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REVIEW ARTICLE

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Systematic review of prevalence, attitude, and practices of pubic hair removal activities

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ABSTRACT

Background and Objectives: The pubic hair removal (PHR) practices are common around the world, for long the Internet has been the source of information, which is usually available from blogs, forums, and social media. A lot of misinformation, misguidance is resulted because of the lack of scientifically published literature providing proper information on the PHR practices. We undertook a systematic review of existing population-based studies to understand the prevalence, attitude, and practices of PHR in published literature.

Methods: We searched for population-based studies across the globe for prevalence, attitude, and practice of PHR in study participants on electronic databases (PubMed, Google Scholar, J-Gate, and Medline). A total of 307 titles were identified on which nine were considered eligible for the study. Descriptive analysis was carried on the nine identified studies to know the prevalence, attitude, and practices of PHR.

Results: The prevalence of PHR at least once was 75%, Friends (73%) were the prime motivators to initiate the first PHR activity. Personal Hygiene (69%) was cited as the most common driver for regular PHR activity. Shaving using Razor blade (58%) was the most common mode of PHR and Abrasion (34%) was the most common complication.

Conclusions: Pubic Hair Removal is a common practice among both males and females, the practice is initiated and propelled mostly through personal preferences. The current need is to undertake population-based studies, specifically in developing countries and present the evidence-backed information on do's and don'ts for optimum PHR experience with minimal complications.

Key Messages: The researchers from developing countries must proactively initiate studies to understand the prevalence, attitude, and practices associated with PHR rather than market forces and lay information that leads to the misguidance of the general population leading to increased complications related to PHR.

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Pubic hair removal; attitude; practices

Introduction

The practice of hair removal from different body parts and areas is common across cultures [1,2]. The practice of removing pubic hair is quite evident from artistic depictions, paintings, and religious text recommending removal of pubic hairs [1]. The pubic hair removal (PHR) practices were associated in middle ages with regular hygiene, specifically to avoid pubic lice [1,3]. The PHR practice is common all around the world yet there exists a lot of conflicting lay literature, mostly in forms of health blogs, discussion forums, and social media [4–9]. This misguides young adults, teens to experiment with their body hair, using multiple products, which result in injuries and complications while shaving hairs in inaccessible areas of the body. The debate on complete, partial, or non-removal of pubic hairs is long drawn without any conclusive evidence supporting either of the school of thoughts. The published literature link the increased risk of sexually

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transmitted diseases. A cross-sectional study by Meike et al. [10] published 2017 found a correlation between partial or complete PHR using a razor with a potential risk factor for the development of genital inflammation, vulvar dysplasia, and malignancies. Another study by Armstrong et al. [3] in 2006 linked decreased prevalence of pubic lice with the waxing of pubic area. The literature has evidence supporting and against the PHR practices. Thus, we planned to undertake a systematic review of prevalence, attitude, and practices of pubic hair removal activities across gender around the globe.

Objective

The objective of this study is to

a.) Systematically access the prevalence of PHR practices from existing literature.

b.) Presents the analysis of attitudes and practice related to PHR practices from existing literature.

Materials and Methods

The systematic review followed a structured format outlined in the Cochrane Handbook for systematic reviews [11].

Criteria for selection of studies for this review—

Population-based cross-sectional, cohort studies investigating on prevalence, attitude, and practices related to PHR across the globe, irrespective of study settings, age, and gender of respondents; published in peer-reviewed journals in English language and published between the year 2000 and 2018 were considered for this systematic review. The articles related to PHR due to medical reasons were excluded.

The review considered only studies published in peer-reviewed journals to include information only from valid sources. The timeline of including studies published in the last 20 years was established, considering the prevalence, attitude, and practices change from generation to generation. The studies published in the last 20 years are likely to present information applicable to current prevalence, attitude, and practices.

Search methods and data collection analysis—

We searched in four electronic databases (PubMed, Google Scholar, J-Gate, and Medline). We used Medical Subject Heading (MesH) terms like Personal Grooming, Personal Hygiene, Pubic Hair, Pubic Hair Removal, Pubic Hair Depilation, Prevalence, Attitude, Practice, and were used with Boolean operators "OR, AND" appropriately.

Author Akash Gajanan Prabhune and Pradeep Vimal were involved in initial search build-up. A total of 307 articles were identified through a database search. Seventy-six duplicate records were removed. Two hundred and thirty-one records were screened for abstract for the title, year of publication, language and 212 records were excluded from the review. Fourteen articles were assessed for eligibility. Five articles were excluded for not satisfying the inclusion criteria. A total of nine studies were included for descriptive analysis. Two authors Akash Gajanan Prabhune and Pradeep Vimal independently assessed the methodological quality of the included studies using Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline [12]; any disagreements were resolved with the consultation of the third author Deepti Nagrath. The flowchart explaining the study selection process according to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) statement [13] is provided in Figure 1.

Results

The results of these studies are grouped as prevalence, attitudes, and practices. A total of nine studies were included for the review [14–22] Table 5. All the nine studies [14–22] Table 1 reported a prevalence of PHR among the study population. Six studies reported on PHR attitude [14–17,21,22] Table 2. Six studies reported on PHR practices [15,17–19,21,22] Table 3.

Of the nine studies, eight studies were from United States of America [14–20,22] and one study was from Saudi Arabia [21]. Two studies were conducted on male participants only [15,19], one study included both male and female participants [16], and six studies were conducted on female participants only [14,17,18,20–22]. Mean age of male participants was 21.4 [standard deviation (SD 3.6)] and mean age of female participants was 23.72 (SD 5).

Prevalence

All studies reported the prevalence of ever grooming of pubic area using a razor, scissors, wax, or any other technique. One study by Rouzi et al. [21] was removed from the analysis as the study population included only women participants, ever reported

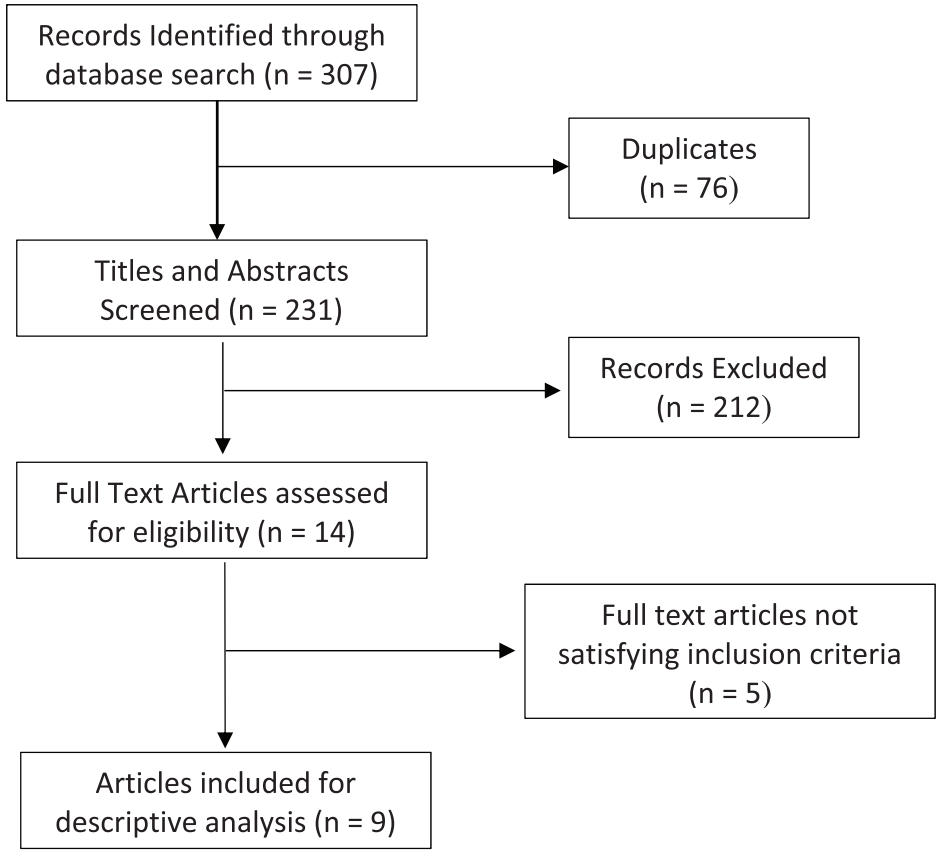

Figure 1. Study identification and selection process for the review.

Table 1. Prevalence of PHR—details from the included studies.

Study	Year of Publication	Sample Size	Prevalence (%)	Gender	Country	Mean age	SD Age
Bercaw Pratt et al. [14]	2012	171	70.4	Females	USA	15.6	1.9
Michael Boroughs et al. [15]	2005	100	74.7	Males	USA	22.04	4.75
Scott Buttler et al. [16]	2015	671	69.45	Males and Females	USA	20.3	2.02
		439	63.32		USA	20.3	2.02
De Maria et al. [17]	2013	1677	91.9	Females	USA	#	#
De Maria et al. [18]	2015	333	86.80	Females	USA	#	#
Gaither et al. [19]	2015	3176	84.4	Males	USA	22	4.2
Herbenik et al. [20]	2013	2354	55.6	Females	USA	32.69	9.18
Rouzi et al. [21]	2018	400	100	Females	Saudi Arabia	26.3	6.9
Rowen et al. [22]	2016	3372	83.8	Females	USA	#	#

#—Not reported in Mean (SD) format.

grooming of the pubic area. Overall prevalence across both the genders was 75%, the prevalence among the male population was 74.14%, and the prevalence among female population was 76.32%.

Attitude

Under attitude, we present the list of factors that acted as the motivation behind PHR practice when undertaken for the first time. One study on female volunteers attending a gynecology clinic in the US [14] reported Friends (73%) as the biggest motivator for undertaking PHR practice for the first time. Another study on Saudi women visiting the gynecology department of the university hospital in Saudi Arabia [21] reported the Immediate family (Mother/Elder sister) as the prime motivator (84%) for the PHR practiced first time ever. A study on male volunteers from university in the United

Table 2. Attitude of PHR—details from the included studies.

Study	Gender	Factors for first initiation of PHR (%)				Factors promoting regular PHR (%)					
		Friends	Family	Media	Television	Personal Hygiene	Body Definition	Sex appeal	Sex experience	Religion	Others
Bercaw Pratt et al. [14]	F	73	43	15	16	Not Reported					
Michael Boroughs et al. [15]	M	40	23	21	20	75	39	69	32	0	11
Scott Buttler et al. [16]	F	Not Reported				73	79	86	83	0	4
Scott Buttler et al. [16]	M	Not Reported				67	64	69	70	0	2
De Maria et al. [17]	F	Not Reported				73	41	26	18	0	11
Rouzi et al. [21]	F	7	84	5	0	9	19	0	0	5	66
Rowen et al. [22]	F	Not Reported				59	32	21	0	0	46

Table 3. Practices of PHR (Methods)—details from the included studies.

Study	Gender	Methods of PHR (%)						
		Razor Blade	Electric Razor	Cream	Scissors	Laser	Wax	Others
Michael Boroughs et al. [15]	M	70.7	32	54.7	26.7	0	6.7	29.3
De Maria et al. [17]	F	66.07	0	15.9	19.79	2.7	13.9	0
De Maria et al. [18]	F	89.5	15.1	16	11.8	0.6	7.2	0
Gaither et al. [19]	M	25	40.5	0	12.8	0	1	0
Rouzi et al. [21]	F	35.5	2	1.5	2	8.7	4.5	6
Rowen et al. [22]	F	61	12	0	17.5	0.7	4.6	0

Table 4. Practices of PHR (Complications)—details from the included studies.

Study	Gender	Complications (%)					
		Rash	Itching	Cuts	Abrasion	Infection	Ingrown hairs
Michael Boroughs et al. [15]	M	0	0	26.7	29.3	0	32
De Maria et al. [17]	F	0	0	0	0	0	0
De Maria et al. [18]	F	13.2	21.1	18.4	36.7	4.9	32.7
Gaither et al. [19]	M	29.8	0	0	68.3	2.5	0
Rouzi et al. [21]	F	4	9.9	10.3	2.2	0	8.9

States [15] reported Friends (40%) as the biggest motivator for undertaking PHR practice for first time.

A study on male and female volunteers from two US Universities [16] reported, 24% females and 60% males, undertook first ever PHR due to partner recommendation.

We investigated the reasons that promote regular pubic hair removal; Personal Hygiene (69%) was the most reason for the studies reported from the United States [14,17,18,20–22]. For Study reported from Saudi Arabia [21], Combination Reasons (66%) were mentioned as the most common reason. Other commonly mentioned reasons were Better Sexual Appeal (54%), Better Sexual Experience (51%), and Better Body Definition (51%). When stratified by gender, Personal Hygiene (71%) and Better Sexual Appeal (69%) were the most common reasons for regular PHR among males, whereas Personal Hygiene (68%) and Better Body definition (50%) were the most common reasons for regular PHR among females.

Practices

The most common method of PHR was Razor Blade (58%), followed by electric razor (20.32%). Other

Table 5. Methodological quality of studies included in the review.

Study	Specific objective	Study design	Method of participant selection described	Data Source	Efforts to address source of bias	Explanation on Sample Size Estimation	Generalizability of Study findings
Bercaw Pratt et al. [14]	To evaluate the incidence, attitudes, and practices of the removal of pubic hair as a body modification	Cross-sectional study	Yes	Gynecology clinic	No	No	Can be generalized to young adolescent girls with White, Indian, Hispanic ethnicity; with similar sociodemographic characteristics
Michael Boroughs et al. [15]	To estimate the prevalence of body depilation in a sample of men, to determine the reasons for body depilation and the methods used to reduce and remove body hair, and to assess the social and affective variables related to body depilation.	Cross-sectional study	Yes	University Students	No	No	Can be generalized to young adult males with White, Hispanic, African, Asian ethnicity with similar sociodemographic characteristics
Scott Buttler et al. [16]	To assess the pubic hair removal and grooming practices of college students, as well as identify reasons for choosing a Pubic Hair Removal particular pubic hair style, preferences for sexual partner's pubic hair, and possible health outcomes associated with common genital grooming and pubic hair removal practices	Cross-sectional study	Yes	University Students	Large sample size	No	Can be generalized to young adult males and females with White, Hispanic, African, Asian ethnicity with similar sociodemographic characteristics
De Maria et al. [17]	To describe pubic hair grooming behaviors and the extent to which grooming was related to demographic characteristics and sexual activity in a large sample of low-income Hispanic, non-Hispanic Black, and non-Hispanic White women.	Cross-sectional study	Yes	Health Clinics	Large sample size	No	Can be generalized to women of Hispanic ethnicity with similar sociodemographic characteristics
De Maria et al. [18]	To report on pubic hair removal practices, complications, and characteristics associated with complications among a clinical sample of low income, racially diverse women	Cross-sectional study	Yes	Health Clinics	No	No	Can be generalized to women of Hispanic, African, and White ethnicity with similar sociodemographic characteristics
Gaither et al. [19]	To characterize the influence of sexual orientation and sexual role on grooming behavior, injuries, and infections in men in the United States	Cross-ectional study	Yes	General Population	Study quality control measures were taken	No	Can be generalized to Males with similar sociodemographic characteristics
Herbenik et al. [20]	To assess demographic, affective, relational, situational, and behavioral factors related to women's pubic hair removal.	Cohort	Yes	General Population	Study quality control measures were taken	No	Can be generalized to Females with similar sociodemographic characteristics
Rouzi et al. [21]	To examine pubic hair removal practices and prevalence of its complications among Saudi women living in Jeddah, Saudi Arabia.	Cross-sectional study	Yes	Health Clinics	Study quality control measures were taken	No	Can be generalized to Women from the Middle east with similar sociodemographic characteristics
Rowen et al. [22]	To characterize current pubic hair grooming practices in the United States	Cross-sectional study	Yes	General Population	Study quality control measures were taken	Yes	Can be generalized to females with similar sociodemographic characteristics

preferred methods were Hair Removal Creams (22%), Trimers and Scissors (15%), and Waxing (6.3%). When stratified by gender; Shaving using razor blade was the most common method across both the genders. We also compiled a list of complications resulted due to PHR practices, that are reported in the studies. The complications resulting due to use of various PHR methods was reported from the studies Presented in Table 4. Abrasion (34.16%) was the most commonly reported complication, followed by Ingrown hair (24.53%), Wax and Razor Burns (19.3%), Minor Cuts and Nicks (18.4%), Itching (15.5%), and Rash (15.6%). Among Males, Abrasion (48.8%) was the most common complication, followed by Ingrown Hairs (32%), Rash (29.8%), Wax and Razor Burns (27.4%), and Minor Cuts and Nicks (26.7%). Among females, Ingrown hairs (20.8%) were the most common complication, followed by Abrasion (19.45%), Itching (15.5%), Minor Cuts and Nicks (14.35%), and Rash (8.6%).

One study on women [18] reported that 3.9% of its study population sought healthcare professional [19] in the United States. The study on Saudi women [21] reported 17% of female participants seeking medical help for their PHR related complications.

Discussion

Our review showed that the crude prevalence of ever PHR reported from published literature (mostly from the United States) is 75% with prevalence not varying between genders. Friends were the most common influencers for initiating PHR among study participants. Personal Hygiene was the most common reason cited for regular PHR practice. Razor Blade was the popular method and Abrasion was the most commonly reported complication.

A study by Craig et al. [2] reviewed PHR data from the Human Relations Area Files' database, Electronic Human Relations Area Files database World Cultures. The results from the study indicate personal hygiene as the most common reason cited for PHR, similar to our findings. The most common method was plucking, followed by shaving. In our study, Shaving was the most common method. Another study by Hodges et al. [23] mentioned personal hygiene as the prime reason for PHR practices among women. The study reported shaving using a razor blade as the most common mode of PHR, similar to our study findings.

Our search found no relevant population-based studies from Asia, Africa on the prevalence, attitudes, and practices related to PHR. However, many developing countries including India has seen a sharp rise in sales of shaving products and accessories [24]. The lack of studies from developing countries clearly indicates the existing knowledge gap in personal hygiene, grooming, and hair removal areas. The sheer number of products available in the market for hair removal and grooming indicates the increased yet hidden prevalence of PHR practices in developing countries. The amount of lay information available from the Internet in forms of blogs, discussion forums, and social media will add to the confusion of individuals engaging in the first time PHR practice. The published literature also does not present a clear picture of do's and don'ts for optimum PHR experience with minimal complications. The papers by Trager et al. [25] and Hodges et al. [23] present the best practices to adopt and pitfalls to avoid during PHR practice; however, these practices and pitfalls are derived from population-based studies conducted in the United States mostly. The generalizability of these recommendations to Asian, African, and Middle Eastern population remains questionable.

The strength of this study was; this was the first attempt made to our knowledge to systematically review population-based studies to understand the prevalence, attitude, and practice of PHR among the males and females across the world. This review was the first attempt to point out the existing knowledge gap in PHR.

The limitations of this study were; the study did not cover the changes in PHR prevalence, attitude, and practices in sexually active and inactive individuals. The review was limited to PHR practices in males and females only and did not review the PHR practices in transgender. The review did not look at the changes in prevalence, attitude, and practice of PHR with age, sexual orientation. The review reported complications arising due to various modes of PHR and did not explore the relationship between PHR practices and the incidence of sexually transmitted diseases.

To conclude, the PHR is a very common practice across males and females, peer pressure plays a key role as initiator, whereas hygiene promotes regular PHR. Most complications arising due to PHR are not presented for medical help and Shaving remains the most popular mode.

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