

ORIGINAL RESEARCH

Evaluation of average penis length and the thoughts of Turkish men and partners. Is surgery necessary?

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Abstract

The purpose of this study was to determine the average penis length and girth among the Turkish population, and to analyse the perspectives of couples. A total of 1703 males and 139 female partners participated in this study. All the participants completed a questionnaire and the flaccid and stretched penis length and girth were recorded. The results showed that the average flaccid penis length was 8.44 ± 2.28 cm and 12.27 ± 2.91 cm stretched, with girth of 8.23 ± 2.07 cm. Regarding the importance of penis size for a satisfying sexual experience, 18.5% of men thought penis length mattered, 9.9% considered thickness important, and 71.6% thought both were significant. A majority of participants, 67.8% of males and 76% of females, expressed that erect penis length was crucial for sexual pleasure. For a healthy sexual intercourse, 19.4% of the female partners emphasized the significance of penis length, 23.7% highlighted thickness, and 56.8% emphasized both factors for a fulfilling sexual relationship. A comparison between men's stretched penis length and the ideal length for partner satisfaction revealed no statistically significant difference (13 (4.8–21) cm vs. 12 (8–20) cm, $p = 0.078$). The average penis length and girth of Turkish males were found to be similar to the data in studies of this subject in literature. Both the males and their partners thought that erect penis length and girth were important for sexual intercourse. The males considering penis lengthening and thickening procedures should know whether or not their own penis is close to the average values, to avoid undergoing unnecessary surgeries.

Keywords

Penil length; Penil girth; Penil satisfaction; Partner satisfaction

Evaluación de la longitud promedio del pene y los pensamientos de los hombres y parejas turcos. ¿Es necesaria la cirugía?

Resumen

El propósito de este estudio fue determinar la longitud y el grosor promedio del pene en la población turca y examinar las opiniones de las parejas. Este estudio incluyó a 1703 hombres y a 139 mujeres. A todos los participantes se les administró un cuestionario y se registraron la longitud y el grosor del pene flácido y estirado. La longitud del pene se determinó en 8.44 ± 2.28 cm flácido y 12.27 ± 2.91 cm estirado, con una circunferencia de 8.23 ± 2.07 cm. Para una relación sexual saludable, el 18.5% de los hombres pensaba que la longitud del pene, el 9.9% pensaba que el grosor del pene y el 71.6% pensaba que ambos eran importantes. La longitud del pene en erección era importante para la satisfacción sexual de los hombres, lo afirmó el 67.8% de los participantes, y el 76% de las mujeres afirmó que era importante para la satisfacción sexual de las mujeres. Para una relación sexual saludable, el 19.4% de las parejas femeninas pensaban que la longitud del pene, el 23.7% el grosor del pene y el 56.8% la longitud y el grosor del pene eran importantes. Cuando se compararon las longitudes del pene estirado de los hombres con las longitudes ideales del pene para la satisfacción de la pareja, no se encontró ninguna diferencia significativa (13 (4.8–21) cm frente a 12 (8–20) cm, $p = 0.078$). Se encontró que la longitud y el grosor promedio del pene de los hombres turcos eran similares a los datos de los estudios sobre este tema en la literatura. Tanto los hombres como sus parejas pensaban que la longitud y el grosor del pene en erección eran importantes para las relaciones sexuales. Los hombres que planean someterse a procedimientos de alargamiento y engrosamiento del pene deben saber si su propio pene está cerca de los valores promedio, para evitar someterse a procedimientos quirúrgicos innecesarios.

Palabras Clave

Longitud del pene; Circunferencia del pene; Satisfacción del pene; Satisfacción de la pareja

1. Introduction

A decrease in sexual function can negatively impact the psychological and social well-being of a man and quality of life. Conversely, poor mental health has been linked to impaired sexual function and satisfaction [1]. The term sexual dysfunction refers to a persistent or permanent disorder causing problems in sexual function, and is used to define sexual difficulties when a clinical diagnosis is made [2]. However, sexual difficulty refers to the concept of more general low sexual function when the presence of a problem is not clear and cannot be clinically diagnosed [3]. One of the underlying causes of both decreased sexual function and sexual difficulty may be a man's dissatisfaction with penis length [4]. As a result, urologists and even psychotherapists often treat patients who express concerns about their penis size, despite the fact that these patients typically have an average-sized penis [5].

Many men see the size of their penis as an important feature of their sexual capability, leading to concerns about their partner's satisfaction. Social messages that associate penis length with virility also trigger concerns about length [6]. Exposure to images of men with larger-than-average penises in pornographic materials and media outlets may set unrealistic standards for individuals regarding their own genital size, influencing their expectations in intimate relationships [7]. Although most men are aware that the depictions of penis size they encounter are often exaggerated, they may feel discontent with their own genital dimensions and aspire to enhance the length and girth of penis. Another societal misconception is that there is a correlation between penis size and erection. Despite the absence of a conclusive link between penis size and erection, unless there is a hormonal disorder, it is known that men with a micropenis experience diminished satisfaction from their partners due to the smaller size and reduced thickness of their penis [8]. Therefore, the main

aim of treating men with a micropenis (<2.5 SD (standard deviations) of the average penis length for age) is to increase self-confidence by lengthening the penis sufficiently to support sexual functionality [9]. This being the case, the concerns of men about their personal inadequacies have created a large market for penis enlargement products and procedures. The developing penis enlargement industry causes at least some men to spend money on expensive products and potentially high-risk operations to increase their self-confidence in their own penis length. Very few studies have been conducted about the opinions and concerns of men and their partners on this subject. Moreover, partners generally prefer not to discuss matters concerning penis size and male sexuality. In the planning of treatment for penis size, it is crucial to establish the standard values concerning the typical penis size of males residing in the specific geographic region. Nevertheless, there is a scarcity of studies in Turkey and the broader academic literature that contain penis size measurements.

An important reason for men's dissatisfaction with penis length is related to perceptions of women's preferences and prejudices that women are unhappy with their partner's penis size. This perception is often reinforced by advertising promoting penis enlargement procedures, which emphasize how women respond positively to size enhancement and how it can improve sexual satisfaction [7]. To understand the dissatisfaction of men with penis size, it is important to know the thoughts of their partners on this subject. Therefore, this study included the input of female partners of men to provide a comprehensive understanding of this issue.

The main aim of this study was to determine the average penis length and girth of males in Turkey. Additionally, the study sought to ascertain levels of satisfaction among men regarding the size and dimensions of their genitalia, explore their perspectives on sexual contentment, and gather insights

from their partners on this matter.

2. Materials and methods

This is a cross-sectional study, included data from 1703 volunteers collected from 16 urology specialists working in different geographic regions of Turkey. Inclusion criteria encompassed individuals aged between 18 and 65 years who presented at the centres involved and were willing to participate. Exclusion criteria were defined as the presence of Peyronie disease, a history of penile surgery, penile trauma, radical prostatectomy or radical cystectomy as treatment for prostate cancer, receiving intracavernosal treatment for erectile dysfunction, clinical hypogonadism or congenital penis anomaly and surgical repair.

The demographic data (height, weight, place of birth, current place of residence, marital status, education level) were recorded for each patient. Questionnaires were then completed by the patients and their partners, if they agreed to participate in the research (Table 1). After the completion of questionnaires, flaccid and stretched penis size and penis girth measurements were taken from the middle part of the penis by the data collectors of this study.

Previous research has indicated that the mean values of erect and stretched penis are closely aligned, prompting the current study to focus on stretched penis length over erect penis length [10]. Before the data collecting process, each participating center received same instruction on how to conduct penile measurements. Initially, it was requested that the same person at the centers take volunteers' penile measurements. Additionally, the examination room where the measurements were taken was required to maintain a temperature between 21 °C to 24 °C. With the patient positioned supine, the flaccid and stretched penis length was measured from the pubopenile skin junction to the urethral meatus, using a rigid ruler marked in millimetres. When measuring the stretched penis length, the stretching force was determined as the first moment that pain started to be felt. Penis girth was assessed by placing a band around the midpoint of the penis corpus, and recorded.

The sample size calculation of the study was made in the G-Power program (ver. 3.1.9.4, Heinrich-Heine-Universität Düsseldorf, Düsseldorf, NW, Germany; <http://www.gpower.hhu.de/>). In the power analysis conducted according to the single sample mean test, the required sample size was determined as minimum 327 to provide 95% test power and a small effect size of 0.20 at 95% confidence level.

Data obtained in the study were analyzed statistically using SPSS vn.25.0 software (SPSS Inc., Chicago, IL, USA). Conformity of quantitative data to normal distribution was assessed with the Kolmogorov-Smirnov test. Since the variables did not show a normal distribution, nonparametric statistical hypothesis tests were used in all analyses. Mean, standard deviation, median, minimum and maximum values were used when presenting descriptive analyses. Mann Whitney U Test was used when evaluating variables between two groups and Kruskal Wallis variance analysis for more than two groups. When a significant difference was determined as a result of the variance analyses, *post-hoc* tests were performed to determine from which group or groups the difference originated. In the comparisons between two dependent spouses, the Wilcoxon

Signed Rank test was used for quantitative variables. The relationship between quantitative variables were examined with the Spearman Correlation coefficient. Frequency and percentage values of the variables were used when presenting categorical variables. Relationships between categorical variables were examined with the Fisher-Freeman-Halton Exact Chi-square test. Differences between groups were determined by Dunn's Benferroni Test and the McNemar test for two dependent categorical variables, and the Marginal Homogeneity test for more than two dependent categorical variables. A value of $p < 0.05$ was accepted as statistically significant.

Responses of all the study participants to the questionnaires were compared according to gender with Mann Whitney U test for quantitative variables and with the Chi-square Fisher-Freeman-Halton Exact Test for the categorical variables. Flaccid and stretched penis length and penis girth values according to body mass index (BMI) were compared with Kruskal Wallis variance analysis. The relationship between stretched penis length according to height, weight and body mass index was evaluated with the Spearman correlation coefficient.

3. Results

A total of 1703 males were included in the study, and despite requests for participation, the number of female partners remained limited at 139.

The male participants had a mean age of 42 ± 15 years, height of 1.75 ± 0.06 m, weight of 79.67 ± 10.33 kg, and BMI of 26.14 ± 3.27 kg/m². Information about education level was not available for 127 participants. Primary school level of education was reported by 463 (29.4%) participants, high school by 668 (42.4%), and university by 445 (28.2%). Of the total male sample, 1222 (71.8%) were married and 481 (28.2%) were single. Flaccid penis length was measured as 8.44 ± 2.28 cm, while the stretched penis showed a mean length of 12.27 ± 2.91 cm. The girth of the penis was measured to be an average of 8.23 ± 2.07 cm.

The mean flaccid penis length was determined to be 31% (3.83 cm) shorter than stretched penis length. Satisfaction with penis length was stated by 1383 (81.2%) participants. The mean stretched penis length was statistically significantly lower than estimated by the participants (12.27 ± 2.91 cm vs. 14.75 ± 2.42 cm, $p < 0.001$). The responses of all the males and females to the questionnaires are shown in Table 2. The female partners stated that the ideal erect penis length should be 13.08 ± 2.77 cm. When the stretched penis lengths of men were compared with the ideal penis lengths for partners, no significant difference was found (13 (4.8–21) cm vs. 12 (8–20), $p = 0.078$).

A statistically significant but not high positive correlation was determined between stretched penis length and height of the individual ($p < 0.001$; $r = 0.151$) and a statistically significant but not high negative correlation was determined with BMI ($p = 0.013$; $r = -0.060$). The flaccid and stretched penis lengths and penis girth values, classified according to BMI are shown in Table 3. A statistically significant difference was observed between the BMI groups in respect of flaccid penis length ($p = 0.003$). Specifically, it was noted that overweight and obese males had shorter flaccid penis lengths

TABLE 1. Questionnaire for men & partners.

Questionnaire for Men

- (1) Are you satisfied with the length of your penis?
 Yes No
- (2) During erection, what is the length of your penis in cm?
 a. cm b. I have no idea
- (3) For a satisfying sexual life, how many cm should the penis be in erection?
 a. cm b. I have no idea
- (4) For a satisfying sexual life, what is the maximum (in cm) the penis should be in erection?
 a. cm b. I have no idea
- (5) For sexual satisfaction;
 Penis length is important.
 Penis girth (thickness) is important.
 Both are important.
- (6) Is penis length important for the sexual satisfaction of men?
 Yes No
- (7) Is penis length important for the sexual satisfaction of women?
 Yes No
- (8) Is flaccid (not in erection) penis length important for sexual satisfaction?
 Yes No

Questionnaire for Partners

- (1) During erection, what is the ideal penis length in cm?
 a. cm b. I have no idea
- (2) For a satisfying sexual life, how many cm should the penis be in erection?
 a. cm b. I have no idea
- (3) For a satisfying sexual life, what is the maximum (in cm) the penis should be in erection?
 a.cm b. I have no idea
- (4) For female sexual satisfaction;
 Penis length is important.
 Penis girth (thickness) is important.
 Both are important.
- (5) Is penis length important for the sexual satisfaction of women?
 Yes No
- (6) Is flaccid (not in erection) penis length important for sexual satisfaction?
 Yes No
-

TABLE 2. Responses of all the study participants to the questionnaires.

	All the Participants		
	Males (n = 1703) mean ± sd	Females (n = 139) mean ± sd	p value
Minimum erect penis length (cm)	13.15 ± 3.3	10.57 ± 4.3	<0.001*
Maksimum erect penis length (cm)	19.93 ± 4.73	22.30 ± 6.40	<0.001*
	n (%)	n (%)	p value
Penis length is important	315 (18.5)	27 (19.4)	
Penis girth is important	168 (9.9)	33 (23.7)	<0.001**
Both penis length and penis girth are important	1220 (71.6)	79 (56.8)	
An erect penis is important for male satisfaction	1156 (67.9)	n/a	
An erect penis is important for female satisfaction	1294 (76.0)	100 (71.9)	0.305**
The flaccid penis is important for female satisfaction	683 (40.1)	66 (47.5)	0.008**

n/a: Not available; sd: standard deviation.

**: p < 0.05 significant; Mann Whitney U test; **: p < 0.05 significant; Chi-square test.*

TABLE 3. Flaccid and stretched penis length and penis girth values according to BMI.

BMI (n)	Flaccid penis length mean ± sd	Stretched penis length mean ± sd	Penis girth mean ± sd
<18.5 (7)	8.21 ± 2.58	10.86 ± 3.46	7.87 ± 1.75
18.5–24.9 (629)	8.68 ± 2.24	12.47 ± 2.96	8.19 ± 2.06
25–29.9 (876)	8.36 ± 2.32	12.15 ± 2.90	8.25 ± 2.06
>30 (194)	8.05 ± 2.15	12.20 ± 2.78	8.31 ± 2.13
p value	0.003*	0.096	0.842

BMI: Body Mass Index; sd: standard deviation.

**: p < 0.05 significant; Kruskal Wallis variance analysis.*

compared to individuals of a healthy weight ($p = 0.038$, $p = 0.004$).

4. Discussion

Penis length is viewed as a symbol of virility by many men. Having a larger penis is often linked to a heightened sense of confidence in their own sexuality [11]. Perceived defects in physical appearance or distress caused by defects have been defined as body dysmorphic disorder by the American Psychiatry Association, with penis dysmorphism being a specific manifestation of this condition [12]. Individuals with penis dysmorphism may suffer from severe social and occupational impairments, leading to periods of major depression and potential social isolation. Given these consequences, it is utmost important that attention is paid to penis dysmorphism. The European Urology Association recommend that patients requesting penis enlargement despite having a normal penis size should undergo psychological assessments to evaluate the presence of penis dysmorphism [11]. According to a study conducted by Sharp *et al.* [13] in Australia, increasing self-confidence, altering the appearance of the penis, sexual function/pleasure, and feeling insecure are some of the reasons men seek penile girth augmentation surgery. It was shown that a large proportion of the male participants in the study were affected by body dysmorphic disorder [13]. The current

standard of care for males seeking penile enlargement surgery was examined in USA. It has been shown that these men generally have normal penis sizes. It has been stated that the majority of men struggle with small penis anxiety, small penis syndrome or body dysmorphic disorder. Instead of unnecessary surgery, structured psychological counseling is recommended for these patients [14]. In general, even though cultures are different, the problem is always similar.

A considerable number of men complain that their penis is short. Therefore, it is necessary to understand the average penis length and the definition of micropenis. A micropenis is determined when the stretched length of the penis falls below the range obtained by subtracting 2.5-fold the standard deviation from the average penis length. In the largest series study reflecting the guidelines, Veale *et al.* [15] recorded the mean stretched penis length of 15,521 Caucasian males to be 13.24 ± 1.89 cm and defined penis length <8.52 cm as micropenis [15]. However, upon closer examination, it is seen that the vast majority of these patients with this complaint do not have a problem and the main problem originates from misinformation. It is stated in the literature that if the individual does not meet the criteria for micropenis and their hypothalamic-testicular axis functions normally, treatment is not warranted [16].

A study conducted by Schonfeld and Beeberevealed that

stretched penis length is consistent with erect penis length, and stretched penis length was accepted as a suitable value to estimate erect length [17]. Khan *et al.* [18], evaluated 609 English males and determined flaccid penis length of 10.2 ± 1.4 cm and stretched penis length of 14.3 ± 1.7 cm. Similarly, a study of 1160 patients in the Far East reported flaccid penis length of 4.9 ± 1.2 cm and stretched penis length of 11.2 ± 1.3 cm [19]. The study in India determined flaccid penis length of 8.21 ± 1.44 cm, stretched penis length of 10.88 ± 1.42 cm, and penis girth of 9.14 ± 1.02 cm [20]. Comparison of these findings with the results of the present study indicates that the mean flaccid and stretched penis lengths observed in Turkish men were similar to those reported for males in other countries.

In a separate investigation involving 1132 men from Turkey, flaccid penis length was determined to be mean 9.3 ± 1.3 cm and stretched penis length was 13.7 ± 1.6 cm [21]. Compared with the data of the current study, the values of that study showed that flaccid penis length was mean 0.86 cm and stretched penis length was mean 1.43 cm longer. Analyzing the results which demonstrated longer flaccid and stretched penis lengths in healthy individuals concerning their BMI, it can be reasonably suggested that the quality of nutrition has a significant impact on penis length. However, additional research incorporating nutritional factors into the methodology is essential to substantiate this claim.

In daily practice, a great number of individuals present with the complaint of penis shortness. Research conducted by Hehemann *et al.* [22] revealed that 91% of men think their penis is shorter than average. Multiple studies suggest that most men complaining of a small-sized penis have in fact normal-sized genitals. Ninety-eight percent (246/250) of Ghanem *et al.*'s [5] patients, all of Shamloul's [23] (92 patients), all of Spyropoulos *et al.*'s [24] (28 patients), and all of Mondaini *et al.*'s [25] (44 patients) patients had a normal penile size. The collective evidence from these studies supports the notion that perceptions of penile size are frequently influenced by psychological factors rather than physical measurements. Some men are misinformed while others suffer from penile dysmorphophobia. In contrast to these studies, the current study demonstrated that 81.1% of participants were satisfied with their own penis length. Even so, it was determined that males who were satisfied with their own penis length stated that an estimated penis length longer than their own was necessary for the sexual satisfaction of their partner. In other words, although most of the men were satisfied with their own penis length, they desired a longer length for optimal partner satisfaction. Dissatisfaction with the penis is shaped by the culture in which the individual is raised, relationships with those around them, personal vulnerability, and of course, penile anatomy. Society generally places significance on penis size regarding partner contentment. Kuzgunbay *et al.* [10] reported that 62.4% of study subjects thought that penis length was important for partner satisfaction. This rate was determined to be 76% in this study.

There are various studies in literature related to the relationship between penis length and partner satisfaction. Previously, Masters and Johnson suggested that the size of the male genitalia had a minimal impact on the sexual satisfaction of female partners [26]. The vagina can adapt to the size of the penis, and

thus when a penis of any dimensions penetrates the vagina, it provides appropriate sexual stimulation for the female. However, as several studies have shown that the size of the male genitalia plays a significant role in the sexual satisfaction of female partners, leading to an ongoing debate on this topic [7, 27, 28]. In a study in which women selected from erect penis models for a one-night relationship and for a long-term partner, the women preferred a larger penis for a one-night relationship than for a long-term partner [28]. In a questionnaire study of 50 sexually active females, all participants emphasized the significance of penis length in achieving sexual satisfaction, with 45 (90%) stated that penis girth was more important than length [29]. Francken conducted a questionnaire study surveyed 170 females, revealing that 20% stated that penis length was important, and only 1% that it was very important. Additionally, 31% of the participants thought that penis girth was more important than penis length [30]. Lever *et al.* [7] examined the attitudes to and perceptions of penis size in more than 50,000 heterosexual males and females. It was reported that 45% of the males desired a larger penis, while 84% of the females were satisfied with the penis size of their partner. Only 14% of the females wished for a larger penis and 2% preferred a smaller penis [7]. A questionnaire study of 568 females aged 19–49 years in Croatia questioned the importance of penis size (length and girth). It was found that 25% of the participants stated that penis length was not important, whereas 18% regarded it as highly significant [31]. In that study, it was concluded that the circumference of the penis held slightly more significance compared to its length. While 25.5% of the participants expressed a lack of concern for penis girth, 21.5% emphasized its significant role. In the current study, 71.94% of the female respondents highlighted the importance of penis length in achieving sexual satisfaction. The study concluded that erect penis size was important for the sexual satisfaction of both males and females. In a review on this subject, it was hypothesised that in sexual activity, penis size was an important component of partner selection for women. However, due to limited sample sizes and methodological flaws in existing studies, the authors found it challenging to draw definitive conclusions [32].

It is evident that an increasing number of males are opting for cosmetic procedures for penis size enlargement. This shows that at least some men have sufficient concerns about penis size to undergo expensive and potentially risky procedures. The availability of pornographic materials showing “large size” penises and exaggerated positive female responses to these can be misleading for men in respect of female preferences. One aim of this study was to highlight that these procedures may not be necessary. Our findings revealed no substantial variance between the preferred penis length by partners and the extended penis length of the male participants in our study.

5. Conclusions

Based on feedback from male participants and their female partners, erect penis length and girth are important for satisfactory sexual intercourse. It is important that men know average values of penis length and girth in respect of comparing their own penis with these values and thus, most men will see that

their own penis size is sufficient for sexual intercourse. This is also important in respect of men learning that there is usually no need for unnecessary medical interventions or surgeries like penis enlargement.

6. Limitations

Achieving gender balance in the study proved challenging, as some male participants were without regular partners and some female partners declined to take part. The sample size of female partners is smaller than that of males, causing limitations in terms of generalizing women's thoughts. Therefore, further studies with a greater number of female participants to be able to make more robust comparisons of the opinions of both genders related to this subject will be able to enhance the existing literature. Of course, prior sexual experiences also have an impact on women's impressions of the girth and length of the male penis. But because it would further restrict women's involvement in the study, questions concerning their prior sexual experiences were avoided when posing them to woman. Moreover, responses to the inquiries were primarily based on personal opinions, thereby maintaining subjective viewpoints among women rather than objective assessments. An examination of penis size, considering factors such as nutrition and dietary habits essential for physical development, could offer a more objective basis for comparisons.

AVAILABILITY OF DATA AND MATERIALS

The data presented in this study are available on reasonable request from the corresponding author.

AUTHOR CONTRIBUTIONS

EH and EC—designed the research study. IOK, OA, AE, MHG, MVK, KTA, MBD, SO, TTo, GC, HD, TC—and UA—performed the research. MYC—provided help and advice on statistical analysis. EH and TTu—analyzed the data. EH—wrote the manuscript. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval was obtained for conducting this study from the Medical and Health Sciences Committee and Ethics Committee of Baskent University (project no: KA21/365). Informed written consent to participate in the study was provided by all participants.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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