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Recommending or Rejecting "the Dimple": WPATH-Affiliated Medical Professionals' Experiences and Attitudes Toward Gender-Confirming Vulvoplasty in Transgender Women

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ABSTRACT

Introduction: Rising numbers of trans women are undergoing genital surgeries, such as vulvoplasty or vulvovaginoplasty, to create a neovagina. Medical professionals who adhere to the World Professional Association for Transgender Health (WPATH) Standards of Care, Version 7, and who recommend or perform these procedures, are expected to balance best practices with patient preferences, specifically the decision to create or omit the vaginal canal. Due to a paucity of literature on gender-confirming vulvoplasty (GCV) in trans women, there has been no documentation of factors that prompt practitioners to reject or recommend the procedure.

Aim: The aim of the study was to provide descriptive data of WPATH-affiliated medical professionals' knowledge, experiences, and attitudes toward GCV; surgical risks, benefits, and any considerations when referring transgender women 18–21 years of age for this procedure.

Methods: Purposive sampling of all physicians, surgeons, nurse practitioners, physician assistants, and registered nurses listed in the WPATH membership directory was initiated via invitational e-mails. The 32-item survey focused on demographics, medical practices, surgical techniques, and reasons for recommending or rejecting the procedure. Data analysis included frequencies and Pearson's χ^2 test.

Main Outcome Measures: Key outcome measures included frequency of cases performed; reasons for recommending, rejecting, or performing GCV; and differences in attitudes toward the procedure among various medical professionals.

Results: N = 198 (20.7%) of 956 solicited professionals completed the survey. Surgeons (n = 61) comprised 30.8% of the total sample. 46 surgeons (76.7%) reported having performed vulvovaginoplasty, and 25 (41.7%) had performed GCV. "Patient request" was the most common reason for recommending or performing GCV. Surgeons were more likely to either agree and perform (30.4%), or reject (32.1%) GCV in a patient aged 18–21 than other practitioners, who were more likely to be "unsure" (68.5%). These differences were statistically significant ($\chi^2 = 16.467$ [2]; n = 193; $P < .001$).

Clinical Implications: The data identify a lack of standardized terminology and surgical techniques concerning GCV.

Strength & Limitations: This is the first exploratory study to assess medical practitioner experiences and attitudes toward a seldom documented procedure. A larger, more inclusive sample would increase the statistical strength and representative aspect of the study.

Conclusion: The study shows divergence in attitudes and knowledge among medical practitioners who recommend or perform GCV, and uncertainty when the patient is 18–21 years old. The study contributes to an expanded description and specific indications of performing GCV in the updated WPATH SOC Version 8. **Milrod C, Monto M, Karasic DH. Recommending or Rejecting "the Dimple": WPATH-Affiliated Medical Professionals' Experiences and Attitudes Toward Gender-Confirming Vulvoplasty in Transgender Women. J Sex Med 2019;16:586–595.**

Key words: Gender-Confirming Surgery; Surgeon; Transgender; Vulvoplasty; Vaginoplasty; WPATH

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INTRODUCTION

Rising numbers of transgender individuals worldwide are undergoing genital surgical procedures, commonly known as *gender confirming surgery* (GCS), ranging from bilateral

salpingo-oophorectomy, vaginectomy, metoidioplasty, to phalloplasty in trans men, and bilateral orchiectomy, penectomy, vulvoplasty, or vulvovaginoplasty in trans women.[1–3] In the United States alone, temporal trends using nationally representative data show that the number of patients seeking GCS covered by state/federal funding increased 3-fold from 2012–2014. Transgender female patients as young as 16 are undergoing genital surgery, with high satisfaction rates in the 18–22 year age range.[4–8] Third-party commercial insurers have also expanded coverage of transgender care; for U.S.-based trans women in particular, this represents a statistical sea change from previous decades, because GCS has become more affordable and accessible to patients in both private and public health sectors.[1, 9]

There is ample documented evidence that GCS is a medically necessary intervention that results in significant biopsychosocial benefits for trans women.[10–13] Studies also show that the anatomic congruence that occurs with surgical gender alignment has a profound effect on the individual's affective partner relationships, often resulting in increased sexual satisfaction, sexual agency, and physical self-esteem.[14–16] Specifically, the satisfaction and sexual experiences of trans women have been linked with "the functionality of the neovagina"[13] and postoperative sexual activity, "mostly by vaginal intercourse".[16] Terms and acronyms for these genital procedures vary, such as gender confirming surgery (GCS), gender affirming surgery, gender reassignment surgery/genital reconstruction surgery, or sex reassignment surgery; however, the surgical procedure enabling sexual activity for trans women is usually understood as vulvovaginoplasty, with a vaginal canal as an essential contributing factor to a functioning sex life. But, although the clitoris is considered the most sensitive erogenous zone and locus of human female sexual pleasure,[17,18] the consistent emphasis on the vaginal canal as necessary to sexual activity for trans women may be influenced by heteronormative models of sexuality in which the female serves as the receptive partner of vaginal penetration by the male.[19] Moreover, the historically dominant gender binary model of transgender identities has included a sociocultural hierarchy, in which trans women who have undergone vulvovaginoplasty are viewed by the general public, and even by some trans people, as more feminine than those who have chosen solely orchiectomy or simply to retain their natal genitals.[19,20] An example of this persistent disparity is reflected in terms used in a recent study of gender confirmation treatments and body satisfaction,[10] where "partial bottom surgery" denotes orchiectomy, and "definitive bottom surgery" stands for vaginoplasty, although these specific categories were ordered in this way by the study authors based on level of medical intervention and not according to any other value-laden implications.

Sociocultural rankings notwithstanding, there are trans women who do not undergo vulvovaginoplasty and instead elect only vulvoplasty, collectively the construction of a shallow introitus or "dimple," a hooded clitoris, labia majora and minora, and a shortened urethra, with the ability for the patient to urinate in a seated position. A review of the existing nomenclature in the scanty research literature and websites directed to the general public yielded the terms "zero-depth vaginoplasty",[21–23] "cosmetic vaginoplasty",[24] "cosmetic sex reassignment surgery",[25,26] or "vaginoplasty without (vaginal) cavity".[27,28] Garcia [29,30] emphasized the importance of discussing the procedure in detail with prospective patients and expressed his rationale for first using "zero-depth vaginoplasty," then shifting to "shallow-depth vaginoplasty" after feedback from a small subset of patients who found "shallow depth" to be more normalizing than the former term. More recently, Jiang et al [31] indicated their preference for the term "gender-affirming vulvoplasty," based on the premise that it reflects the anatomic intent of surgically creating a vulva without a vaginal canal. In concordance with the widely used "gender confirming surgery," often interchangeable with the term "gender affirming surgery,"[32] we therefore use the similar "gender confirming vulvoplasty" (GCV), until such time that final terminology is crystallized within the transgender research community.

Available literature based on expert opinion is largely in agreement concerning the medical indications and patient preferences for GCV in lieu of vulvovaginoplasty[21–24,29–31] as follows:

- Prior radical prostatectomy where urinary continence has been impacted
- Prior rectal surgery or pelvic radiation resulting in fibrotic tissue sclerosis
- A paucity of genital skin and patient reluctance to use scrotal skin grafts
- Physical limitations or restrictive self-care disability
- A diagnosis of psychotic disorder or other psychiatric disorder that precludes adequate patient self-care of the neovaginal canal
- Elderly patients and concomitant medical frailty
- Patient reluctance to perform postoperative regular dilation and douching
- Lack of patient desire to engage in receptive vaginal coitus or insert sex toys into the neovagina

In the first exploratory study of factors influencing patient preference for GCV, Jiang et al[31] reviewed 30 surgical cases of GCV in an academic hospital setting. Most of these patients (63%) chose the procedure despite no medical contraindications to undergoing conventional vulvovaginoplasty. Their primary reason was no interest in vaginal sexual activity, followed by aversion to surgical risk and the wish to avoid life-long dilation. The remainder (37%) were recommended GCV by the performing urogenital surgeon, mainly due to previous radical prostatectomy or pelvic radiation. The authors concluded that "the procedure is associated with high satisfaction rates and low regret" [p. 905], with most patients considering GCV "a complete feminizing genital surgery." But, although the study points to the preference for GCV as largely patient-driven, there is an informational void concerning

Table 1. Characteristics of participants

Item	No. (%)
Gender	198
Woman	102 (51.5%)
Man	88 (44.4%)
Non-binary (specified genderfluid, gender non-conforming, trans, transgender woman)	5 (2.5%)
Another identity not specified	2 (1.0%)
No answer	1 (0.5%)
Identify as transgender	198
All other	185 (93.4%)
Transgender	13 (6.6%)
Age (years)	198
25–34	16 (8.1%)
35–44	61 (30.8%)
45–54	48 (24.2%)
55–64	50 (25.3%)
65–79	23 (11.6%)
Global region you live and work in	198
United States of America	139 (70.2%)
Europe	29 (14.6%)
Canada	8 (4.0%)
Central and Latin America	7 (3.5%)
Asia	7 (3.5%)
Australia and New Zealand	6 (3.0%)
Africa	2 (1.0%)
Primary professional specialization	198
Surgeon, plastic/reconstructive	34 (17.2%)
Surgeon, urology	15 (7.6%)
Surgeon, gynecology	11 (5.6%)
Surgeon, neurosurgery	1 (0.5%)
Physician, general/family practice	31 (15.7%)
Physician, psychiatry	26 (13.1%)
Physician, internal medicine	18 (9.1%)
Physician, endocrinology	18 (9.1%)
Physician, OB-gynecology	10 (5.1%)
Physician, pediatric	5 (2.5%)
Physician, adolescent medicine	2 (1.0%)
Physician, urology	1 (0.5%)
Physician, other	4 (2.0%)
Nurse practitioner	16 (8.1%)
Registered nurse	5 (2.5%)
Physician's assistant	1 (0.5%)
Years practicing since initial licensing	198
1–5	27 (13.6%)
6–10	32 (16.2%)
11–15	31 (15.7%)
16–20	23 (11.6%)
21–25	28 (13.8%)
26–30	29 (14.1%)
31–40	17 (8.6%)
41–60	11 (5.6%)
Years as a member of WPATH	198
≤1	52 (26.3%)
2–4	65 (32.8%)
5–10	50 (25.3%)
11–20	23 (11.6%)
21–39	8 (4.0%)
Seen a peer-reviewed journal article or published research paper describing procedure of GCV in detail	198
Yes	11 (5.6%)
No	187 (94.4%)
Ever performed vulvovaginoplasty in trans women	198
Yes	46 (23.2%)
No	152 (76.8%)

GCV = gender-confirming vulvoplasty; WPATH = World Professional Association for Transgender Health.

discussions of GCV among healthcare providers, particularly the professionals who adhere to the World Professional Association for Transgender Health (WPATH) Standards of Care (SOC) Version 7, and who interact regularly with trans women in their medical practice. There is no description of this procedure as an alternative to vulvovaginoplasty in the SOC; the term "vulvoplasty" is listed once under an overview of surgical procedures, but without further explanation or mention in the otherwise comprehensive document.[33] Because of this paucity of formal research and limited anecdotal evidence, there has been no documentation of factors that prompt practitioners to recommend or reject this feminizing genital procedure, in comparison to descriptions of vulvovaginoplasty. Our study provides an account of medical professionals' experiences of performing or recommending GCV, its utility, and its applicability in the expanding transgender female population, notably the 18–21 age group. We therefore report the findings from our exploratory survey of 198 WPATH-affiliated medical professionals' knowledge, experiences, and attitudes toward endorsement or rejection of GCV in trans women.

Aims

The immediate aim of the study was to provide descriptive survey data of WPATH-affiliated medical professionals' knowledge, experiences, and attitudes toward GCV—surgical risks, benefits, and ethical considerations, particularly when referring trans women 18–21 years of age, an emergent cohort that has gained increased access to genital surgery. Our long-term study objective aimed at contributing essential reference material and new data to the planned revision of the WPATH SOC Version 8.

METHODS

Purposive sampling of all physicians, surgeons, nurse practitioners, physician assistants, and registered nurses with e-mail addresses listed in the online WPATH membership directory was

Table 2. Responses of practitioners performing vulvovaginoplasty and GCV

Item	No. (%)
How long have you performed vulvovaginoplasty in trans women?	46
<1 year	7 (15.2%)
1–2 years	5 (10.9%)
3–5 years	10 (21.7%)
6–10 years	10 (21.7%)
>10 years	14 (30.4%)
In what physical location do you perform vulvovaginoplasty in trans women?	46
University/academic research hospital	22 (47.8%)
Private hospital	18 (39.1%)
Multiple settings	4 (8.7%)
In my private office surgical suite	2 (4.3%)
What is your preferred method of vulvovaginoplasty in trans women?	46
Penile inversion	39 (84.7%)
Chonburi flap/Penoscrotal flap	4 (8.7%)
Sigmoid colon vaginoplasty	1 (2.2%)
GCV	1 (2.2%)
Jejunal graft	1 (2.2%)
How many times have you performed a secondary vaginoplasty? (ie, the creation of a vaginal canal on a patient with previous GCV)?	46
Never	24 (52.2%)
1–10 times	14 (30.4%)
11–20 times	2 (4.3%)
>20 times	6 (13.0%)
If you have ever performed a secondary vaginoplasty after GCV, has any patient experienced notable complications during or after the procedure?	21
Yes	9 (42.9%)
No	12 (57.1%)
Approximately how many times have you performed GCV?	45
Never	20 (44.4%)
1–10	18 (40.0%)
11–20	4 (8.9%)
≥21	3 (6.7%)
What have been your reasons for performing GCV? (check all that apply)	25
Patient request (eg, prefer not to dilate, prefer no penetration, simpler procedure)	19 (76.0%)
Patients advanced age and associated health risks prevented full vaginoplasty	8 (32.0%)
Previous prostatectomy/TURP and difficulty/risks prevented full vaginoplasty	4 (16.0%)
Patient did not appear competent or likely to care for neovagina	3 (12.0%)
Patient refused option of harvesting graft from other than scrotum	1 (4.0%)
Other	3 (12.0%)
No answer	3 (12.0%)
Have your patients experienced any postoperative complications specifically related to GCV?	21
Yes	4 (19.0%)
No	17 (81.0%)
Are there any surgical/technical advantages to performing GCV over full vulvovaginoplasty?	21
Yes, there are advantages	15 (71.4%)
No, there are no advantages	6 (28.6%)
Are there any surgical/technical disadvantages to performing GCV over full vulvovaginoplasty?	21
Yes, there are disadvantages	5 (23.6%)
No, there are no disadvantages	16 (76.2%)
For the past 3 years in your practice, have patient requests for GCV Increased, decreased or stayed the same?	21
Yes, they have increased	5 (23.8%)
No, they have not increased	4 (42.9%)
They have stayed about the same	12 (57.1%)

(continued)

Table 2. Continued

Item	No. (%)
Would you be willing to perform a GCV on a requesting patient aged 18–21 if she were an anatomically appropriate candidate for vulvovaginoplasty?	21
Yes	12 (57.1%)
No	1 (4.8%)
I am not sure	8 (38.1%)

GCV = gender-confirming vulvoplasty; TURP = transurethral resection of the prostate.

initiated via an invitational e-mail sent by the first author, with an additional reminder e-mail sent weekly until the study closed after 28 days. Requests for participation contained information about the purpose of the study and an invitation to click on the provided link to access the survey instrument on the study website, hosted by Qualtrics (Provo, UT, USA). Participants were provided with an informed consent statement before beginning the brief survey. Participation was anonymous and voluntary and was not compensated. No IP-addresses were recorded or made available to the authors at any time, and e-mail addresses were not associated with any response items. Data gathering procedures were reviewed and approved to ensure their consistency with the ethical principles required by the Institutional Review Board of the institution supporting the study.

The 32-item questionnaire was primarily comprised of closed-end items, with some opportunities to expand on or explain individual responses. The instrument focused on participant demographics, acquired professional experience, medical practices, surgical techniques, and reasons for recommending or rejecting the procedure. Following Garcia's earlier terminology,[28] we used the term "zero-depth vaginoplasty" in lieu of the current "GCV." Items assessed general knowledge of GCV, such as, "Have you ever seen a peer-reviewed journal article or published research paper describing the procedure of zero-depth vaginoplasty in detail?," any experience performing or recommending GCV, for example, "How many times have you performed zero-depth vaginoplasty?," or "How often do you recommend to a patient that she undergo zero-depth vaginoplasty instead of vulvovaginoplasty?," and GCV in young adult patients, for example, "Would you recommend zero-depth vaginoplasty to a requesting patient aged 18–21 if she were an anatomically appropriate candidate for full vaginoplasty?" Participants were

Table 3. Responses of practitioners who do not perform vulvovaginoplasty

Item	No. (%)
Have you ever been asked by your patient about GCV (or no vaginal canal vulva)?	152
Yes	50 (32.9%)
No	102 (67.1%)
How often do you recommend to your patient that she undergo GCV instead of vulvovaginoplasty?	152
Often	1 (0.7%)
Sometimes	26 (17.1%)
Seldom	23 (15.1%)
Never	102 (67.1%)
What are the reasons you would recommend that your patient undergo GCV instead of full vaginoplasty? (check all that apply)	152
Patient request (eg, prefer not to dilate, prefer no penetration, simpler procedure)	76 (50.0%)
Patient's advanced age & associated health risks prevented vulvovaginoplasty	36 (23.7%)
Patient did not have enough tissue for construction of neovagina	22 (14.5%)
Patient did not appear competent or likely to care for neovagina	16 (10.5%)
Previous prostatectomy/TURP and difficulty/risks prevented vulvovaginoplasty	10 (6.6%)
Patient refused option of harvesting graft from other than scrotum	8 (5.3%)
Other (often "not aware" or "not in a position to discuss")	42 (27.6%)
Would not or do not recommend	29 (19.1%)
Would you recommend GCV on a requesting patient aged 18–21 if she were an anatomically appropriate candidate for vulvovaginoplasty?	152
Yes	28 (18.4%)
No	22 (14.5%)
I am not sure	102 (67.1%)

GCV = gender-confirming vulvoplasty; TURP = transurethral resection of the prostate.

given a cumulative list of 6 reasons, based on the reviewed expert opinions from available referenced articles, and 1 open-ended option for performing or recommending GCV instead of full vaginoplasty and asked to check all that apply.

Data were managed, and statistics were calculated using SPSS version 20 (SPSS Inc, Chicago, IL, USA). Because the study seeks to provide descriptive information about practitioners who interact with trans women seeking vulvovaginoplasty, document their practices and techniques, and solicit reasons for recommending or performing zero-depth vaginoplasty or for recommending against it, our primary method of reporting responses to closed-ended questions is through frequency tables. However, we also sought to identify whether there were patterns in the data associated with whether respondents would recommend or perform this procedure "on a requesting patient aged 18–21 if she were an anatomically appropriate candidate for full vaginoplasty?" Using Pearson's χ^2 test, we evaluated whether surgeons or non-surgeons would be more favorable toward the procedure. We also used Pearson's χ^2 tests to evaluate whether age of practitioner, years practicing, years of WPATH membership, and gender of practitioner were associated with a willingness to recommend or perform zero-depth vulvovaginoplasty in the same scenario. For analytical purposes we combined a question asking surgeons who perform vulvovaginoplasty whether they would be willing to perform a zero-depth procedure, with a question asking non-surgeons who serve the same population whether they would recommend the procedure. Response choices included "yes," "no," and "I am not sure." This variable is referred to as "would recommend or perform zero-depth vaginoplasty."

RESULTS

Sample characteristics are shown in Table 1. N = 198 (20.7%) of 956 solicited medical professionals completed the survey. Participants overwhelmingly identified as men or women (95.9%), with 4% identifying as non-binary, gender fluid, another identity not listed, or responding "choose not to answer." 13 individuals (6.6%) identified as transgender, whereas 185 (93.4%) individuals reported another identity. Most participants reported living and practicing in the United States (70.2%), with the remainder drawn from countries located in Africa (1%), Asia (3.5%), Australia and New Zealand (3%), Canada (4%), Central and Latin America (3.5%), and Europe (14.6%). Non-surgical physicians from various disciplines (n = 115) comprised 58.1% of the total sample, followed by surgeons (n = 61) in plastic/reconstructive surgery, gynecology, urology, and neurosurgery (30.8%). On average, participants had been licensed practitioners about 19 years (mean 19.10; SD 12.3), and WPATH members for about 6 years (mean 5.87; SD 6.7).

46 surgeons (75.4% of the surgeons responding) reported having performed vulvovaginoplasty (Table 2). About half of these surgeons (47.8%) operated in an academic research hospital setting. The vastly preferred method for vulvovaginoplasty was penile inversion (84.7%). 20 surgeons had never performed GCV, whereas 18 had performed 1–10 cases each (40.0%; n = 45), with 4 reporting 11–20 and 3 reporting >50. The surgeons who had performed GCV cited "patient request" as the primary reason (76.0%), followed by "patient's advanced age and associated health risks" preventing complete vulvovaginoplasty (32.0%). GCV was seen as having some surgical/technical advantages over vulvovaginoplasty among most surgeons (71.4%) performing the procedure. Among open-ended responses, advantages were listed as "elimination of rectal injury" and "no need to dilate," whereas the disadvantages were mostly appearance related, for example, "not resembling normal female vulva, lesser flap tethering, allowing perineal flap to slide more anterior than in standard vaginoplasty," and "there is no labial cleavage, and I don't think 'smoothies' are sexually attractive." The surgeons noted that the complication profile was nearly identical to conventional vulvovaginoplasty, specifying bleeding, dehiscence, meatal stenosis, and rectal perforation as possible sequelae after GCV. Listed complications related to a secondary vulvovaginoplasty performed after GCV included vesicovaginal and rectovaginal fistulas, wound dehiscence, perforation hematoma, and postsurgical stenosis of the introitus. As an ancillary comment to the reason for performing GCV, a participating surgeon stated:

> This is a ridiculous supposition. Zero-depth vaginoplasty is as much for cowardly surgeons as it is for patients. The appearance of the outer vulva is highly dependent upon the pull from the inverted skin. Don't be fooled. Patients want this on a very rare occasion. We instead perform limited depth vaginoplasty far more commonly for these same indications. Patients need not dilate but yet have something that actually looks like female vulva.

The responses among practitioners, both surgeons and non-surgeons who did not perform vulvovaginoplasty (n = 152), varied considerably from those provided by the surgeons who performed the procedure (Table 3). A sizeable majority (67.1%) had never been asked about GCV by their patients, and 67.1% reported "never" recommending the procedure. Among those practitioners who did make recommendations to undergo GCV, 50.0% cited "patient request," followed by "other" (27.6%) and "patient's advanced age and associated health risks" (23.7%).

In seeking out patterns in the data, we ran a series of χ^2 tests comparing the responses of different practitioners. When responding to the hypothetical scenario of a patient aged 18–21 requesting GCV and an "anatomically appropriate candidate for conventional vulvovaginoplasty," surgeons (n = 56) were more likely to support (30.4%) or reject (32.1%) and less likely to be "unsure" (37.5%) than were non-surgical practitioners. The non-surgical practitioners (n = 137) were less likely to support (17.5%) or reject (13.2%) such surgery and much more likely to be unsure (68.6%). These differences were statistically significant (χ^2 = 16.467 [2]; n = 193; $P < .001$). Exploring patterns further, the vast majority of the general/family practitioners

(83.8%) were "not sure," and, among psychiatrists, the next largest group among the non-surgical practitioners, 69.2% also stated "not sure." No other statistically significant patterns emerged. Several practitioners who did not perform vulvovaginoplasty provided optional written responses in addition to rejecting the procedure for adolescents, such as "In an 18—20 year old, one would assume a low risk of surgery and better satisfaction with a more complete operation," and "Possibility of regret and wish for penetrative sex." Among surgeons, those who responded with "no" to GCV in the younger population pointed to the difficulty undergoing a successful secondary procedure, for example, "Because most people are not really well informed about the consequences of this procedure (lack of complete sexual intercourse), as well as the risks of a new operation," and "The patient will demand colon vaginoplasty later in life, there are no reasons to take multiple surgeries during her life." Surgeons also referred to psychological factors, for example, "Often they want depth eventually, even if lesbian, to feel whole, etc," and "Seems incompatible with a transgender [sic] wanting to be a true woman." Finally, a few participant statements deferred to normative anatomic expectations as reasons for rejection in the younger patient population, such as "Vaginal atresia is not normal," and "Default to norm unless strong contraindication."

DISCUSSION

This exploratory study provides novel information on the knowledge, experiences, and attitudes of 198 international WPATH-affiliated medical practitioners when recommending or performing GCV on transgender women, as well as their endorsement or rejection of GCV in young transgender women aged 18—21. The obtained data show that GCV is not commonly recommended or performed, and available information of the procedure remains sparse. The vast majority of participants, independent of medical specialty, had never been asked by patients about GCV, and very few had ever seen a journal article or published study on the subject. Additionally, almost half of the surgeons who reported experience with performing vulvovaginoplasty had never performed GCV. "Patient request" was cited by the participants as the most common reason for performing or recommending GCV, followed by "the aged patient's physical condition presenting a risk" if undergoing full vulvovaginoplasty. This dovetails with the study results of Jiang et al,[31] where the majority of patients seeking GCV chose the procedure despite having no existing contraindications to vulvovaginoplasty. The most common reason for those patients was reportedly "a lack of interest in vaginal sexual activity" and the wish for a visible "birth defect" to be removed. When surgeons in the same study made the recommendation, it was most often due to previous treatment for prostate cancer, prior major rectal surgery, or for medically complex, older patients, such as those with previous histories of stroke or congestive heart failure. Collectively, these data lead us to conclude that vulvovaginoplasty is still considered the default intervention, particularly when there is a presumed intent to engage in sexual activity. Garcia[30] has challenged the notion of GCV as a partial or lesser procedure and stated that, in using patient-centered terminology, "a neovagina with or without a canal is still a normal-looking vagina" [p. 439]. Accordingly, because the main anatomic organ for achieving orgasm after surgery is the neoclitoris, Garcia has argued that sexual pleasure for the patient is not dependent on the vaginal canal, but that the neoclitoral sensation contribute to reduction of gender dysphoria, improved sexual function, and orgasmic quality equal to women who undergo vulvovaginoplasty. He believes that GCV should be offered as an option to every female patient during presurgical planning, and that the approach of providing all surgical options likely engenders "greater mutual trust between patient and surgeon" [p. 439].[30]

Of the 25 surgeons who performed GCV, most (n = 22) also had operating experience with secondary vaginoplasty after GCV, with 57.1% noting no significant postoperative complications. This was surprising, considering that studies of >2,000 patients reported the rates of complications after primary penile inversion vulvovaginoplasty at about 30%, most often as urethral meatal or neovaginal stenosis, wound dehiscence, granuloma, and rectovaginal fistula.[34,35] Our study also shows a distinct preference among surgeons for the penile inversion technique used in vulvovaginoplasty, most likely because of the American majority of the participant sample. We therefore assume that, rather than using flank grafts or other interventions to create a vaginal canal, the participating surgeons outside the United States may have performed intestinal vaginoplasty by using the sigmoid colon or ileal segments. Bowel vaginoplasty in trans women is performed to a greater extent in Europe, where acceptable patient satisfaction rates have been documented in secondary procedures after penile inversion vaginoplasty failures or complications.[36—38] It is possible that colon vaginoplasty in the United States will become a more commonly available alternative to penile inversion, particularly as more urologic surgeons obtain training in the procedure, and additional outcome studies will be published in the future.

There was a divide between the surgeons, independent of having performed GCV, and non-surgical practitioners when recommending or performing GCV on an adolescent patient, age 18—21 years, who was otherwise an appropriate candidate for undergoing vulvovaginoplasty. Understandably, surgeons have more awareness of the required surgical techniques, potential complications, and longer-term outcomes for both procedures. Moreover, their proficiency and experience have most likely contributed to the specific distribution of their answers. But what accounts for the majority of surgeons who previously performed GCV having no hesitation in operating on a younger patient,

whereas the majority of non-surgical practitioners were "not sure"? Perhaps the SOC prerequisites for surgical interventions hold a clue. Previous and current WPATH SOC have assigned the responsibility for assessing and recommending patients seeking surgical treatment to mental health professionals with documented experience in the treatment of gender dysphoria.[4,33,39] These specialists encompass a variety of licensed clinicians, from social workers and psychotherapists, to psychologists and psychiatrists, among others. 2 referrals are required for irreversible procedures, 1 of which is often written by a mental health professional with a terminal doctoral degree, not only to comply with the WPATH SOC, but also to document the medical necessity in accordance with evidence-based medicine in both public and privately funded healthcare worldwide. Consequently, surgeons have come to rely on the written assessment and recommendation letters by these professionals as the sine qua non of patient clearance, which ultimately puts the burden of obtaining informed consent on the mental health provider.[4,5] Milrod[4] has stated that "there is a genuine expression of fear among clinicians in making the wrong diagnosis, based on the fact that young people often experiment with gender role behavior as a consequence of normative identity development" [p. 341]. And, whereas an individual 18—21 years of age is no longer legally a minor, it is plausible that the majority of general/family medicine practitioners and the psychiatrists in our study who treat or assess youths for surgery are considering the adolescent's developmental cognitive path to decision making, executive function, or self-evaluation when planning for the future [40] and therefore feel uncertain recommending GCV as the final, irreversible genital procedure. However, surgeons share with mental health professionals the responsibility for recommending the most appropriate treatment and for educating the patient on the risks and benefits of GCV vs conventional vulvovaginoplasty in the informed consent process. Future changes to the Standards of Care V. 8, for example, 1 mental health assessment and recommendation letter rather than 2, may only increase the importance of surgeons knowing when GCV should be recommended.[39,41]

Our participant sample is composed of medical professionals with an average of almost 2 decades of experience; it appears that those surgeons who indicated uncertainty or rejecting GCV in the late adolescent were doing so precisely because of the awareness of potential regret, temporary disinterest or avoidance of dilation, or psychological changes in the developing young adult.[5] This suggests that long-term experience of the practitioner is an important contributing factor to understanding patient psychology, as well as possessing the surgical skills to successfully execute a range of genital procedures, applicable to the cautionary coda that GCV must not be seen as a simpler alternative to performing a more complex vulvovaginoplasty, but rather as "a complementary procedure in the surgical options for people seeking feminizing genital surgery" [p. 905].[31]

Limitations

There are several limitations of the study. The response rate was significantly lower than the average rate of 50% for online surveys, thereby indicating the possibility of a non-response bias or the lack of a specific strategy to improve participation rates.[42] Our sample was restricted to WPATH members practicing medicine or nursing; non-medical sexologists, psychologists, psychotherapists, social workers, and other providers in the counseling professions were not solicited as participants, partly because educational requirements and licensing for these occupations can vary substantially from country to country, including the authority to make recommendations or otherwise provide patient care. The majority of respondents were also US-based, like the WPATH membership at large; nevertheless, the sample is not representative of the entire professional cadre of WPATH members, particularly when exploring experiences and attitudes toward recommending GCV. A participant pool of additional WPATH members with the added representation of non-medical professions would most likely improve the response rate and the results of the study. Our questionnaire was also very brief and did not contain any sociocultural items; a more extensive survey instrument would address legal issues, healthcare policies, socioeconomic factors, and cultural norms that could potentially influence the results. Last, any study of GCV would be greatly improved by the added participation of patients, preferably through outcome studies from a variety of countries and global regions in a more inclusive approach.

CONCLUSIONS

The aim of this exploratory study was to provide descriptive data of 198 WPATH-affiliated medical professionals' knowledge, experiences, and attitudes toward GCV, as well as surgical risks, benefits, or drawbacks when recommending, performing or rejecting the procedure, particularly in young trans women aged 18—21. Findings show that although GCV is considered a safe procedure, largely free of postoperative complications, most of our participants were ambivalent or rejecting when considering GCV in adolescent cases when there is doubt concerning the maturity and decision-making of the patient. In contrast, surgeons were less ambivalent and more likely to support or reject GCV outright for an adolescent than were non-surgical practitioners. Cumulatively, these data may contribute to an expanded description and specific indications of GCV in the updated WPATH SOC Version 8.

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