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A SCIENTIFIC AND MEDICAL EVALUATION OF TRANSGENDERISM

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Reasons to Believe is expressing our Christian beliefs on the issues of gender identity in the intersection of science and faith, as it's an important discussion and many people have valid questions.

This research showcases the expertise of select members of the Reasons to Believe Scholar Community on matters of gender identity. RTB is not offering medical or other professional advice. People need to consult with their own physicians, psychologists, psychiatrists, etc. We want to see everyone make informed, educated decisions.

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INTRODUCTION

Gender identity and transgenderism have become hot topics in our churches, culture, and political arena. People with gender dysphoria need both compassionate and evidence-based care. As Christians, we are called to love our neighbors—whoever they may be—and speak the truth in love. Part of loving and speaking the truth in love is knowing what the truth is. We are four physicians who seek the truth and have investigated the medical research and literature on transgenderism. What follows is a summary of our findings.

WHAT ARE TRANSGENDERISM AND GENDER DYSPHORIA?

Transgenderism is an umbrella term encompassing any person who embraces an identity discordant with their biological sex, with or without emotional dysphoria. Transgenderism is an ideology, whereas gender dysphoria is a diagnosis. Previously known as gender identity disorder (GID), gender dysphoria (GD) is a diagnosis listed in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM), a compendium of mental health disorders published by the American Psychiatric Association. The first time that the concept was published in the DSM was in 1980, when the term was listed as transsexualism (DSM-III version). In 1994, with the publication of the DSM-IV, the term was replaced with gender identity disorder (GID). In 2013, GID was replaced in the DSM-5 by gender dysphoria, a term meant to eliminate the idea that identifying with a different gender than one's birth sex is a disorder.

Gender dysphoria is currently defined as a marked incongruence of at least six months' duration between one's experienced/expressed gender and "assigned gender." It's also accompanied by at least two of six additional criteria:

- marked incongruence between expressed gender and primary or secondary sex characteristics,
- a strong desire to be rid of one's primary and/or secondary sex characteristics,
- a strong desire for the primary and/or secondary sex characteristics of the other gender,
- a strong desire to be the other gender or an "alternative gender,"
- a strong desire to be treated as the other gender or an "alternative gender,"
- and a strong conviction that one has the typical feelings and reactions of the other gender or an "alternative gender."¹

The current version of the DSM, DSM-5-TR, made other changes, including replacing "desired gender" with "experienced gender," "cross-sex treatment regimen" with "gender-affirming treatment regimen," and "natal male/natal female" with "individual assigned male/female at birth."²

Historically, people with gender congruence difficulties could be divided into two distinct populations: very young children (said to have early-onset gender dysphoria) and adults (late-onset). The young children, usually males, often demonstrated gender-atypical behavior (e.g., boys who liked to play with dolls) at a very young age. Most of these children outgrew the behavior during or after puberty and became comfortable with their birth sex, although they were more likely to be homosexual than the general population. The adults were usually males

who often lived successfully as men into adulthood. Now, in addition to early- and late-onset gender dysphoria, a third population has emerged. This group consists of a population of adolescents (predominantly female) who have no history of gender dysphoria or gender atypical behavior and suddenly declare themselves transgender. The term rapid-onset gender dysphoria (ROGD) has been proposed to refer to this third group.

DISORDERS OF SEXUAL DEVELOPMENT (“INTERSEX”)

Discussions of transsexualism or transgenderism often lead to the question, “What about intersex conditions?” Intersex conditions are a particularly severe subset of those developmental disorders that interfere with sexual differentiation into male and female sexes. As a group, these developmental disorders are known as disorders of sexual development or DSDs. Although they are complex and confusing, DSDs underscore how fundamental and biologically determined the division of humans into male and female really is.

Chromosomal sex is established at fertilization when a sperm containing either an X- or a Y-chromosome combines with an egg, which contains an X-chromosome, to produce an individual with either XX or XY genetics.³ If the genes associated with the Y-chromosome are present and functional, then development will proceed to create male physiology. If these genes are *not* present or are dysfunctional, then regardless of whether there is one X-chromosome or several, development will proceed down the female pathway.⁴ Part of this pathway includes what are called bipotential or undifferentiated gonads, which form during the fourth week postfertilization and are the structures from which either male or female gonads form.

Starting in the sixth week postfertilization, these structures begin to differentiate along male or female lines depending on whether the genetic signals to develop into a male are present or not. Either male gonads (testes) or female gonads (ovaries) develop. The presence or absence of testes drives the rest of sexual differentiation. If testes are present, development proceeds along the male track. If testes are absent, development proceeds along the female track. This process can be analogized to a train on a track. The track is the female developmental pathway. A short way down the track is a switch that allows the train to switch to a different track—the male developmental pathway. Although things may go awry in this process, *at no point is there a third track*. Likewise, although sexual development can proceed abnormally and may lead to unintended, largely dysfunctional combinations of male and female traits, it never leads to a third sex with its own physiologic function. Fetal development produces males and females, not all of which are entirely healthy and sexually functional, but there are no asexual, neuter forms of humanity.

Recently, intersex has been defined quite broadly so that even minor abnormalities in the genitourinary system, which do not result in any genital ambiguity, are included.⁵ An oft-quoted statistic states that 1.7% of the population is intersex.⁶ However, when limited to the relevant sexually ambiguous cases, it has been estimated to be 0.018% of the population.⁷

What can Christians learn from this discussion of DSDs? First, biology affirms the traditional and biblical understanding that humans are either male or female. There is no third category. Second, DSDs, like every disease process that departs from God’s intended design, are the result of the fall of humanity. However, DSDs also demonstrate the limits of the fall’s effects. DSDs can give rise to ambiguous cases, but they cannot alter the

fundamental division of human beings into two functional sexes according to God's plan. Third, Christians need to avoid dogmatically defining sex by a simplistic rule such as defining it only by chromosomes. We should be aware of the nuances of sexual development and not afraid to wrestle with them.

HOW PREVALENT IS TRANSGENDERISM?

Prior to our present decade, transgenderism was rare. One study showed an overall prevalence among adolescents and adults of 4.6 per 100,000.⁸ In the mid-2010s, however, the prevalence of overall LGBTQ identification began to skyrocket. In a 2021 Gallup poll, 15% of adult Gen Zers (born 1997–2003) identified as bisexual and 2.1% as transgender.⁹ A 2021 Barna survey showed an even higher percentage: 39% of 18 to 24-year-olds identified as LGBT.¹⁰ The increase in people identifying as transgender could also be seen in the sharp increase in referrals to the Gender Identity Development Service (GIDS) at the famous Tavistock clinic in the United Kingdom. There were 210 referrals to the clinic in 2011, but the number rose to 3,585 in 2022.¹¹ As of early 2023, there were 7,500 people on the waiting list.¹² The sex ratio also reversed, with a much higher percentage of transgenders among girls.

WHAT CAUSES TRANSGENDERISM?

The factors causing transgenderism are complicated to sort out since there's a lack of evidence for what transgenderism is. There is no agreed-upon explanation, and there are likely multiple contributory factors.

In childhood-onset GD, evidence supports the following:

- There may be a genetic component, although it is not determinative.
- Stereotypical masculine and feminine behaviors exhibit along a spectrum. Those with gender atypical behavior in childhood are more likely to identify as transgender.
- There is no scientific basis for sex discordance between the brain and the body. A newborn boy already has a masculinized brain due to the effects of testosterone during in-utero development.
- Studies to date indicate that brain activity in transgender persons is closer to that of their birth sex than their perceived gender.

In people with adolescent-onset transgenderism, also known as ROGD, there are many associated factors, including mental illness, peer group influence, and social media. We'll discuss these factors further below.

Adult-onset transgenderism—as seen in two prominent individuals (Richard/Rachel Levine, Assistant Secretary of Health for the US Department of Health and Human Services, and Bruce/Caitlyn Jenner, media personality and former Olympian)—can be categorized into two groups based on whether they are attracted to men or to women. Sexologist Ray Blanchard proposed that those who are attracted to women are aroused by the thought of having a female body, and he coined the term autogynephilia (“love of oneself as a woman”). For them, transitioning from male to female might be the working out of a fantasy.¹³ Professor of psychiatry Paul McHugh observed in his clinic a group that consisted of conflicted and guilt-ridden homosexual men who saw sex change as a way to resolve their inner conflict about being homosexual.¹⁴

There are many factors that may be related to the development of transgenderism. Some are objective and quantifiable, such as gender nonconformity (deviation from conventional norms), but these are not determinative. Philosophers and scientists have recognized that the range of sexual identities under the LGBTQ umbrella are historically recent social constructs, and these *identities*—as opposed to propensities—are selected, not dictated by biology.

TRANSGENDERISM'S ASSOCIATION WITH MENTAL HEALTH

Multiple studies have found a higher rate of mental illness in people who identify as transgender. In one study, almost 50% of those pursuing gender-affirming treatment had at least one personality disorder (PD) at presentation, most commonly borderline PD.¹⁵ Autism is also more common in young people with gender identity issues. At the GIDS clinic in the UK (Tavistock), 35% of children who were referred had moderate to severe autistic traits, a percentage almost 20 times higher than the general population.¹⁶ A systematic review in 2019 also showed a high rate of mental illness in adults presenting as transgender, including major depressive disorder (20.6%), specific phobia (10%), adjustment disorder (5.7%), generalized anxiety disorder (4.8%), and dysthymia (a mood disorder, 4.8%).¹⁷

There are several hypotheses for explaining the relationship between mental health and transgenderism. The minority stress model attributes the mental illness to familial rejection and social bullying of the transgender individual. A second hypothesis holds that gender atypia and mental illness coexist, with neither causing the other. A third hypothesis states that mental illness precedes—and contributes to—the transgender identity. There is reasonable support that in some patient groups, such as autistic youth and adolescent females with ROGD, gender confusion is the result or manifestation of preexisting mental illness. These three hypotheses are not mutually exclusive, and all may be true to varying degrees.

Over the long term, mental illness is significantly elevated in people who identify as transgender, whether or not gender-affirming care is rendered. Also, the suicide rate is significantly elevated in the transgender population, whether or not gender-affirming care is provided.¹⁸

RAPID-ONSET GENDER DYSPHORIA

Rapid-onset gender dysphoria (ROGD) is mainly characterized by the age of onset during or shortly after puberty, predominantly in females. It can be associated with other mental disorders or developmental disabilities and may appear under the pressure of external factors. ROGD was proposed as a new classification of gender dysphoria in a 2018 landmark article by physician-scientist Lisa Littman. Littman noted that parents in online discussion groups were reporting that their adolescent and young adult (AYA) children who had no history of GD experienced a perceived sudden or rapid onset of GD. She describes the sample of people in her study as “distinctively different than what is described in previous research about gender dysphoria because of the distribution of cases occurring in friendship groups with multiple individuals identifying as transgender, the preponderance of adolescent (natal) females, the absence of childhood gender dysphoria, and the perceived suddenness of onset.”¹⁹ Littman coined the term rapid-onset gender dysphoria to describe this phenomenon.

In Littman's study, a high percentage (62.5%) of adolescents and young adults identifying as transgender had at least one preexisting mental health or neurodevelopment disorder. A majority had high expectations that transitioning would solve their problems in social, academic, occupational, or mental health realms. The study also noted

an association with a traumatic and stressful event (48.4%), an increase in social media use (63.5%), and belonging to a peer group in which at least one peer came out as transgender (69.3%). Littman's hypothesis for explaining the phenomenon of ROGD included social influences, parental conflict, and maladaptive coping mechanisms.

After publication of this article, the attacks on Littman were swift. She was forced to publish a correction (which did not change the conclusions).²⁰ Both the journal *PLoS One* and Brown University issued an apology, and her contract at the Rhode Island Department of Health was not renewed.²¹ Despite the backlash, some prominent psychiatrists, such as Stephen Levine, a Distinguished Life Fellow of the American Psychiatric Association and an expert on gender and sexuality, embraced the term.²² A comparable study by professor of psychology Michael Bailey of Northwestern University received similar backlash.²³

The concept of ROGD became even more publicized with the book *Irreversible Damage* by Abigail Shrier.²⁴ Shrier suggests that access to smartphones and social media in a population of young girls experiencing mental health crises has fueled ROGD.²⁵ She likewise received significant backlash.²⁶

AYAs with GD are a particularly vulnerable population, as are their concerned parents. It is imperative that all professionals involved in the care of patients with gender dysphoria provide recommendations based on the best available evidence, and when the evidence is not available or is questionable, to withhold potentially damaging or life-threatening interventions.

TREATMENT

As the incidence of GD has skyrocketed, so has the number of gender clinics. Although a parent should reasonably expect their child with GD to receive a thorough evaluation and to be presented with the least invasive options first, this is not what is occurring. Most gender identity treatment centers utilize the World Professional Association for Transgender Health (WPATH) guidelines, which ascribe to the gender affirmative model (GAM) of care.²⁷ In the GAM, the diagnosis is made by the patient, who is often a child or adolescent, rather than the health care provider. The key elements of the diagnosis depend solely on self-reporting, with no objective verification. This treatment model does not explore and address underlying factors such as mental health, sexual abuse, lack of support, and family issues. Instead, in the GAM (and WPATH guidelines), the healthcare provider is obligated to make the unverifiable diagnosis. The provider can then quickly provide puberty blockers and cross-sex hormones to a young person with little to no evaluation of the etiology (cause) and underlying issues. Although earlier WPATH guidelines had lower age limits, the current guidelines use a staged approach. This means puberty blockers and cross-sex hormones can be given at the start of puberty (average age 9 to 10 in girls and 11 to 12 in boys) followed by surgical intervention.

AYAs are encouraged to socially transition, which includes dressing as and using pronouns of the opposite sex. Social transition is not without consequences. Once a person lives socially as the opposite gender, it can be difficult to change course.²⁸ The next step is puberty blockers (PBs), which interfere with the normal physiologic process of puberty. PBs are often presented as "reversible" and "buying time." In truth, there are significant irreversible effects (including loss of bone density and sterility). The vast majority of AYAs who take PBs go on to cross-sex hormones (CSHs).²⁹

Cross-sex hormones (CSHs) are given to induce the secondary sex characteristics of the opposite sex. A girl who takes testosterone will grow facial and body hair, develop a deep voice and enlargement of the clitoris, and other physical changes. Adverse effects include increased cholesterol, liver dysfunction, coronary artery disease, cerebrovascular disease, hypertension, breast or uterine cancer, and elevated red blood cell concentration.³⁰ Boys who take estrogen will experience changes including increased body fat, decrease in lean body mass, decreased libido, erectile dysfunction, increased breast tissue growth, and redistribution of fat. Adverse effects include a very high risk of thromboembolism (clot in the legs or lung) and a moderate risk of benign pituitary tumors, breast cancer, coronary artery disease, cerebrovascular disease, gallstones, and high triglycerides.³¹ There is also an increase in mortality in males taking estrogen.³²

Some but not all of those who take CSHs undergo surgical interventions to appear more like the opposite sex. Currently, however, WPATH does not require any psychiatric referrals. Surgeries for females who desire to appear male may include mastectomy, hysterectomy, removal of ovaries, construction of a “penis” (metoidioplasty or phalloplasty), and implantation of artificial testicles. Surgeries for males who desire to appear female include genital surgery, breast augmentation, vocal cord surgery, throat surgery, and facial feminization surgery. These surgical interventions are not only fraught with complications and difficulties, but they result in permanent disfigurement and detrimental effects on sexual and genitourinary function.

Although one should expect that such drastic interventions should be based on high-quality evidence of benefit, this is hardly the case. The evidence for any benefit from these interventions is of very low quality. Long-term studies are lacking, and there are no randomized, controlled trials. Recently, many European countries have urged more caution in using PBs and other interventions in youth. Governments and medical authorities there recommend psychotherapy rather than hormones and surgery as a first line of treatment. They express concern that these interventions do more harm than good.³³

Likewise, many experts in the field have spoken out against the low certainty of benefits and the significant risk in providing gender-affirmative care to young adults.³⁴ A recent letter to the editor of the *Wall Street Journal*, signed by 21 clinicians and researchers from nine countries who are involved in direct care for gender-diverse youth, expressed great concern about the low quality of evidence and the significant risks.³⁵

We disagree with the gender affirmative model that assumes that if an individual desires to be the other gender, they should be confirmed in that gender and set on the path of social transition, PBs, CSHs, and possibly surgical intervention. We offer the following in our opposition to this approach:

- People with GD deserve a complete evaluation, just like a patient with any other medical condition. A thorough investigation into underlying issues—including but not limited to mental health, abuse, and social factors—is essential.
- Research does not support the efficacy of social, medical, or surgical gender-affirming treatments. There is insufficient data to show any benefit from these interventions. The data that is available is of low quality. High-quality studies are lacking, and there are no randomized, controlled trials. There is very little data on the long-term effects of these interventions. The gender affirmative model violates one of the principles of medical ethics: “First, do no harm.”

- A portion of patients who seek gender-affirming care would resolve their dysphoria if not sent on the path of transition. Also, throughout psychosocial assessment, some but not all adolescents will come to understand their distress differently and choose not to transition or resolve their gender dysphoria.³⁶ It is hard to know what percentage would become comfortable with their birth sex since youth are fast-tracked to transition.
- Most importantly, we believe God created humans as male and female, and sex cannot be changed.
- We believe that psychotherapy, not damaging interventions, should be the first-line treatment for gender dysphoria.

DETRANSITION AND REGRET

Detransition is the process of stopping or reversing a gender transition. Although the rates of detransition are unknown,³⁷ healthcare providers who treat transgender patients report increasing numbers of detransitioners.³⁸ Social media sites are replete with stories of young adults who regret the permanent changes to their bodies.³⁹

Detransition must be distinguished from desistance and regret. Desistance is the term used when one's GD remits *before* undergoing any transition. It is the most common outcome for children with gender dysphoria who have not been placed on the path of transition.⁴⁰ It must be noted that not all who detransition do so because of regret, and not all who regret their transition go on to detransition.

There is minimal research on detransition. The existing studies, which show varying rates of detransition and regret, are hampered by poor study design and significant loss to follow-up (meaning that the outcomes of patients were unknown). Loss to follow-up in studies on gender-affirming care has been reported to range from 22%–63%.⁴¹ It is impossible to report an incidence of detransition or regret when the outcomes of such a large percentage of individuals are unknown, particularly since most detransitioners do not return to their original providers.⁴²

Individuals have different reasons for detransitioning. In one study, the most common reasons for detransition included:

- realizing the GD was related to other issues (70%),
- health concerns (62%),
- transitioning did not help GD (50%),
- finding alternatives to deal with GD (45%),
- unhappiness with the social changes (44%),
- change in political views (43%),
- GD resolved by itself over time (34%),
- comorbid mental issues that were related to the GD were solved (30%), and
- unhappiness with physical changes (30%).⁴³

Detransitioning is a hard path. The WPATH guidelines make it more challenging to get approval to *detransition* than to *transition*. Furthermore, many people who detransition lose the social support they had during their transition process, which can result in feelings of loneliness and helplessness.⁴⁴ Those who travel the problematic path of detransition need our support.

THE RIGHT KIND OF CARE

We recognize that there are many people who struggle with distressing discomfort with their gender, and we empathize with them. We don't pretend that there are easy solutions for those who live with GD. However, support, time, and psychotherapy are wiser approaches in these difficult situations than permanent, harmful medical and surgical interventions. In our search for truth as Christian medical professionals, we find insufficient data to support any benefit from social, medical, and surgical transition. People with GD, as well as all persons, are made in the image of God and must be treated with dignity and respect. Rather than "gender-affirming care," we support a plan of compassion, love, and empathy that requires effort, time, and understanding.

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