

LGBTQ+ Perspective in Hand Surgery Surgeon and Patient



Joseph Paul Letzelter, MD^{a,*}, Julie Balch Samora, MD, PhD, MPH, FAAOS, FAOA^b

KEYWORDS

• LGBTQT • Transgender • Gay • Lesbian • Hand feminization • Ally

KEY POINTS

- There is a lack of LGBTQ+ representation within Hand Surgery.
- LGBTQ+ patients and physicians face discrimination within the hospital and other medical environments.
- LGBTQ+ patients have needs that can be different from those of other patients.
- Understanding desires from the transitioning patient or transgender patient can help hand surgeons better serve their community.

INTRODUCTION

Lesbian, gay, bisexual, transgender, queer, and other sexual and gender minority (LGBTQ+) individuals face high levels of harassment and discrimination at work.^{1,2} This discrimination negatively impacts their health, wages, job opportunities, workplace productivity, and job satisfaction. Twenty seven percent of LGBTQ+ individuals stated that they faced discrimination in the workplace due to their sexual orientation. Further 7% of LGBTQ individuals reported being fired due to their sexual orientation.² In 2020, approximately 5.6% of the US population identified as LGBTQ.³ Interestingly, this figure is higher in younger generations with 20% of Generation Z and 10% of millennials openly identifying as LGBTQ+.⁴ With the increasing percentage of the younger population identifying as LGBTQ+, more individuals from this group will be presenting as patients in Hand Surgery clinics and entering the medical field. At present, there is a lack of guidance for LGBTQ+ medical students and residents entering the field of Hand Surgery as well as knowledge to appropriately treat LGBTQ+ patients with musculoskeletal concerns.

As a specialty, we have a unique ability to advocate for the LGBTQ+ community to make Hand Surgery a welcoming specialty for medical students, residents, attendings, and faculty, and importantly our patients.

Lack of Diversity in Hand Surgery

The lack of racial and gender diversity within Orthopaedic Surgery has been well documented. According to the American Academy of Orthopaedic Surgeons (AAOS) Census, only 6% of practicing orthopaedic surgeons are women, 2.2% are Hispanic, and 2% are black.⁵⁻⁷ Although no study has yet investigated the proportion of practicing orthopaedic surgeons who identify as LGBTQ+, only 1.8% of LGBTQ+ students are entering the field of Orthopaedic Surgery, which is lower than all other specialties.⁸ A study of 63,721 graduating medical students found that 6.3% identified as LGBTQ+.⁹ Sitkin and Pachankis¹⁰ found that sexual and gender minorities (SGM) tend to shy away from competitive specialties, with the percentage of SGM in each specialty being inversely related to

^a Orthopaedic Surgery Department, Children's National Medical Center, 111 Michigan Avenue Northwest, West Wing 1.5, Washington, DC 20010, USA; ^b Orthopaedic Surgery, Nationwide Children's Hospital, 700 Children's Drive; T2E-A2700, Columbus, OH 43205, USA

* Corresponding author. 50 V Street, Northwest, Washington, DC 20001.

E-mail address: JPL34@georgetown.edu



Fig. 1. Logo for Pride Ortho, an organization of LGBTQ+ individuals and their allies in Orthopedic Surgery. (Courtesy of Pride Ortho; with permission.)

specialty competitiveness. Furthermore, SGM students cite multiple factors that influence specialty choice, including personality fit, role models, specialty content, and work-life balance.

Students also report feeling there are cultural “in-groups” and “out-groups” when applying to a specific specialty. Gerull and colleagues¹¹ found students feeling in the “in-group” identified a sense of belonging in the field. The students’ perceived stereotypes about Orthopedic Surgery included interest in sports, Caucasian race, male, heterosexual, dominant personality, and athletic physical build. Those who did not fit into those categories were more likely to feel part of the out-group. Those in the out-group reported their experiences within Orthopedic Surgery further reinforced their lack of identity alignment, furthered decreasing their interest in orthopedics.

The lack of LGBTQ+ medical students entering Orthopedic Surgery may be a detriment to the specialty, because we are not attracting the best and brightest. A study by Mittleman¹² found that gay men earn advanced degrees at higher rates than any other demographic group. About 6% of gay men in the United States have an advanced degree, which is 50% higher than heterosexual men. This figure holds true for gay men in the

four largest racial/ethnic groups. An increasing proportion of advanced degree holders may identify as LGBTQ+ as a higher percentage of young adults in the general population identify as LGBTQ+.¹³ Adults born between 1997 and 2003, considered Generation Z, identify as LGBTQ+ at a rate of 21%, which is double the percentage of millennials identifying as LGBTQ+. This observation likely indicates that an increasing number of the top students are likely to be LGBTQ+. It is timely for Orthopedic Surgery to create an inclusive environment to encourage the brightest into the specialty. LGBTQ+ medical students may be some of the most competitive students, but Orthopedic Surgery and thus Hand Surgery is missing out on these exceptional candidates due to perception and environment. The students with the most passion for a given field are the most likely to advance that field.

To encourage more LGBTQ+ students to pursue Hand Surgery, we need to recruit them at the medical student and residency level into Plastic Surgery, Orthopedic Surgery, and General Surgery. Pride Ortho is a nonprofit organization that was created to provide mentorship, networking, and a sense of belonging for LGBTQ+ members of the Orthopedic community (Fig. 1). By focusing on education and research, the organization aims to improve diversity and promote professional advancement of LGBTQ+ members of our community. To encourage more LGBTQ+ participation in Hand Surgery, we need to connect students/residents with mentors early on in their careers. We also need to increase national visibility of LGBTQ+ Plastic, Orthopedic, and General Surgeons, which demonstrates that LGBTQ+ trainees can thrive in practice as an LGBTQ+ hand surgeon.

Allyship

Once we are able to recruit students from the LGBTQ+ community, we have to understand how to support them. Being an ally has an immeasurable effect on not only the LGBTQ+ community within institutions, including surgeons, ancillary staff, patients, and caregivers. Being an ally in surgical specialties requires not only advocating for the LGBTQ+ community but also teaching others to be allies, and recruiting residents within the community.

A study by Heiderschiet and colleagues evaluated the experiences of LGBTQ+ General Surgery residents.¹⁴ The investigators found 47.5% of LGBTQ+ residents experienced sexual harassment, 60% experienced discrimination, and 75% experienced bullying. These percentages were all

significantly higher than their non-LGBTQ+ coresidents. LGBTQ+ residents were more likely to consider leaving their program and to consider suicide compared with their non-LGBTQ+ coresidents. When adjusting for mistreatment, LGBTQ+ residents had similar rates of consideration of suicide compared with the overall group. This indicates that mistreatment by attendings is one of the most common sources for suicidality among LGBTQ+ residents. Increasing visibility of allies and increasing the understanding of the importance of being an ally can minimize these numbers and enable trainees to feel seen, supported, and included.

Residents who have had training on LGBTQ+ allyship improve their objective ally scores as well as their openness and support of LGBTQ individuals¹⁵; this highlights the need for residencies and programs, especially ones in which the prevalence of LGBTQ+ patients is low, to create programs aimed at teaching faculty, residents, and students about the importance of being an ally. By creating an organization that is open and full of allies, one can create a group that continues to foster increased development and collaboration among both residents and faculty in a positive environment.

LGBTQ+ Physicians and Residents

Discrimination against LGBTQ+ physicians and patients has been an ongoing issue. A study by Schatz and O'Hanlan¹⁶ demonstrated that many LGBTQ+ physicians experienced discrimination and witnessed discrimination against LGBTQ+ patients. This study, which was performed in 1994, found that 17% of respondents were denied privileges or promotions due to their sexual orientation. Thirty-four percent of respondents experienced some form of verbal harassment from a colleague.

A follow-up study by Eliason and colleagues¹⁷ in 2011 found that 15% of respondents experienced harassment from a colleague; 34% witnessed discrimination against LGBTQ+ patients, and 65% had heard disparaging remarks about LGBTQ+ individuals. This mistreatment leads many LGBTQ+ physicians to feel less satisfied at work and results in lower rates of retention.¹⁸ We need to work actively to create a welcoming environment for LGBTQ+ colleagues to continue to elevate the practice of Hand Surgery and improve care for all our patients.

It has been shown that underserved patients have better outcomes when treated by gender and ethnically diverse physicians.¹⁹ Thus we should continue to recruit hand surgeons from

diverse backgrounds. SGM trainees and physicians have experienced bias, discrimination, and harassment due to their sexual orientation or gender identity.²⁰ Among LGBTQ+ General Surgery residents, more than half reported hiding their sexual identity due to fears of mistreatment and discrimination.²¹ By hiding their identity, these surgeons are less able to be who they are, which impacts their relationships with their colleagues and attendings. The inability to be oneself at work results in a negative feedback loop, with an inability to make connections with attendings, leading to a perception of being less competent, which can then lead to anxiety and a poorer performance.

LGBTQ+ Patients

Discrimination against LGBTQ+ individuals has been well documented. Human immunodeficiency virus has affected the gay male population more than any other population, which created a stigma within this cohort. Discrimination toward LGBTQ+ patients within the health care system has led many LGBTQ+ patients to be wary of this environment.^{22,23} Many delay or avoid care altogether due to fear of being harassed, undermined, or not seen. Orthopedic Surgery is perceived as the least welcoming and inclusive specialty to SGM.¹⁰ By understanding the specific needs and concerns of the LGBTQ+ population, we can change the culture within our specialties to make these patients feel more accepted and improve overall care.²⁴

A key area for improvement is to address patients appropriately, with care not to misgender anyone, which requires treating everyone as if you are unassuming about their gender and pronouns. Electronic medical records should highlight preferred names and pronouns, which should be used. When seeing any patient, it is best to begin the conversation with "Who am I meeting today?" or "I am Dr So and so, what may I call you?" This puts patients at ease, especially those in the LGBTQ+ community who otherwise may have anxiety when seeing a health care provider. **Table 1** provides a list to help members of the hand community better understand terms.

Transgender Patients

More than 1 of every 200 people identify as transgender. Transgender is defined as an individual whose sex assigned at birth (usually based on external genitalia) does not align with one's gender identity (psychological sense of gender). The terms transgender, transsexual, trans, gender incongruent, and genderqueer are adjectives for people with gender identities not aligned with

Term	Definition
Ally	Someone who actively supports the LGBTQ+ community. This person can be straight and cisgendered or someone from within LGBTQ+ community supporting each other
Asexual	Someone who has a complete or partial lack of sexual attraction or lack of sexual interest. Asexual people exist on a spectrum and can range from no, minimal, or conditional sexual attraction
Bisexual	A person who is emotionally, sexually, or romantically attracted to individuals from more than one sex, gender, or gender identity
Cisgender	A term that is used to identify someone whose gender identity aligns with their sex at birth
Gay	An individual who is sexually attracted to someone of the same sex. Can include men, women, and nonbinary individuals
Gender binary	A system in which there are only 2 categories of male and female and those of each category are expected to align with their sex assigned at birth along with gender expressions and traditional roles
Gender identity	A person's innermost concept as male, female, both, or neither. This is how individuals perceive themselves and what they call themselves. This can be the same or different from their sex assigned at birth
Gender nonconforming	A person who behaves in a manner that does not align with the traditional expectations of their gender, or whose gender expression does not fit neatly into a category
Intersex	A person that is born with a variety of differences in their sex traits and reproductive anatomy
Lesbian	A woman who is attracted either emotionally, romantically, or sexually to another woman
Nonbinary	An adjective describing a person who does not identify exclusively as man or woman
Pansexual	A person who has the potential for emotional, romantic, or sexual attraction to people of any gender, although not necessarily simultaneously
Queer	A term used to express a spectrum of identities and orientations that are counter to mainstream
Sexual orientation	An inherent or immutable enduring emotional, romantic, or sexual attraction to other people. Sexual orientation is independent of sexual identity
Transgender	An umbrella term for people whose gender identity and/or expression is different from the cultural expectations based on the sex they were assigned at birth. This is independent of sexual orientation
Transitioning	A series of processes that some transgender people undergo to live more fully as their true gender

Data from Glossary of Terms (2021, May 30). Human Rights Campaign. Available at: <https://www.hrc.org/resources/glossary-of-terms>.

those they were assigned at birth. Transgender men have a male identity and were recorded as female at birth. Alternatively, transgender females were recorded as male at birth but have a female identity.

Many trans individuals may experience gender dysphoria. Gender dysphoria is the psychological distress an individual may feel when their sex

assigned at birth does not match their gender identity. Gender dysphoria is a mental health diagnosis described in the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition*. Some transgender patients may pursue gender affirmation procedures to better align their physical appearance with their gender identity. The World Professional Association for Transgender Health

provides guidelines for the surgical management of transgender patients. Before pursuing gender affirmation surgery, transgender patients must be in the care of a mental health professional who must document persistent gender dysphoria. Depending on the type of surgery, the patient may need to have taken 12 months of hormone therapy. Similarly, many commercial insurance companies in the United States require patients to have a diagnosis of gender dysphoria before undergoing gender-affirming procedures or treatments.²⁵

Safer and Tangpricha²⁶ presented some key clinical points when caring for the transgender patient. No medical or procedural treatment is indicated before puberty. Once puberty starts there are medical (hormone) treatments to delay puberty and the development of secondary sex characteristics until a diagnosis of persistent gender dysphoria can be made. The most important consideration in the treatment of transgender patients is that every individual has unique goals when transitioning. Surgery and medical treatments should be tailored to each patient based on their interests and associated risks.

Ramsey and colleagues²⁷ conducted a study looking at the unique factors orthopedic surgeons should consider when caring for transgender patients. The investigators discussed issues that affect this population of patients including the role hormone therapy has on fracture risk and healing, perioperative infection, and venous thromboembolism. When treating someone transitioning, it is important to document if they are on hormone replacement therapy to stratify their risk for venothromboembolism, especially when performing a procedure.

Transitioning Procedures for the Transgender Patient

Hand feminization

Within the field of Hand Surgery, there are limited opportunities where we have the ability to assist individuals who are transitioning. One area where we can help is in hand feminization for transgender females. When many people think of transitioning, the most common procedures thought of are hormone replacement as well as procedures on the chest, face, and/or genitals. However, the hand is an area that is immediately visible to others and can be a cause of concern for many individuals transitioning.

Although gender affirmation of the hand is important to many patients, there is lack of research into this area. A study by Lee and colleagues²⁸ found that the female hand is approximately 25% smaller

than the male hand. The masculine wrist is also proportionately wider than the female wrist. The ideal masculine hand appears slightly more square and muscular, whereas the feminine hand tends to be more slender.²⁹

For the dorsum of the hand, desirable characteristics for a masculine hand include limited subcutaneous fat, whereas less prominent vasculature is more desirable for a feminine hand. The feminine hand is characterized by more subcutaneous fat and minimally noticeable tendons, unlike masculine hands.^{29,30} When looking at the fingers and nails the ideal feminine hand has long, slender, hairless fingers. Nails also add to the feminization of fingers. Long nails add to the perception of long, slender, delicate fingers. Masculine nails tend to be short and square.²⁹

Despite gender, many people favor a younger-appearing hand. A youthful hand has no wrinkles and supple skin. Aging predominantly affects the dorsum of the hand. The most common findings in an aging hand include wrinkles, dermal atrophy, bulging veins, and thickened joints.³¹ Aging hands also show increased bony prominence due to loss of dorsal fat.³² This increase in bony prominence along with the increase in size of the joints due to aging leads to the overall masculinization of the hand in all populations. For females transitioning to males, this is an overall benefit in terms of the hand looking more masculine. However, for transgender females, this is not ideal.

Surgical techniques

Most surgical techniques and therapies are aimed at feminization of the hand and increasing youthfulness of the hand. To date, there are no documented therapies for masculinization of the hand; however, as all hands age they do tend to appear more masculine. There is also no role for lengthening or shortening fingers due to the morbidity associated with the treatments.

Fat grafting

When feminizing a hand, one of the principles is to decrease the visibility of the underlying tendons and veins; this can be done with fat grafting, which can increase the smoothness of the dorsal hand. Donor sites are the abdomen, thigh, and flanks.^{33,34} Fat grafting has generally high patient satisfaction results and a low risk profile. The most common complications of fat grafting include paresthesias, edema, hematoma, and ecchymoses.^{33,34} One concerning complication for patients is some experience a difference in the absorption of the fat, which can cause irregular contours.³⁵

Fat can also be injected into the lateral aspects of the fingers to treat fat wasting between the

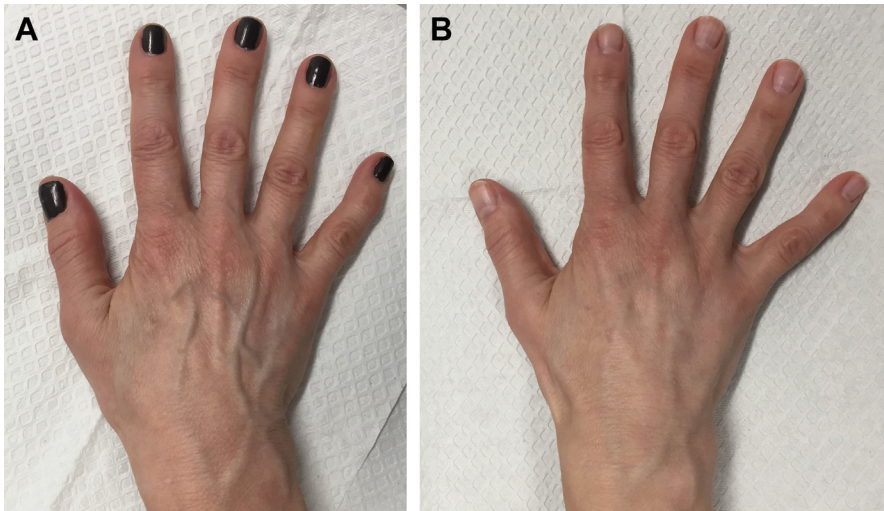


Fig. 2. Filler can be used to feminize the dorsum of the hand. (A) Preinjection with filler; (B) postinjection with filler shows the decrease in prominence of veins and increased smoothness of the dorsum of the hand. (Courtesy of Michael Somenek, MD, Washington, DC.)

joints. This procedure carries more risk, because the injections are closer to the neurovascular bundle, which can cause issues with vascularity to the digit as well as paresthesias and is thus not recommended.

Hand lift

The hand lift, also known as distal, dorsal superior extremity plasty, is performed by excising extra skin from the dorsum of the hand and wrist. The skin from the dorsum of the wrist is excised with minimal undermining to protect the draining venous architecture. This procedure is aimed at decreasing wrinkles, but does not affect the appearance of veins or tendons. The hand lift may help the dorsum of the hand appear smoother and thus more feminine.^{36,37} Patient satisfaction is high, and risks include damage to branches of the radial and ulnar nerve, wound dehiscence, and decreased range of motion^{36,38}; this can be a beneficial procedure for feminization, but it also leaves a scar and may be best done in concert with either fat grafting or filler to the dorsum of the hand.

Nonsurgical Techniques

Fillers

Injectable filler can be used to increase the volume in the dorsum of the hand not only to feminize the hand but also to increase the youthfulness of the hand appearance. Injectable filler can be used as an alternative to fat grafting, which decreases donor site morbidity (Fig. 2). Dermal grafts increase feminization by creating a smooth contour and decreasing visibility of the tendons and

vascular structures; this is relatively safe with a similar complication profile as fat grafting. However, with fillers there is a possibility of developing a foreign body granuloma, which usually requires surgical excision or injection of steroids into the granuloma.³⁹

Sclerotherapy

Sclerotherapy can also be used to decrease visibility of vasculature in the dorsum of the hand. The solution used is commonly sodium tetradecyl sulfate or pilodocanolis and is injected into the target vein. Common adverse effects include telangiectatic matting, ulcerations, hyperpigmentation, erythema, pruritis, and pain.⁴⁰

Hormone therapy

Estrogen therapy increases body fat by 33% in the upper extremity in transgender women⁴¹; this results in an increase of body fat in the dorsum of the hand to help feminize the hand. Conversely, administering testosterone leads to an increase in lean muscle mass and decreases subcutaneous fat thus masculinizing the hand.

Hair removal

Many trans females desire the removal of body hair. Specifically, the dorsum of the hand tends to have more hair in a masculine hand compared with a feminine hand. Electrolysis, laser hair removal, and intense pulse light can all be used to decrease and remove hair. Electrolysis involves inserting a needle into the hair follicle and permanently removes the hair. Laser hair removal and intense pulse light source remove

hair by damaging the follicular bulb, but leave the follicle intact; this leads to decreased and finer hair.

Laser and light therapy

Laser and light therapy can help target signs of photoaging including wrinkles. These therapies can help remove sunspots, which is neither feminizing nor masculinizing, but instead adds to the youthfulness of the hand's appearance. Nonablative fractional lasers penetrate into the dermis and stimulate neocollagenesis, which improves skin texture.⁴² Intense pulse light produces dermal heating, which induces collagen production in the dermis; this improves fine skin wrinkles and increases smoothness of the hand.⁴³

SUMMARY

An increasing proportion of the population is identifying as LGBTQ+. As leaders in our field, we must create and maintain a welcoming, open, and inclusive environment for everyone, from medical students, to patients, support staff, and partners. By creating an inclusive environment, we stand to attract some of the best applicants into the field of Hand Surgery. We must improve care for our LGBTQ+ patients, which includes being open to how they identify, treating them with respect, and trying to understand what treatment and care they are seeking.

CLINICS CARE POINTS

- Sexual and gender minorities tend to shy away from prestigious specialties including Orthopedic and Plastic Surgery.
- An increasing proportion of advanced degree holders identify as LGBTQ+ as a higher percentage of young adults in the general population identify as LGBTQ+.
- Residents who have had training on LGBTQ+ allyship improve objective ally scores as well as their openness and support of LGBTQ individuals.
- By increasing awareness and inclusivity, the field of Hand Surgery stands to possibly recruit top medical students from a diverse background.
- Treating a transgender patient requires openness in understanding the unique requests and needs they have, including a range of treatments for feminization of the hand.

DISCLOSURE

The authors have nothing to disclose.

REFERENCES

1. James SE, Herman JL, Rankin S, et al. The report of the 2015 US transgender survey. Washington, DC: National Center for Transgender Equality; 2016.
2. Sears B, Mallory C. Documented evidence of employment discrimination & its effects on LGBT people. Los Angeles, CA: The Williams Institute, UCLA School of Law; 2011.
3. Jones JM. LGBT identification rises to 5.6% in latest U.S. estimate. <https://news.gallup.com/poll/329708/lgbt-identification-rises-latest-estimate.aspx>. [Accessed 24 February 2022].
4. GLAAD. Accelerating Acceptance. 2017. Available at: https://www.glaad.org/files/aa/2017_GLAAD_Accelerating_Acceptance.pdf.
5. Bennett CL, Baker O, Rangel EL, et al. The gender gap in surgical residencies. *JAMA Surg* 2000; 155(9):893–4.
6. Van Heest AE, Agel J, Samora JB. A 15-Year Report on the Uneven Distribution of Women in Orthopaedic Surgery Residency Training Programs in the United States. *JB JS Open Access* 2021;6(2):e200015.
7. International Orthopaedic Diversity Alliance. Diversity in orthopaedics and traumatology: a global perspective. *EFORT Open Rev* 2020;5(10):743–52.
8. American Academy of Orthopaedic Surgeons. Orthopaedic Practice in the U.S. 2018. 2018. <https://www.aaos.org/globalassets/quality-and-practice-resources/census/2018-census.pdf>.
9. Mori WS, Gao Y, Linos E, et al. Sexual Orientation Diversity and Specialty Choice Among Graduating Allopathic Medical Students in the United States. *JAMA Netw Open* 2021;4(9):e2126983. PMID: 34591110.
10. Sitkin NA, Pachankis JE. Specialty Choice Among Sexual and Gender Minorities in Medicine: The Role of Specialty Prestige, Perceived Inclusion, and Medical School Climate. *LGBT Health* 2016; 3(6):451–60.
11. Gerull KM, Parameswaran P, Jeffe DB, et al. Does Medical Students' Sense of Belonging Affect Their Interest in Orthopaedic Surgery Careers? A Qualitative Investigation. *Clin Orthop Relat Res* 2021; 479(10):2239–52.
12. Mittleman Joel. Intersecting the Academic Gender Gap: The Education of Lesbian, Gay and Bisexual America. *SocArXiv* 2021.
13. Source: CNN. <https://www.cnn.com/2022/02/17/us/lgbtq-population-increase-gallup-cec/index.html>. [Accessed 24 February 2022].
14. Heiderscheit EA, Schlick CJR, Ellis RJ, et al. Experiences of LGBTQ+ Residents in US General Surgery

- Training Programs. *JAMA Surg* 2022;157(1):23–32. <https://doi.org/10.1001/jamasurg.2021.5246>. PMID: 34668969; PMCID: PMC8529519.
15. Grova MM, Donohue SJ, Bahnson M, et al. Allyship in Surgical Residents: Evidence for LGBTQ Competency Training in Surgical Education. *J Surg Res* 2021;260:169–76. Epub 2020 Dec 17. PMID: 33341680.
 16. Schatz B, O'Hanlan K. Anti-gay discrimination in medicine: results of a national survey of lesbian, gay and bisexual physicians: American Association of Physicians for Human Rights. San Francisco, CA: AAPHR; 1994.
 17. Eliason MJ, Dibble SL, Robertson PA. Lesbian, gay, bisexual, and transgender (LGBT) physicians' experiences in the workplace. *J Homosex* 2011;58:1355–71.
 18. Patridge EV, Barthelemy R, Rankin SR. Factors impacting the academic climate for LGBTQ STEM faculty. *J Women Minorities Sci Eng* 2014;20.
 19. Gomez LE, Bernet P. Diversity improves performance and outcomes. *J Natl Med Assoc* 2019;111:383–92.
 20. Przedworski JM, Dovidio JF, Hardeman RR, et al. A Comparison of the Mental Health and Well-Being of Sexual Minority and Heterosexual First-Year Medical Students: A Report From the Medical Student CHANGE Study. *Acad Med* 2015;90:652–9.
 21. Lee KP, Kelz RR, Dubé B, et al. Attitude and perceptions of the other underrepresented minority in surgery. *J Surg Educ* 2014;71:e47–52.
 22. Legal L. When health care isn't caring: lambda Legal's survey of discrimination against LGBT people and people with HIV. New York: Lambda Legal; 2010. p. 1–26.
 23. Tjepkema M. Health care use among gay, lesbian and bisexual Canadians. *Health Rep* 2008;19:53–64.
 24. Chu A, Lin JS, Moontasri NJ, et al. LGBTQ+ in Orthopaedics: Creating an Open and Inclusive Environment. *J Am Acad Orthop Surg* 2022;30(13):599–606.
 25. Accessing coverage for transition-related health care. New York: Lambda Legal. Available at: <https://www.lambdalegal.org/know-your-rights/article/trans-health-care>.
 26. Safer J, Tangpricha V. Care of Transgender Persons. *N Engl J Med* 2019;381(25):2451–60.
 27. Ramsey DC, Lawson MM, Stuart A, et al. Orthopaedic Care of the Transgender Patient. *J Bone Joint Surg Am* 2021;103:274–81.
 28. Lee J, Nolan IT, Swanson M, et al. A Review of Hand Feminization and Masculinization Techniques in Gender Affirming Therapy. *Aesthet Plast Surg* 2021;45(2):589–601. Epub 2020 Sep 30. PMID: 32997239.
 29. Jakubietz RG, et al. Defining the basic aesthetics of the hand. *Aesthet Plast Surg* 2005;29(6):546–51.
 30. Kos'cin'ski K. Hand attractiveness—its determinants and associations with facial attractiveness. *Behav Ecol* 2011;23(2):334–42.
 31. Bains RD, Thorpe H, Southern S. Hand aging: patients' opinions. *Plast Reconstr Surg* 2006;117(7):2212–8.
 32. Hoevenaren IA, et al. Three-dimensional soft tissue analysis of the hand: a novel method to investigate effects of acromegaly. *Eur J Plast Surg* 2016;39(6):429–34.
 33. Agostini T, Perello R. Lipomodeling: an innovative approach to global volumetric rejuvenation of the hand. *Aesthet Surg J* 2015;35(6):708–14.
 34. Fantozzi F. Hand rejuvenation with fat grafting: a 12-year single-surgeon experience. *Eur J Plast Surg* 2017;40(5):457–64.
 35. Yun-Nan L, et al. Micro-autologous fat transplantation for rejuvenation of the dorsal surface of the aging hand. *J Plast Reconstr Aesthet Surg* 2018;71(4):573–84.
 36. Wendt JR. Distal, dorsal superior extremity plasty. *Plast Reconstr Surg* 2000;106(1):210–3.
 37. Pozner JN, DiBernardo BE. Commentary on: minimal-scar handlift: a new surgical approach. *Aesthet Surg J* 2011;31(8):963–5.
 38. Handle M, et al. Minimal-scar handlift: a new surgical approach. *Aesthet Surg J* 2011;31(8):953–62.
 39. Park TH, et al. Clinical experience with complications of hand rejuvenation. *J Plast Reconstr Aesthet Surg* 2012;65(12):1627–31.
 40. Fabi SG, Goldman MP. Hand rejuvenation: a review and our experience. *Dermatol Surg* 2012;38(7 Pt 2):1112–27.
 41. Klaver M, et al. Changes in regional body fat, lean body mass and body shape in trans persons using cross-sex hormonal therapy: results from a multicenter prospective study. *Eur J Endocrinol* 2018;178(2):163–71.
 42. Archer KA, Carniol P. Diode laser and fractional laser innovations. *Facial Plast Surg* 2019;35(3):248–55.
 43. Goldberg DJ. New collagen formation after dermal remodeling with an intense pulsed light source. *J Cutan Laser Ther* 2000;2(2):59–61.