|---|---|---|---|
| **ITV** | **CTL** | **ITV** | **CTL** | **ITV** | **CTL** | **ITV** | **CTL** |
| 1 (5.26) | 1 (7.69) | 0 (0) | 0 (0) | 1 (5.26) | 2 (15.38) | 1 (5.26) | 4 (30.76) |

| Slightly Disagree - n (%) | | Moderately Disagree - n (%) | | Totally Disagree - n (%) | |
|---|---|---|---|---|---|
| **ITV** | **CTL** | **ITV** | **CTL** | **ITV** | **CTL** |
| 2 (10.52) | 1 (7.69) | 4 (21.05) | 1 (7.69) | 10 (52.63) | 4 (30.76) |

ITV – Intervention Group; CTL – Control Group

### Satisfaction with the Penis

The satisfaction with one's penis is summarized in Table 5. To evaluate its internal consistency, the Cronbach *alpha* was calculated and a value of 0,76 was obtained. After the procedure, most men from the intervention group classified their satisfaction with the penis as 5 ("Slightly") or 6 ("Moderately Satisfied"), especially in the "Size" variable. This average value (4,63) was higher when compared to the control group (2,69) and was statistically significant *(t=2,86; p=0,007; Cohen's d=1,86).*

The mean scores appeared to be higher in the "Size" and "Appearance" variables, but there only was proven significance *(p)* in the "Size" variable. Effect size *(r)* was also determined and through the Mann-Whitney U Test it was concluded that there was only statistical difference in the component of "Size" between the intervention group and the control group. These results translated a greater satisfaction in men submitted to Penile Augmentation Surgery, especially related to the size of their penis.

Table 5. Satisfaction with the Penis (n=32)

| | Intervention Group | | Control Group | | | |
|---|---|---|---|---|---|---|
| **Item** | **Mean Score** | **SD** | **Mean Score** | **SD** | **Bilateral Significance *(p)*** | **Effect Size *(r)*** |
| **1. Penile Size** | 4,63 | 1,80 | 2,69 | 1,93 | <0,05 | -0,46 |
| **2. Penile Appearance** | 4,42 | 1,61 | 3,85 | 2,08 | - | -0,11 |
| **3. Penile Function** | 5,47 | 1,71 | 5,77 | 2,01 | - | -0,18 |
| **Total Score** | 14,53 | 4,45 | 12,31 | 4,87 | - | -0,26 |

SD – Standard Deviation

The perceived impacts of the Penile Augmentation Surgery on the lives of men from the intervention group can be observed in Table 6. Most of the answers indicated several impacts, with some showing both positive and negative impacts in each answer.

The seven (7) themes agreed on were “Increased confidence”, “Better sexual performance”, “No negative impact”, “Aesthetic concerns”, “Pain”, “Adaptation problems” and “Unmet expectations”. More than half of the men reported an improvement in their confidence (63.15%), being the most referred to as sole reason with “No negative impact”.

No serious complication was observed. Only a minority of participants (n=3) reported post procedure complications that included one (1) wound infection and two (2) scarring concerns. No changes in the stability of the penis or in the angle of erection or other changes of erectile function were reported.

Table 6. Self-reported Impacts of Penile Augmentation Surgery (n=32)

| Theme | Example | Nº (%) | Nº (%) as only reason |
|---|---|---|---|
| **Confidence Improvement** | "Increase in confidence."; "Now I can feel comfortable being naked." | 12 (63.15) | 7 (36.84) |
| **No negative impact** | - | 10 (52.63) | 7 (36.84) |
| **Better Sexual Performance** | "Increase in creativity in sexual practices."; "Excellent feedback from my partners." | 5 (26,31) | - |
| **Aesthetic concerns** | "When erect, it tilts slightly to the left."; "Presence of a scar." | 4 (21.05) | - |
| **Unmet expectations** | "I feel that it did not meet the expectations I was looking for, and I still have the same insecurities, although to a lesser extent." | 4 (21.05) | - |
| **Pain** | "Initially I had painful erections."; "Pain that lasted for one to two weeks." | 3 (15.78) | - |
| **Adaptation Problems** | "The adaptation of my wife was slow."; "The daily use of a vacuum pump was a problem." | 3 (15.78) | - |

### Male Genital Self-Image (MGSI) Scale

The mean total score for the MGSI Scale, as well as the mean score for each item, were compared between the two groups (as shown in Table 7). In general, the mean scores from the intervention group were superior to those from the control group, establishing some degree of greater satisfaction with their genital appearance. However, effect size *(r)* ranged from -0,04 to -0,42, which means only some parameters (as questions 4 and 7) show a practical significance of a better psychological outcome of this intervention. The Mann-Whitney U test showed that this difference between groups was statistically significant only for the perceived satisfaction component *($p < 0,05$).*

Table 7. Descriptive statistics for the MGSIS

| Item | Intervention Group | | Control Group | | Bilateral Significance *(p)* | Effect Size *(r)* |
|---|---|---|---|---|---|---|
| | Mean Score | SD | Mean Score | SD | | |
| 1. I feel positively about my genitals. | 3,05 | 0,97 | 2,46 | 1,05 | - | -0,29 |
| 2. I am satisfied with the appearance of my genitals. | 2,84 | 0,90 | 2,69 | 1,11 | - | -0,07 |
| 3. I would feel comfortable letting a sexual partner look at my genitals. | 3,37 | 0,76 | 3,08 | 1,19 | - | -0,08 |
| 4. I am satisfied with the size of my genitals. | 2,89 | 0,99 | 1,92 | 1,12 | <0,05 | -0,42 |
| 5. I think my genitals work the way they are supposed to work. | 3,37 | 0,90 | 3,54 | 0,97 | - | -0,16 |
| 6. I feel comfortable letting a healthcare provider examine my genitals. | 3,42 | 0,90 | 3,46 | 0,66 | - | -0,04 |
| 7. I am not embarrassed about my genitals. | 3,16 | 0,90 | 2,46 | 1,20 | - | -0,30 |
| **Total Score** | 22,11 | 4,84 | 19,62 | 5,92 | - | -0,23 |

SD – Standard Deviation

### Beliefs About Penis Size (BAPS) Scale

To assess the internal consistency of this questionnaire, the Cronbach *alpha* was determined. The obtained value (0,91) indicates a high internal consistency.

The Kaiser-Meyer-Olkin (KMO) and Barlett's test of sphericity were used for factor analysis. These indicated that correlations between items were sufficiently large for

factor analysis (KMO index=0,79; $x^2$=216,059; df= 45; $p$<0,001*)* and that communality was >0.4 for all items as shown in Table 8, a value commonly accepted as sufficient. This indicates how much each factor contributes to the explanation of the differences we see in the variables we're studying.

Table 8. Exploratory factor analysis for one Factor

| Item | Factor 1[a] | Communality |
|---|---|---|
| 1. I will be alone and without a partner. | 0,57 (0,82) | 0,57 (0,67) |
| 2. I will be laughed at by my partner in a sexual situation. | 0,78 (0,88) | 0,69 (0,78) |
| 3. I will not be able to have children. | 0,59 (0,57) | 0,68 (0,32) |
| 4. I will never feel just "right". | 0,77 (87) | 0,67 (0,76) |
| 5. I will not be able to be naked in front of other men (e.g. in changing rooms or in intimacy). | 0,71 (0,77) | 0,50 (0,60) |
| 6. I will not be able to be naked in front of women. | 0,79 (0,86) | 0,88 (0,75) |
| 7. Others will talk or laugh about my penis. | 0,9 (0,88) | 0,84 (0,78) |
| 8. Others will be able to see the size or shape of my penis even when I have my trousers on. | 0,58 (0,68) | 0,65 (0,46) |
| 9. I will feel self-conscious in sexual situations. | 0,84 (0,85) | 0,71 (0,72) |
| 10. I will feel abnormal. | 0,85 (0,92) | 0,76 (0,85) |

[a] in parentheses is the original value, as described by Veale et al. (2013).

The mean total score for the BAPS Scale, as well as the mean score for each item, were compared between the two groups (as shown in Table 9). In general, the mean scores from the intervention group were lower to those from the control group. Since the questionnaire is negatively written, we can establish some degree of greater self-appreciation and less shame about their perceived small penis in those who were submitted to surgery.

However, effect size *(r)* ranged from 0 to -0,26 with a mean result of -0,19. This means that there is a low practical significance of a better psychological outcome of this intervention.

The Mann-Whitney U Test applied concluded that in none of the observed components there was a statistically significant difference between groups *(p<0,05).*

Table 9. Descriptive statistics for the Beliefs About Penis Size Scale

| Item | Intervention Group | | Control Group | | Bilateral Significance *(p)* | Effect Size *(r)* |
|---|---|---|---|---|---|---|
| | Mean Score | SD | Mean Score | SD | | |
| 1. I will be alone and without a partner. | 1,63 | 1,12 | 1,77 | 1,24 | - | -0,09 |
| 2. I will be laughed at by my partner in a sexual situation. | 1,79 | 1,08 | 1,92 | 1,12 | - | -0,06 |
| 3. I will not be able to have children. | 1,32 | 0,82 | 1,92 | 1,32 | - | -0,26 |
| 4. I will never feel just "right". | 2,47 | 1,43 | 2,54 | 1,45 | - | -0,04 |
| 5. I will not be able to be naked in front of other men (e.g. in changing rooms or in intimacy). | 2,32 | 1,73 | 3,23 | 1,48 | - | -0,29 |
| 6. I will not be able to be naked in front of women. | 2,11 | 1,56 | 1,77 | 1,17 | - | -0,04 |
| 7. Others will talk or laugh about my penis. | 2,26 | 1,66 | 2,62 | 1,33 | - | -0,18 |
| 8. Others will be able to see the size or shape of my penis even when I have my trousers on. | 2,63 | 1,64 | 2,54 | 1,45 | - | 0,00 |
| 9. I will feel self-conscious in sexual situations. | 2,74 | 1,63 | 2,46 | 1,20 | - | -0,06 |
| 10. I will feel abnormal. | 2,11 | 1,49 | 2,08 | 1,19 | - | -0,03 |
| **Total Score** | 21,37 | 11,74 | 22,85 | 7,68 | - | -0,19 |

SD – Standard Deviation

### Self-Esteem and Relationship (SEAR) Questionnaire

To assess the internal consistency of this questionnaire, the Cronbach *alpha* was determined. The obtained value for the Overall Score was 0,94 and for the Sexual Relationship and Confidence domains was 0,89 and 0,91, respectively. Finally, the value for the Self-esteem and Overall Relationship subscales was 0,88 and 0,83, respectively. These values indicate a high internal consistency in all the parameters evaluated by this scale.

The mean total score for the SEAR Questionnaire, as well as the mean score for each item, were compared between the two groups (as shown in Table 10). In general, the mean scores from the intervention group were superior to those from the control group, achieving a certain level of improved self-esteem, increased confidence, and lesser influence in each person's relationships.

The effect size for each domain, subscale and overall score ranged from -0,25 to -0,32, meaning that there is some practical significance of a better psychological outcome of this intervention. However, it ranged from 0 to -0,42 in each parameter, indicating limited practical applications in some of them.

On the other hand, the Mann-Whitney U Test concluded that only in some items (4, 7, 12 and 14) we can prove that there was a statistically significant difference between groups *(p<0,05).* Even on the overall score and each domain and subscales there wasn't a verified significance, although it is near the defined value.

Table 10. Descriptive statistics for the Self-Esteem and Relationship Questionnaire

| | Intervention Group | | Control Group | | | |
|---|---|---|---|---|---|---|
| **Item** | **Mean Score** | **SD** | **Mean Score** | **SD** | **Bilateral Significance *(p)*** | **Effect Size *(r)*** |
| **1.** I felt relaxed about initiating sex with my partner. | 4,00 | 1,16 | 3,77 | 1,48 | - | -0,06 |
| **2.** I felt confident that during sex my erection would last long enough. | 4,11 | 1,05 | 4,08 | 1,12 | - | -0,01 |
| **3.** I was satisfied with my sexual performance. | 4,32 | 1,16 | 3,77 | 1,30 | - | -0,25 |
| **4.** I felt that sex could be spontaneous. | 4,58 | 0,84 | 3,62 | 1,45 | <0,05 | -0,42 |
| **5.** I was likely to initiate sex. | 4,21 | 1,23 | 4,08 | 1,44 | - | 0,00 |
| **6.** I felt confident about performing sexually. | 4,11 | 1,33 | 3,62 | 1,26 | - | -0,23 |
| **7.** I was satisfied with our sex life. | 4,26 | 1,24 | 3,31 | 1,32 | <0,05 | -0,39 |
| **8.** My partners were unhappy with the quality of our sexual relations. | 4,05 | 1,13 | 3,85 | 1,28 | - | -0,06 |
| **9.** I had good self-esteem | 4,00 | 1,25 | 3,00 | 1,47 | - | -0,34 |
| **10.** I felt like a whole man. | 3,95 | 1,27 | 3,31 | 1,49 | - | -0,22 |
| **11.** I was inclined to feel that I am a failure. | 4,00 | 1,41 | 4,00 | 1,23 | - | -0,03 |
| **12.** I felt confident. | 4,11 | 1,33 | 3,08 | 1,38 | <0,05 | -0,36 |
| **13.** My partners were satisfied with our relationship in general. | 4,05 | 1,27 | 3,62 | 1,39 | - | -0,17 |
| **14.** I was satisfied with our relationship in general. | 4,42 | 0,96 | 3,38 | 1,33 | <0,05 | -0,44 |
| 1st Domain: **Sexual Relationship** | 80,10 | 24,03 | 68,99 | 20,83 | 0,08 | -0,31 |
| 2nd Domain: **Confidence** | 77,19 | 24,43 | 59,94 | 30,22 | 0,09 | -0,30 |
| - Subscale: **Self-esteem** | 75,33 | 27,60 | 58,65 | 31,20 | 0,16 | -0,25 |
| - Subscale: **Overall Relationship** | 83,04 | 22,03 | 66,67 | 29,05 | 0,10 | -0,31 |
| **Total Score** | 78,85 | 23,68 | 65,11 | 23,52 | 0,07 | -0,32 |

SD – Standard Deviation

**Correlations**

Using Spearman's rho correlation coefficients between the total scores of each psychological scale, concurrent and convergent validity was investigated. In Table 11, we can analyze each questionnaire's correlations.

Table 11. Spearman's rho correlation coefficients between questionnaires

| | MGSIS | BAPSS | SEAR-Q | Importance attached to Penis Size |
|---|---|---|---|---|
| **Overall Satisfaction with the Penis** | 0,52* | 0,03** | 0,48* | -0,25** |
| **MGSIS** | | -0,49* | 0,79* | 0,09** |
| **BAPSS** | | | -0,50* | -0,23** |
| **SEAR-Q** | | | | 0,03** |

*Significant correlation at $p<0,01$

**No proved significant correlation

A strong significant correlation was found between the MGSI Scale and the SEAR Questionnaire (0,79; $p<0,001$). There were other moderate significant correlations found between the other questionnaires: MGSI and Overall Satisfaction with Penis Size (0,52; $p=0,002$), MGSIS and BAPSS (-0,49; $p=0,004$), Overall Satisfaction and SEAR-Q (0,48; $p=0,006$) and, finally, BAPSS and SEAR-Q (-0,50; $p=0,004$). No correlation was found between the importance attached to the penis size and the other scales.

When correlating the physical outcomes obtained by each man (initial and final penis length and absolute and relative penile length gain, as well as initial penis' girth) with the overall scores of each psychological scale, it wasn't possible to affirm with statistical significance the existence of impact of the overall gains in size on the scores obtained in the psychological scales.

## DISCUSSION

### Validation of the Beliefs About Penis Size Scale

As previously mentioned, the BAPS Scale evaluated in this study has a Cronbach *alpha* of 0,9, similar to what was observed in Veale et al. (2014). This value presents us with a good reliability and internal consistency of the instrument.

The author also described that with a moderate KMO and Bartlett's test of sphericity, correlations between items were sufficiently large for factor analysis and that communality needed to be >0.3 for all items.

Neither the Mann-Whitney U Test proved that there was a statistically significant difference between groups, nor the effect size was large enough to assess a statistically significant effect. Therefore, more studies should be conducted with a higher number of participants.

A validity's limitation of this questionnaire is that no test–retest reliability has been conducted and this will also need to be evaluated in future studies.

These statistics only prove that the obtained scale might be suitable for measuring internal self-evaluative beliefs and extreme self-consciousness about their perceived small penis as an outcome measure after treatment or to evaluate patients before being submitted to penile augmentation surgery to assess each patient's beliefs about their penis size.

### Validation of the Self-Esteem and Relationship Questionnaire

As described by Pais Ribeiro & Raimundo (2005), the Portuguese version of the SEAR-Q can be used to evaluate men and women by changing the item who refers to erection. However, the behavior of men who performed this questionnaire had never been studied in this population.

This instrument demonstrated a high internal consistency with a Cronbach *alpha* of 0,94 for the Overall scale and higher than 0,80 for the remaining domains and subscales present in it. Therefore, by having such a similarity with the original study of Cappelleri et al. (2004), it presents a good reliability.

The Mann-Whitney U Test proved there wasn't a statistically significant difference between every group. This might be seen with caution, given that the sample number of participants does not reach the common value of five times the number of items necessary for a more comfortable statistical manipulation.

These statistics prove that the obtained scale is suitable for measuring sexual relationship, confidence and self-esteem of men, although more studies should be performed with a higher number of participants.

**Demographic Evaluation**

In terms of the demographic characteristics of this population, the majority were middle aged heterosexual full-time workers, with only one man reported to be homosexual. When compared with previous penile enhancement studies (Sharp et al., 2022, 2023), the same variation was observed.

It is curious that the majority of our population self-reported as heterossexual since gay men are reported to be one of the fastest-growing client bases in the aesthetic surgery industry (Rashid et al., 2021). This value is below the percentage of non-heterossexual men in the general population and we can think that there might have been a sub-estimation of the number of this specific population. A simple explanation for that could be the fact that those men don’t want to expose themselves to others as “gay”, due to the common ostracization and bullying this community suffers. Another explanation could be the fact that heterosexual men feel more pressured by society to be more masculine or strong. Since we've already seen that the penis is strongly associated as a symbol of virility and power, this may be an added pressure that these men feel to enhance their feelings or insecurities. However, this data is difficult to obtain since surgeons rarely ask patients about their sexual orientation. Thus, more studies should focus on the understanding of why heterosexual population is more influenced or motivated to seek this type of surgery.

The reason why this population, which mainly reports as full-time workers, is seeking and undergoing this type of surgery can be explained by the fact that some financial investment is necessary for it to occur. As mentioned earlier, this study and kind of surgery are conducted in a private unit, and therefore, a high value is required for the

performance of these procedures. Thus, we can easily conclude that it is men of an intermediate age range (around 40 years old) who already have some economic power and stability (and therefore, probably work full-time) who can undergo Penile Augmentation Surgery.

**Why Penile Augmentation Surgery?**

This study is one of the first to conduct a thorough examination of the psychological outcomes of Penile Augmentation surgery using both qualitative and quantitative methods. As so, we provide several new insights about what is related to the psychosexual experience of men who are submitted to this procedure. Since there is little information about what is felt by this population, the comparison of the outcomes was difficult.

Regarding the motivations behind their decision, the male population stated that they had a variety of reasons for wanting to undergo the procedure. The most prevalent answer was the need to improve their overall penile perception of themselves, followed by the improvement of their own self-esteem.

This finding is corroborated by previous researches that the men's self-confidence is impacted by their ideal penile "self-should" size (Alter et al., 2011; Lever et al., 2006) and they may seek a medical solution as an attempt to improve their self-worth. This complexity is expected when there is a high correlation between their perceived penis size and feelings of masculinity (Sharp & Oates, 2019). Because of that, men who are considered normal-sized might request penile augmentation because of their altered perception of the size of the organ.

Several studies have found increased Body Dysmorphic Disorder (BDD) incidence among patients who search cosmetic procedures, when compared to the general population (Sarwer & Spitzer, 2012). Although this was not proved to happen in those who requested Penile Augmentation Surgery, a high importance was still attributed to penis size, as seen in our population, much more than women do in the general population (Francken et al., 2002; Lever et al., 2006). This implies that men's motivations for desiring these kinds of procedures are complex and need to be correctly addressed through a methodic and clear explanation (Ghanem et al., 2013b).

With that in mind, when working with men desiring penile augmentation surgery, we suggest physicians to contact other professionals, such as psychiatrists or psychologists to form a multidisciplinary team capable of addressing more robust psychological evaluations of patients (Schifano et al., 2022).

**Satisfaction with Penile Augmentation Surgery**

Although the current study is mainly focused on psychological outcomes, penile length has been measured for this sample of men. Even though there is no consensus in the literature on what is considered a normal penis size, prior to surgery the mean flaccid length was within what is considered the normal size range and increased 2,41 cm (27,33%) in the immediate postoperative, a value that is similar to those reported in previous reviews of Penile Augmentation surgery (Panfilov, 2006; Vyas et al., 2020a). It should be noted that few men attended all the scheduled post-operative appointments at 1 week, 1 month, 6 months and 1 year after the procedure. Even though they were made for every patient, the long-term permanent effect and statistical correlation could not be measured.

On average, after surgery, most participants were considered to be more pleased with the size and appearance of their penis, when compared to those not yet submitted to the procedure. Several men who took part in our study expressed high satisfaction, with some saying that their expectation for size increases were exceeded. These satisfaction values are slightly lower than those reported in other nonsurgical medical penile girth augmentation studies (Sharp & Oates, 2019), but higher or similar to studies related to surgical techniques (Li et al., 2006; Shprits et al., 2017; Vardi et al., 2008; Vyas et al., 2020a). There could be a lot of explanations to why satisfaction rates are higher in non-invasive procedures. Firstly, men can have higher expectations with invasive methods when compared to non-invasive due to the high investment they are making; invasive methods can also imply a longer recovery period, with more pain and discomfort generating a frustration that is not compensated by the increase of the organ in their perspective; finally, men who seek invasive methods might have more serious conditions with greater stigmas of the importance of the penis which can not be completely satisfied by surgery.

However, concerning the component of penile function, there was almost no difference between the two groups. This might be explained because functionality is not one of the biggest concerns for those who want to be submitted to this kind of surgery. Almost all men from this sample have a high score in this variable and since they started with an acceptable score, these men's potential for improvement in organ functionality is limited.

The complications perceived by the participants were self-nominated, so a thorough analysis of its content was evaluated by the main physician, comparing them to the clinical records. In this study, the complication rate was low (n=3; 15,8%), similar results to those of recent revisions of clinically relevant studies on different surgical techniques (Littara et al., 2019; Vardi et al., 2008; Vyas et al., 2020a). One of the most common complications classically attributed to the section of the suspensory ligament technique is instability and loss of erection angle. In practice, even though all the patients were questioned directly, we have absolutely no patients reporting this change (bearing in mind that no objective measurements were taken).

It's also important to note that we attribute the perception of greater enlargement in the flaccid state to the natural forward movement of the penis' root that occurs when erect, which is the part recruited in the surgical technique.

This proves that the procedures performed in this study are safe and might contribute to participants' satisfaction improvement.

**Psychological Outcomes – Male Genital Self-Image Scale**

According to the Portuguese version of the MGSI Scale, penile augmentation surgery appears to increase genital self-image in addition to being a safe surgery with a good aesthetic effect.

Significant improvements in size satisfaction (as indicated by the decrease in the score of question 4) and body positivity (as evidenced by the decrease in the score of questions 1 and 7) were observed. These are the questions that present the biggest size effect (r=-0,42; r=-0,29; r=-0,30, respectively), representing a more meaningful difference between groups.

However, as seen in questions 5 (“I think my genitals work the way they are supposed to work.”) and 6 (“I feel comfortable letting a healthcare provider examine my genitals.”), there is low to no difference between the two groups. Again, this might be explained because organ functionality is not one of the reasons for which patients seek this kind of surgery and the belief that a healthcare evaluation is a safe place in which patients trust.

The strong correlation between this questionnaire and the others applied, especially with the SEAR questionnaire, demonstrated the importance of the male perspective of their own genitals in their self-esteem and the impact of that in their relationships.

Although this study might indicate that there is a likely correlation between the procedures and a better genital self-image, only in the component of perceived satisfaction with the genital size can we prove that there was a statistically significant difference between groups. We advise future studies to engage with a bigger sample of men so that there is a probable better effect size of the results in which the validity of the scores might be greater.

**Psychological Outcomes – Beliefs About Penis Size Scale**

The results obtained by the BAPS scale don’t seem to demonstrate a proven difference between men that were submitted to surgery when compared to others that haven’t yet been submitted to surgery.

Nonetheless, the most significant difference can be observed in questions 5 (related to the inability to stand naked in locker rooms with other men) and 7 (related to the anticipated mockery that men might feel about their perceived small penis). These present, respectively, with an effect size of r=-0,29 and r=-0,18, and even though they are small values, might represent some practical significance if a larger sample of men is acquired.

It is important to highlight that these two main topics are related to what is believed to comprise Small Penis Anxiety (SPA) (Bettocchi et al., 2022). The fear or worry of one’s genitalia being observed and negatively evaluated by others for the penile size is what seems to be most reduced in men that are submitted to surgery.

However, these scores support the hypothesis that these men don't seem to suffer from severe psychological distress or extreme self-consciousness. Since even the men from the control group had an acceptable BAPS score, the possibility of improvement is limited. Nevertheless, it might underestimate the number of men who seek this kind of surgery and have a greater psychological distress. That can be explained because patients with psychiatric conditions were ruled out in the initial consultation and since adequate counseling was performed.

Finally, a moderate negative correlation was found between the total scores on the BAPS scale and the total scores on the MGSI scale and SEAR questionnaire. This supports the idea that the negative thoughts related to shame and less self-esteem are negatively correlated to better genital self-appreciation, bigger confidence and better relationships, whether in a sexual or general way.

We should look cautiously at these results. There is still a lot of grey area in what is related to the psychosexual interpretation of men's feelings and there is a lot of work to be done in this area. We advise future studies to comprise questionnaires other than the BAPS Scale to better understand the level of psychological impact in men who try to be submitted to penile augmentation surgery. Research should be using methods to evaluate the index for Penile or Body Dysmorphic Disorder and Small Penis Anxiety and each man's quality of life level.

**Psychological Outcomes – Self-Esteem and Relationship Questionnaire**

The SEAR questionnaire's scores further demonstrate the link between penile augmentation surgery and a reduction in men's emotional toll in their sexual interactions, confidence and self-esteem. According to the results, there is a significant general improvement, but also in every domain and subscale (Sexual Relationship, Confidence, Self-esteem and Overall Relationship). The biggest size effects and, consequently, practical significance of the procedures was observed in questions 4 ("I felt that sex could be spontaneous.", r=-0,42), 7 (" I was satisfied with our sex life.", r=-0,39), 9 (" I had good self-esteem.", r=-0,34), 12 ("I felt confident.", r=-0,36) and 14 (" I was satisfied with our relationship in general.", r=-0,44).

This information is very significant, since the quality of sex life and overall confidence and self-esteem are two of the most important reasons mentioned by men to seek this procedure. The increase in these parameters show a good reliability in what comes to the effects of the surgery in men that look forward to a better genital appearance and the importance they have attached to it.

However, in the questions related to the initiation of sex (1 and 5), organ functionality (2) and frustration (8 and 11) there was little to no evidence of change between groups. On the other hand, these results corroborate the already studied idea that sexual function is heavily anchored in psychological factors, rather than in objective physical values (such as larger or smaller size of an anatomically and functionally normal penis).

It's also possible that these findings underestimate the effect penile augmentation surgery has on male sexual function. Due to the fact that, while the majority of men seeking these procedures have a negative self-image of their genitalia, this is not always the case with their sexual function. Actually, most men - even those in the control group - show an acceptable SEAR-Q score in these parameters. Since they began with a high score, there is little chance that their sexual function will improve. However, the results of these surgeries are probably going to be greater for men who present with sexual anxiety.

In the future, we advise prospective studies to use this questionnaire as an outcome measure after the treatment, while also applying it as part of the initial emotional assessment of men's self-consciousness about their penile size.

**Influence of the Physical Outcomes in the Psychological Enhancement**

A true correlation between the major physical outcomes (absolute and relative length gain) and the overall scores in the scales present in this study wasn't proven. These results are consistent with prior body image studies, in which it was revealed there is no causal relationship between better objective bodily features and the psychological distress attached to it (Moss, 2005; Ong et al., 2007).

In fact, this may aid in the psychological education of men who are embarrassed about their genitalia's size. A man's perspective of adequacy of his penis might not necessarily coincide with the true dimensions of the organ (Spyropoulos et al., 2007b), since there are patients with larger penis than average who are ashamed about their size and there are men with smaller than average size in whom size is not an issue (Veale et al., 2014).

The inexistence of this overall perception might lead to some men having unrealistic expectations for their post-procedure penile length. Even though a thorough evaluation was performed by their physician, their reactions to the general physical improvement might be very diverse and those who believe their penile size should be even bigger might not be as satisfied as others could.

For this reason, it is essential that doctors clearly discuss the increases in length that can be expected from the surgery with the patient at the first appointment. Physicians may use pre and post-op real patient photos, three-dimensional digital models and animations of penile lengthening surgery are implemented as a resource for patient education and to facilitate patient selection (Wang et al., 2012).

**LIMITATIONS**

The most significant limitation is the fact that the sample size is not great enough to establish good effect sizes or to prove that there is statistical significance in various categories of study. Although our population was quite significant, the response rate was about fifty-nine percent, which is in line with this type of study on topics related to intimacy and sexuality, and this significantly diminishes the number of men.

Another limitation of this study comes from the retrospective nature of the research, which leaves us the uncertainty about the extent to which the concerns expressed by the men in the control group correspond to those of the men in the intervention group prior to the procedure.

Furthermore, it is important to highlight that girth measurements were not conducted post-surgery. The primary objective of this study was to assess the psychological outcomes of Penile Augmentation Surgery by the sectioning of the suspensory ligament. However, many participants also underwent autologous fat injections. Thus, it is important to investigate in the future both the isolated impact of this surgery and the influence of the penile girth increase in men's satisfaction.

Finally, there is also the fact that some of these patients did not attend all the scheduled post-operative appointments and, because of that, the long-term effect and statistical correlation of the penis' length increase could not be measured.

**CONCLUSIONS**

The Portuguese version of Beliefs About Penis Size Scale, developed in the beginning of this study, performed moderately. However, it met the needed criteria to be validated for the evaluation of extreme self-consciousness about men's perceived small penis in this population, whether as an outcome measure after treatment or before this surgery, to assess each patient's beliefs about their penis size. This is a critical step for future prospective studies to be able to undertake interventions in Portuguese populations.

As evidenced by our results, the most common man to require this type of surgery is a middle aged heterosexual full-time worker and the main reasons for which they apply for these procedures are to improve their penile aesthetics, followed by the improvement of their own self-esteem.

The vast majority of men who sought this procedure were found to fall within the normal penile length range, as indicated by the latest reviews. Every patient increased his penis in length, with a mean increase of 2,41 cm (27,33% in relative gain) and no major complication observed in the postoperative evaluation. Most participants demonstrated to be satisfied with their overall perception of the penis, especially in size. Organ functionality doesn't seem to have any change, since that isn't one of the most common concerns of men who want to be submitted to surgery.

Men from the intervention group appear to be associated, on average, with higher scores related to psychological improvements like satisfaction with penile size, body positivity, confidence and self-esteem, according to the results from the selected instruments. However, men who decide to undergo surgery don't show evidence of extreme shame or self-consciousness about their penile size.

Despite physical gains and, on average, the higher scores on these scales reflecting an improvement in individual psychological outcomes, these do not seem to be dependent on the degree of penile size increase achieved.

Future studies should evaluate in a prospective way patients that desire to be submitted to penile augmentation surgery with a complete psychological evaluation. Composing the used questionnaires with and others that could assess quality of life,

Penile Dysmorphic Disorder and self-discrepancy for penis size, we would be able to analyze the changes in each patient’s ratings both before and after surgery.

In conclusion, this study contributes to a comprehensive understanding of the outcomes associated with this surgery, including patient selection criteria. It enhances patient awareness regarding the surgery's outcomes, including both risks and benefits. This, in turn, facilitates a more informed therapeutic decision-making process for both physicians and patients alike.

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*"E assim, num abraço apertado*
*Te choro esta balada*
*De um tempo que se acaba*
*E embala-me em ti*
*Num amor sem fim.*
*Eu quero ter a vontade*
*Que rasga esta saudade de ti"*

João Pedro, Baldo, *Tav-Tav*

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**ATTACHMENTS**

The Portuguese questionnaire applied in this study, comprised of questions about the motivations to get surgery, the effects of the penile augmentation and the men's perspective about their penis, as well as the Portuguese versions of the Male Genital Self-Image Scale (MGSIS), Beliefs About Penis Size Scale (BAPSS) and Self-Esteem and Relationship Questionnaire (SEAR-Q), is shown in the following pages.

# Questionário

## Grau de Satisfação e Impacto da Cirurgia de Aumento Peniano na qualidade de vida dos homens

Este questionário pretende avaliar o seu **grau de satisfação quanto à cirurgia de Aumento Peniano** que realizou na clínica *LMR – Cirurgia Plástica*. Poderá encontrar uma descrição mais detalhada deste estudo no *documento do consentimento informado*. Por favor, assine este último documento como comprovativo de que aceita participar neste estudo.

**O tempo médio de preenchimento são 3 a 5 minutos. Obrigado pela sua participação!**

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Data: __/__/____

## Dados Demográficos

**Código:** _____

**Idade** (atual, em anos): _____

**Idade** (na altura do preenchimento do formulário, em anos): _____

**Estado Civil:** (Na altura da cirurgia. Selecione apenas uma das opções.)

- ☐ Solteiro
- ☐ Casado (registado ou união de facto)
- ☐ Numa relação (não casado nem em união de facto)
- ☐ Divorciado/Separado
- ☐ Viúvo

**Estado Civil:** (Na altura do preenchimento deste formulário. Selecione apenas uma das opções.)

- ☐ Solteiro
- ☐ Casado (registado ou união de facto)
- ☐ Numa relação (não casado nem em união de facto)
- ☐ Divorciado/Separado
- ☐ Viúvo

**Orientação Sexual:** (Selecione apenas uma das opções.)

- ☐ Heterossexual
- ☐ Homossexual
- ☐ Bissexual
- ☐ Outra Orientação (se escolheu esta opção, por favor mencione qual) _____
- ☐ Prefiro não mencionar

**Nível de Escolaridade:** (Selecione apenas uma das opções.)

- ☐ Escola Primária (4º ano de Escolaridade)
- ☐ Escola Básica (9º ano de Escolaridade)
- ☐ Escola Secundária (12º ano de Escolaridade)
- ☐ Licenciatura (ou equivalente)
- ☐ Mestrado (ou equivalente)
- ☐ Pós-Graduação
- ☐ Doutoramento

**Qual das seguintes afirmações sobre a sua ocupação se aplica a si?** (Na altura da cirurgia. Selecione apenas uma das opções.)

- ☐ Não estou a trabalhar de momento
- ☐ Estou a realizar um estágio
- ☐ Trabalho a tempo inteiro
- ☐ Estou de baixa de trabalho temporária
- ☐ Estou reformado

**Qual das seguintes afirmações sobre a sua ocupação se aplica a si?** (Na altura do preenchimento deste formulário. Selecione apenas uma das opções.)

- ☐ Não estou a trabalhar de momento
- ☐ Estou a realizar um estágio
- ☐ Trabalho a tempo inteiro
- ☐ Estou de baixa de trabalho temporária
- ☐ Estou reformado

**Qual é a sua ocupação?** (se for reformado, indique "Reformado"; se for estudante, indique "Estudante".)

_____

## Questões

**Quais foram as razões para considerar a cirurgia de aumento peniano?**

(Poderá responder a esta questão através de tópicos.)

**Que impactos positivos é que a cirurgia de aumento peniano teve na sua vida?**

(Poderá responder a esta questão através de tópicos.)

**Que complicações surgiram após a cirurgia de aumento peniano?**

(Poderá responder a esta questão através de tópicos. Se não teve complicações, indique “Não tive complicações”.)

**Indique o quanto concorda com a seguinte afirmação: "O tamanho do pénis <u>não importa</u>."**

(Nesta questão deverá selecionar com um "X" o seu grau de convicção com a afirmação mencionada através da escala que varia de "Discordo Totalmente" a "Concordo Totalmente". Selecione apenas uma das opções)

- ☐ Discordo totalmente
- ☐ Discordo moderadamente
- ☐ Discordo ligeiramente
- ☐ Não Concordo nem Discordo
- ☐ Concordo ligeiramente
- ☐ Concordo moderadamente
- ☐ Concordo totalmente

# Questionários

## Satisfação com o Pénis

Nesta questão deverá selecionar com um "X" as afirmações sobre o seu pénis relativamente ao seu tamanho, aparência e funcionalidade após a cirurgia através de uma escala de 7 pontos, que varia de 1 (Extremamente Insatisfeito) a 7 (Extremamente Satisfeito). Selecione apenas uma das opções.

| | 1. Extremamente Insatisfeito | 2. Moderadamente Insatisfeito | 3. Ligeiramente Insatisfeito | 4. Indiferente | 5. Ligeiramente Satisfeito | 6. Moderadamente Satisfeito | 7. Extremamente Satisfeito |
|---|---|---|---|---|---|---|---|
| Tamanho | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Aparência | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Funcionalidade | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Autoimagem Genital Masculina** (MGSIS - PT)

Nesta questão deverá selecionar com um "X" o quanto concorda com cada afirmação apresentada através de uma escala de 4 pontos, que varia de 1 (Discordo Totalmente) e 4 (Concordo Totalmente). Selecione apenas uma das opções.

| | 1. Discordo Totalmente | 2. Discordo Ligeiramente | 3. Concordo Ligeiramente | 4. Concordo Totalmente |
|---|---|---|---|---|
| Sinto-me positivo em relação ao meu órgão genital. | ☐ | ☐ | ☐ | ☐ |
| Estou satisfeito com a aparência do meu órgão genital. | ☐ | ☐ | ☐ | ☐ |
| Eu sentir-me-ia confortável em deixar o meu parceiro sexual olhar para o meu órgão genital. | ☐ | ☐ | ☐ | ☐ |
| Estou satisfeito com o tamanho do meu órgão genital. | ☐ | ☐ | ☐ | ☐ |
| Acho que o meu órgão genital funciona da maneira que deveria funcionar. | ☐ | ☐ | ☐ | ☐ |
| Sinto-me à vontade em deixar um profissional de saúde examinar o meu órgão genital. | ☐ | ☐ | ☐ | ☐ |
| Não tenho vergonha do meu órgão genital. | ☐ | ☐ | ☐ | ☐ |

**Crenças acerca do Tamanho do Pénis** (BAPS - PT)

Nesta questão deverá selecionar com um "X" o quanto concorda com cada afirmação apresentada através de uma escala de 5 pontos, que varia de 1 (Discordo Totalmente) a 5 (Concordo Totalmente).

| | 1. Quase nunca / Nunca | 2. Poucas vezes (muito menos que metade) | 3. Algumas vezes (cerca de metade) | 4. Muitas vezes (mais de metade) | 5. Quase sempre / Sempre |
|---|---|---|---|---|---|
| Vou ficar sozinho e sem parceiro. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Vou ser ridicularizado pelo meu parceiro numa situação sexual. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Não vou ser capaz de ter filhos. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Nunca me vou sentir "bem". | ☐ | ☐ | ☐ | ☐ | ☐ |
| Não sou capaz de estar nu em frente a outros homens (Ex: em balneários ou na intimidade). | ☐ | ☐ | ☐ | ☐ | ☐ |
| Não sou capaz de estar nu em frente a uma mulher. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Os outros poderão comentar ou rir-se do meu pénis. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Os outros poderão perceber o tamanho e forma do meu pénis através das calças vestidas. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Vou-me sentir constrangido em situações sexuais. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Vou-me sentir anormal. | ☐ | ☐ | ☐ | ☐ | ☐ |

**Satisfação com o Relacionamento Sexual** (SEAR - PT)

Nesta questão deverá selecionar com um "X" a frequência com que concordou com cada afirmação apresentada ao longo das últimas 4 (quatro) semanas através de uma escala de 5 pontos, que varia de 1 (Quase Nunca/Nunca) a 5 (Quase Sempre/ Sempre).

| | 1. Discordo Totalmente | 2. Discordo em Parte | 3. Não concordo nem discordo | 4. Concordo em Parte | 5. Concordo Totalmente |
|---|---|---|---|---|---|
| Senti-me à vontade ao iniciar relações sexuais com os/as meus companheiros/as. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Senti-me confiante de a minha ereção durar o suficiente durante o sexo. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Fiquei satisfeito com o meu desempenho sexual. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Senti que o sexo pode ser espontâneo. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Senti-me apto a iniciar relações sexuais. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Senti-me confiante no desempenho sexual. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Senti-me satisfeito com a minha vida sexual. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Os/As meus companheiros/as sentiram-se insatisfeitos com a qualidade das nossas relações sexuais. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Tenho tido boa autoestima. | ☐ | ☐ | ☐ | ☐ | ☐ |

(Continua na página seguinte.)

| | 1. Discordo totalmente | 2. Discordo em parte | 3. Não concordo nem discordo | 4. Concordo em parte | 5. Concordo totalmente |
|---|---|---|---|---|---|
| Senti-me um homem completo. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Senti-me muitas vezes falhado. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Senti-me confidante. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Os/As meus companheiros/as mostraram-se satisfeitos com a nossa relação em geral. | ☐ | ☐ | ☐ | ☐ | ☐ |
| Fiquei satisfeito com a nossa relação em geral. | ☐ | ☐ | ☐ | ☐ | ☐ |

**Muito obrigado** por ter preenchido o nosso Questionário e despender do seu tempo.

Após a análise de todos os dados, poderão ser-lhe disponibilizadas as conclusões retiradas deste estudo, se assim o entender.