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A Study of Penile Dimensions in Normal Young Adult Saudi Men

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ABSTRACT: Concern over penile size and a desire for a longer penis are common in the young adult male population world wide. The purpose of the present study was to measure penile size in normal adult Saudi men to provide estimates of normal variations of penile dimensions and their complexes or satisfaction about their penile size. We evaluated flaccid and erect penile length, mid-shaft circumference and pre-pubic bone fat pad depth in a group of 200 young adult healthy Saudi males. The accuracy of how the subjects assessed their penile size was investigated by asking them to rate their penile size, as "very small", "small", "normal", "large" or "very large".

The mean flaccid and erect penile length were found to be 9.3±1.3 cm and 13.7±1.6 cm respectively, whereas mean flaccid and erect penile circumferences were measured as 8.3±1.2 cm and 12.6±1.5 cm respectively. Fat pad depth in both the states was found to be 1.9±0.5 cm. The answer distribution on penile size was 1 (0.5%) "Very small", 28 (14.0%) "small", 162 (81.0 %) "normal", 8 (4.0 %) "large" and 1 (0.5 %) "very large".

Significant differences in the mean penile length and circumference of Saudi men compared to the data reported from other countries were also observed. We suggest gaining more insight into the physiological aspects of penile dimensions to provide data that could be clinically applicable by the practicing andrologists/urologists for the men seeking an opinion on penile lengthening procedures which display a wide range of normal variability along the general population.

Keywords: Penis; Penile dimensions; Self esteem; Andrology; Urology.

Introduction

The definition of a normal penile size has become of increasing interest to the performance of correct diagnostic assessment and therapeutic choice in patients with concerns regarding penile adequacy. Previous studies on phallic dimensions are rare and vary widely in patient selection and/or methodology, hence, the comparison of results is often difficult (Silva *et al*, 1994; Wessells *et al*, 1996).

Penile size is often viewed with much interest in different cultures including Arab culture. Larger size is perceived to validate sexual function and fertility potentials, although a recent study has shown that only one-third of women attach substantial importance to the size of male sexual organ (Francken, 2002).

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Clinicians, especially urologists, are confronted by questions regarding the normal penile dimensions as well as the relation to different parts of the body such as foot size (Shah *et al,* 2002). The knowledge of what normal penile size is has become more important in the presence of demand for penile lengthening procedures (Schneider *et al*, 2001).

Several studies regarding phallic size have been published (Bondil *et al,* 1992). Furthermore, some patients who are otherwise physically normal seek to validate their sexual function and fertility potential through objective confirmation of normal size of their penis (Shahid *et al, 2012*). Most men who seek penile lengthening surgery overestimate normal penile length. In one study, none of the 67 patients complaining of short penis was found to have severely short penis (Mondian *et al,* 2007).

Flaccid and erect length is important, because patient perception of inadequate penile size in either state could be an important factor in asking for penile length or girth enhancement (Martínez-Salamanca *et al,* 2010)

Ajmani *et al,* (1985) reported on penile size in men of African origin and, contrary to popular belief, flaccid length is shorter and midpoint circumference is narrower than what is reported by other investigators (Bacal *et al,* 2009). When comparing different races, it was found that East Asians penile measurements were statistically lower in comparison to Caucasians (Da Ros *et al,* 1994).

Wessells *et al,* (1996) reported on 80 physically normal men evaluated for sexual dysfunction, and recorded erect length at 12.89 cm, while Schnider *et al,* (2001) who compared erect length in young potent and old impotent men, found potent men had longer erect penises though the difference was insignificant. On the other hand, the flaccid penis in impotent men was longer than those of potent men.

In this study we aim to establish normal values for penile length and circumference in normal Saudi individuals and to compare it with published data from different ethnic origins.

Materials and Methods

After getting the informed consent from the experimental subjects and permission from the local ethical committee, a total of 200 normal adult young males aging 20-25 years mean (22.5±0.8) born and living in Saudi Arabia free from congenital or acquired genital abnormalities were evaluated for the measurement of penile length and circumference in flaccid and fully erect conditions. Penile length was defined as the linear distance along the dorsal side of the penis extending from the pubopenile skin junction to the tip of the glans in the flaccid and fully erect states, while the penile circumference was measured at the middle of the shaft. The suprapubic fat thickness was defined as the thickness of the fad-pad when the examiner firmly compressed up to the pubis symphysis at the pubo-penile junction.

Penile measurements were performed between 8:00 AM and 2:00 PM by means of a tape measure to the nearest of 0.5 cm. immediately after the men undressed to minimize the effects of temperature under ambient light and room temperature with subjects standing up and with the penis held parallel to the floor. In order to reduce errors of measurement, two measurements were performed by the same investigator and their median was recorded according to the method described previously (Wessells *et al,* 1996).

The accuracy with which the subjects assessed their penile size was investigated by asking them to rate their penile size as “very small”, “small” “normal”, “large” or 'very “large”. Height, weight and the body mass index (BMI) which is the ratio between a person’s weight and the square of height (Kg/m^2) were also recorded. Data were presented as mean±SD. The student ***t***-test was used for the analysis and $P<0.05$ was considered significant.

Results

The mean (±SD) scores for the flaccid and erect penile dimensions for 200 normal adult Saudi men are presented in Table 1. The data indicated that mean penile length in flaccid and erect states was 9.3±1.3 cm (95% confidence interval (CI): 9.2–9.4 cm) and 13.7±1.6 cm (95% (CI): 13.6–13.8 cm), respectively ($P<0.001$). Mean flaccid penile length was 4.4±1.0 cm which is shorter than mean erect penile length. Mean penile circumference in flaccid and erect states was found to be 8.3±1.2 cm (95% confidence interval

(CI): 8.2–8.4 cm) and 12.6±1.5 cm (95% (CI): 12.4–12.8 cm), respectively (P<0.001). Mean flaccid penile circumference was 4.3±1.0 cm which is shorter than mean erect penile circumference. Mean suprapubic fat thickness was found to be 1.9±0.5 cm.

Self esteem results regarding the distribution of answers about penile size was: 1 (0.5%) “very small”, 28 (14.0%) “small”, 162 (81.0 %) “normal”, 8 (4.0 %) “large” and 1 (0.5 %) “very large”. The accuracy in assessing the penile length was determined based on the mean length SD (Table 3). Among the 29 subjects who answered “very small” and “small”, 5 had a penis smaller than mean± SD, 23 within mean ±SD and 1 larger than mean± SD. Among the 9 subjects who answered “very large” and “large”, 6 had an erect penis length longer than mean±SD, 2 within mean±SD and 1 had a length less than mean±SD.

Table1: Measurement of penile dimensions reported by previous investigators

Authors/Country	Publica-tion Year	Number of Subjects	Age Range Years	Flaccid Length (cm) Mean (SD)	Flaccid Circumference (cm) Mean (SD)	Erect Length (cm) Mean (SD)	Erect Circumference (cm) Mean (SD)
Loeb	1899	50	17-35	9.41	NA	NA	NA
Schonfeld and Beebed	1942	54	20-25	NA	NA	NA	NA
Kinsey *et al*. (USA)	1948	2770	20-59	9.7	NA	15.5	NA
Ajmani *et al*. (Nigeria)	1985	320	17-23	8.16 (0.94)	8.83 (0.02)	NA	NA
Bondil *et al*. (France)	1992	905	17-91	10.7	NA	16.74	NA
Da Ros *et al*. (Brazil)	1994	150	NA	NA	NA	14.5	NA
Richters *et al*.	1995	156	NA	NA	NA	15.99	NA
Wessells *et al*. (USA)	1996	80	21-82	8.85 (2.38)	9.71	12.89 (2.91)	12.30
Smith *et al*.	1998	184	NA	NA	NA	15.71	NA
Ponchi *et al*. (Italy)	2001	3300	17-19	9.0	10.0	NA	NA
Schneider *et al*. (Germany)	2001	32	40-60	9.22	NA	14.18	NA
Awwad *et al*. Jordan	2005	109	22-68	7.7 (1.3)	NA	11.8 (1.5)	NA
Chen *et al*. (Israel)	2001	55	21-78	8.3 (1.3)	NA	13.6 (1.7)	NA

Abbreviation: NA = Not Available; Country and s.d. are shown in parentheses if available

Table 2: Mean (±SD) scores of the self-esteem results of penile size and erect length

Parameters	**< Mean SD**	**Mean SD**	**>Mean SD**	**Total**
"Very small" and "Small"	5	23	1	29
"Normal"	3	159	0	162
"Large" and "Very large"	1	2	6	9
Total	9	184	7	200

Table 3: Mean (±SD) scores of the study population and penile dimensions in 200 adult Saudi males. (Asterisk denotes p<0.001)

Parameters	**Mean (±SD)**
Age	22.5±0.8
Height (cm)	175.3±5.2
Weight (cm)	70.2±6.7
Body Mass Index (Kgm^{-2})	23.4±1.4
Penis Flaccid Length (cm)	9.3±1.3
Penis Erect Length (cm)	13.7±1.6*
Penis Flaccid Circumference (cm)	8.3±1.2
Penis Erect Circumference (cm)	12.6±1.5*
Penis Fat Pad Depth (cm)	1.9±0.5

Discussion

The knowledge of normal variations in the size of the penis is of considerable interest to several disciplines and the definition of normal penile size is directly related to the diagnosis and treatment of sexual dysfunction (Seftel 2012). The definition of normal penile size is of considerable interest as there is a steady increase in the number of people complaining of 'short penis' and seeking penile enlargement procedures. Mondaini *et al*, 2007 reported that most men who seek penile lengthening surgery 'overestimate' the 'normal' penile length. In their study of 67 patients complaining of 'short penis', none was found to be having a severely short penis. Both flaccid and erected lengths are important as patient's perception of penile inadequacy could be often related to either of this.

The number of patients visiting the sexual dysfunction clinics with the concern of short penis is found to be increasing steadily. However, studies on penile dimensions are limited and no study is reported from Saudi Arabia. The average flaccid penile length is found to be 8.21 cm in the present study, which is significantly lower than that of the mean length reported from USA (Kinsey *et al*, 1984) and Jordan (Awwad *et al*, 2005). The mean flaccid penile length reported from Nigeria (Ajmani *et al.*, 1985) is 8.16 and from Israel (Chen *et al* ,2001) 8.3 cm, which are similar to the findings of the present study without any significant difference.

The mean flaccid circumference obtained in the present study is 9.14 cm, which is significantly lower than the findings reported from USA (Wessells *et al*, 1996) but significantly higher than that of reported from Nigeria (Ajmani *et al*, 1985). Mean flaccid circumference reported from Jordan (Awward *et al*, 2005) is 8.98 cm, which is almost similar to the findings of the present study.

In the present study, erected length and erected circumference were also obtained by the subjects. The mean erected length and circumference were found to be 13.01 cm and 11.46 cm respectively. Reports on mean erected length are available only from USA (Wessells *et al*, 1996), Jordan (Awwad *et al*, 2005) and Israel (Chen *et al*, 2001). Erected length obtained in the present study (13.01 cm) does not differ significantly from the mean erected length reported by Wessells *et al*, 1996, from USA (12.89 cm), but the finding reported from Germany (Schneider *et al*, 2001) (14.48 cm) is significantly higher. Bondil *et al*, 1992 reported the longest penile length in the flaccid (10.7 cm) and stretched conditions (16.24 cm). In their study, measurements were obtained after three manual stretches of the penis. Owing to the methodological difference in determining stretched length, it cannot be compared with the present study. Longest erected length reported is 15.99 cm (Richters *et al*, 1995) followed by 15.5 cm (Kinsey *et al*, 1948). Details of these studies were not available for a statistical comparison. For erected circumference, the only data available are from USA (Wessells *et al*, 1996) and it does not show any significant difference from the Saudi data.

Overall data show that there is variation in flaccid length, flaccid circumference, and erected length and erected circumference reported from different countries. This could be due to the racial or constitutional difference or some other factors. Inter-correlations were computed to see whether there is any relationship between flaccid lengths, flaccid circumference, stretched length, erected length and erected circumference. It is found that there is significant relationship between all these variables (Data not shown).

In the self-esteem of penile size, we asked the subjects to estimate their “just” and not the “flaccid” or 'erect' penile size. Multiple questions about multiple parameters or status of penis (volume, length, circumference, flaccid state, erect state, *etc*.) may be misunderstood by the subjects. As the major penile status is flaccid, men commonly experience their penile size at the flaccid state. In conclusion it is suggested that this type of study needs to be continued with a large multiethnic sample to establish a normative data applicable to the general population.

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