Transgender Medicine: The Intersection Between Medicine and Education

Nicki Naylor

Introduction

Transgender and gender diverse individuals are those who experience gender incongruence and/or gender dysphoria, meaning they experience or express a gender that is different than their sex assigned at birth.[1] Gender diversity is a multifactorial phenomenon, with an etiology likely rooted in both genetic and environmental factors.[2] While international population data are scant at best due to cultural difference that alter behavioral expressions of gender identities between nations, transgender and gender diverse individuals account for roughly 0.6-5% of the US population.[2-4] The health of the transgender community is impacted by both the educational and healthcare systems, which has led the Healthy People 2030 report to prioritize gender diverse health through the intersection of medicine and education.[5] Educators play an integral role in creating an emotionally safe space for the gender diverse community, which can reduce the incidence of depression, suicide, substance abuse, and sexually transmitted disease. Healthcare providers are responsible not only for the psychological aspects of a gender diverse patient's care, but also for transitional and maintenance healthcare. Outdoor educators, who are medically trained educators, hold a unique position in which they can integrate knowledge about the healthcare system with the creation of emotionally safe communities, to improve the overall health of the gender diverse community. This paper focuses on the role of outdoor educators in promoting the health and safety of transgender individuals engaged in their programs.

Terminology

In order for outdoor educators to understand and support gender diversity, proper terminology must be elucidated. Transgender, broadly, means beyond or across genders and encompasses people whose identity, behavior, and expression varies from his or her biological sex (sex assigned at birth). Gender identity refers to an individual's sense of being male, female, neither, or a combination.[2, 4] While gender queer implies identifying as both or neither gender, transgender is often used more specifically. A transgender man is an individual who identifies as a man, though was assigned the female sex at birth. A transgender woman, on the other hand, is one who identifies as a woman but was assigned the male sex at birth. Individuals may be found along a transgender continuum when they are transitioning, or working through the process of accepting, recognizing, and expressing their gender identity. The process of transitioning may or may not include medical and surgical treatments or legal changes to aid the individual in expressing their identified gender.[2, 4] Cis-gender people are those who identify analogously to the sex assigned at birth.

When discussing gender diverse terminology, confusion often arises between gender identity and sexual orientation. Gender identity, as discussed above, relates to identifying as male, female, both or neither sex. Individuals may use gender-based behavioral expression to reflect gender identity, e.g., through the use of clothing, hairstyle, actions, and mannerism. Sexual orientation is separate from gender identity and refers to the gender or genders an individual is attracted to romantically and physically. Gender diverse individuals often experience gender dysphoria, or

sustained discomfort for six or more months, due to the incongruence of sex assigned at birth and gender identities.

Natural History of Gender

There are three main time periods when gender identification occurs: childhood, early adolescence, and late adolescence into adulthood. Gender identification is established early on in childhood. By 7 or 8 months old, children can recognize their gender, articulating it by age 2. By school age, children have an improved ability to label their gender identity, most notably with pronouns. During this time period, when the children are under five years old, a diagnosis of gender incongruence can be made if the gender behaviors of the child vary from that expected based on sex assigned at birth.[2, 4]

During adolescence, individuals gain an increased ability to express their gender identity. During this time, gender diverse adolescents may experience significant angst, anxiety, and depression about going through the wrong type of puberty. Such angst may be the first time the family or friends are made aware of the incongruence between the sex assigned at birth and gender identity. Reversible hormone therapy is available for adolescents during this time, allowing them the opportunity to further clarify their gender identity.[2, 4]

Late adolescence and early adulthood, when the body is fully matured, is another period during which gender identity may be elucidated. Often, individuals grappling with gender identity during this period will experiment with their sexual orientation in order more clearly distinguish

between gender identity incongruences and their understood sexual orientation.[2, 4] While three time periods are most frequently discussed in the literature, gender diversity can present in a myriad of ways. Some individuals present confidently with their identity and may actively pursue medical and surgical treatments, while others experience a more hesitant or tumultuous route to understanding gender identity.

Medical and Social Issues Associated with Gender Diversity

Gender diverse individuals generally experience reduced access to medical care when compared to the general population and are afflicted with a spectrum of medical and social problems. One-quarter of gender diverse individuals in the United States report lack of adequate insurance coverage, with 25% stating that they were denied access to hormonal treatments and 55% were denied access to surgical treatments by insurance.[6] In addition to insurance coverage concerns, gender diverse individuals report mistreatment by healthcare providers. One-third have been mistreated in the last year by a healthcare provider or have had to educate their providers on gender diverse medical care, with 25% reporting verbal harassment, 2% reporting physical violence, and 23% reporting having avoided healthcare altogether for fear of discrimination. Further, gender diverse individuals report that their providers are uncomfortable managing their care and are thus unable to adequately provide the necessary counselling, medical, and/or surgical treatments.[5] It is therefore important for outdoor educators, who are also responsible for the healthcare of their students while on course, to be well versed in medical issues and risks associated with gender diversity.

In addition to issues surrounding insurance and provider comfort and professionalism, the gender diverse population is more prone than cis-gender individuals to health concerns such as suicide, homelessness, HIV and STD infections, substance abuse, assault, and bullying during adolescence.[2] Suicide and suicidal ideation greatly afflict the gender diverse populations, with 64% of individuals reporting suicidal ideation prior to transitioning and 16-38% reporting a suicide attempt before transition. Further, gender diverse youth are 2-3 times more likely to commit suicide than their cis-gender peers.[2] In addition to the increased suicidal ideation and attempts before transitioning, the gender diverse community is more likely to have multiple suicide attempts when compared to the cis-gender population. It is important to note, however, that gender diverse individuals are more likely to seek out counselling and mental health services than the cis-gender community.[2]

Gender diverse people are also plagued with social and public health concerns. Sixty-one percent have experienced physical assault/abuse, 64% sexual assault, 90% workplace violence, and 70% have experienced housing discrimination on the basis of gender identity![2] Further, substance abuse is more predominant in these communities and often closely linked to bullying in the formative childhood years. Gender diverse people are 13.5% more likely to smoke than cis-gender and 26% more likely to use drugs or alcohol as a mechanism to cope with discrimination.[2] In addition to substance abuse, STDs and HIV epidemiology are more common among the gender diverse population, with a four-fold greater likelihood of contracting HIV compared to cis-gender people.[2, 7]

Victimization during childhood and adolescence is tightly correlated with the development of the medical and social issues discussed above. Roughly 50% of the gender diverse people who were bullied as adolescents contract HIV in early adulthood.[7, 8] Bullying refers to repeated, unwanted, aggressive behavior that creates a real or perceived power imbalance between the aggressor and the target. Bullying can occur on its own, or because of specific biases. Such bullying is often a reflection of the community climate and attitude towards gender diverse populations, as stigmas are integrated into the social norms. Bias bullying leads to an increased severity of adverse health outcomes in gender diverse individuals when compared to cis-gender individuals.[8] Overall, 80-85% of gender diverse youth report bullying or victimization, being 14% more likely to experience cyberbullying and 16% more likely to experience physical bullying, and as a result are 5-6 times more likely to have a suicide attempt than a cis-gender person.[7, 8] Outdoor educators thus need to understand how victimization is intertwined with health outcomes, what medical and social interventions are available, and how to incorporate such interventions into each course.

Transitioning

Approach

The medical provider's approach to a gender diverse patient's care must be thorough, researched, and communicated. Roughly 50% of gender diverse people report having to teach their medical providers about transgender healthcare and 19% have been refused healthcare due to a provider's discomfort with transgender medicine.[2] To approach transgender and gender

diverse healthcare, the provider must place emphasis on building rapport. A pertinent strategy is to use pronouns at the beginning of each visit, allowing space for the patient and provider to each define themselves. To further build rapport with the patient and create an inclusive environment, providers can ensure their intake forms are gender neutral, with marital status changed to relationship status. This way, no assumptions or confusion is made between gender identity and sexual orientation. Throughout the visit, the provider needs to ensure open lines of communication. These basic steps for medical providers should also be used by outdoor educators.

Medical providers play a critical role in facilitating gender diverse people's health outcomes. Providers may have patients who are confused or unclear about their gender identity and need referral to a mental health professional, or may be clear that they want medical and/or surgical intervention, which the provider can facilitate. In general, medical and surgical treatments for gender diverse individuals are met with positive outcomes. Treatment produces satisfaction in 87% of male to female transitions and 97% of female to male transitions, with less than a 2% overall rate of regret. 78% of gender diverse patients who want hormonal treatment to transition receive it, and 25% of those who want surgical treatment receive it.[3, 6]

Criteria

WPATH and the Endocrine Society have laid out clear criteria for gender transition. The individual must have a persistent gender identity that is incongruent with the sex assigned at birth. While no specific timeline is associated with said gender incongruence,

if it is less than a few years, WPATH and the Endocrine Society recommend exploring other potential underlying factors and reviewing patient goals. Specifically, providers must understand that children may have a more heterogenous way of expressing gender identity than adults, and thus, engagement with a mental health provider is recommended.[3, 4, 9]

Patients must also be capable of making their own medical decisions. All concomitant mental health issues must be addressed, ruling out any psychological conditions that would impair decision making. Lastly, if the patient wants a fertility-limiting surgery, the patient must be of legal age, have optimized comorbidities, and undergo a social affirmation or hormone treatment for 12 months prior.[1]

What's Available?

Medical (hormonal), surgical, and psychological treatments, while not universal, are available to gender diverse individuals looking to transition. Treatment options are available for all ages, most commonly occurring from adolescence through adulthood. Once an individual hits the beginning stages of adolescence, marked by tanner stage 2, the person is a candidate for hormonal therapy. Many adolescents undergo a reversible hormonal treatment first that delays puberty, followed by irreversible hormonal treatment, while adults only have the permanent hormonal option available.[4] Most of the hormonal transition and associated physical changes occurs over the course of two years and is maintained for life. Before physical treatment can be initiated, baseline labs must be drawn, most notably a BMP, CBC, though additional labs are often warranted based on which hormonal treatment is being considered. Cancer screening is

recommended, but not mandatory, based on the organs present in the individual.[1, 3] Then, individuals need to undergo at least a year of hormonal treatment, per the WPATH and Endocrine Society guidelines, before sexual reassignment surgery can be performed.[4]

Providers play an integral role in prepping patients before surgery. Providers can help guide decision making and set appropriate expectations about post-operative fertility and sexual function.[4] Before surgery, providers need to prepare the patient. Patients need to optimize their medical conditions, remove any hair on or around the area that will be treated with laser hair removal or electrolysis (which can take months) per surgeon request, obtain at least two mental health evaluations, and stop any estrogen treatments the patient may be on for 2-4 weeks before surgery. After surgery, some medications changes may occur. For example, some surgeons will have transgender women who underwent a gonadectomy discontinue androgen-lowering medications.[4]

While medical and surgical treatments hold the spotlight in transitional medicine, providers need to offer adjunctive treatments to their patients. Such adjunctive treatments include peer support groups, resources for friends and family, voice and communication therapy to aid in developing new verbal and non-verbal communication skills, hair removal, legal paperwork changes, and padding, tucking or prosthesis of the breasts or genitals.[3] It is important that outdoor educators are aware of such treatments.

Feminizing Treatment (Male to Female)

The patient's goal with feminizing treatment involves altering physical appearance in order to look more feminine. This often includes minimizing facial hair, starting breast development, and changing the distribution of fat and muscle. To accomplish this, the provider must decrease testosterone levels from the male range (300-1,000 ng/dL) to the female range (<50 ng/dL).[4] As the testosterone level drops, the breasts endure variable growth, erectile function diminishes with decreasing testicular size, and the body shifts to have more fat than muscle mass.[3] The physical effects of the hormonal treatment takes 6-18 months to develop. If hormonal treatment is started after puberty, however, the androgen activity that has already occurred will not be changed, resulting in no change of height, voice, and the shape/size of the hands, feet, pelvis, and laryngeal prominence.[4]

Two types of drugs are used in feminizing hormonal treatment: estrogens and anti-androgen medications. Estrogens encourage a more feminine composition, while anti-androgens block the inherently male hormones. Typically, both are started simultaneously. The estrogen most regularly prescribed is oral 17-β-estradiol. Estrogens increase an individual's risk for clot formation, a risk that can be minimized with low oral estrogen doses or subcutaneous drug administration. However, due to that risk, only one estrogen medication should be taken at a given time. Before initiating the medication, any contraindications need to be ruled out, including a history of breast cancer, clots, cerebrovascular disease, and coronary conditions.[4] The second type of medication that is used for feminizing treatments are the anti-androgens. These medications include spironolactone and GnRH agonists. The risks estrogen medications include clot formation, breast cancer, prolactinomas, cardiovascular diseases, strokes, cholelithiasis, and hypertriglyceridemia while the primary risk of anti-androgen medication, specifically

spironolactone, is hyperkalemia. In addition to the hormonal risks laid out here, many transwomen will tuck their penises and testicles, which can lead to inguinal hernias, urinary reflux, prostatitis, cystitis, and epididymo-orchiitis.[10]

Surgical treatments are available to supplement hormonal therapies. Three broad categories of surgeries are available: facial feminization, breast augmentation ("top surgery"), and genital reconstruction ("bottom surgery"). Facial feminization surgery, while not always covered by insurance due to its cosmetic nature, is integral to the care of a transgender woman. These surgeries are typically completed by plastic surgeons. Breast augmentation, or "top surgery", is often one of the more important feminizing surgeries, whereby the surgeon creates a set of breasts for the patient. More surgeons are trained to do breast augmentation than facial feminization or genital reconstruction since breast augmentation is commonly performed for cis women as well. The final category of feminization surgery is genital reconstruction, or "bottom surgery." Bottom surgery can include removal of the penis and testicles and creation of a clitoris, labia, and vagina. Removal of the testicles is the most effective way to reduce testosterone levels in transwomen, however, many transwomen choose not to undergo this procedure.[4,11] Adjunctive procedures exist as well, including hair removal (via electrolysis or laser) and tracheal shaving.

Monitoring of transwomen should start every three months throughout the first year. After the first year, the patient should be evaluated following each medication dose adjustment. Ultimately, testosterone levels will drop below 50ng/dL and estradiol less than or equal to 200 pg/dL. If the estradiol is outside the female range, the dose should be altered or the medication

switched. Estrogen and testosterone levels should be monitored once or twice a year. Aside from monitoring hormones, monitoring is medication specific. [4]

Masculinization Treatment (Female to Male)

Masculinization treatments circle around inducing physical changes that allow an individual to appear more masculine. Hormonally, testosterone is used, and first physical changes appear 3-6 months after initiation of treatment, during which time the individual's testosterone is increased to plateau between 300-1,000 ng/dL. The physical changes include the cessation of menses, deepening of the voice, increase in muscle mass, increase in acne, and an amplified sexual desire.[1, 3, 4] If testosterone alone is not sufficient to stop menses, progesterone or an endometrial ablation can be considered.[11] Testosterone can be administered as a gel, patch, or as an injectable ester, all with equal efficacy. Despite similar efficacies between the formulation, the injectable testosterones tend to make achieving a high testosterone level easier. The effects of the hormone can be seen on a sliding scale and dosed according to the goals of the patient. The main risk associated with testosterone treatment is erythrocytosis, the production of too many red blood cells.[4]

As with feminizing surgeries, surgical treatments are available to augment hormonal treatments. Both chest reconstructive ("top surgery") and genital reconstruction ("bottom surgery") are available. Chest reconstruction tends to be the most visible, thus the most important, surgery for transmen. Generally, mastectomies are performed on patients as young as 18 year old, based on consent forms, duration of hormone treatments, and overall health status.[1] Prior to a mastectomy,

transmen often chest bind, increasing their risk for skin infections, musculoskeletal pain, neurologic changes, and rib fractures.[10] Genital reconstruction consists of removal of the ovaries, fallopian tubes, uterus, and vagina, with creation of a penis, scrotum, and testicles. The hysterectomy and oophorectomy are the most widely available surgeries, due to their societal ubiquity, with creation of a penis, scrotum and testicles being the rarest due to the enhanced associated morbidity.[4, 11]

Individuals on masculinizing hormone treatments should be evaluated every three months during the first year of treatment, coinciding with dose adjustments. Once doses are stabilized, the patient should be evaluated once to twice a year, including a CBC to evaluate the individual's red blood cells.[4]

Youth

No standard protocol exists for the hormonal treatment of youth gender diverse individuals. Clinicians are obligated to provide access to therapy and ensure a safe place for youths to explore their identities. If a transition is requested, it can occur at the onset of puberty through to adulthood. GnRH analogues are first used for youths who are interested in transitioning. The GnRH analogues delay puberty by suppressing the release of LH and FSH from the pituitary gland.[2, 4] This reversible delay in puberty allows the youth and their family time to determine whether a permanent transition is the most appropriate care.

Fertility and Preventative Health Screenings

As previously discussed, before a hormonal or surgical transition can occur, the provider needs to engage the patient in a candid conversation about the risks and benefits of the transition. Specifically, fertility must be discussed. Hormonal treatment carries the risk of starkly limiting the patient's fertility, while surgical treatment may remove any potential fertility, especially if the gonads (ovaries and testicles) are removed. Clinicians should discuss whether or not the patient would like to freeze any sperm or eggs prior to the initiation of treatment in order to preserve some reproductive potential.[4]

Additionally, preventative health must be discussed. The type of treatment employed will determine what preventative health screenings the patient receives. Screenings continue to follow the guidelines according to what organs or body parts the patient has. For example, a transwoman may still have a prostate, and should be screened for BPH and prostate cancer.[4]

Providing Culturally Competent Care

By creating an inclusive environment and providing culturally competent healthcare, educators and medical providers alike can promote equity and improve the long-term health of gender diverse individuals. Societally, changes like introductions with pronouns, gender identity, and preferred names can set the tone for how gender diverse people are treated. More transgender inclusivity in state and national surveys can allow for information than can lead to national health promotion for the gender diverse community.[5] Outdoor educators can adopt these

practices, integrating medical and educational approaches, to further promote gender diverse health.

Education

Educators play a pivotal role in molding a gender diverse youth's health outcome. Educators are the origin of most protective factors that can occur in an educational setting, thus it's important that they are trained and prepared to implement said protective factors. Since LGBTQAI+ youth are four times more likely than cisgender students to be bullied, and that bullying is strongly associated with depression, suicidality, substance abuse, and sexually transmitted diseases, educators are poised to create and enforce anti-discrimination policies specifically about gender identity and expression.[12] When educators enforce such policies, gender diverse youth report substantially fewer instances of bulling and harassment, and increased academic success. Additionally, educators can personally support gender diverse students. Such support can take the form of interpersonal relationships or participation in groups like gay-straight alliances.[7, 12]

Gay-straight alliances (GSAs) are among the most pronounced school-based protective factors that contribute to positive health outcomes for gender diverse youth. GSAs are typically peer-led groups in which gender diverse students can meet, support each other, and advocate for protective school policies and inclusive, affirming school cultures.[12] GSAs also have adult advisors (teachers, nurses, administrators) who attend meetings, provide support, and embody the policies and culture of the GSA. Educators can attend these meetings and support students in

order to further to continue to decrease depression and suicidality rates and increase scholastic performance.

Further, educators can incorporate gender diverse curriculum into their classrooms and attend professional development trainings to learn how to better create a welcoming space for the gender diverse students.[7, 8, 12] Gender diverse curriculum can include curriculum that promotes gender diverse figures and promotes cultural sensitivity. Gender diverse curriculum can also include education about microaggressions and how to mitigate them.[7, 13, 14] Microaggressions are "behaviors and statements, often unconscious or unintentional, that communicate hostile or derogatory messages, particularly to members of targeted social groups."[14] Microaggressions can present in the form of microassaults, microinsults, or microinvalidations. Microassaults are overt verbal or non-verbal insults and behaviors while microinsults are statements and actions that demean a marginalized person's identity. These, combined with microinvalidations, which are statements or actions that downplay another's thoughts, feelings, or experiences, accumulate to negatively impact a person's mental and physical well-being.

Since most people do not practice overtly hostile behaviors or actions, many believe that they don't have biases or partake in any discriminatory practices. This is where educators can have a profound influence. Educators can elucidate the difference between explicit biases (prejudices that are known) and implicit biases (prejudices that are unknown) and explain the four main ways that microaggressions manifest: clash of reality, unintentional bias, perceived minimal harm, and catch-22 of response.[14] The clash of reality of microaggressions explains that people interpret microaggressions differently and the perception of microaggressions is often different

than the intent of the perpetrator. Unintentional bias explains how people are socialized to learn biases based on the systemic superiority of particular groups which can lead to the perceived minimal harm of microaggressions by perpetrators (those in a privileged position often believe that microaggressions are unimportant because each incident is minor). Lastly, educators can help explain the catch-22 of response to microaggressions. Often, individuals have difficulty responding to microaggressions because individuals interpret microaggressions differently, and eventually individuals have accumulated so many microaggressions that it is hard to respond to each slight individually.[14]

Finally, educators can place more emphasis on identifying and preventing suicidal tendencies in their students by understanding the triggers that lead to such tendencies and promoting strategies to mitigate suicidal actions. Many gender diverse youth attempt suicide before publicly disclosing their gender identity, which may occur as young as 10 years old. Therefore, educators should present prevention programs and advocate for school and peer resources in pre-pubertal students.[13] Educators can promote community-based prevention programs (eg hotlines) as well as train students to be peer "gatekeepers": individuals trained to identify at-risk youth and connect them to resources. Promotion of such practices, in addition to practicing culturally sensitive, affirmative teaching, puts educators in a unique position to protect the health of gender diverse youth.

Healthcare

Healthcare providers, whether school nurses or clinicians in a hospital setting, need to be well-versed in transgender medicine. WPATH and the Endocrine Society offer courses aimed to train providers in how to deliver appropriate gender-diverse medical care.[4] Providers of all levels can improve gender diverse healthcare by building a rapport with these patients and creating a safe environment. As stated in the societal-level changes, visits should be started with the introduction of pronouns and preferred names. Intake forms can have space for individuals to report both sex assigned at birth and gender identity. These small, yet important steps, in combination with provider knowledge about gender diverse medical care, can positively expand the health of gender diverse patients and the opportunities these patients have towards insurance coverage, procedural care, and participation in social activities (such as sports).[10]

Integrating Medicine and Education: The Role of Outdoor Educators

Outdoor educators are medically trained, mostly as wilderness EMTs, therefore have the potential to combine interventions from both the medical and healthcare realms discussed above. Outdoor educators can provide culturally competent medical care while also creating emotionally safe environments for gender diverse youth, facilitating positive health outcomes physically and emotionally. For this to happen, however, outdoor educators need to be trained about gender diverse healthcare and trained to recognize and mitigate microaggressions via anti-discrimination policies and creation of accepting, emotionally safe courses where gender affirmation is central. Education about gender diverse healthcare can occur through professional development sessions. During these sessions, the information listed above about medical and surgical treatments available to gender diverse individuals can be taught and discussed, with

particular emphasis on how that relates to medically treating students on course. Outdoor education courses run anywhere from one day to over fifty days, and on the multiday courses instructors are responsible for transporting, dispensing, and monitoring medications for students under the age of 18. Outdoor educators should advocate for intake forms that include pronouns, gender identity, and sex assigned at birth, in addition to student medication lists, all of which improve health outcomes for gender diverse individuals and provide instructors information about their students.[4] Therefore, it is important for instructors to recognize when an estrogen, anti-androgen, or testosterone is on the medication list and reach out to the student before course to discuss any potential complications (e.g. patches falling off during swimming or sweating with a backpack on, how to manage needles if injections are required on a longer course, if the student partakes in any tucking or binding that could in turn lead to a yeast infection, the risk of dehydration and hyperkalemia with spironolactone).[10] Becoming educated about transgender medicine not only allows instructors to provide culturally competent care, but it also allows the instructors to build rapport with students who are in the process of transitioning. As previously stated, many gender diverse people avoid the medical system because they have to teach their providers about transgender medicine.[2] Once instructors are trained in understanding the basics of transgender medicine, the conversation about transitional health can include topics such as mental health.

Emotional safety is paramount during outdoor education courses, where instructors and students are reliant on each other for daily needs such as cooking, shelter, and transportation through uncertain terrain. Outdoor educators place a strong emphasis on creating a communal environment that is supportive and non-judgmental. In working with gender diverse people, it is

important for instructors to understand what microaggressions are, how they present, and how to mitigate them, just as it is for educators in an urban setting. Outdoor educators have a unique position though, in that they can teach lessons to students specifically about microaggressions. Since most people who partake in microaggressions are unaware that they do so, outdoor education lessons can specifically address the four main types of microaggressions described above in addition to mitigation strategies.[14] Additionally, outdoor educators can advocate for more gender diverse staff members. Curriculum with gender diverse figures, including instructors, is shown to improve mental health outcomes for gender diverse youth.[7] Outdoor educators need to be educated about gender diverse healthcare and how to provide culturally competent healthcare. Outdoor educators need to be educated about microaggressions and how to mitigate them so they can create a culture on course that is does not tolerate any derogatory messages. Outdoor educators need to educated and well-versed in how to affirm gender diverse individuals and advocate for their well-being through knowledge about the potential medical avenues, practice of culturally sensitive care, and promotion of protective resources and protective educational models.[15]

Conclusion

Outdoor educators are poised in a unique position to positively impact the health of gender diverse students by providing emotionally protective services and culturally competent medical care. Outdoor educators can create a course-wide gender affirming community that discusses microaggressions and features gender diverse curriculum. Outdoor educators can also manage medications for gender diverse students appropriately, with emphasis on preventing side effects

on course, maintaining confidentiality, and being open to basic conversations about treatment options if students inquire. Outdoor educators can press their institutions to normalize the use of pronouns, intake forms with preferred name, gender identity, and sex assigned at birth. In all, outdoor educators are at the intersection of medicine and education and have the potential to improve the long-term health of gender diverse students.

Appendix

Term	**Definition**
Transgender	Beyond or across gender. A broad term for individuals whose gender identity, behavior, or expression varies from the sex assigned at birth
Gender identity	An individual's sense of being male, female, both, neither, or a combination
Cis gender	Individuals whose sex assigned at birth matches their gender identity
Transgender Man (female to male)	An individual who was assigned female at birth but identifies as male
Transgender Female (male to female)	An individual who was assigned male at birth but identifies as female
Gender Queer	An individual who identifies as both or neither gender
Gender Dysphoria	A mental health diagnosis referring to individuals who feel sustained discomfort (≥6 months) due to the misalignment of the sex assigned at birth and gender identity
Gender Expression	How an individual reflects gender through the use of clothing, hairstyles, mannerisms, and actions
Sexual orientation	The gender one is attracted to romantically
Gender Non-Conformity	How an individual's gender identity, role, or expression varies from the cultural norms prescribed for individuals of a certain sex
Preferred Pronouns	he/him she/her they/them/their ze/hir

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