Research and Misinformation on Gender-Affirming Care for Transgender Youth

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Introduction

In fall 2024, I was given the opportunity to work on a project with community partners with the goal of advocating for a cause I care about. As a transgender person in the field of public health, I knew immediately that I wanted to develop a project to improve support for transgender people. I was matched with two amazing community partners through a local gender care program who helped guide me through the process of developing this project. The initial stages of the project involved shadowing gender-affirming care appointments and seeing what support the community would benefit from most.

In working with transgender youth seeking gender-affirming care as well as their families, I noticed that many families had similar concerns and had heard the same kinds of misinformation surrounding gender-affirming care in youth. This annotated bibliography has been developed in order to address common questions, curiosities, concerns, and misconceptions regarding gender-affirming care for transgender youth. With the rise in misinformation regarding gender-affirming care, it is important to share the reputable data which shows that transgender youth know who they are, and that gender-affirming care is largely beneficial to them. Numerous studies will be cited, summarized, and organized into categories based on which topics they address.

In addition to outlining this data, information will be given on how to critically read studies and identify misinformation. Many studies have come out that question the existence of transgender youth and the benefits of gender-affirming care. While this bibliography will address some of the concerns from the studies that have gained the most attention, influenced policy, and sparked fear, it is crucial to give information to the public on how to spot what is wrong with these studies independently so that they may be equipped to debunk this misinformation where it appears in the future.

Frequently Asked Questions

How can I support someone after they come out to me as transgender?

One of the best ways to offer support to a transgender person after they come out to you is to respect their chosen name and pronouns. This has been shown to improve mental health outcomes by making the transgender person feel more respected and comfortable in their identity.[28,29] Additionally, you can provide support by helping them navigate coming out to other people and by supporting their decisions concerning gender-affirming care. If they want a new wardrobe, you can give them some hand-me-downs if available. At the end of the day, ask them what they need!

Why is someone transgender?

The short answer is that there is no answer. While there have been some proposed causes of transgender identities, there is no commonly agreed upon root cause. Transgender identities are a natural variation to the human experience, and there is nothing wrong with that.

Is the rise in transgender youth a "social contagion?"

No; the study that initially proposed this has been widely criticized and discredited for its poor methodology.[6] The idea of transgender youth coming out and being friends with other people like them can be accredited to the sense of comfort in having a shared experience with other people of the same stigmatized group.[8]

Is this a new phenomenon?

No. In fact, there has been recorded evidence of variation in gender identities dating back to ancient civilizations.[16] Gender-affirming medical care has existed in some way for over a century.

How often do people regret transitioning?

Very infrequently.[37,38,39] The most common causes for someone to pause, stop, or reverse their transition are external, and usually stem from stigma and a lack of social support.

Is being transgender a mental illness?

No, the majority of professional medical organizations do not consider being transgender as a mental illness.[8,11,12,13]

Why do transgender people have worse mental health outcomes?

This can be largely attributed to the stigma and discrimination that transgender people face, as well as distress from gender dysphoria.[18,22,23,24,26] Mental health outcomes can be improved with social support and access to gender-affirming care.[17,18,19,20,22,23,25,26,28,29]

Are transgender youth able to make decisions on gender-affirming care?

Any decisions on gender-affirming care for minors are made with parents and a team of healthcare professionals. When deemed necessary by healthcare providers, the majority of professional medical organizations agree that gender-affirming care is recommended for transgender youth .[12,13,14] Adolescents have the neurological capacity to make decisions on gender-affirming care.[35]

What are the risks of gender-affirming care?

Gender-affirming care is widely considered to be safe, but there are some risks. Research is still being done on long-term fertility outcomes, but it has not been shown that gender-affirming care leads to total irreversible infertility in all cases.[40,41] It's possible that puberty blockers can change body and bone compositions, but this may be reversible and can be offset by healthy lifestyle choices.[32,33,34]

Two of the biggest potential lifetime risks are (1) an increased risk of cardiac issues in transgender patients taking testosterone– a risk that is lower than the risk in cisgender men[33]– and (2) an increased risk for venous thromboembolism and ischemic stroke in transgender patients on feminizing hormone therapy.[35] These risks should be monitored by a healthcare provider.

What is Misinformation?

There are a few different ways to describe misinformation. Claire Wardle from First Draft News categorizes three broad divisions of "information disorder."[1] Disinformation is false information that is spread with the intention to cause harm, which often leads to misinformation when people repeat disinformation without the knowledge that it is false and without the intention to cause harm. Wardle also describes malinformation, which is true information that is spread with the intention to cause harm. Malinformation can be information that has been manipulated to fit a specific narrative, information with relevant context altered, or it can be information that was meant to be private and was made public in order to cause harm.

An example of disinformation on the topic of gender-affirming care is the idea that "puberty blockers"– medications that suppress the effects of puberty– are given to children before they hit puberty.[7,8,12,14] In truth, these medications are only prescribed after the initial onset of puberty, as recommended by the treatment guidelines of both the World Professional Association for Transgender Health and the Endocrine Society.

An example of malinformation on the topic of gender-affirming care is the claim that because there are no randomized controlled trials on gender-affirming care, there is not enough evidence to prove its benefits.[4,7,8,9] A randomized controlled trial is an experimental study design in which participants are randomly split into two groups. One group is given treatment (often referred to as the "treatment group") and one group is not given treatment (often referred to as the "control group"). The outcomes of each group are then compared. While it is true that there is a lack of randomized controlled trials on gender-affirming care, this does not weaken the substantial evidence found in other studies. Furthermore, randomized controlled trials are not recommended for gender-affirming care *because* of the strong evidence from other research which shows the benefits of gender-affirming care. It would be unethical to design a study in which a group has treatment withheld from them when there is evidence to show that the treatment is largely beneficial.

How to Combat Misinformation and Disinformation

It is crucial to understand the steps in identifying misinformation and debunking it when it is presented . Temple University has compiled a list of fun interactive activities to practice identifying misinformation.[2] These activities include an exercise in identifying "trolls" (online personas that are ingenuine and often post content meant to garner attention by angering people), a game where you play as someone spreading disinformation in order to gain insight on how it works, and activities demonstrating different rhetorical manipulation techniques. While many of these activities were developed for audiences in middle school and high school, they are wonderful for anyone who is new to the concept of misinformation and is looking to learn more. They can also be a good refresher for people who aren't new to the concept of misinformation, but want to quiz themselves. I highly recommend these fun and informative activities for everyone. They serve as good hands-on practice at identifying and combating misinformation. You can access these activities at this link: https://guides.temple.edu/fakenews/teaching.

Temple University also describes multiple methods to combat misinformation when presented with it.[2] One of the most important steps in identifying and fighting misinformation is knowing the source of the information. If you are unfamiliar with the website or person who is publishing the possible misinformation, take some time to look into their background. Do they exhibit any clear signs of bias? What type of source is it (individual, news source, academic organization, etc)? What credibility does the source have? Who is funding this source? After investigating, look into what other sources have to say on the same topic. If no other sources are reporting on the topic, or if the only other sources are similarly biased, it is very possible that the original source is spreading misinformation. If other sources are reporting on the topic but are contradicting the original source, it may be misinformation if the other sources bear credibility. Outside of looking at information sources, you can also dissect the claim being made. If the claim being made is missing important context, or if the framing seems like it is trying to lead the reader to a specific conclusion, or if there are direct attacks being made on an individual(s) or a community, the claim may be misinformation.

A Guide to Critically Reading And Analyzing Academic Research

Reading an academic research paper can be an incredibly tedious task. In order to break it down and make it less overwhelming, read it little by little. The first part of most research papers is the abstract, a concise summary of all of the content in the paper. Reading this should give you a good idea of what the paper will entail. The last part of most research papers is the conclusion, which tells the reader what the final takeaways of the paper were. Read the conclusion after you read the abstract. These two sections of the paper shouldn't be read on their own, but often they are the two sections that help the reader understand the arguments and content of the paper best. After reading the abstract and conclusion, go through and look at all of the headings and subheadings of the article. This is the skeleton of the paper, and looking at these headings and subheadings can give a good guide of the path the paper will take. After breaking these sections down, the rest can be less overwhelming.

The methods section of the paper tells you how the paper came together. It will tell you where studies were found, the criteria for including and excluding studies and participants, how participants were recruited, the steps taken to ensure the paper was accurate and ethical, the order of steps in experimental procedures, how the data was collected and analyzed, and other relevant information. Reading the methods section is essential in allowing the reader to understand how the paper's conclusions were drawn. The methods section can also support or detract from the validity of a paper. For example, if a paper is analyzing data from a group of subjects and the methods outline that there were only 3 subjects, the conclusion drawn from the paper may not be applicable to a large population. On the other hand, if a paper is analyzing data by comparing outcomes from two groups, the paper could be well suited in drawing conclusions about the differences in the two groups. The methods section can also give you an idea of the paper's ethics. If the research team did not gain informed consent from all parties, the paper is unethical and would be questionable to draw conclusions from.

Several factors go into determining if a paper is credible. Purdue Global has a handy guide on identifying these factors.[3] As aforementioned, many have to do with the source. It's important to look at the author's background, what makes them a credible source on the topic, who they work with, and who provides them with funding. Be sure to double check the author's credentials. An author may have "Dr." in front of their name, which could make them appear

more credible, but if they have a PhD in computer science and they're writing about medicine, they may not be the best expert on the subject. If a paper is peer reviewed, it is more likely to be a credible source. If the paper uses subjective language more than objective language, approach it with more caution. Credible papers should back up claims with evidence and cite sources for their assertions, whereas papers that fail to do this may lack credibility. Academic papers may later have corrections published for them, which are important to read; sometimes it's a grammatical error or data formatting issue, but other times it could change the entire context of the paper. Lastly, always look at when the article was published. Articles published 20 years ago on, for example, foreign policy may not reflect what's true on the subject today.

Annotated Bibliography

Methodology

This annotated bibliography was inspired by direct conversations with parents of transgender youth and observations made during gender-affirming care appointments.. Common concerns that parents, families, and patients had surrounding gender-affirming care were noted and addressed in this. This bibliography includes robust and recent research on gender-affirming care and serves to debunk points of misinformation that have been brought up on multiple occasions.

Studies were identified through the use of Google Scholar, Ovid, and PubMed. Only studies from 2016 to the present have been included in order to ensure that the most up to date data is showcased. In the interest of accessibility, it was attempted to mostly include studies that have their full free texts available online. There was an exception made for particularly robust and informative studies that could be accessed by institutions; these are summarized in depth.

Studies were narrowed down based on a few key factors. Studies were not included that had a sample size under 30 people. Only peer reviewed studies were included. No case studies of one individual were included, as they are not representative enough to base broader conclusions on. Studies that were not relevant to the scope of this bibliography, such as studies about transgender health in regards to HIV or aging, were not included. Lastly, only studies that were performed in an ethical manner with informed consent for all participants were included.

Resources on Misinformation and Disinformation

1. Claire, W. Information disorder: "The techniques we saw in 2016 have evolved." First Draft. October 21, 2019. Accessed February 27, 2025. https://firstdraftnews.org/articles/information-disorder-the-techniques-we-saw-in-2016-have-evolved/

This article goes in depth on misinformation and disinformation. It describes different types of this content, and the problem with each type. It also gives context on the rise in misinformation and disinformation in public discourse.

2. Temple University. Research Guides: "Fake News," Misinformation & Disinformation: What is fake news? Temple.edu. Updated October 30, 2024. Accessed February 27, 2024. https://guides.temple.edu/fakenews

This is Temple University's guide to misinformation and disinformation. Within this guide, you will be able to find methods on how to combat misinformation and disinformation. Several educational interactive games have been compiled in this guide that allow hands-on practice in identifying misinformation and disinformation. The guide also gives several resources for fact-checking articles and news that may be false.

3. Purdue Global. How to Know if a Source Is Credible. Purdue Global. Published January 4, 2024. Accessed March 2, 2025. https://www.purdueglobal.edu/blog/online-learning/credible-academic-sources/

This website offers a handy guide on how to identify credibility in academic writing and explains different factors that can assist you in assessing if a paper is trustworthy or not.

Commonly Cited Harmful Studies

The studies summarized in this section are some of the most frequently cited articles in disinformation surrounding and legislation against gender-affirming care, though they are incredibly flawed and biased. All of these studies have issues in how they were designed and carried out that make them inappropriate to form arguments from. These studies do not outweigh the vast evidence on the benefits and safety of gender-affirming care.

4. Horton, C. The Cass Review: Cis-supremacy in the UK's approach to healthcare for trans children. *International Journal of Transgender Health*. 2024;1–25. https://doi.org/10.1080/26895269.2024.2328249

In this article, Horton addresses a review article titled *The Cass Review*, which aims to review the youth gender services in the UK's National Health Service. Since the publication of the review, it has been cited in numerous policies restricting gender-affirming care not only across the United Kingdom but in the United States as well, despite the problematic nature of the review's research and framing. There are numerous flaws in the methodology, which include the citation of studies with poor evidence, basing conclusions on those studies, framing hateful stances from healthcare professionals as "expert opinions," and excluding the opinions of transgender providers and providers specializing in gender-affirming care. While citing many studies with poor quality evidence due to their design, the review then claims that the only way to obtain high quality evidence is by a randomized controlled trial, which is not appropriate in the case of gender-affirming care. This is because there is an overwhelming amount of evidence that gender-affirming treatments have positive outcomes, so withholding that treatment from a control group would not be ethical. The review makes claims and recommendations with no evidence, including the claim that childhood sexual abuse "causes" a person to be transgender. When discussing transgender youth, the author frequently misgenders individuals and reduces them to the sex they were assigned at birth. The review frames transgender identities as a sort of disorder. In that same vein, the review condones harmful practices that aim to "correct" a person's identity, including conversion therapy, which is often called "exploratory therapy" in an

attempt to avoid negative connotations. The review also frames affirmative approaches as "ideological" and non-affirmative approaches as "neutral" and "cautious." *The Cass Review* is a publication that is inherently biased with a deeply flawed methodology, and it should not be used as a basis to deny gender affirmation.

5. Dhejne, C., Lichtenstein, P., Boman, M., Johansson, A. L., Långström, N., & Landén, M. Long-term follow-up of transsexual persons undergoing sex reassignment surgery: cohort study in Sweden. *PloS ONE*. 2011;6(2):e16885. https://doi.org/10.1371/journal.pone.0016885

This study has been used to suggest that gender dysphoria and mental health comorbidities related to it do not improve after gender-affirming surgery. The methodology of this study has many issues that invalidate it as evidence for this argument. The data was pulled from Sweden between the years 1973 and 2003. Historical factors of possible heightened discrimination against transgender people should be taken into account when drawing conclusions related to mental health from this data. From 1972 until 2012, Sweden legally required sterilization of those who wished to legally change their gender and/or receive gender-affirming care.[15]

Another confounder not considered in the study is that many medical advancements have been made during the time frame of the study, and after 2003. While possible surgical complications or a lack of satisfaction from less advanced surgical techniques can worsen mental and physical health, this data was not considered in this study's conclusions and may not be available. In comparing the outcomes of these subjects, the article uses 10 subjects from the general population matched to each cohort subject as a control group, rather than a population of subjects that have gender dysphoria and did not receive gender-affirming surgery. The study's conclusion that gender-affirming surgery does not improve mental health outcomes for those with gender dysphoria is based on an incomplete and inaccurate view of its subjects, one which does not consider historical factors, medical advancements made, or the importance of studying subjects who actually experience gender dysphoria.

The study also uses biased language when discussing its findings, which include an analysis of crime rates among the cohort. The article clarifies that while the findings show an increased crime rate in the sample compared to the general population, this was only statistically significant for those that underwent gender-affirming surgery prior to 1989. Later, the article states, "...Regarding any crime, male-to-females had a significantly increased risk for crime compared to female controls (aHR 6.6; 95% CI 4.1–10.8) but not compared to males (aHR 0.8; 95% CI 0.5–1.2). This indicates that they retained a male pattern regarding criminality." This showcases the article's bias. The article disregards its own findings that the crime rate was only significantly increased within a specific subgroup of the sample for the express purpose of painting transfeminine individuals as violent, a common talking point that is still frequently used in the modern day to justify harm towards transfeminine individuals. In addition to the methodological shortcomings, this hinders the article from being a credible source to be used against gender-affirming care.

6. Littman, L. Parent reports of adolescents and young adults perceived to show signs of a rapid onset of gender dysphoria. *PLoS ONE*. 2018;13(8);e0202330–e0202330. https://doi.org/10.1371/journal.pone.0202330

This article has been cited frequently in conversations surrounding the recent increase in youth identifying as transgender, especially transmasculine individuals. This article has many flaws, largely with its sampling methods. The article draws conclusions about the onset of gender dysphoria in an adolescent by surveying the adolescent's parent. This survey was initially shared by its research team on three websites that are specifically meant for discussion amongst parents of trans youth who are "skeptical", "cautious", or "critical" of their child's transgender identities. The paper calls this method of sampling "targeted recruitment." The team did allow for the survey to be shared to additional groups by participants, and it was shared to one additional Facebook group for parents of transgender youth.

The article heavily pathologizes transgender identities and proposes possible causes including "social contagion" and post-traumatic stress. The social contagion hypothesis stems from parents who report that they believe their child began identifying as transgender only after

their friends did, which is insufficient evidence to base this conclusion on; the information is coming from a secondhand source, which could potentially be biased. The article defines "traumatic events" loosely and subjectively, and considers events such as break-ups, moving, and parental divorce to be comparable to childhood sexual abuse. The article poses the argument that youth use transitioning as a "maladaptive coping mechanism" to deal with these events as well as symptoms of mental illness. Similar to other sources of misinformation, the article uses mental health comorbidities as a talking point to suggest that those with transgender identities must have some form of mental illness, therefore transgender identities are invalid. This argument fails to acknowledge that many of these mental health comorbidities can be related to gender dysphoria, social isolation, and discrimination. This study does not have strong evidence, has deep methodological flaws, and is deeply biased. It cannot be used as an argument against gender-affirming care and transgender identities.

Addressing Common Misinformation and Disinformation

These articles use research to disprove common disinformation surrounding transgender youth and gender-affirming care. Some of the topics addressed include the safety of gender-affirming care[7,8], the idea of "desistance" from a transgender identity[9,10], and misrepresentation of transgender identities as a trend or a mental illness.[8,11] It is important to be able to recognize these arguments and understand why they are inaccurate and harmful.

7. Giordano, S., & Holm, S. Is puberty delaying treatment 'experimental treatment'? *International Journal of Transgender Health*. 2020;21(2):113–121. https://doi.org/10.1080/26895269.2020.1747768

The safety of puberty blockers is a common concern among parents and families of transgender youth who are considering gender-affirming care. While the idea of halting a child's puberty is understandably daunting, these concerns are often exploited and exaggerated by those who argue against gender-affirming care in bad faith. Common arguments exploiting this fear suggest that puberty blockers are new and "experimental" and that there hasn't been enough research. The above article outlines the inaccuracies of these arguments.

Puberty blockers are not new– they have been used to delay puberty for decades, and have been used as a part of gender-affirming care for transgender youth since the 1990s. It is worth noting that, despite common belief, these treatments are not used prior to the onset of puberty. A patient's response to the onset of puberty is considered during a clinical assessment used by providers to determine whether puberty-blocking treatments are needed. Puberty blockers allow more time for exploration of gender identity and prevent potential distress experienced by transgender youth as a result of developing secondary sex characteristics they do not identify with.

There have not been randomized controlled trials performed to assess the potential adverse effects of puberty blockers due to the ethical concerns of withholding a recommended

treatment with known benefits from the control group. Additionally, it would be difficult to recruit participants to a randomized controlled trial, since participants may be averse to the possibility of being in the control group. In regards to possible long-term effects, the article does suggest that further research should be done in areas such as fertility and bone health due to mixed results and insufficient data. That is not to say that these treatments will certainly adversely impact bone health and fertility– those are simply the two areas of largest concern considering the mechanism of puberty suppression.

8. Meade, N. G., Lepore, C., Olezeski, C. L., & McNamara, M. Understanding and Addressing Disinformation in Gender-Affirming Health Care Bans. *Transgender Health*. 2024;9*(*4):281–287. https://doi.org/10.1089/trgh.2022.0198

This article outlines disinformation used in bans against gender-affirming care and provides arguments against it. Much of the disinformation used in policymaking against gender-affirming care is not based on quality evidence, and the quality evidence often disagrees with it. The article categorizes points of disinformation into four "themes": "false claims about gender dysphoria," "false claims about the evidence," "false claims about the standard of care," and "false claims about the safety of GAC."

Disinformation surrounding gender dysphoria commonly tries to discredit it as a social contagion and/or mental illness. It also often encourages the use of conversion therapy, which is proven to be psychologically damaging and ineffective, and perpetuates the idea that the majority of transgender youth will cease to identify that way and regret transitioning. The idea of social contagion can often be explained simply by the fact that transgender youth may feel more comfortable expressing their identity around other transgender people. The idea that gender dysphoria is a mental illness has been discounted by multiple professional health organizations.

Disinformation surrounding research on gender-affirming care tries to discredit it by denying evidence of the benefits and claiming the evidence is of low quality due to a lack of randomized controlled trials. The fact of the matter is that professional health organizations recommend gender-affirming care precisely because its benefits are supported by overwhelming

evidence. Randomized controlled trials would not be ethically viable, as it is unethical to withhold a recommended treatment with proven benefits from a control group. Some also claim that gender-affirming care is experimental, which is false. Gender-affirming care has been used and researched for decades.

The standards of gender-affirming care are often misrepresented, specifically in regards to treatment for youth. Per clinical practice guidelines, puberty blockers are not to be used in children before the onset of puberty. Despite frequent claims otherwise, these guidelines also state that minors are not to receive genital surgery. When minors are given gender-affirming care, their parents give consent for their treatment. Gender-affirming care has many steps in place to ensure those receiving it are in a good position to do so, and the patient must consent to any treatments they are given. These steps take time and cannot be "rushed."

Opponents of gender-affirming care often claim it is unsafe. There is no evidence for this claim. The effects of puberty blockers are reversible, and their impact on bone mineral density is comparable to that of other medical treatments routinely given to youth, such as medications for asthma. The health risks that may arise from the use of gender-affirming hormone treatments are incredibly unlikely to put an individual at any greater risk than somebody who naturally produces that hormone. Many claim that medications used for gender-affirming care are used off-label, so they must be unsafe. Many medications are used off-label for youth in particular because they haven't been approved specifically for pediatric patients. The fact that these medications are used off-label does not discredit the fact that there is a significant amount of evidence toward their benefit and safety.

9. Skinner, S. R., McLamore, Q., Donaghy, O., Stathis, S., Moore, J. K., Nguyen, T., Rayner, C., Tait, R., Anderson, J., & Pang, K. C. Recognizing and responding to misleading trans health research. *International Journal of Transgender Health*. 2023;25(1):1–9. https://doi.org/10.1080/26895269.2024.2289318

A key term used in disinformation about gender-affirming care is "desistance." There is no universal definition of this term, and any given definition may vary from person to person..

Some describe desistance as the phenomenon where a person who once identified as transgender is now identifying with their gender assigned at birth. Others use it as a catch-all term for anyone who has stopped gender-affirming care, even if they continue to identify as transgender. The term has negative connotations, as it was originally used within criminology to describe the cessation of criminal behaviors. Using this terminology correlates transgender identities with criminality.

Many written works that are published with a negative view of transgender people and gender-affirming care often cite other works with similar views, even if those works have been criticized or retracted. They will reference ideas in these works that have been discredited, such as "rapid onset gender dysphoria".[6] These written works show clear bias for their opinions when they reference articles that share their opinions even though they are not credible. By doing this, they also prove that they are not credible. They will also willfully misinterpret the findings of research, furthering misinformation in the form of malinformation.

An argument made to discredit the evidence for the benefits of gender-affirming care is the lack of randomized controlled trials. These kinds of studies are ethically and logistically problematic in the realm of gender-affirming health care. It would be unethical to withhold treatment that has been shown to be effective and beneficial from the control group. Logistically, it would be difficult to find participants because many transgender youth would be averse to the possibility of being placed in the control group. Randomized controlled trials also frequently use "blinding," a practice where they don't inform the participants, researchers, or both of who has been placed in the control group, in order to control potential bias. This would be unfeasible in trials for puberty blockers, as there would be clear indicators if a participant is experiencing the effects of puberty.

Another common talking point is suggesting the use of "exploratory" therapy for youth experiencing gender dysphoria. The idea of "exploratory" therapy aims to fix the gender dysphoria instead of affirming the youth's identity and supporting them. This approach is often referred to as "conversion therapy." This approach has not been shown to be beneficial, it has actually been shown to lead to adverse mental health outcomes including increased suicidality.

10. Karrington B. Defining Desistance: Exploring Desistance in Transgender and Gender Expansive Youth Through Systematic Literature Review. *Transgender health*. 2022;7(3):189–212. https://doi.org/10.1089/trgh.2020.0129

This article describes the idea of desistance, the literature that exists on it, and the disinformation surrounding it in depth. The term "desistance" has no agreed upon definition and is used differently in different articles on the topic. Most of the literature on the topic at the time of this article's publishing was editorial.. It's worth noting that these editorials defined desistance based on a few research articles, none of which explicitly defined desistance themselves; the "inferred" definitions used in each article did not agree on one common definition. A term that is used so frequently in discussions of potentially life-saving medical care must have a clear definition.

The first to use the term "desistance" in research on transgender youth was inspired to do so by its use in research on oppositional defiant disorder (ODD). Desistance is considered a positive result in this area. Using the term in reference to transgender youth can further the stigma surrounding transgender identities by suggesting they are comparable to behavioral disorders which must be "fixed".

The idea of desistance is harmful to transgender youth. In considering it as a genuine phenomenon in a clinical setting, it presents an all-or-nothing approach to gender identity and transition in believing that those who discontinue gender affirming care or change identity are automatically no longer transgender, or that they never were in the first place. This creates a roadblock for transgender youth seeking to explore their identity. Providers may become hesitant to administer gender-affirming treatments that are likely to be beneficial due to a small chance of youth "desisting" in the future, which is something they cannot predict. It also erases any external reasons that someone might stop gender-affirming care.

11. Winter, S., Diamond, M., Green, J., Karasic, D., Reed, T., Whittle, S., & Wylie, K. Transgender people: health at the margins of society. *The Lancet*. 2016;388(10042):390–400. https://doi.org/10.1016/s0140-6736(16)00683-8

This article covers many topics regarding the mental health of transgender people and the social stigma surrounding them. The article addresses the debate on whether identifying as transgender should be considered a mental illness. On this matter, it agrees with the growing consensus among the majority of professional health organizations: transgender identities are a natural variation in the human experience and should not be categorized as mental illnesses. Categorizing transgender identities as mental illnesses contributes to negative social stigma, unfairly dismisses the lived experiences of transgender individuals, and dangerously attempts to justify conversion therapy.

WPATH Standards of Care Version 8

12. Coleman, E., Radix, A. E., Bouman, W. P., Brown, G. R., de Vries, A. L. C., Deutsch, M. B., Ettner R., Fraser L., Goodman, M., Green, J., Hancock, A. B., Johnson, T. W., Karasic, D. H., Knudson, G. A., Leibowitz, S. F., Meyer-Bahlburg, H. F. L., Monstrey, S. J., Motmans, J., Nahata, L., … Arcelus, J. Standards of Care for the Health of Transgender and Gender Diverse People, Version 8. *International Journal of Transgender Health*. 2022;23(sup1):S1–S259. https://doi.org/10.1080/26895269.2022.2100644

This is the World Professional Association for Transgender Health's most recent version of their standards of care, which provides evidence-based clinical recommendations for a wide variety of care. These recommendations are the basis of treatment for transgender people. WPATH recommends affirmation and social transition in children, the use of blockers after the onset of puberty, and hormone treatments in adolescence. WPATH encourages parental support and consent throughout all of these treatments. They also explicitly discourage "reparative therapy" that has been shown to be harmful and ineffective. They assure that transgender identities are not mental illnesses, and should not be pathologized as such. The standards of care also recommend ongoing patient and family communication and education. They clarify all effects, such as changes to sex characteristics, and potential risks, such as increased risk for certain health conditions, of gender-affirming care to patients and families. They also recommend thorough physical and mental evaluations and assessments in order to ensure the proper care and treatment of patients. The standards of care document stresses that gender-affirming care and social transition are recommended for transgender youth because of their positive impact on quality of life and mental health.

The American Academy of Pediatrics

13. Rafferty, J., Yogman, M., Baum, R., Gambon, T. B., Lavin, A., Mattson, G., Wissow, L. S., Breuner, C., Alderman, E. M., Grubb, L. K., Powers, M. E., Upadhya, K., Wallace, S. B., Hunt, L., Gearhart, A. T., Harris, C., Lowe, K. M., Rodgers, C. T., & Sherer, I. M. Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents. *PEDIATRICS*. 2018;142(4). https://doi.org/10.1542/peds.2018-2162

This is a policy statement from the American Academy of Pediatrics which supports gender-affirming care in youth. They recommend that transgender youth be supported and affirmed in their identities. They advocate for the depathologization of transgender identities, supporting that these identities are not mental illnesses. In regards to the higher risk of mental health issues in transgender youth, they attribute much of this to the stigma and discrimination against the transgender community. Poor mental health can also be caused by distress stemming from the social and physical gender dysphoria a person experiences. . They recommend that gender-affirming care be accessible to youth; this includes offering coverage for it by insurance. They base these recommendations on existing research that shows substantial improvements upon mental health and quality of life, while also advocating for the continuation of future research.

The Endocrine Society

14. Hembree, W. C., Cohen-Kettenis, P. T., Gooren, L., Hannema, S. E., Meyer, W. J., Murad, M. H., Rosenthal, S. M., Safer, J. D., Tangpricha, V., & T'Sjoen, G. G. Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society* Clinical Practice Guideline. *The Journal of Clinical Endocrinology & Metabolism*. 2017;102(11):3869–3903. https://doi.org/10.1210/jc.2017-01658

This paper outlines the Endocrine Society's guidelines for gender-affirming care. The Endocrine Society is a professional organization of physicians and researchers specializing in the endocrine system. Like aforementioned documents, these guidelines recommend the use of puberty blockers in youth shortly after the onset of puberty. The authors recommend this to allow more time to make clinical decisions as well as to provide better mental health and physical outcomes. They state that while puberty blockers are entirely reversible, puberty is not, and experiencing it can cause significant distress in transgender youth. The guidelines also recommend gender-affirming hormone treatments for adolescents, who would work with a multidisciplinary team to coordinate the best treatment for the patient. They acknowledge the substantial mental health benefits from gender-affirming hormone therapy as evidence to support the use of this treatment in adolescents. While these guidelines suggest that adolescents can make the decision to start gender-affirming therapy at the age of 16, providers are encouraged to use discretion when potentially treating younger patients and consider the possible mental health benefits. The main reason the authors did not fully endorse gender-affirming hormone therapy prior to the age of 16 was due to a lack of research, but additional research has come out since this was published in 2017.

Historical Perspectives

15. Goldberg, J. Sweden Drops Law Forcing Sterilization of Trans People | Center for Reproductive Rights. Center for Reproductive Rights. February 29, 2012. Accessed February 27, 2025. https://reproductiverights.org/sweden-drops-law-forcing-sterilization-of-trans-people/

This article gives a brief overview on the history of Sweden's law requiring transgender people to be sterilized. This law was enacted in 1972, but struck down in 2012.

16. Sparks, P. J., Bozigar, C., Shah, K. V., Wan, R., Uryga, A., Nguyen, A. T., Li, R. A., & Galiano, R. D. Transgender Healthcare. *Annals of Plastic Surgery*. 2025;94(1):128–133. https://doi.org/10.1097/sap.0000000000004161

This article goes through the history of transgender identities and gender-affirming healthcare. People who did not conform to their birth sex existed in many ancient civilizations, including ancient Greece, Rome, and China, Transgender and nonbinary identities have been around for centuries, possibly as long as the concept of gender has existed.

Gender-affirming healthcare has also been around for quite a long time. One of the first "gender identity clinics" was founded in Berlin in 1918. The same doctor who founded the clinic performed his first gender-affirming surgery on a transgender woman only 13 years later in 1931. In 1998, the first case study on puberty blockers being used for gender-affirming care was published. This all shows that transgender identities are not a new trend, and that gender-affirming care is not new or experimental.

Mental Health

The articles summarized below discuss the research on the mental health of transgender youth. This includes evidence for the benefits of gender-affirming care, which has been shown to decrease the disproportionately high rates of depression and suicidality that transgender youth face.[17,18,19,20,21,22] This section also describes some of the possible causes of the mental health issues that transgender youth often face, including discrimination, stigma, violence, rejection, and isolation.[18,22,23] Recent studies have shown that the rise in proposed and enacted policies against gender-affirming care and the transgender community increased suicidality in transgender youth.[24] In that same vein, this section introduces the concept of "minority stress", a framework detailing how stigma surrounding a person's identity leads to poor mental health and quality of life.[23,25] The research shows that social support, specifically from parents, can greatly improve the mental health outcomes of transgender youth.[18,22,25] The distress and body image issues caused by gender dysphoria can also cause depression, but this can also be alleviated with access to gender-affirming care, especially puberty blockers.[18,19,22,25,26] While internal causes of poor mental health outcomes in transgender youth can be alleviated through gender affirmation, external causes cannot be fully alleviated without fundamentally changing how society treats and views transgender individuals.

17. Baker, K. E., Wilson, L. M., Sharma, R., Dukhanin, V., McArthur, K., & Robinson, K. A. Hormone Therapy, Mental Health, and Quality of Life Among Transgender People: A Systematic Review. *Journal of the Endocrine Society* 2021;5(4). https://doi.org/10.1210/jendso/bvab011

This article reviews 20 studies on the mental health outcomes and quality of life in transgender people following gender-affirming hormone therapy. From these studies, the article finds evidence that gender-affirming hormone therapy improves quality of life and decreases depression and anxiety. Conversely, there was no evidence that gender-affirming hormone therapy causes harm in transgender people. There is a possibility of confounding variables within

these studies, including the use of other gender-affirming treatments, such as gender-affirming surgeries and laser hair removal.

18. Connolly, M. D., Zervos, M. J., Barone, C. J., Johnson, C. C., & Joseph, C. L. M. The Mental Health of Transgender Youth: Advances in Understanding. *Journal of Adolescent Health*. 2016;59(5):489–495. https://doi.org/10.1016/j.jadohealth.2016.06.012

This article analyzes 15 studies on mental health in transgender youth. While the article finds that transgender youth are at higher risk for mental health issues, the two main factors causing these issues may both be alleviated. The first of these factors is the lack of social support for transgender youth. . It is shown that there is an association between increased social support and decreased mental health risks. The second cause is the distress many transgender youth experience from the incongruence between their identity and their appearance. Gender-affirming care, which can relieve some of that distress, has been shown to reduce mental health risks as well.

19. Olson-Kennedy, J., Wang, L., Wong, C. F., Chen, D., Ehrensaft, D., Hidalgo, M. A., Tishelman, A. C., Chan, Y.-M., Garofalo, R., Radix, A. E., & Rosenthal, S. M. Emotional Health of Transgender Youth 24 Months After Initiating Gender-Affirming Hormone Therapy. *Journal of Adolescent Health*. 2025;1-10. https://doi.org/10.1016/j.jadohealth.2024.11.014

This very recently published study follows the mental health of a cohort of transgender youth receiving gender-affirming hormone therapy for two years. The study finds that gender-affirming hormone therapy significantly improves mental health outcomes. The study also finds that youth who started hormone therapy earlier had better mental health at baseline than those who started later. Additionally, the study measures participants' "appearance

congruence," where participants report how much they feel their appearance matches their identity. The study finds that a higher appearance congruence is correlated with better mental health and that gender-affirming hormone therapy increases appearance congruence.

20. Tordoff, D. M., Wanta, J. W., Collin, A., Stepney, C., Inwards-Breland, D. J., & Ahrens, K. Mental Health Outcomes in Transgender and Nonbinary Youths Receiving Gender-Affirming Care. *JAMA Network Open*. 2022;5(2):e220978–e220978. https://doi.org/10.1001/jamanetworkopen.2022.0978

This study follows the mental health of a cohort of youth receiving gender-affirming care over the course of one year. The researchers recorded the participants' mental health, social support, and substance use at baseline prior to the start of treatment. These recordings were repeated after 3, 6, and 12 months from the baseline survey. At baseline, around half of the participants had moderate to severe depression and anxiety, and slightly less than half reported experiencing self-harm or suicidal thoughts in the two weeks before the survey. The findings show that those who received gender-affirming care had significantly lowered odds of moderate to severe depression, self-harm, and suicidal thoughts. The opposite was true for those who did not receive gender-affirming care.

21. White, J. M., & Reisner, S. L. A Systematic Review of the Effects of Hormone Therapy on Psychological Functioning and Quality of Life in Transgender Individuals. *Transgender Health*. 2016;1(1):21–31. https://doi.org/10.1089/trgh.2015.0008

This article reviews three studies on the mental health outcomes and quality of life in transgender people receiving gender-affirming hormone therapy. The article considers a variety of confounding variables that could impact a person's mental health. One key confounder it eliminates is other gender-affirming treatments, such as surgeries and laser hair removal. Many transgender individuals are unable to access these treatments due to financial, health, and social

factors, meaning that gender-affirming hormone therapy may be their only option. The article aims to look at the outcomes of gender-affirming hormone therapy specifically. Significant improvement in mental health outcomes following gender-affirming hormone therapy was noted in all three reviewed studies. As for quality of life, no significant change was found for transmasculine individuals on testosterone, but there was some evidence of improvement in transfeminine individuals on estrogen. The article recommends future research on outcomes in transgender people only receiving gender-affirming hormone treatment.

22. Wittlin, N. M., Kuper, L. E., & Olson, K. R. Mental Health of Transgender and Gender Diverse Youth. *Annual Review of Clinical Psychology*. 2023;19(1):207–232. https://doi.org/10.1146/annurev-clinpsy-072220-020326

This article is a systematic review of the mental health outcomes of transgender youth. The review shows that while transgender youth are at a higher likelihood of experiencing mental health issues, there are promising ways to reduce these risks. Transgender youth overall have higher rates of depression compared to their cisgender peers. However, transgender youth who are supported by their parents experience rates comparable to that of their cisgender peers. Affirming a transgender youth's identity and supporting their access to gender-affirming care may also decrease mental health risks. Many threats posed to the mental health of transgender youth are external. Transgender youth are at a higher risk of bullying, family rejection, and assault. On a societal scale, the stigma surrounding the transgender community and the discrimination they face as a result may similarly cause feelings of anxiety, isolation, and depression.

Internal factors may also worsen mental health outcomes. Gender dysphoria, defined by the distress some transgender people experience from the incongruence between their identity and how they appear and are treated, is one such internal factor. Physical dysphoria is also a major factor in the higher rates of eating disorders in transgender youth. Many develop unhealthy eating behaviors to manipulate their weight to change the physical characteristics, such as breasts, that may cause them dysphoria.

23. Pellicane, M. J., Quinn, M. E., & Ciesla, J. A. Transgender and Gender-Diverse Minority Stress and Substance Use Frequency and Problems: Systematic Review and Meta-Analysis. *Transgender Health*. 2025;10(1):7–21. https://doi.org/10.1089/trgh.2023.0025

This article describes the minority stress model and how it impacts the risk of substance abuse in transgender people. The two main types of minority stress it focuses on are distal and proximal stressors. Distal stressors are external and can include experiences of discrimination, harassment, and violence. Proximal stressors are internal and include the expectation of being discriminated against, hiding transgender identity, and internalized stigma surrounding being transgender. While proximal stressors weren't shown to have an association with increased substance abuse, distal stressors were strongly associated with increased substance abuse. The article notes that substance abuse is associated with traumatic events, including experiences of discrimination. Substances are often used as an unhealthy way to cope with the distress from these events.

24. Lee WY, J NH, Hobaica S, DeChants JP, Price MN, Nath R. State-level anti-transgender laws increase past-year suicide attempts among transgender and non-binary young people in the USA. *Nature Human Behaviour*. 2024;8(11):2096-2106. doi:10.1038/s41562-024-01979-5

This study investigates the mental health impacts of anti-transgender legislation on transgender youth. The findings show that transgender youth in states where anti-transgender legislation was proposed and enacted were at a significantly higher risk of suicide attempts than transgender youth in other states. The findings also show that the increased suicide risk disproportionately impacts youth under 18, which is likely because many of these laws specifically target rights and gender-affirming care for transgender minors.

25. Chen, D., Abrams, M., Clark, L., Ehrensaft, D., Tishelman, A. C., Chan, Y.-M., Garofalo, R., Olson-Kennedy, J., Rosenthal, S. M., & Hidalgo, M. A. Psychosocial Characteristics of Transgender Youth Seeking Gender-Affirming Medical Treatment: Baseline Findings From the Trans Youth Care Study. *Journal of Adolescent Health*. 2021;68(6):1104–1111. https://doi.org/10.1016/j.jadohealth.2020.07.033

This study finds a correlation between earlier access to gender-affirming care, especially puberty blockers, and better mental health outcomes in transgender youth. Youth who were able to access blockers had lower rates of depression and suicidality. Youth who did not have access to blockers had higher rates of body image issues and minority stress. It is important to note that a possible confounding variable is that youth who were able to access these medications likely also had parental support, which has also been shown to improve mental health outcomes.

26. van de Grift, T. C., Martens, C., van Ginneken, L., & Mullender, M. G. Waiting for transgender care and its effects on health and equality: a mixed-methods population study in the Netherlands. *EClinicalMedicine*. 2024;73:102657–102657. https://doi.org/10.1016/j.eclinm.2024.102657

This study investigates the impact of waiting for gender-affirming care on the health of transgender people. There are many reasons an individual may wait to receive gender-affirming care. . Some healthcare systems have very long waitlists before one can receive care. Transgender people who are in poverty may not be able to afford care. Recently, policies that force youth to wait for gender-affirming care have become a cause for concern.

The study found that waiting increases mental health issues and decreases quality of life. Waiting for puberty blockers in particular has a significant negative impact on mental health, as the individual will then experience the "wrong" puberty and undergo irreversible changes. Those in the study having to wait for gender-affirming care also experienced harm to their physical

health. This was mainly because participants developed unhealthy habits such as disordered eating; some felt unable to form healthy habits due to their dysphoria. Those waiting for care also experienced heightened feelings of isolation and withdrawal from social activities, which can further exacerbate mental health issues.

The study found one positive effect of waiting in a specific circumstance. Some who were already receiving other forms of gender-affirming care while waiting for gender-affirming surgery felt that waiting gave them extra time to mentally and physically prepare for surgery.

Social Support and Transition

The articles below offer insight on the social support of transgender youth. Unfortunately, transgender youth experience a heavy amount of stigma and discrimination.[27] When transgender youth are supported, their mental health outcomes become comparable to that of their cisgender peers.[28] Allowing transgender youth to socially transition and respecting their identity is associated with improved mental health outcomes.[28,29] Social support is crucial in the wellbeing of transgender youth.

27. Goffnett, J., & Paceley, M. S. Challenges, pride, and connection: A qualitative exploration of advice transgender youth have for other transgender youth. *Journal of Gay & Lesbian Social Services*. 2020;32(3):328–353. https://doi.org/10.1080/10538720.2020.1752874

This article is unique as it has transgender youth providing advice for other transgender youth. The three main ideas of their advice were: transgender youth should stay strong through challenges, transgender youth should be proud of their identities, and transgender youth are not alone. The participants stress that while the struggles of being a transgender youth can be overwhelming due to the amount of rejection, isolation, and discrimination faced, it is crucial to persevere through them. They suggest looking ahead and keeping a positive outlook on the future. They also recommend youth stay true to themselves and their identities. Participants urge transgender youth to find support and community and remind them that there are people that are there for them.

28. Olson, K. R., Durwood, L., DeMeules, M., & McLaughlin, K. A. Mental Health of Transgender Children Who Are Supported in Their Identities. PEDIATRICS. 2016;137(3). https://doi.org/10.1542/peds.2015-3223

This article looks to find the mental health differences between cisgender children and transgender children who are affirmed and supported by their parents. The study finds that there is no significant increase in depression between supported transgender children as compared to cisgender children around the same age. The transgender children did have a small increase in anxiety compared to their cisgender peers. This does not mean parental support is unhelpful, rather, that anxiety may stem from the discrimination and social stigma transgender youth face . The study does have a weakness in that it does not compare these rates to transgender children without support, which is a common issue in studies of this nature. It is worth noting that while this research is important, it could be difficult to recruit participants with unsupportive families.

29. Russell, S. T., Pollitt, A. M., Li, G., & Grossman, A. H. Chosen Name Use Is Linked to Reduced Depressive Symptoms, Suicidal Ideation, and Suicidal Behavior Among Transgender Youth. *Journal of Adolescent Health* 2018;63(4):503–505. https://doi.org/10.1016/j.jadohealth.2018.02.003

This study aims to investigate the mental health outcomes of transgender youth who have their chosen name used by the people around them. The study found that suicidality and depression decrease significantly when a transgender youth's chosen name is used in multiple contexts, including in the home, in the workplace, at school, and around friends. Mental health risks were lowest among youth who had their chosen name used in all contexts.

Physical Health and Medical Transition

The articles in this section discuss the physical health outcomes of gender-affirming medical treatments. This section is not intended to offer any medical advice; always speak with a medical provider for any medical guidance. Overall, gender-affirming medical treatments are considered to be beneficial by clinicians and researchers.[30,31] There are some potential risks, as is the case with any medication. Some of these risks may be reversible and/or preventable, such as changes to body and bone composition after puberty blockers.[32,33,34] The potential to alter brain development is often cited in arguments against the use of puberty blockers in transgender youth, although this claim is unsupported by research.[33] Additionally, research supports that adolescents have the neurological capabilities to make decisions regarding gender-affirming care.[35] There are some changes to lab values in blood work after gender-affirming hormone therapy, which are often comparable to the normal ranges in the cisgender population that produce the same hormone.[30,31] Serious risks may arise from the use of gender-affirming hormone therapy. . One such increased risk is the potential for adverse cardiac events in transgender individuals on testosterone, though this risk is lower than a cisgender man's[33]. Transfeminine individuals who have been using feminizing hormones for a long time are at increased risk for venous thromboembolism and ischemic stroke.[36] These risks are manageable and should be monitored by a clinician.

30. Fernandez, J., & Tannock, L. R. (2016). Metabolic Effects Of Hormone Therapy In Transgender Patients. *Endocrine Practice*. 2016;22(4):383–388. https://doi.org/10.4158/ep15950.or

This study looks at the metabolic outcomes of transgender individuals on gender-affirming hormone therapy. The study finds minor changes in some lab values in both patients on feminizing hormone therapy and patients on masculinizing hormone therapy. The patients on feminizing hormone therapy had an increase in the "good" cholesterol and a decrease in creatinine, which is produced in muscle breakdown. The patients on masculinizing hormone

therapy had an increase in body mass index and creatinine, which could be due to increased muscle mass on testosterone. Patients on masculinizing hormone therapy also had an increase in hemoglobin and hematocrit, however, these increases were within "normal human range" and more closely matched cisgender male lab values. There were no other significant or adverse changes metabolically. The study concluded that gender-affirming hormone therapy can be considered safe in this aspect.

31. Olson-Kennedy, J., Okonta, V., Clark, L. F., & Belzer, M. Physiologic Response to Gender-Affirming Hormones Among Transgender Youth. *Journal of Adolescent Health.* 2018;62(4):397–401. https://doi.org/10.1016/j.jadohealth.2017.08.005

This study looks into the physical health outcomes after gender-affirming hormone therapy in a group of transgender youth between 12 and 23 years old. The study follows the lab values of these patients over two years. The findings show that the lab values over the two years were not clinically significant, other than those on testosterone who did experience a mild increase in blood pressure. Overall, while some lab value changes were *statistically* significant, most were not *clinically* significant. Many of these changes closely matched the average values of those who are cisgender and naturally produce the hormone in question. The study concludes that gender-affirming hormone therapy is safe in youth.

32. Dubois, V., Ciancia, S., Doms, S., El Kharraz, S., Sommers, V., Kim, N. R., David, K., Van Dijck, J., Valle-Tenney, R., Maes, C., Antonio, L., Decallonne, B., Carmeliet, G., Claessens, F., Cools, M., & Vanderschueren, D. Testosterone Restores Body Composition, Bone Mass, and Bone Strength Following Early Puberty Suppression in a Mouse Model Mimicking the Clinical Strategy in Trans Boys. *Journal of Bone and Mineral Research*. 2023;38(10):1497–1508. https://doi.org/10.1002/jbmr.4832

This is an experimental study that gives puberty-blocking treatments to female mice and then treats them with testosterone. The goal of the study is to investigate the effects of puberty blockers on bones in the long term after sex hormones are reintroduced. The findings show that while puberty blockers decrease bone strength, decrease muscle mass, and increase body fat, these effects reverse after the administration of testosterone in the mice that were studied. This suggests that puberty blockers are safe and any potential risks can be reversible.

33. Krebs, D., Harris, R. M., Steinbaum, A., Pilcher, S., Guss, C., Kremen, J., Roberts, S. A., Baskaran, C., Carswell, J., & Millington, K. Care for Transgender Young People. *Hormone research in paediatrics*. 2022;95(5):405–414. https://doi.org/10.1159/000524030

This review outlines the approach to gender-affirming care in transgender youth and its outcomes. The review finds that gender-affirming care improves mental health outcomes. In regards to brain development, there is no evidence to suggest that there is a difference in executive functioning between youth on puberty blockers and youth not on puberty blockers. Further research in this area is recommended. The review recommends lifestyle changes, such as a healthy diet and exercise, to help offset the potential decrease in bone mineral density from puberty blockers as well as possible increased cardiac risks in transmasculine patients on testosterone. The increased risk of heart attacks in transmasculine patients on testosterone is higher than the risk in cisgender women but lower than the risk in cisgender men.

34. Lee, J. Y., Finlayson, C., Olson-Kennedy, J., Garofalo, R., Chan, Y.-M., Glidden, D. V., & Rosenthal, S. M. Low Bone Mineral Density in Early Pubertal Transgender/Gender Diverse Youth: Findings From the Trans Youth Care Study. *Journal of the Endocrine Society.* 2020;4(9). https://doi.org/10.1210/jendso/bvaa065

A common concern surrounding the use of puberty blockers for transgender youth is the possibility of decreased bone mineral density. This study compares the bone mineral density of transgender youth early in puberty– prior to the initiation of puberty blockers– to the reference range of bone mineral density of those with the same sex assigned at birth at the same age. The study finds that before puberty blockers, transgender youth, especially transfeminine youth, have lower bone mineral density. It was also found that the youth had lower calcium intake, a factor that is associated with increased bone mineral density. The study also found that physical activity in the participants was low, especially in transfeminine youth. While this study does not discuss this, it's possible that discrimination, policies against transgender youth participating in sports with the gender they identify as, body image issues, and bullying could prevent some transgender youth from participating in sports. The study recommends more research on the subject.

35. Ravindranath, O., Perica, M. I., Parr, A. C., Ojha, A., McKeon, S. D., Montano, G., Ullendorff, N., Luna, B., & Edmiston, E. K. Adolescent neurocognitive development and decision-making abilities regarding gender-affirming care. *Developmental Cognitive Neuroscience*. 2024;67:101351–101351. https://doi.org/10.1016/j.dcn.2024.101351

This article addresses the debate on whether or not adolescents have the neurological development necessary to make decisions on gender-affirming care. Literature shows that there are different areas of the brain involved in long-term "deliberative" decision-making and "impulsive" decision-making. Adolescents are more commonly characterized by the latter, which is a generalization used in the argument that they are incapable of making decisions on gender-affirming care. Since decisions regarding gender-affirming care are made with the support of parents and healthcare providers over a long period, the area of the brain in charge of "deliberative" decision-making is what is engaged rather than the area in charge of "impulsive" decision-making. The literature shows that adolescents can use this part of their brain and that they are neurologically capable of making informed decisions and giving consent for gender-affirming care.

36. Goodman, M., Nash, R. Examining Health Outcomes for People Who Are Transgender. *Patient-Centered Outcomes Research Institute (PCORI)*. 2019. https://doi.org/10.25302/2.2019.AD.12114532

This lengthy study with a sample size of over 6000 participants looks into the health outcomes of transgender people. It compares the outcomes of the participants to randomized "controls" from the general population obtained from electronic medical records. The study finds that transgender youth are at a higher risk of mental health concerns. The only outstanding physical health concern the study finds is an increased risk for venous thromboembolism (VTE) and ischemic stroke in those on feminizing hormone therapy, specifically after 6 years of treatment. The study found no increased risk of cancer in transgender patients receiving gender-affirming hormone therapy. The study recommends routine cancer screenings that are appropriate for the age and anatomy of the individual, as well as more surveillance for VTE and stroke in patients receiving feminizing hormone therapy.

Fertility

The future reproductive options for transgender patients following gender-affirming care is a common concern. The research in this area is still growing; there are no cut-and-dry answers. However, the available research grants cause for optimism. Tissue preservation before treatment is a viable option.[37] This allows the patient to preserve eggs or sperm for the future when they are ready to start a family. Unfortunately, cost and accessibility are common barriers for many interested in this option. In regards to the long-term effects of puberty blockers, there is no evidence to suggest that puberty-blocking treatments cause irreversible infertility even after treatment is stopped.[37] Medical science continues to grow and make advancements every day, and literature suggests that it may be possible in the near future for transfeminine patients to receive uterine transplants and have a successful live birth afterward.[38] Ultimately, more research is necessary, but there are options currently for reproduction in transgender individuals, and there will possibly be more in the future.

37. Rodriguez-Wallberg, K., Obedin-Maliver, J., Taylor, B., Van Mello, N., Tilleman, K., & Nahata, L. Reproductive health in transgender and gender diverse individuals: A narrative review to guide clinical care and international guidelines. *International Journal of Transgender Health*. 2022;24(1):7–25. https://doi.org/10.1080/26895269.2022.2035883

This article reviews some of the fertility options for transgender people pursuing gender-affirming care, as well as the impacts of gender-affirming care on fertility. The effects of puberty blockers on fertility can be reversible. Puberty blockers can delay the maturation of eggs in patients assigned female at birth, and they can prevent the production of sperm in patients assigned male at birth. However, research shows that after discontinuation of puberty blockers, these processes can resume with no permanent impact on fertility.

In patients assigned female at birth on testosterone, there are options for fertility preservation. According to the article, several studies show that egg retrieval could be a feasible option even after long-term testosterone therapy. The success rates of egg retrieval and the use of

IVF for transmasculine individuals who have previously been on testosterone are similar to the success rates in cisgender female patients. The article clarifies that there is a gap in research concerning transmasculine individuals who began puberty blockers in early puberty and started testosterone directly after. Further research in this area is recommended.

Research on the fertility impacts and options for patients assigned male at birth on feminizing hormone therapy is more limited. Feminizing hormone therapies can impede the production of sperm, but it may be possible to resume this process after pausing treatment. Further data should be gathered for this population.

In both populations, the preservation of eggs and sperm after maturation of these gametes and the preservation of premature tissues are possible prior to initiating gender-affirming care. Unfortunately, there are many barriers to these services. Many areas have little access to these services. Where they are available, they are often costly, preventing lower-income transgender people from accessing them. The procedures associated with the extraction of reproductive tissues can also cause distress and dysphoria in patients.

38. Jahromi, A. H., Horen, S. R., Dorafshar, A. H., Seu, M. L., Radix, A., Anderson, E., Green, J., Fraser, L., Johannesson, L., Testa, G., & Schechter, L. Uterine transplantation and donation in transgender individuals; proof of concept. *International Journal of Transgender Health*. 2021;22(4):349–359. https://doi.org/10.1080/26895269.2021.1915635

This article discusses the possibility of uterine transplants in transfeminine people, which would allow them to not only reproduce genetically related offspring but also to carry a pregnancy and give birth. Uterine transplants have been done and have been successful in allowing live births in cisgender women. Some of these successful transplants, resulting in live births, have been performed on cisgender women who previously underwent vaginoplasty, a procedure that is also performed in transfeminine patients. The article also proposes the idea of transmasculine individuals who pursue hysterectomies as gender-affirming surgery donating their organs for gender-affirming uterine transplants. The article argues that transmasculine individuals would likely be more personally empathetic to the challenges of gender-affirming

surgeries and fertility. The article states that surveys have shown a large portion of transmasculine individuals would be interested in donating their reproductive organs to transfeminine individuals. While these procedures have yet to take place, there is an argument that they are possible.

Regret and Detransition

The studies below discuss regret and detransition following gender-affirming care. The overwhelming majority of individuals who receive gender-affirming care do not experience regret afterwards.[39,40] In cases of regret as well as detransition, the reasoning behind such was related to external factors such as stigma and insufficient social support.[39,41] Even when driven by internal factors, detransition does not always stem from regret, and it often is a temporary pause in transition rather than a full stop or reversal of transition.[41]

39. Bustos, V. P., Bustos, S. S., Mascaro, A., Del Corral, G., Forte, A. J., Ciudad, P., Kim, E. A., Langstein, H. N., & Manrique, O. J. Regret after Gender-affirmation Surgery: A Systematic Review and Meta-analysis of Prevalence. *Plastic & Reconstructive Surgery Global Open*. 2021;9(3):e3477–e3477. https://doi.org/10.1097/gox.0000000000003477

This article reviews 27 different studies analyzing the prevalence of regret following gender-affirming surgery. The review found overall that the regret rate in transfeminine patients following feminizing gender affirmation surgery was 1% and the regret rate in transmasculine patients following masculinizing gender affirmation surgery was less than 1%. The most common causes of regret were related to poor social support and stigma against transgender people.

40. Olson, K. R., Raber, G. F., & Gallagher, N. M. Levels of Satisfaction and Regret With Gender-Affirming Medical Care in Adolescence. *JAMA Pediatrics*. 2024. https://doi.org/10.1001/jamapediatrics.2024.4527

This study follows over 200 transgender youth receiving gender-affirming care, including both puberty blockers and gender-affirming hormone treatment, and surveys their satisfaction with their care several years later. Over 90% of the youth surveyed reported no regret surrounding their gender-affirming care. Of those who reported regret, over half continued receiving care, which could suggest reasons for regret other than a change in gender identity. The

article did not ask the reasoning behind regret, which is acknowledged as a limitation. The majority of youth in the study reported “very high” levels of satisfaction with their gender-affirming care.

41. Turban, J. L., Loo, S. S., Almazan, A. N., & Keuroghlian, A. S. Factors Leading to "Detransition" Among Transgender and Gender Diverse People in the United States: A Mixed-Methods Analysis. *LGBT health*. 2021;8(4):273–280. https://doi.org/10.1089/lgbt.2020.0437

This study investigates the reasons that motivate transgender people to detransition. This term is used broadly and encapsulates anything from changing gender expression temporarily in certain contexts to discontinuing gender-affirming healthcare. The study found that 13.1% of over 17,000 participants who “pursued gender affirmation” had detransitioned. The majority of these participants did so due to external reasons such as stigma and family pressure. Detransition was higher in transfeminine individuals, which could be due to higher rates of violence and stigma against this population. The study finds that even in those who detransitioned due to an internal motivation, this did not equate to regret. Many of these individuals had a change in identity, often to a nonbinary identity, or experienced mental health issues that led them to pause care. Many of the participants who detransitioned later continued gender affirmation.

Parent Experiences

42. de Abreu, P. D., de Paula Andrade, R. L., da Silva Maza, I. L., de Faria, M. G. B. F., de Almeida Nogueira, J., & Monroe, A. A. Dynamics of Primary Social Networks to Support Mothers, Fathers, or Guardians of Transgender Children and Adolescents: A Systematic Review. *International Journal of Environmental Research and Public Health*. 2022;19(13):7941. https://doi.org/10.3390/ijerph19137941

This article reviews studies surrounding the social support for parents of transgender youth. Transgender people experience social conflict and isolation due to stigma surrounding transgender identities, and this often impacts the parents of transgender youth as well. Parents of transgender youth often face disapproval from family and the loss of friends. Common themes of disapproval were friends and family not respecting the child's gender identity, shaming parents for "encouraging" their child's gender identity, and conflict between parents who disagree on how to support their child and handle their identity. Parents also often have internal struggles related to anxiety and grief after their child comes out as transgender. Parents with these struggles would benefit greatly from social support. The article also finds that many parents wish they had more support regarding information about transgender youth. All of these problems stem from the greater stigma and discrimination against transgender youth. More resources need to be accessible to support parents through this process.

Conclusion

The works cited in this bibliography show that gender-affirming care is largely beneficial to transgender youth. Social support remains a crucial protective factor for the mental health outcomes of transgender youth. As disinformation continues to be spread with the intention of attacking the rights of transgender youth, it will remain necessary to be able to identify false information and understand the quality evidence that supports gender-affirming care.

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