

Review

# Overview of Medical Management of Transgender Men: Perspectives from Sri Lanka

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**Abstract:** Transgender medicine is an evolving field of medicine due to the rising awareness of individuals with a non-binary gender identity. Individuals with nonconforming gender identities have been on the rise in many societies and it is becoming an increasingly discussed issue. Their management is multidisciplinary, which includes mental health, endocrine therapy, and surgery. Although their general healthcare needs are similar to those of the general population, special considerations in primary and preventive care are also necessary in relation to the gender-affirming medical issues. Their quality of life is largely affected by psychological, social, and economic difficulties they face due to acceptance issues in the society and healthcare. This review explores the primary care, medical, and surgical management of transgender men with perspectives from Sri Lanka.

**Keywords:** transgender men; surgery; hormonal therapy; primary care; screening; Sri Lanka



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## 1. Introduction

Gender is a social construct varying with cultural beliefs on femininity and masculinity. Sex is distinct from gender as it is assigned at birth to an individual based on their external anatomy. The gender identity of an individual is an internal sense of identity a person holds in the gender spectrum ranging from masculine to feminine. People communicate their gender identity to the world using gender expression, the way they dress, behave, speak, etc. [1]. Gender dysphoria is the distress caused by discrepancies between natal sex and the gender identity of a person [2]. Gender identity and the biological sex assigned at birth matches in cisgender individuals. Individuals whose gender identity or gender expression differ from their assigned sex at birth are referred to as transgender [3]. Despite the limitations in accurate census data, they represent a growing population in the modern world, with approximately 390 transgender adults per 100,000 in the United States, which is approximately 0.6% of the adult population [4,5]. Transgender individuals with gender dysphoria may choose to undergo treatment both medically and surgically to obtain a physical and social transition to the gender role of their true selves. Their healthcare needs are similar to those of the general population, although the additional gender-affirming medical issues requires additional support [6]. The quality of life of these individuals is affected by the psychological, social, and economic difficulties which are common among these individuals [2].

Transgender men are people with a male gender identity but are assigned female sex at birth. The term transsexual refers to transgender individuals who have transitioned through medical interventions, and therefore, should not be used as a synonym for transgender [1]. Although the global prevalence of transgender females is approximately three times that of male transgenders, available evidence suggests a greater prevalence of transgender males in Sri Lanka; the reasons for this difference is unknown [7,8].

Studies have shown improvements in their quality of life after some form of gender affirmation as preferred by the individual [9–11]. These may be social, medical or even

surgical. Some prefer only social changes while other may prefer other options, which may or may not align with binary and non-binary identities. Gender affirming surgery which involves modifying the body in congruence with one's gender identity has been increasing over the years. Such surgery primarily includes chest surgery in the form of a subcutaneous mastectomy and genital surgery including oophorectomy, hysterectomy, vaginectomy, metoidioplasty, and phalloplasty [12,13]. Of the male transgender individuals, around 8–25% may choose masculinizing procedures through surgical interventions [12,13]. The readiness of the individual for chest masculinization is decided by a multidisciplinary team inclusive of a mental health professional, gynecologist, endocrinologist, and surgeon. Well-documented gender dysphoria as confirmed by a mental health professional, the capacity to give informed consent and well-controlled medical and psychiatric concerns are mandatory prior to any gender reaffirming interventions [13,14]. All individuals should be given an opportunity to experience and socially adjust to a masculine role before undergoing testosterone treatment and especially surgery, which include irreversible body changes. This review focuses on primary care, clinical considerations, and the medical and surgical management of transgender individuals.

## 2. Hormonal Sex Reassignment

The aim of hormonal therapy is to induce a physical appearance to match their gender identity while maintaining hormone levels in the physiological range of the target gender. The goal in transgender men is to induce virilization and to stop menstruation with androgens. Androgen therapy is started in individuals with documented gender dysphoria with unhindered decision-making capabilities, and having medical and mental health issues well under control [15]. Testosterone preparations are the principal form of hormone therapy which are available as injectables or gels administered intramuscularly or subcutaneously with similar therapeutic effects.

Androgen therapy would result in increased lean body mass, male pattern hair growth, deepening of the voice (which may be irreversible), growth of midline structures such as the larynx and clitoris, an increase in sexual desire, and reduced glandular tissue in breasts [15]. However, the lower height and broader hip configuration in transgender men would not change with androgen therapy.

Monitoring of hormone therapy should take place simultaneously in order to maintain serum testosterone concentrations in the physiologic range for men (400–800 ng/dL) [15]. Evaluation should take place once every three months during the first year and twice a year thereafter to keep track of adverse effects. Serum testosterone levels should be monitored three-monthly along with regular hematocrit and lipid profiles to identify erythrocytosis and elevated triglycerides which may occur with testosterone therapy [16].

## 3. Cancer Risk and Screening

Gender-specific screening tests not conforming to their gender identity may cause significant psychological discomfort in transgender men. Therefore, it remains a clinical dilemma for clinicians to decide on suitable cancer screening tests for transgender men due to the lack of evidence-based recommendations [17]. Breast cancer rates among transgender men are much lower compared to cisgender females [18]. The reduction in rates is possibly due to higher rates of mastectomy and due to the effects of testosterone therapy [19]. Screening mammography is recommended every two years after the age of 50 years and following 5–10 years of feminizing hormone usage [18].

Cervical cancer risk in transgender men is much lower as most undergo hysterectomy with or without oophorectomy. Those individuals may not benefit from cervical cancer screening as there is no residual cervical tissue left. However, for those with an intact cervix, a Papanicolaou test (Pap) with or without human papilloma virus (HPV) testing for cervical cancer screening is offered at the recommended age similar to cisgender women [18]. Interestingly, factors such as their sexual orientation, with most being sexually

attracted to women, and the likelihood of most being vaccinated for HPV may further contribute to reduced HPV risk in transgender men in comparison to women [17].

Transgender men are also at risk of endometrial and ovarian cancer. However, routine screening is not recommended unless unexplained vaginal bleeding occurs in a patient with established testosterone-induced amenorrhea. Transgender men should receive the same policy for screening for ovarian cancer as cisgender women [18]. Cancer care in transgender patients may be withheld by some doctors or delivered in discriminatory ways. Such discrimination can be minimized by using appropriate words as preferred by the patients in denoting their body parts, or to use words that are not gendered such as chest and genitals as opposed to words such as breast or vagina [9–11].

#### 4. Surgical Sex Reassignment

In order to match their physical body to their gender identity, transgender men may opt for many surgical procedures. These are broadly classified as genital surgery, which includes hysterectomy, oophorectomy, vaginectomy, phalloplasty, metoidioplasty, and scrotoplasty, and extragenital surgery, which includes mastectomy [20].

##### 4.1. Chest Surgery

Chest wall masculinization is the most commonly performed surgery among male transgender individuals [21]. Before undergoing chest surgery, it is mandatory that the patients should have documented gender dysphoria, with unhindered decision-making capacity to give consent, and well-controlled medical and mental health issues. Prior testosterone therapy is not mandatory for chest surgery [14]. Evidence shows chest masculinization leads to higher patient satisfaction, quality of life, and reduced gender dysphoria in these individuals [22].

There are two main techniques for mastectomy. The long scar technique, or the double incision technique, and the short scar technique. The choice of technique is based on factors such as breast size, skin quality and laxity, the degree of ptosis and the size and position of the nipple areolar complex [22]. Smaller breast size would result in a more satisfactory outcome with subcutaneous mastectomy, but some may need extensive surgery with noticeable scars. Breast amputation with a free nipple areolar complex graft is recommended for ptotic breasts [23]. A careful preoperative examination will identify these factors and will help the surgeon decide on the most appropriate technique for an individual [24].

The long scar technique is commonly performed and is suitable for individuals regardless of the degree of skin laxity or ptosis of the breast [25]. The nipple areolar complex (NAC) is replaced by skin grafts at the correct position, shape and size similar to male aesthetics. This technique would result in the desired flat chest appearance with correct positioning of the NAC. However, sensation in the nipples would be lost and the long scars at the inferior insertion of the pectoralis would be visible. In order to preserve sensation, the NAC may be kept connected to the inferior pedicle of the breast, but this may result in a bulge in the chest wall, which might not be aesthetically acceptable [22,25].

In the short scar technique, mastectomy is performed through a small incision made through the inferior border of the areola. This gives excellent results in those with non-ptotic small breasts with good skin quality. A concentric circular technique can be used in patients with a small amount of ptosis or a larger NAC, which would allow small amounts of skin and areolar reduction at mastectomy [22].

Post-operatively, the recovery period usually lasts for 4–6 weeks with no heavy work. Those with free nipple grafts would additionally require three to four weeks of wound care. The commonest complications include hematoma (3–15%) and seroma formation. Seroma formation can be minimized by using a compression vest for three weeks. There is a risk of partial or complete loss of NAC, and this risk is higher in the periareolar and limited scar technique [25]. Scar revision (12.6%), chest contour revision (17.8%) and nipple areolar revision (8.9%) are the commonest revision surgeries considered for late complications [13].

#### 4.2. Genital Surgery

Genital surgery is vital in alleviating gender dysphoria in some, but not in all. However, before considering genital surgery, individuals should meet the criteria recommended by the World Professional Association for Transgender Health (WPATH) [14]. The aims of genital surgery are permitting micturition in a standing position, cosmetic concerns such as providing bulk inside underwear and swimwear, ensuring satisfactory sexual function with erection and penetrative intercourse with adequate preservation of genital sensation in order to achieve orgasm [20]. Genital surgery is broadly classified as extirpative procedures to remove female organs including hysterectomy, oophorectomy and vaginectomy and reconstructive procedures to create masculine functions, which include procedures such as metoidioplasty and phalloplasty [13]. Hysterectomy is considered in those who do not wish to carry their own children and plan to have children through their partners. If they do not wish to have their own genetic children, they would be a suitable candidate for oophorectomy. Vaginectomy involves de-epithelialization of the vagina followed by complete obliteration of the canal. This can be considered in patients whose gender dysphoria is mainly due to their vagina and who do not wish to engage in penetrative vaginal activities [13].

Metoidioplasty is where the clitoris, hypertrophied following testosterone therapy, is used to form a small phallus. The procedure involves mobilization of the clitoris in order to make it point ventrally, and the existing urethra is tubed and extended forwards using a flap of vaginal epithelium to create a phallus resembling a micropenis. The labia minora may additionally be formed into a scrotum with testicular implants. The overall complication rate remains acceptable (20–40%) with elaborate microsurgical techniques [26]. Although micturition in a standing position is not always achievable, individuals report satisfactory intercourse with their female partners despite the small size of the phallus as the sensation is well preserved. This procedure is not suitable for patients without significant clitoral hypertrophy as the smaller size would be inadequate for most individuals for cosmesis and for satisfactory penetration [20].

Phalloplasty creates a cosmetically acceptable penis, sometimes achieving erectile function and having a neourethral opening at the tip. The current trend in phalloplasty is to use local flaps with blood supply from inferior epigastric vessels or to use free flaps derived from the thigh, forearm, fibula or latissimus dorsi muscle [26]. Evidence from the largest published series on phalloplasty demonstrated that the radial forearm free flap technique is the most reliable, where a full thickness flap with the intact radial artery and the cutaneous nerves is raised and the flap is formed in two parts to create the neourethra and phallus [20].

In order to achieve satisfactory erectile function, the majority of phalloplasty techniques use an inflatable penile prosthesis. Due to the lack of tunica albuginea in the graft, it is implanted within a sleeve of synthetic graft material, anchoring the base to the bony pelvis. Although infection of the device would lead to higher rates of failure of the penile prosthesis, excellent functional results are possible [27]. Erectile function can be achieved without a prosthesis when using a latissimus dorsi myocutaneous free flap where muscular contraction is used to stiffen the penis. When osteocutaneous flaps are used (fibula, radial forearm flap) the desired outcome can be achieved without stiffeners; however, this would result in a permanent erection [20]. Further research is necessary to gain insight into sexual function of these individuals after genital reconstruction surgery as little attention has been given to this subject.

A growing body of evidence demonstrates that medical and surgical treatment of transgender individuals results in significant improvements in quality of life and psychosocial outcomes. A meta-analysis involving 1833 transgender individuals on treatment has shown significant improvements in gender dysphoria (80%), psychological symptoms (78%), quality of life (80%), and sexual function (72%) [28]. Therefore, sex reassignment is currently one of the best ways of alleviating gender dysphoria in these individuals.

## 5. Gynecological Care

Transgender men who do not opt for surgery will need continuous gynecological care for screening and to address the adverse effects of hormonal therapy. Although menstruation would generally stop within few months of starting testosterone, screening should continue for early detection of gynecological malignancies, unless had undergone bilateral salpingo-oophorectomy. It is important to prioritize the patient experience while providing gynecological care. Strategies should be implemented to promote a more conducive and supportive environment by using a sensitive setting and more culturally appropriate language during the encounter. A painful or a dissatisfying experience would result in poor adherence to treatment. Speculum examinations should be particularly modified in order to reduce the pain. Techniques such as using a pediatric speculum, encouraging relaxation of pelvic muscles with relaxation exercises, and using warm water or a water-based lubricant can be used to reduce discomfort [18].

## 6. Primary Care

The goals of primary care are similar to those of the general population, which include primary and secondary prevention. Additionally, due to their specific social and legal concerns, the primary care provider may have to get involved in medical documentation processes, which includes changing gender on identification documents. At certain instances, primary care physicians may have to manage hormonal therapy. Therefore, it is important to be aware of the preparations used and their doses along with potential side effects. Every clinician should be comfortable in working in transgender-friendly environments and to meet their diverse healthcare, psychosocial and legal needs. The primary care physician should be aware of the aspects of transgender surgery and their altered anatomy as they will have to follow up post-surgical individuals. It is also important to note that there can be shifting in identity of these individuals over time. Therefore, most young transgender people identify themselves as non-binary [29], so it is important for healthcare authorities to ensure that primary care clinicians are aware and comfortable in addressing the healthcare issues of these individuals [6].

## 7. Mental Health

Due to the constant stressors and stigma that transgender individuals have to face in adapting to their new gender role, they often need mental health services for a variety of reasons, including referrals for medical and surgical interventions, exploration of identity, and providing effective ways to cope with stressors and to deal with stigma. Additionally, these individuals are more prone to anxiety, depression and suicidal ideation, which requires early recognition for effective management [6]. Furthermore, a thorough mental health assessment is considered mandatory prior to most surgical and hormonal therapies. Therefore, mental health professionals are gatekeepers for interventions in transgender individuals. An initial assessment should include reaching a diagnosis, assessing for associated psychiatric comorbidities and assessment of the individuals support system. Psychotherapy is also highly recommended in these individuals, although it does not replace an assessment by a mental health professional. Identifying and strengthening the support system of the patient is vital to establish a healthy transition process [30].

Hormonal therapy might directly contribute to mood disorders. However, testosterone therapy is not directly associated with the worsening of any mental health conditions. An open-minded approach is essential in assessing mental health concerns to avoid relating all symptoms to gender dysphoria and hormonal therapy. There are three types of mental health needs in transgender individuals: exploration of gender identity, social transition, and general mental health issues unrelated to gender identity. Supporting transgender individuals during their transition period includes integration of individualized identity and reinforcing self-identification. General mental health issues do affect transgender individuals equally and some conditions show a slightly increased rate due to the social discrimination they face in day-to-day life. The primary healthcare providers too should

be aware of these challenges faced by transgender individuals and the ways to address them [18].

### **8. Fertility**

Hormone therapy may have detrimental fertility effects. Individuals undergoing genital surgery would lose reproductive potential altogether. Therefore, they need adequate counselling with regard to fertility issues before starting treatment. Cryopreservation of embryos or oocytes is an option, which, however, is expensive and beyond the affordability of many [15,31]. The frozen-thawed oocytes or embryos can be later transferred to the patient's uterus or into a female partner or gestational carrier [18]. Transgender men should be informed that testosterone therapy is not a reliable method of birth control and it should be discontinued in the event of a pregnancy [17]. Similar obstetrical outcomes have been noted in both testosterone and non-testosterone users. Ovarian tissue cryopreservation is a novel technique which is still experimental. Transgender children should be offered the option of fertility preservation prior to the initiation of treatment, which includes cryopreservation of sperm, oocytes and embryos [18].

### **9. Legal Issues and Health System Considerations**

The structure of the health system may cause issues and could impede the adequate access of transgender individuals to equal healthcare opportunities. Often physicians, nurses and other healthcare staff receive little to no training in transgender medicine, leading to discriminatory behavior. Committed international organizations such as Lambda Legal and the Human Rights Campaign are working towards ensuring full recognition of civil rights for these individuals. They have proposed best practice standards for hospitals, which include ensuring hormone therapy is provided for all, forming policies for non-discriminatory practices in healthcare facilities and safe access to restrooms according to their gender identity [32]. Free education modules are available online to provide training to caregivers which will help identify the specific issues faced by these individuals which would minimize discrimination and ensure equal opportunities in society [1]. In the United States as well as in Sri Lanka, surgery is not required to legally change sex as long as a health professional certifies that the patient fulfills the criteria for transition. However, in some jurisdictions, changing sex requires opting for surgical options of treatment [18].

### **10. Implications for Practice**

Transgender medicine is an evolving field of medicine due to the rising awareness of individuals with a nonconforming gender identity. However, the scarcity of research on these individuals limits the availability of clinical practice guidelines in their management. They face major acceptance issues, social stigma and discrimination in societies, which might hinder their adequate access to healthcare facilities and the tendency to seek treatment. This in turn results in poor quality of life. Management involves providing multidisciplinary care addressing their medical, surgical, mental health, legal, and socio-cultural issues. Managing gender dysphoria effectively would result in favorable outcomes in quality of life in these individuals. Therefore, it is vital to raise awareness among policy makers in order to provide transgender men equal opportunities in access to healthcare. Adequate training should be provided to primary care clinicians, nurses and other allied healthcare professionals to prevent discriminatory behavior. Providing equal opportunities and access to healthcare would ensure a smooth transition to their desired gender role with satisfactory quality of life.

As medical professionals, it is important to assist trans men along their self-affirmative journey and during social transition. This would raise awareness and will loosen the stigma in the society linked to these individuals. Speaking up for their rights and supporting activist groups will bring their issues to light and encourage them to seek the care they need. The transgender community is quite often subjected to discrimination by administrators

and authorities of power. Therefore, health professionals showing support on their behalf would encourage them to live a normal life [33].

### 11. Current Situation in Sri Lanka

Gender transition and transgender individuals are legally recognized within the health system in Sri Lanka through a circular issued by the Ministry of Health in June 2016 [34]. This permits transgender individuals to legally change the gender on their birth certificates to be recognized legally as their preferred gender. This allows these individuals to legally change their gender on other identity documents. Furthermore, this circular recognizes the discrimination and violence faced by transgender persons.

Many hospital-based prevalence studies from Sri Lanka have reported on the greater prevalence of male transgender individuals than female transgender individuals [8]. Whether this is a true reflection of population prevalence, or the possible reasons if this is true, are not known.

In Sri Lanka, breast cancer is the commonest cancer and the incidence of both male and female breast cancers is increasing [35,36]. Furthermore, cervical cancer is the third most common cancer among Sri Lankan cisgender females, next to thyroid cancer [37,38]. However, the incidence of these cancers among transgender people is unknown. Although screening programs are freely available for cisgender females, separate facilities are not available for transgender men [39,40].

Compared to many other countries in the region, there is a greater acceptance of transgender individuals in Sri Lanka. As a result, many of them are able to integrate back into society with their reassigned gender. This is the most likely reason that only a small minority of transgender people end up as commercial sex workers in Sri Lanka. For instance, in neighboring India, over 90% of transgender individuals end up as commercial sex workers, while the reported rate in Sri Lanka is well below 5%. Furthermore, this has resulted in only a small minority of transgender people carrying sexually transmitted diseases including HIV in Sri Lanka, as compared with India and Pakistan where approximately 10–15% are carriers of HIV [41,42].

The Sri Lankan public healthcare system, which provides universal free healthcare for all citizens, also provides the healthcare required for gender transition, including hormonal therapy and gender reassigning surgery. However, many barriers are known to exist, including long waiting times and discrimination by some of the health staff towards transgender people seeking care in the public sector. Therefore, it is important to raise awareness amongst the Sri Lankan medical community regarding transgender individuals. This should at least begin at the level of undergraduate medical education by incorporating topics on transgender care into the medical curriculum.

The health sector and other organizations working on transgender health need to work together to improve understanding of the needs of transgender people in Sri Lanka and to work towards minimizing barriers in accessing and obtaining optimum healthcare.

### 12. Conclusions

The field of transgender medicine is experiencing a renaissance in many countries, with a growing interest and awareness of the issues faced by these individuals due to social stigma and discrimination. Management involves a multidisciplinary team with optimum sex reassignment therapy with hormonal treatment and surgery. Therapy for gender dysphoria has demonstrated favorable outcomes in these individuals, optimizing their quality of life. In addition to treatment, addressing their mental health concerns, fertility issues, and legal issues would help them embrace their desired gender role successfully. Paucity of literature on the topic necessitates further research into forming evidence-based guidelines in managing transgender individuals and in raising awareness among healthcare professionals in providing optimum care.

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