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Shifting the Forensic Anthropological Paradigm to Incorporate the Transgender and Gender Diverse Community

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Abstract: Forensic anthropology and, more broadly, the forensic sciences have only recently begun to acknowledge the importance of lived gender identity in the resolution of forensic cases, the epidemic of anti-transgender violence, and the need to seek practical solutions. The current literature suggests that forensic anthropologists are becoming aware of these issues and are working toward efforts to improve identification of transgender and gender diverse (TGD) persons. The scope of the problem, however, is not limited to methodology and instead can be traced to systemic anti-trans stigma ingrained within our cultural institutions. As such, we call on forensic anthropologists to counteract cisgenderism and transphobia and promote gender equity and inclusion in their practice. In this paper, we identify three areas in which forensic anthropologists may be positioned to intervene on cisgenderist practices and systems: in casework, research, and education. This paper aims to provide strategies for forensic anthropologists to improve resolution of TGD cases, produce more nuanced, gender-informed research, and promote gender equity and inclusion in the field.

Keywords: forensic anthropology; gender identity; gender diversity; transgender; personal identification; DEI; advocacy

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1. Introduction

While the terms "transgender" and "gender diverse" do not have single definitions, transgender is an umbrella term that encompasses individuals whose innate understanding of their own gender does not match their assigned sex at birth and/or falls outside of the traditional Eurocentric "male/female" binary [1–4]. Not all who identify outside the traditional gender binary consider themselves transgender (trans), and gender identity terms vary by the individual. The term "gender diverse" is used here to refer to those whose gender identity or expression falls outside cis heterosexual norms within a given context and point in time [5].

Transgender and gender diverse (TGD) people comprise a considerable and growing portion of the population. While exact numbers are unknown, recent studies estimate that 1.6 million individuals in the U.S. alone identify as transgender or gender diverse, or approximately 0.5% of the adult population and 1.4% of youth aged 13–17 [6]. Meanwhile, violence against TGD persons is rising. In 2019, the American Medical Association characterized anti-trans violence as an epidemic [7]. The Human Rights Campaign has

tracked fatal violence against TGD persons since 2013, when the U.S. Federal Bureau of Investigation began to report on anti-LGBT hate crimes under the requirements of the Matthew Shepard and James Byrd, Jr. Hate Crimes Prevention Act [8]. At least 34 cases of fatal violence were reported in the U.S. in 2022 [8], while Transgender Europe reported at least 375 cases worldwide that same year [9]. The actual number of fatalities is likely higher, as TGD deaths are underreported; U.S. agencies do not routinely collect data on minority gender identity in death investigations [10], and many police reports, missing and unidentified databases, and death certificates misgender victims [11].

The forensic sciences have only recently begun to address issues of gender identity and seek practical solutions to anti-trans violence. A growing body of literature suggests that forensic anthropologists are becoming aware of both the need to consider lived gender identity in the human identification process and the lack of standardized protocols to accurately assess and report evidence of gender expression and gender-affirming surgeries [12–19]. We emphasize, however, that the problems are not limited to just identification methods and skeletal variation, but rather relate to a network of deeply ingrained institutional and societal issues that include pervasive transphobia and cisgenderism. Cisgenderism is a systemic, cultural ideology that invalidates gender identities, marginalizes those who do not conform to a strict binary, and perpetuates beliefs that cisgender identities are more valuable than transgender identities [20,21]. The cisgenderism ingrained in institutions such as academia, healthcare, and the legal system creates structures of power and privilege with TGD persons at the bottom. Recent legislative efforts present one example of systemic anti-trans stigma and marginalization. As of February 2023, over 350 anti-LGBTQ+ bills have been filed for the 2023 U.S. state legislative sessions, including over 150 that are explicitly anti-trans, nearly double the amount from the previous year [22,23]. Some of these bills would effectively limit all gender-affirming care to minors and adults (e.g., TN H.B. 1215 and TN S.B. 1339, OK H.B. 2177, SC S 0274, FL H.B. 1421, FL S.B. 254, and ID H.B. 71 to note a few [24–30]).

Forensic anthropologists are well positioned to identify and address how cisgenderist practices and structures delegitimize TGD identities and perpetuate violence against TGD persons in life and in death. Gender diversity is important in forensic anthropology because gender diverse people are and always have been part of society. Research and education on gender diversity are needed to combat the systemic cisgenderism and transphobia that dehumanizes TGD people and facilitates disproportionate levels of lethal violence. The benefits to considering gender diversity are not just academic but will also help build a more inclusive and equitable forensic science. The many members of the forensic anthropology community who are TGD deserve the field's support and recognition for their contributions and experiential knowledge.

In this paper, we illustrate the importance of gender diversity in the medicolegal field and consider how forensic anthropologists can intervene on cisgenderist practices and systems in casework, research, and education. The goal of this paper is to provide strategies for forensic anthropologists to improve resolution of TGD cases, produce more nuanced research, and promote gender equity and inclusion through education. The authors of this paper are forensic anthropology professionals and graduate students of multiple gender identities working in various regions across the United States and Canada. Given our personal and professional experiences, this paper focuses primarily on examples from the U.S. and Canadian context, though we acknowledge the importance of global perspectives on issues of gender diversity in forensic anthropology.

2. Strategies for Improving Resolution of Forensic Cases

Forensic anthropologists may encounter TGD decedents in their casework. A recent survey [19] found that approximately one third of forensic anthropologists have worked on a case involving a transgender person. In cases involving unidentified remains, anthropologists' biological profile estimates can help direct investigations and lead to putative identifications. For unidentified TGD decedents, estimation of assigned sex may be insuffi-

cient to generate leads on potential matches. Ignoring the importance of gender identity may misdirect investigations and marginalize decedents by denying their lived identity. In this section, we provide recommendations for practices forensic anthropologists can implement in their casework to aid identification efforts and address cisgenderism in death investigation. This includes being transparent about the limitations of biological analyses, mitigating bias in skeletal analyses, making use of a biocultural profile in addition to a conventional biological profile, avoiding misgendering decedents in the case file, and working to generate more accurate and complete profiles in unidentified persons databases.

2.1. Be Transparent about the Limitations of Biological Analyses

Anthropologists can estimate assigned sex based on skeletal data with relatively high degrees of accuracy, according to some reports [31–33]. Given that expressions of sex characteristics vary and that methods of placing individuals into sex categories are socially constructed, sex estimates derived from biological data may be more accurately termed "assigned sex" or "osteological sex" estimates when based on skeletal remains. Disciplinary standards recognize that (assigned) sex and gender are not synonymous and that gender identity cannot be assessed from skeletal remains alone [34]. Recent research indicates that forensic anthropologists may be able to recognize skeletal indicators of gender expression (e.g., Schall et al. [17], Cirillo et al. [13]), but these markers may or may not correlate with the individual's lived gender identity.

Forensic anthropologists may therefore consider including a footnote about assigned sex vs. gender in the assigned sex estimation section of case reports to explain how anthropologists view these terms, similar to the common practice of providing the anthropological definition of "perimortem" in trauma analysis sections. An example of language that could be included in a footnote is as follows:

> "Sex" refers to a set of biological attributes that may include chromosomes, gene expressions, physiological functions, reproductive anatomy, and/or physical features, while "gender" is a social identity or role within a given cultural and historical context. Current anthropological methods of sex estimation are largely based on the simplified assumption that sex is binary (individuals are male or female) and rely on physical characteristics of the skeleton (such as robusticity, size, and adaptations related to reproduction) to classify individuals into discrete sex categories. These methods do not account for the diversity of human sex variation including intersex individuals. Additionally, anthropological and other biological methods of sex estimation cannot address gender identity, as gender is socially and culturally contingent. The gender of an unidentified decedent cannot be known until they are positively identified and information comes to light about how they identified in life.

2.2. Mitigate Biases in Skeletal Analyses

Cognitive bias, unintended errors, and/or misinterpretations of remains based on culturally held beliefs about sex and gender can potentially complicate the identification process. Cognitive bias has been broadly studied in the forensic sciences [35–40], with confirmation bias, or the preference for information that confirms a pre-existing personal belief, perhaps being the most relevant to forensic anthropology [40]. For example, osteological sex estimation may be compromised when the anthropologist has been provided with biasing contextual information (clothing style and size, jewelry, hairstyle, makeup, previous anthropology reports, etc.) prior to analysis.

Forensic anthropologists can combat cognitive bias by performing blind skeletal analyses. In a blind analysis, law enforcement's assessments of assigned sex and/or gender, scene information, and descriptions of clothing, accessories, and other effects are not disclosed to the anthropologist until after skeletal analysis is complete. When a blind analysis is not possible, analysts can request peer review by an outside anthropologist who does not have knowledge of the case or its associated context. Long-term unidentified

cases can especially benefit from skeletal reanalysis. Historical errors may be mitigated by applying updated anthropological methods. Skeletal or decomposed cases that were not originally evaluated by forensic anthropologists should be prioritized for reanalysis, as there is great potential for sex estimates to have been biased by or conflated with gendered contextual evidence.

A case example illustrates how forensic anthropologists can mitigate errors by being aware of the biasing effects of Eurocentric sex and gender binarism. Austin and King [41] reported on a case of skeletal remains originally assessed in 1963 by an analyst not trained in forensic anthropology. The official report noted the remains were found with a "green lady's jacket with gold lining and dark blue teen-age type socks" ([41], p.371). The remains were originally classified as female but were never identified, and a feminine-presenting facial approximation was distributed to the media with the headline, "who was she?" In 2004, forensic anthropologists reanalyzed the remains and found that the original osteometric data were correct but consistent with assigned male sex. Following the updated skeletal analysis, new leads helped investigators identify the decedent as Kenneth Glaze, a missing Texas man. This case highlights the consequences of biased assigned sex estimates and the benefit of forensic anthropological reanalysis of unresolved cases.

2.3. Make Use of a Biocultural Profile

Forensic anthropologists can use skeletal data to estimate a biological profile including assigned sex at birth, population affinity, age at death, and stature to generate leads to potential missing person matches. (Regarding the use of the term "population affinity," it is worth mentioning that forensic anthropologists may use metric or morphoscopic observations of skeletal features to classify unknown individuals based on their similarity to variably defined reference groups. Until recently, this process has been called "ancestry estimation" due to the assumption that skeletal features and measurements vary across groups who share genetic similarities stemming from shared biogeographic ancestry. Various anthropologists have critiqued this assumption and other issues related to ancestry estimation [42,43]. Population affinity has been suggested as a more accurate description of the capabilities of current anthropological analyses [43–45], though this terminological change does not fully address critiques associated with ancestry estimation.) The biological profile, however, provides only a limited perspective of an individual's lived identity. Various aspects of social identity (such as gender and race) may not align with skeletal estimates (such as assigned sex and population affinity).

Additionally, forensic anthropologists may apply a biocultural profile approach to casework. Considering biological data and associated physical evidence within a social and cultural context may aid in case resolution [46–50]. Biocultural data related to evidence of medical transition, such as gender-affirming surgery [17,51,52] and potential hormone-related changes to the skeleton [53,54], may allow for better contextualization of biological profile data. (At present there is limited research on the effects of "cross-sex" hormone replacement therapy (HRT) on the skeletal system. Studies that are underway suggest that skeletal alterations may occur if HRT is started at an earlier age, such as prior to puberty and during the teen years [55–58], but there is little data demonstrating the effect, if any, on those who start HRT in their early twenties and later [53].) Forensic anthropologists should educate themselves on gender-affirming procedures that affect the skeleton and recognize this evidence in forensic cases. It must be noted, however, that not all TGD persons elect to pursue medical transition. Access to transition-related care depends on financial means and access to a supportive social network and therefore may not be attainable for all. Actions in various state legislatures aim to further limit this access by prohibiting medical coverage through insurance and other means [24–27,30]. Safety concerns, health concerns, and/or personal esthetic goals/expressions may also influence individual decisions to pursue medical transition.

After initial blind analyses of sex and other aspects of the biological profile are complete, assessment of physical evidence may provide helpful context to the interpretation of

biological data. Effects such as clothing, shoes, and accessories may reflect one's gender expression. As such, forensic anthropologists should consider including information about the presence of potentially gendered contextual evidence (descriptions of clothing and accessories, evidence of gender confirmation surgery, etc.) in case reports if available. This information, when combined with an assigned sex estimate and/or evidence of medical transition, may suggest potential gender diversity.

Anthropologists must be vigilant, however, to avoid equating effects with gender. Gender identity and expression are fluid and can vary depending on context. Not all TGD persons can safely express their gender identity in all situations (work, school, home, etc.) and they may express themselves differently in different spaces. As such, forensic anthropologists should resist the temptation to apply a checklist approach to cases wherein a decedent is considered as potentially TGD only if they meet a rigid set of criteria. Checklists cannot account for diversity of presentation in assigned sex or gender, and they make scientists the arbiters of gender. When appropriate and possible, anthropologists should consult trans-informed community members and advocates regarding clothing, tattoos, and other material evidence that could contribute to identification. Sensitively contextualized interpretation of this evidence may aid investigations in cases with scant evidence or long postmortem intervals.

The following case example illustrates how forensic anthropologists can apply a biocultural approach to provide more nuanced interpretations of cases. Warren et al. [59] reported on decomposed remains originally analyzed in 1988. A skirt, a blouse, pantyhose, and silicone breast implants were recovered at the scene. An anthropologist noted cosmetic rhinoplasty and the presence of dorsal pitting and preauricular sulci, indicators that were, at the time, considered skeletal evidence of childbirth. Based on the skeletal traits, associated clothing, and the evidence for cosmetic surgery, the pathologist and anthropologist agreed on an estimate of female osteological sex, but the individual was not identified [59]. Modern reanalysis of the case resulted in a sex estimate of assigned male based on skeletal characteristics and the presence of XY chromosomes, which was confirmed via DNA testing. With this context, dorsal pitting and preauricular sulci were reinterpreted as skeletal alterations consistent with hormonal changes, and the breast implants and rhinoplasty were reinterpreted as potential evidence of gender-affirming surgery. This individual, who has been nicknamed "Julie Doe," remains unidentified today, though is currently being investigated by genetic genealogists from the DNA Doe Project. Julie's case demonstrates the application of a biocultural interpretation of available data, as well as the utility of pursuing regular reviews of unidentified cases to apply updated skeletal methods used in human identification. Had accurate biological data and contextual evidence been sensitively considered in 1988, it may have suggested communities in which to search for Julie's living identity.

2.4. Combat Misgendering in the Case File

As part of a transgender or nonbinary person's social transition, they may begin to use a gender-affirming name and/or pronouns that differ from those they used prior to transition. Some individuals pursue legal name changes and/or changes to gender marker designations on identification and other legal documents. The processes involved in altering driver's licenses, social security cards, medical records, birth certificates, and other antemortem records can be time-consuming, costly, and vary widely by jurisdiction. Although research indicates the importance of legal gender affirmation to resource access [60], survey data suggests that many TGD persons do not have their legal gender affirmation needs met [61,62].

For those who have legally changed their name and/or gender designation on identification documents, postmortem findings based on estimates of biological data (i.e., assigned sex) may not match information listed on antemortem records or missing persons reports. Therefore, TGD persons may be misgendered (addressed using pronouns or forms of address that do not reflect their gender identity) or deadnamed (referred to by the name they

used prior to transitioning) in missing person reports by someone unaware or unsupportive of the decedent's gender identity. Discrepancies between antemortem records and postmortem findings during the death investigation can impede the identification and return of remains [10,63]. The death investigation process and identification efforts are likely to uncover a deadname for those who have socially, but not legally, changed their name and/or gender designation. Decedents without a legal will may be misgendered after death by unsupportive family members [64]. This may result in a forced public detransition [65] and a final act of misgendering that is difficult to challenge.

Regardless of legal status, a decedent may be misgendered and/or deadnamed by law enforcement and/or medicolegal professionals due to a lack of antemortem life history information, poor understanding of TGD identities, and/or intentional or latent transphobia. In long-term unidentified cases, investigators' language in the case file may indicate perceptions of and/or biases about a decedent. Use of transphobic or homophobic slurs, excessive gendering (unnecessarily referring to a decedent of unknown gender by masculine or feminine pronouns), or objectification (e.g., referring to a decedent based on anatomical characteristics such as genitalia) may suggest anti-trans stigma and should alert current investigators to potential misgendering and bias.

Forensic anthropologists can avoid misgendering by avoiding gendered designations (such as "she/her" or "he/him" pronouns and "Jane" or "John" Doe) in case reports and discussions about decedents prior to their identification. Instead, they can use more inclusive terms such as the gender-neutral singular pronouns "they/them" and use, for example, place designations (e.g., "Springfield County Doe") in reports. Anthropologists reviewing long-term unidentified cases who have access to police, autopsy, and/or other types of reports can also look for evidence of misgendering or inappropriate gendering. The combination of this evidence and a biocultural profile indicating possible TGD identity can alert current investigators to expand searches of missing persons and/or update media representations (e.g., facial approximations) of a decedent.

Anthropologists should also understand and be prepared to discuss the importance of chosen names with law enforcement and medicolegal professionals (even if there is no legal mandate to do so) and advocate for investigation beyond deadnames. Once an identification is made, anthropologists can advocate for others involved in the investigation process to confirm and use the appropriate name and gender in communications about the deceased. Anthropologists often have no control over this part of the legal process, but when there is compelling evidence to back a lived identity, professionals can prevent further harm to the decedent, their friends and chosen family, and community members by respecting that identity in communications about the case.

We recognize that not all forensic anthropologists are in the position to influence law enforcement and/or medicolegal authorities in every case, nor are anthropologists always privy to the complete case file documenting known or suspected information about the decedent. However, forensic anthropologists should be prepared to use their holistic, biocultural training to critically assess the possibility of intentional or unconscious misgendering in case files.

2.5. Generate More Accurate Profiles in Databases

Despite the documented rise in homicides and increased risk of suicidal ideation among TGD persons [62], missing and unidentified persons databases such as the National Missing and Unidentified Persons System (NamUs), National Center for Missing and Exploited Children (NCMEC), Doe Network, National Centre for Missing Persons and Unidentified Remains (NCMPUR), and state and provincial clearinghouses report on sex estimation but rarely on gender identity.

To our knowledge, there is no single standard of practice or official position on reporting gender identity in NamUs and other databases. NamUs is considered here as an example due to its widespread use, with 13 U.S. states currently requiring use of NamUs to report missing and/or unidentified persons cases. During the case upload process, NamUs

provides options to report assigned sex as male, female, unsure, other, or not provided. There is currently no information available to aid uploaders in deciding between "unsure" or "other" categories and no option for reporting gender. On the missing persons side, a TGD person's sex may be reported based on their sex assigned at birth, or they may be reported as their lived gender identity. This likely depends on the person reporting (e.g., not all TGD persons are "out" to family members who report them missing, and unsupportive family members may misgender them in missing persons reports), agency policies, and/or the practices of individual persons uploading case information. On the unidentified persons side, an "unsure" sex designation could signal that the remains were not analyzed for sex, that sex estimation methods produced intermediate or ambiguous results, or that key anatomical regions were not present for analysis, precluding sex estimation. Alternatively, an "unsure" designation could signal that the uploader believes the decedent may have been transgender. Further complicating database problems is the inability to enter known or suspected gender identity in NamUs beyond the optional inclusion of a note in the "additional case information" section.

The current disconnect between the social reality of gender diversity and the absence of clear policies about reporting sex, gender, and potential evidence of gender expression in databases may result in delayed identification, misgendering, and non-standard case reporting at all levels of the death investigation. Development and implementation of standard operating procedures for reporting sex for unidentified persons as well as sex *and* gender for missing persons would help to mitigate confusion and error in databases. Forensic anthropologists should also consider how the passage of time may exacerbate issues surrounding the identification of TGD individuals. Some long-term unidentified cases may be entered into NamUs (or other databases) long after the remains were initially discovered, and case or contextual information may be misrepresented or even lost. Forensic anthropologists with access to long-term unidentified cases and their associated documentation may reanalyze older cases given modern views of sex and gender in forensic anthropology and update or request updates to database entries as needed.

Finally, given the issues present in the most used missing and unidentified persons databases, forensic anthropologists should also be aware of non-governmental organizations that have created databases and regional reports specifically to document TGD missing and unidentified persons, such as the LGBT+ Accountability for Missing and Murdered Persons (LAMMP) database [66], the Trans Murder Monitoring (TMM) Project [9], and the Transgender Law Center.

3. Strategies for Producing More Nuanced Research

Tallman et al. [19] found that 95.8% of forensic anthropologists surveyed support further research on transgender identification, yet there is a lack of published research regarding issues of gender diversity in the field. Much of the existing literature has originated from student researchers and researchers early on in their careers, some of whom are TGD themselves. While the field benefits from the perspectives of TGD forensic and biological anthropologists, TGD individuals cannot be expected to work on these issues exclusively or even at all; to expect this would be to tokenize these researchers. As anthropologists begin to conduct research aimed at addressing the identification of TGD decedents, it is important that the field as a whole critically reflects on the strengths, limitations, and ethical implications of its methods. Integrating social theory, interrogating bionormalcy, problematizing classification-based methods, developing ethical practices for research, and, when possible, seeking collaborative partnerships with TGD stakeholders are important steps toward producing more nuanced and gender-inclusive research.

3.1. Integrate Social Theory

Forensic anthropology has been criticized for having a deficiency in theory in terms of education, methods, and research. The field has historically emphasized "high-level theories" [67] related to evolution and natural selection to explain categorizable differences

in the human skeleton [67,68]. While these theories are important to the foundation of the discipline, they do not cover the breadth and depth of human culture and variation that forensic anthropologists encounter in their work. This is particularly true when considering assigned sex and gender. Forensic anthropology research and methods maintain that assigned sex is natural and biologically defined, meaning it cannot be negated; meanwhile, gender is a cultural phenomenon beyond the scope of biology [69]. These definitions attempt to separate biology and culture but fail to account for the continuous interactions between the two. The presumed split between assigned sex and gender has allowed forensic anthropologists to disregard gender identity in research and methodology and disengage with academic debates and social issues [69–71]. As analysts of the body, forensic anthropologists cannot reside outside of social discourse. Rather than simply reading important theoretical works, we urge forensic anthropologists at all levels to critically engage with social theory through inclusion in course syllabi, involvement in discourse, and communication with marginalized communities. There are a number of theories that forensic anthropologists may include in their work to challenge sex and gender binary assumptions. Although this is not an exhaustive list, we discuss a number of critical theories which will help transgress the Eurocentric, patriarchal, heterosexist norms which currently dominate the field, including (but not limited to) feminist theory, queer theory, critical race theory, and intersectionality theory.

Feminist theory advocates against misogyny in public and in the sciences. Feminism originated between the late 19th and early 20th centuries, with some of the earliest works being credited to Mary Wollstonecraft [72], Sojourner Truth [73], Kate Chopin [74], and Simone de Beauvoir [75]. Feminist thought directly retaliated against sexism by advocating for the rights of women, intersex, transgender, and gender diverse people. Unfortunately, however, many well-known and historical feminists do not advocate for the rights of Black women, women of color, lesbians, transgender women, intersex women, and those who are gender non-conforming. Thus, we advocate for deliberate interaction with Black feminist theory, including works by Angela Davis [76–78], bell hooks [79–82], Jennifer C. Nash [83], and Patricia Hill Collins [84,85]. Black feminism challenges not only patriarchy, but also racism, sexism, and classism in Western society. The incorporation of Black feminist theory will challenge forensic anthropologists to interrogate patriarchal, Eurocentric biases and develop identification methods centering the needs of marginalized communities.

Queer theory emerged from other fields of study, including queer, women's, and feminist studies. Many authors have discussed the history of queer theory and its extensive discourse [86–90]. Key queer theorists include, but certainly are not limited to, Eve Kosofsky Sedgwick [91], Judith Butler [92,93], Gayle Rubin [94], and Michel Foucault [95]. Others have gathered resources for reference, such as the Queer Theory Reading List from the LGBTQ Center at Brown University [96]. Queer theory challenges perceptions of binary assigned sex, gender, and sexual orientation, which often inform assumptions about the identities of individuals in skeletal collections, reference samples, and forensic casework. Engaging with queer theory challenges Eurocentric norms of binary assigned sex and gender on which most methods rely.

Critical race theory calls attention to the systemic racism that underpins Western society, including the sciences and the medicolegal system. Key readings include Crenshaw et al. [97], Ladson-Billings and Tate [98], Matsuda et al. [99], and Stefancic and Delgado [100]. We are not the first to advocate for the use of critical race theory in forensic anthropology; DiGangi and Bethard [101] use this as a foundation to interrogate how population affinity estimation methods are rooted in racist constructs that continue to promote scientific racism. A thorough understanding of critical race theory will help forensic anthropologists understand how social race categories minoritize and disenfranchise groups [100–102] and produce vulnerabilities that may become embodied within the skeleton. Additionally, critical race theory challenges not only the hegemony of whiteness, but also the hegemony of binary gender and assigned sex as they are assumed to be the default in a Eurocentric society. Challenging this in research,

casework, and education will help deconstruct ideologies that are harmful to some of the most vulnerable groups in our society (i.e., Black trans women).

Proposed by Kimberlé Crenshaw [103–105], intersectionality theory explains how individuals may hold multiple marginalized identities. These identities may lie at the intersection of oppressive social hierarchies that compound experiences of marginalization. The adverse effects of oppression that come with intersecting identities are not additive but multiplicative. As an example, Black transgender women exist at the intersection of racism, sexism, homophobia, and transphobia, which renders them particularly vulnerable. By engaging with intersectionality theory, forensic anthropologists can understand the multiple identities embodied by many decedents and how these identities may impact identification and exposure to violence.

Incorporating the aforementioned theories in forensic anthropology challenges Eurocentric, patriarchal, cis-heteronormative biases within our research and methodologies. Beyond critically engaging with these theories, we echo Pamela Geller [70,71] in her call to "queer" skeletal analysis. To queer our analysis means challenging the status quo of the forensic sciences and existing social structures to advocate for those decedents who may not fit traditional assigned sex and/or gender identities.

3.2. Interrogate Biological Normalcy

Forensic anthropologists should consider the impacts of biological normalcy (i.e., bionormalcy) in research designs and interpretations of results. Bionormalcy involves the circular reinforcement of society's views of what is "normative" or "should be." This feedback system serves to inform research design and interpretations; meanwhile, said designs and interpretations inform society's views of what is typical [106,107]. Bionormalcy may lead to overemphasis on which traits or states of expression are the "norm" or the average in populations, as well as pathologization and erasure of states considered outside this norm [106]. For instance, it has been stated that individuals outside of "typical" male and female variation are "too low to be relevant in forensic or paleontological settings," and, as a negligible part of the population and forensic casework, do not warrant a considerable amount of attention ([108], p. 248). This sentiment contributes to the erasure of TGD individuals, who research shows are likely to be victims of violence and enter the forensic population [62,109,110].

Language emphasizing "typical"/"average" and "most"/"majority" highlights the difference between what is expected and what is observed, or the ideal compared to the actual. This perpetuates the idea that sex and/or gender variation is pathological and equates to "devastating congenital deformities and diseases" rather than "normal human variation" ([111], p. 286). The idea that the intersex spectrum represents a modification of male or female standards (e.g., Marinov [111]) further perpetuates the assumption of binary sex as the "true" sex model. Positioning TGD identities in relation to a masculine–feminine dichotomy is similarly problematic. When parameters of the biological profile are not conceptualized outside a "typical" range of variation, methods and research questions may be constrained (sensu Ross and Pilloud [43]). Furthermore, continuing to postulate in a Eurocentric male/female binary sets the stage for forensic anthropological research to be weaponized to deny TGD existence.

Our enculturation and the systemic erasure of gender diverse individuals is perpetuated in skeletal collections. Skeletal collections are composed of individuals that have been historically identified by a limited definition of sex and gender. There are few databases and collections that include known TGD individuals and cases. In a recent special issue of *Forensic Sciences* on documented skeletal collections, only one paper (out of nine) reported known trans individuals in the Texas State Donated Skeletal Collection [112]. The New Mexico Decedent Image Database (NMDID) is a CT data-based collection that provides options for both assigned sex and gender; however, it uses outdated terminology that some members of the TGD community consider harmful. While these terms align with federal medical standards, harmful terminology further highlights the broad systemic

issues of enforcing sex and gender binaries. Database creators must be cognizant of how they include TGD people as the use of harmful terminology to describe TGD decedents furthers victimization and marginalization. Forensic anthropologists could explore the establishment of collaborative ties with interested TGD individuals and advocates, as well as medical facilities providing gender-affirming care, to broaden our understanding of gender identity and expression. Forensic anthropologists may also consider asking more socially based questions regarding assigned sex and gender. These may include how forensic anthropologists perpetuate certain systems of systemic erasure and violence; how systemic inequalities are embodied in TGD individuals; which cultural artifacts might provide valuable information for decedent identification; and the extent of variation in assigned sex, gender identity, and gender expression and how these may coexist within the same individual. Efforts to "complicate" both assigned sex and gender will better allow forensic anthropologists to understand, evaluate, and estimate these aspects of human identity.

3.3. Problematize Classifications

When applying classification-based statistical methods, forensic anthropologists should consider how sex estimation methods do or do not contribute to the goals of identification and perpetuate biological normalcy. These methods are largely based on the assumption that there is a finite number of groups in which most individuals can be placed and that there is an expected "norm" for such groups. The development of such methods also requires that the researcher classify individuals within predefined groups, which are themselves assumptions.

Forensic anthropology has traditionally relied on standard statistical techniques such as logistic regression (LR), discriminant function analysis (DFA), and, more recently, machine learning (ML) methods [113–115]. Logistic regression, as a nonparametric technique, provides greater flexibility in the data it can incorporate. However, this technique fundamentally relies on a binary sex model as probabilities can only be calculated for dichotomous variables. Additionally, DFA has several limitations that make it difficult to incorporate variation in sex expression. The parametric assumptions of DFA (i.e., normality, continuous variables, and the homogeneity of variance–covariance matrices) limit its appropriate use to metric variables. Therefore, DFA does not allow for the use of categorical variables that may be used to characterize cultural identities and practices and skeletal traits. As the purpose of DFA is to maximize group differences, differences in pre-assigned males and females (and other groups that may be included in the model) are also accentuated through DFA. Machine learning (ML) methods are increasing in popularity due to their ability to input complex suites of variables, combine different types of data, handle missing data, and relax parametric assumptions [114]. However, a primary concern of ML algorithms is the use of black box models. The lack of transparency in these models may present ethical issues within the legal system [116,117].

A number of quantitative approaches have been proposed to assist in deconstructing binary and rigid categories in sex estimation. For example, Bartholdy et al. [118] advocate for a transition from DFA to LR, which would allow for simultaneous reporting of male and female sex estimations by providing probability estimates for both categories rather than only one. Lane and Adams [119] applied fuzzy c-means and adaptive neuro-fuzzy-based inference systems (ANFISs) to traditional postcranial metrics as a way to blur the typological hard line in traditional crisp statistics between assigned groups. Fuzzy approaches contribute to *and* estimations rather than *or* estimations. For example, for osteological sex estimation, individual estimates are presented as male *and* female *and* other potential identities as opposed to male *or* female *or* other potential identities. Such models may also allow for the incorporation of diverse types of data and considerations of model development that include both biological and cultural features that could assist in estimating diverse gender expressions. In general, forensic anthropologists should consider developing and adopting statistical models that allow for incorporation of probabilities/degrees of membership in multiple categories, non-discrete membership across categories, and/or cultural and

contextual variables that can assist in the formation of biocultural estimations of assigned sex and gender expressions.

The incorporation of statistics does not mean that we have effectively moved away from typological analyses. Probabilities do not equate to non-typological and non-rigid boundaries or anti-transphobic practice. Statistics can and have been used to justify harmful, oppressive structures. The American Statistical Association's ethical guidelines clearly state that practitioners should consider the impact of statistical practice and recognize how statistics may adversely affect marginalized groups ([120], p. 5). One example of this potential harm is when sex estimates are provided to law enforcement. These estimates may be flattened into assumptions that an estimation of *female* osteological sex equates to *woman* and *male* equates to *man*, which may hinder the identification of TGD persons.

3.4. Develop Ethical Practices in Research

Research designed to investigate skeletal indicators of gender identity may generate important data, but such studies may also pose ethical concerns. Research on TGD bodies risks prioritizing biological correlates of gender. This not only contradicts how gender is currently conceptualized, but also recalls historical assumptions in medicine and psychology that considered nonbinary gender (and sex) as a pathological condition to be fixed [121–123]. These assumptions have served as justification for non-consensual medical intervention, "conversion therapy," and eugenics and contribute to why members of the TGD community may harbor legitimate distrust of TGD-focused research [124]. To ensure that harm is not perpetuated through study design and implementation, researchers can educate themselves on the history of TGD medical abuses in studies and work closely with the TGD community to better understand community needs, interests, and potential resources.

Anthropologists accept an increased burden of ethical responsibility when working with individuals from marginalized communities. The growing number of forensic anthropologists engaged in research on gender identity and expression can work collaboratively with the TGD community to develop ethical guidelines. This may be especially important for skeletal research, which is often not considered to be human subject research by Institutional Review Boards (IRBs). However, we encourage all researchers to seek IRB guidance to ensure maximum harm reduction has been considered. Forensic anthropologists may look to other social science and medical fields who have modeled best practices in research with the TGD community. Adams et al. [125] provide nine guidelines for transgender health research focused on collaboration, language, accountability, informed consent, protection, allyship, and censorship. These guidelines may serve as a foundation that can be adapted to forensic anthropology research.

We advocate for not only the incorporation of harm reduction in research–practices designed to lessen the potentially negative consequences of investigations we conduct–but also a framework of individual/community benefit [126]. This includes accounting for the safety and privacy of research participants, as well as careful consideration of how research findings may be interpreted and used. Forensic anthropologists should consider how our research (i.e., questions, design, and presentation of results) and practice can directly produce benefits for the TGD community. Benefits can and should go beyond identifying the deceased and can include the validation of TGD identity, public engagement, and providing results to local trans organizations through reprints, talks, and newsletter pieces to allow for transparency and feedback. Importantly, this should include the collaborative involvement of TGD individuals in the process.

Within anthropology, it has become best practice to engage with Indigenous communities prior to research, and there has been a growing call to do the same with Black/African American descendent communities prior to research on certain skeletal collections (de la Cova 2022). Similarly, anthropologists should recognize that the experiential knowledge of TGD community members is valuable and equal in weight to academic knowledge on sex and gender. Strategies to enhance research that directly and/or indirectly involve the TGD community should include members of the TGD community in project design.

Such trans-informed involvement is needed to ensure the study is addressing the needs of the community.

4. Strategies for Promoting Gender Diversity and Inclusion through Education

Assumptions embedded within educational models and teaching practices maintain and (re)produce social inequalities [127,128]. Because science may be viewed by students and professionals as a monolithic authority, the epistemology and methodology of science are internalized as ahistorical and apolitical truths immune to human prejudice and error [127]. An inclusive forensic anthropology involves visible and intentional gender-informed teaching practices. Here, we provide recommendations forensic anthropologists may implement when interacting with the following three learning audiences: (1) students and professionals, (2) law enforcement and medicolegal practitioners, and (3) the public.

4.1. Educate Forensic Anthropology Students and Professionals

Forensic anthropologists are initially exposed to the field's normative values through undergraduate- and graduate-level coursework. Syllabi, course design, readings, and classroom practices communicate explicitly and implicitly how the field conceptualizes gender identity and diversity. Therefore, inclusive undergraduate and graduate education is critical to continued improvements in gender equity within forensic anthropology.

Evans and Knepper [129] propose a model for examining how pedagogical and andragogical choices may promote diversity and inclusion (or, conversely, reinforce inequity and exclusion). Application of this model to critical self-examination of syllabi, course design, and communication methods can help forensic anthropology educators develop more inclusive learning experiences that reinforce gender equity in the classroom, leading to broader implications for improving gender equity in the field. Educators can integrate ideas from many publicly available syllabi through the Association for Queer Anthropology [130].

Educators can apply a modified version of Evans and Knepper's [129] four-tier Diversity Inclusion Model in course design and syllabi to encourage students to think more expansively about gender identity and encourage equity in the classroom and casework. This model includes the following four tiers (specific applications to forensic anthropology classrooms can be found in Table 1):

1. Tier 1 relates to representation of gender within course syllabi. This foundational tier involves basic surface-level methods of inclusion that are nonetheless highly visible, such as the inclusion of topics related to gender diversity and TGD speakers.
2. Tier 2 relates to the creation of a gender-sensitive course environment. This tier centers on codifying policies that establish a welcoming classroom environment, encourage inclusive participation, and proactively include diverse perspectives.
3. Tier 3 relates to embedded application of the goals of tiers 1 and 2 within the classroom. This involves offering opportunities for students to be involved in the creation of knowledge through self-reflection and analysis of material through personal perspectives.
4. Tier 4 relates to the achievement of gender acculturation. This tier, which is the pinnacle of the model, involves achieving a lasting cultural shift in underlying pedagogical messaging, wherein gender inclusion becomes standard practice.

One way that gender acculturation could be achieved is by including coursework on gender diversity as part of standard forensic anthropology curricula. Forensic anthropologists agree that topics such as human osteology, forensic anthropology methods, skeletal trauma, and others should be required to practice forensic anthropology [131]. Gender identity is a critical piece of the lived experience and may be key to resolving unidentified remains cases. Due to the likelihood that forensic anthropologists will encounter TGD persons in their casework, issues of gender identity and diversity should also be considered critical to forensic anthropologists' education.

Table 1. Actionable items to achieve the four tiers of diversity and inclusion.

Tiers of the Diversity and Inclusion Model (Following Evans and Knepper [129])	Application to the Forensic Anthropology Classroom
Tier 1: Representation of gender	• Interject gender diversity readings in course syllabi and lectures. • Include guest speakers from the TGD community on the course schedule. • Meaningfully include specific examples showcasing how gender diversity is represented in forensic cases. • Use "they/them" pronouns when referring to unidentified decedents and persons of unknown gender identity in lecture materials.
Tier 2: Gender-sensitive course environment	• Create a welcoming classroom environment by outlining expectations for inclusivity and discussion. • Assign readings from diverse authors that emphasize multiple perspectives.
Tier 3: Embedded application	• Challenge cisnormativity in readings and discussion. • Encourage sharing of experiential knowledge. • Promote self-reflection for both students and instructor. • Commit to application of queer theory in course design and instruction. • Design assignments that challenge binary conceptions of sex and gender.
Tier 4: Gender acculturation	• Acknowledge that language, visuals, terms, and phrases are often gender-coded and re-examine usage in the classroom and syllabi. • Avoid using images, quotes, and phrases that reinforce gendered stereotypes. • Critically examine all examples and images used in coursework to ensure that underlying messages are inclusive.

Gender inclusivity and equity in education is linked to gender diversity and equity within scientific organizations. Tallman and Bird [132] found that the overall diversity of forensic anthropology as a field decreases from undergraduate to graduate to professional ranks. Negative experiences with discrimination, including witnessing discrimination within the field, exclude diverse practitioners and scholars at all levels. It has been shown that fostering environments in which TGD students feel safe improves the sense of belonging, enrollment retention, mental health, and academic success of TGD students [133]. Access to gender diverse mentors and perspectives, including through exposure in forensic anthropology classrooms, may improve the sense of student belonging and therefore retention of TGD students and professionals within the field [134]. Additionally, diverse research groups have been shown to produce more novel findings, introduce more technological innovations, and produce research cited more often and by a wider audience [135,136].

Despite the obvious positive outcomes of gender diverse research teams and mentors in the classroom, current limitations to and risks of incorporating gender-inclusive practices in schools must be acknowledged. In the United States, gender-inclusive curricula may still be considered controversial in public education [137], and recent legislative efforts may limit how schools provide information about gender and sexuality. For example, the Florida state government has attempted to combat supposed "political indoctrination" through the passage of legislation such as the Stop WOKE Act [138] and efforts to reform faculty and college boards [139,140]. This includes calls to implement post-tenure cyclical reviews to evaluate tenured faculty, review faculty of any career level if there is "sufficient concern" that they are not reflecting Floridian values, and abolish courses, majors and minors, and offices that appear to reflect values "contrary" to the Declaration of Independence, including critical race theory, gender studies, intersectionality, and white privilege and supremacy (e.g., FL H.B. 999 [141], an expansion of the Stop WOKE Act). The Florida state government has also called to restrict funding to diversity, equity, and inclusion programs, encourage hiring of faculty that represent Floridian values (including placing control of the hiring process within the state government), and overhaul state institution Boards of Trustees, as has been done at New College of Florida [139,140,142].

While the political climate surrounding gender issues is ever-evolving in the U.S. and elsewhere, the situation in Florida demonstrates why forensic anthropology, as a discipline, must develop a variety of strategies to implement gender-inclusive instruction and practice.

Politically driven censorship efforts pose a danger to faculty teaching concepts that may be seen as "indoctrinating" and highlight the need for a cohesive, nuanced approach in how forensic anthropologists engage with these topics. It may be unsafe for some faculty to teach about gender diversity and/or apply gender-inclusive teaching practices in their home states. Professional forensic anthropology associations should consider how to develop strategies and resources to support teacher-scholars under these circumstances.

4.2. Educate Law Enforcement and Medicolegal Practitioners

Law enforcement culture embodies larger socio-political contexts of traditional masculinity and heteronormativity [143,144], which may perpetuate anti-LGBTQ+ sentiment and resistance to diversity training [145–147]. A history of anti-TGD raids; over-policing; excessive force; sexual, physical, and verbal harassment; negative attitudes; and neglect through denial of services have all been fostered by a culture within law enforcement that precludes their trust with the TGD community [143,148–151]. Transgender people may have additional fears related to engaging with law enforcement, such as being profiled as a sex worker, arbitrary arrest for breaking gender norms or "moral regulations" (e.g., lewdness), and accusations of having fraudulent identification. This problem is further compounded for BIPOC LGBTQ+ individuals who have multiple intersecting minority identities. This lack of trust produces barriers, resulting in the underreporting of crimes against the TGD community. Addressing the historical abuses perpetrated against the TGD community will require more than policy shifts.

Evidence has shown that when law enforcement agencies include community-oriented policing, people are more likely to report crimes [152]. While law enforcement has increasingly adopted specialized strategies for minority group interactions (e.g., LGBTQ+ liaisons), existing strategies may not be sufficient for the TGD community [153,154]. The Transgender Community of Police and Sheriffs [155] and Redfern [153] provide examples and a guide to improve police relations with the TGD community. Strategies to build relationships between law enforcement agencies and TGD individuals include identifying community leaders, developing active partnerships, maintaining open communication, and transparent reporting strategies [137,153,156]. Diversity, equity, and inclusion training and education can improve interactions between law enforcement and gender diverse people, including decedents, living victims, and the community.

Forensic anthropologists can also play a role in educating those in the law enforcement and medicolegal communities on TGD issues. Many forensic anthropologists already provide training courses for law enforcement and medicolegal professionals focused on the methods and theories used for forensic search and recovery, biological/biocultural profile construction, personal identification, and trauma analysis. These training courses can also serve as platforms for anthropologists to open conversations about gender diversity, the challenges of TGD identification, the limitations of osteological sex estimation methods, and current problems in reporting biological and cultural data pertinent to TGD persons.

4.3. Educate the Public

Forensic anthropologists may gain the trust of the communities they serve by establishing means of effective communication with TGD communities outside of casework. This can include limiting jargon, discussing the social aspects of human identification in addition to the scientific, and engaging in conversations and listening forums that encourage transparency and accessibility. Forensic anthropologists may capitalize on the diversity of media that can be used for engagement, including traditional public talks, podcasts, social media, blogging, hands-on activities with school programs, and more. Active collaboration with relevant stakeholders can aid in broadening practitioners' understanding of their perspectives and goals.

While we advocate for a more publicly engaged, transparent field, we also warn that forensic anthropologists must be aware of the risk of weaponization of their data and methods in the perpetuation of transphobic narratives. Other methods in human

identification, such as forensic population affinity estimation, have been misappropriated and used to perpetuate racist narratives [157]. As seen in social and other forms of public media, forensic sex estimation has been used to support a reductionist narrative of binary sex that perfectly correlates to binary gender. In particular, the ability of anthropologists to estimate osteological sex using skeletal data is being offered as evidence invalidating the existence of trans identities and bodies by suggesting that no matter how a person identifies, skeletal data will reflect one's "true" gender. For example, a popular clip of right-wing commentator Matt Walsh, from the program *Dr. Phil*, shows Walsh declaring that no matter how someone identifies "in their head," sex is ingrained within bone and individuals recovered a hundred years after their death will still be assigned a binary sex. Furthermore, individuals within the discipline have helped embolden such harmful ideologies using osteological techniques. Biological anthropologist Dr. Elizabeth Weiss has commented extensively that Western civilization is under attack and that modern anthropological practice has become subject to a "woke, trans agenda" in which anthropologists are rewriting history, erasing the existence of biological sex, and succumbing to "the demands of trans activists" [158].

Given this misappropriation of research, anthropologists cannot afford to take a hands-off approach to social issues that affect the discipline. In regards to population affinity, Adams and Pilloud [157] demonstrated that over 95% of biological anthropologists surveyed agreed that anthropologists had a responsibility to address the misappropriation of their work. A bottom-up approach to understanding misappropriation of the anthropological use of gender may be beneficial to engaging larger public audiences. One recommendation is to conceptualize students' and non-anthropologists' understanding of sex and gender through the lens of worldviews (e.g., Reiss [159]; Bertka et al. [160]; Adams and Pilloud [157]). Understanding which information builds the perspective of your audience and how, as well as how to negotiate the willingness to learn anthropological concepts, better prepares the practitioner to engage in the most impactful manner. Though it is often thought that combating misuse of research and harmful ideologies requires forms of public engagement focused on scientific education [161], individuals who hold these ideologies may in fact be well informed of scientific principles. There are many open resources among far-right communities that provide access to research that (in)directly supports their narratives (e.g., OpenPsych, Human Biological Diversity). As such, it is important for forensic anthropologists to also be conscious of not only moving beyond education in public-facing work, but also in the mechanisms by which individuals navigate said work [157,162–164]. When possible and safe, anthropologists can inform themselves of the arguments made by transphobic groups so that they can prepare to deconstruct such arguments.

It is important, however, that forensic anthropologists recognize their limitations in science communication. Harmful public engagement could be worse than no public engagement [165,166]. The perception of progressiveness in academic teaching and research has been used as evidence for "indoctrination" of students, a lack of rigor, and the politicization of science. This has resulted in people viewing higher education, and social sciences more specifically, with suspicion, as is evidenced by recently proposed bills across the United States. Anthropologists' efforts to recognize TGD individuals in forensic and archaeological contexts have also been weaponized for further mistrust in academia as a whole and, in particular, anthropology. For example, there have been suggestions that critiques of binary sex and gender classifications amount to "woke ideology" and are detrimental to forensic investigations [167].

Effective writing, speaking, and visual presentation of results for a variety of audiences requires training and active skill building. When available, forensic anthropologists should participate in programming designed to improve science communication skills [168]. Though forensic anthropologists are often not required to develop public engagement skills as part of their duties, such efforts may help combat transphobic misappropriation of anthropological research *and* improve communication and trust with TGD communities.

5. Conclusions

This paper aimed to provide action items and recommendations for anthropologists to combat cisgenderism and promote gender diversity and inclusion in the arenas of forensic anthropology casework, research, and education. The scope of fatal violence against TGD people requires a multidimensional response. Forensic anthropologists can leverage their unique skill sets to position themselves as agents of engagement and collaboration with TGD communities and researchers. Further, forensic anthropologists can use their positions of power within universities and medical examiners' offices to advocate in support of more gender-inclusive research design and resolution of TGD cases.

Community engagement and collaboration should be prioritized to improve trust and build relationships between the TGD community and forensic anthropologists. Historically, the field of anthropology has "othered" marginalized groups by developing methods *on*, rather than *with*, subjects. We should not consider the TGD community as an "other" in need of study. Where possible, forensic anthropologists should engage with community members as collaborators and pursue research questions informed by the needs of the TGD community.

Forensic anthropologists must recognize that it is not and will never be possible to know the complexities of lived gender identity or expression from the skeleton alone, so we must be open to asking for assistance and collaboration in research and casework. In some TGD cases, experiential knowledge from the TGD community may provide much needed context for interpretation of remains. Listening to, acknowledging, and uplifting the essential perspectives and expertise of non-academic experts, advocates, and students (especially those who are TGD) aids in information exchange and may lead to better research and casework strategies. Asking for help should be done only when appropriate and should not overburden already marginalized groups (including forensic anthropologists who are TGD themselves).

Outside of academia, many advocacy groups exist to support the TGD community. Forensic anthropologists may consider connecting with transgender resources and nonprofit advocacy groups to find resources for understanding the broader social context and issues relevant to TGD individuals, such as the National Center for Transgender Equality (United States of America), Mexico Trans (Mexico), Egale (Canada), and the Gender Identity Research and Education Society (United Kingdom), as well as many others around the globe at national, state/provincial, local, and university levels.

Forensic anthropologists should also embrace an advocacy role. Advocacy is the act of supporting or defending a particular entity's interests, while activism involves direct actions aimed at bringing about political or social change [169,170]. As an example, advocacy includes openly supporting the TGD community, while activism involves active engagement to bring about targeted change, such as campaigning for or against specific laws and policies. Forensic anthropologists are increasingly taking on advocacy roles [47,171–173], though there remains some belief that advocacy diminishes the reliability and trustworthiness of the forensic scientist (e.g., Ditrich [174]; Fulginiti [175]).

We reject the narratives that forensic anthropologists cannot be both scientists and advocates and that engaging in advocacy compromises scientific objectivity. Anyone working in forensic science or death investigation has an ethical obligation to recognize the roles they play in case resolution, including engaging in advocacy where needed. As scientists, forensic anthropologists must be objective in how they apply methods and report results, but they are not neutral or indifferent about the disproportionate injustices they see in forensic casework. We recognize that anthropologists in different career sectors or at different career stages may not be able to engage in advocacy to the same degree [172] or that some of the recommendations proposed here may be more or less relevant to their professional roles. Still, we encourage all forensic anthropologists to consider how they can advocate for the decedents in their care and for gender diversity and inclusion within the field.

Forensic anthropologists can advocate for practices that may improve case resolution. Some cases involving TGD decedents may require informed advocacy to achieve identification and/or to prevent further harm to a decedent once identified (e.g., misgendering and/or deadnaming). Advocacy can include conducting case reviews with a gender-informed approach to identification, especially when context clues suggest the decedent may have been TGD. Educating investigators on the potential differences between cultural interpretations of gender identity and biological patterns in sex estimation in particular cases may also be seen as advocacy. On a larger scale, forensic anthropologists may help bring information about the disproportionate rates of violence against TGD individuals [7,8,62], their presence among medicolegal cases [19], and problems related to accounting [10,11] and identifying these individuals to policymakers and the lay public. This would parallel efforts by forensic anthropologists to inform policymakers about the crisis of migrant deaths at the U.S.–Mexico border [176].

Academic research is increasingly presented in open access resources and media outlets. While making science accessible has many benefits, the potential exists for people to misinterpret and misuse forensic data for transphobic purposes. Biological anthropologists are largely in agreement that anthropologists have a responsibility to address misappropriation of their work as it relates to ancestry [157]. Similarly, forensic anthropologists have a responsibility to address misappropriation of research on sex and gender, including what skeletal methods can and cannot accomplish. As this requires skills in public communication and engagement, one step forensic anthropologists can take is to seek training in science communication. Another step could involve considering how research may be informed by or enforce bionormalcy and planning research questions to interrogate this narrative.

Advocacy is increasingly important in education. State legislative actions such as the Stop WOKE Act [138] in Florida, and similar initiatives proposed in other states, signal that political actors are attempting to impose *how* different research is taught, in addition to *what* is taught, in public schools. At the time of this writing, the Florida Legislature has introduced a pair of bills that include the abolishment of selected theories, practices, and even topics/degrees [141,177]. This governmental interference directly affects forensic anthropologists who teach at public institutions, as well as future professionals being trained at these schools. Advocacy in the classroom includes defending our profession from politicians that do not understand the nuances of the field, upholding our students' right to scientifically sound public education, and generating research that supports the identification of marginalized communities increasingly under attack. Further, professional organizations in forensic anthropology and the forensic sciences should develop strategies and resources to support colleagues working and teaching under challenging political circumstances.

This paper serves as a call to action for a forensic anthropology that recognizes and addresses the social factors that impede identification of TGD decedents, works to prevent further postmortem marginalization of vulnerable individuals, aims to improve case resolution for TGD decedents, and promotes gender diversity and inclusion within the field and, more broadly, in the forensic sciences. The TGD community has been and continues to be harmed by social structures, including the legal system. While we recognize the importance of research that aims to improve identification of TGD individuals, we call on forensic anthropologists to think more expansively and beyond methodological approaches. It is time the field considers its relationships with, and responsibilities to, the marginalized communities who are often over-represented in forensic casework. While forensic anthropologists' roles have historically been limited to skeletal analyses, we can embrace our anthropological training to consider lived experience and the complexities of identity. We can also leverage our platforms as forensic scientists, researchers, and educators to understand and shed light on the systemic inequities that cause the TGD community to be disproportionately affected by fatal violence [7,8,62], and who may be re-victimized through our work.

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