


Recognizing and responding to misleading trans health research


S. Rachel Skinner, Quinnehtukqut McLamore, Olivia Donaghy, Stephen Stathis, Julia K. Moore, Tram Nguyen, Cate Rayner, Robert Tait, Jemma Anderson & Ken C. Pang

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Public discourse, care options and research standards for trans young people (inclusive of trans young people with a binary gender, gender-expansive young people, and non-binary young people) have changed substantially in recent years. Over the past two decades, trans people across the globe have seen rising acknowledgement, visibility, and acceptance, accompanied by tenuously obtained legal protections and increasing access to gender affirming care. In older, outdated scientific and medical literature, being trans was considered a mental disorder best treated through eliminating gender non-conforming behavior or even removing gender non-conforming youth from supportive families (Sadock & Sadock, 2007; see Marrow, 2022, 2023a, 2023b) In contrast, neither the current *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5-TR; 2022) nor the current International Classification of Diseases (ICD-11) considers transgender identity disordered (see also Fernández Rodríguez et al., 2018). Ethical standards and recommendations for engaging in research with transgender people have also emerged to prevent harm to this marginalized community (Adams et al., 2017; Puckett et al., 2023; Bauer et al., 2019; Restar et al., 2021; Veale et al., 2022; see also Winters et al., 2022).

Despite these changes, trans people in general and trans young people in particular remain heavily stigmatized and marginalized, contributing to a disproportionate burden of mental health concerns (see Hill et al., 2021; Strauss et al., 2020; Thoma et al., 2019; Toomey et al., 2018; Werner-Seidler et al., 2023). Trans people presently find themselves at the center of a highly politicized “culture war” questioning the legitimacy of their identities, their legal rights, and their healthcare. Hate crimes against trans people have sharply risen in the U.S. and the U.K. (FBI Hate Crime Statistics, 2023; Home Office Report, 2023), and even these sharp increases are likely underestimates. Anti-transgender rhetoric is pervasive in British and American news media (HRC, 2022; Mediatique 2020; Patterson & Gingerich, 2022). The U.S. has seen over five hundred bills centering on trans people at the state and federal levels in the last year alone—many focused on transgender healthcare, with many of these bills not only banning but also criminalizing the provision of gender-affirming care of any kind to minors of any age, with some banning care for adults as well (Gonzalez, 2023; Mallory & Redfield, 2023; Trans Legislation Tracker, 2023).

Outside the U.S., gender affirming interventions for trans young people—from non-medical social affirmation to puberty suppression and gender-affirming hormones—have become similarly politicized in many countries. One focus of discussion is the concern that a large number of adolescents and young adults may later regret gender affirming medical treatment (GAMT) and then struggle to return to living as their birth-registered sex (see Coleman et al., 2011, 2022; Steensma et al., 2011). This concern is rooted in older studies which suggested that the majority of prepubertal children brought to gender clinics did not grow up to be trans (e.g. Drummond et al., 2008; Green 1987; Kosky, 1987; Steensma et al., 2013, see Ristori & Steensma 2016). However, the underlying assumptions of these studies have been criticized in recent years (Ashley, 2022; Temple-Newhook et al., 2018) and challenged by more recent research (Olson et al., 2022). Yet, these estimates are still key components of arguments to justify restricting and/or banning GAMT for trans young people (e.g. Cantor, 2022; *Eknes-Tucker v. Ivey*, 2:22-cv-0184, 74).

It is within this context that a recent paper published by MDPI in *Children* by Elkadi and colleagues (2023), reports on the outcomes of young people presenting to a Gender Service in New South Wales, Australia. These authors claim that “more than a fifth of our sample... could have been exposed to inappropriate medical treatment, future regret, and potential harm,” but their claims simply are not justified by the data.

Most of the authors on this editorial are leading clinicians and researchers from Australian centers of excellence in pediatric trans health, funded by state government health departments to provide individualized, high-quality and safe healthcare for trans youth. As such, we felt that it was important to recognize and respond to this misleading research emanating from within our midst. Here, we briefly contextualize the current state of evidence in this area and then highlight our substantial concerns regarding Elkadi et al’s methodology, findings, and conclusions.

Studies of GAMT in adolescents and young adults

The goal of GAMT is to ameliorate psychosocial distress associated with gender dysphoria and facilitate embodiment goals (Achille et al., 2020). Systematic

reviews indicate that GAMT is associated with decreased depression and psychological distress, and may be linked to improved quality of life (Baker et al., 2021; Doyle et al., 2023). Further, no evidence has been found of harm from these interventions in relation to mental health. While this literature is limited by small samples and design considerations, many of these limitations are inherent to ethical approaches to studying transgender care in general and transgender adolescents in particular (Ashley et al., 2023). Therefore, while systematic reviews have called for larger, more robust, longer-term studies to expand upon the emerging evidence base (Baker et al., 2021; Chew et al., 2018; Doyle et al., 2023), they are mindful of ethical limitations for study designs and are not dismissive of the existing literature.

Even with these limitations in mind, convergent evidence suggests that trans adolescents and young adults who access GAMT experience psychosocial benefits. Puberty progression is associated with undesired changes for trans young people that exacerbate gender dysphoria and psychological distress (Hembree et al., 2017; Kreukels & Cohen-Kettenis, 2011). The available literature suggests that puberty-blocking medication (GnRH analogues) may help mitigate this deterioration in gender dysphoria (Becker-Hebly et al., 2021; Carmichael et al., 2021; de Vries et al., 2014) and is associated with improvement (or non-deterioration) in psychological distress depending on the sample, the specific variables measured, and the comparison group used (Allen et al., 2019; Becker-Hebly et al., 2021; Carmichael et al., 2021; Costa et al., 2015; de Vries et al., 2014; Kuper et al., 2020; van der Miesen et al., 2020).

Broadly, the existing literature also suggests that adolescents treated with gender-affirming hormones (i.e. testosterone, estrogen) experience improvements such as reduced anxiety and/or depression, reduced suicidality, improved body image, and other indicators of improved psychological well-being (Achille et al., 2020; Allen et al., 2019; Becker-Hebly et al., 2021; Chen et al., 2023; Grannis et al., 2021; Kaltiala et al., 2020; Kuper et al., 2020; López de Lara et al., 2020; Olsavsky et al., 2023; Thoma et al., 2023; Tordoff et al., 2022). Within these studies and others (e.g. Brik et al., 2020; de Vries et al., 2014; Khatchadourian et al., 2014; van der Loos et al., 2022), the rates of discontinuation of gender-affirming hormones are low.

Apart from the studies cited above, large-scale cross-sectional research has found that compared to participants who desired puberty suppression as adolescents but could not obtain them, adults who obtained puberty suppression as adolescents had lower suicidality and lower psychological distress (Turban et al., 2020a). Similar findings from the same dataset have also been found in relation to gender-affirming hormones (Turban et al., 2022).

Desistance in context

The exact meanings of “desistance” and “detransition” in relation to youth with gender dysphoria is conceptually unclear. The term desistance originates from criminology, where it denotes the cessation of criminal behaviors, and was intended to represent gender non-conforming children re-identifying with their assigned sex at birth (see Littman, 2018; Zucker, 2018). However, its operationalization within the scientific literature varies widely. Some studies define desistance as re-identification with one’s assigned sex at birth. Others classify anyone who ceases GAMT as desisting, even if they continue to identify as trans. Similarly, some studies classify anyone who “changes their mind” regarding seeking “reassignment” procedures as desisting, regardless of their gender identity (for a review, see Karrington, 2022). Some operating definitions require explicit disavowal of transgender identity, whereas others explicitly state that desistors and/or detransitioners may continue to self-identify as transgender (e.g. MacKinnon et al., 2022).

These distinctions matter, because whether or not an individual “counts” as a desistor/detransitioner can vary between studies. If someone realizes that a non-binary identity fits them better than a strictly trans male identity, some studies would count them as a desistor, but others would not. If someone purposely decides on a time-limited use of hormones, upon stopping them, they could be counted as a detransitioner. If someone stops treatment due to an unrelated medical concern, and still identifies as transgender, some studies would count them as a desistor, while others would not. Moreover, many people who self-describe as trans and discontinue treatment do so—not due to a shift in their identity—but because of financial concerns, medical factors, or intense social and/or family pressure (Glick et al., 2018; Turban et al., 2021). For clarity, researchers should distinguish between treatment discontinuation and changes in gender identity. They should also separately report on regret associated with treatment and the reasons for this regret, to properly contextualize data on the medical and social trajectories of trans young people.

Methodological concerns in Elkadi et al

Elkadi et al (2023) reported on a pediatric hospital clinic sample of 79 participants, followed over 4-9 years, of whom two were lost to follow-up. They tracked outcomes of the remaining sample of 77 participants who underwent “comprehensive, developmentally informed, multi-disciplinary assessment”, of whom 66 met DSM-5 criteria for Gender Dysphoria (GD), and 62 were prescribed GAMT (puberty suppression, gender-affirming hormones, or both) during the study period. Six (9.1%) subsequently stopped treatment (described as “desisting”) and 60 continued, described by the authors as having “persisted with the transgender pathway”. 11 out of 77

did not meet diagnostic criteria for GD at any time point. The authors reported that these 11, plus the 6 who stopped medical treatment, comprised 17 of 77 (22.1%) participants who no longer experienced ‘gender-related distress’ at follow-up, which they described as an “overall desistance rate”.

Put simply, this conclusion is not justified by the data. The authors’ use of the term “desistance” is even broader than the range of definitions currently used in the literature (see above). There is no mention that participants were asked about ‘gender-related distress’ or about their gender identities at follow-up, so it is unclear how the authors could determine ‘desistance’. Also, the authors cannot claim that gender-related distress had ‘resolved’ in these 17 participants, as 11 of them did not meet criteria for GD at baseline. These 11 participants should not have been included in the ‘overall desistance rate’. They should have been excluded for not meeting diagnostic criteria; both the numerator and the denominator are therefore incorrect in this calculation. Taken together, the authors’ calculated ‘desistance’ rate of 22% is greatly inflated by their operational definitions of “desistance”. Their choice to use different definitions of desistance for the “sample as a whole” and the “gender dysphoria subgroup” allows them to simultaneously claim that desistance requires desisting from a medical pathway, while also claiming people who never initiated that pathway count as “desistors” because their gender related distress *either* disappeared or “resolved.” Crucially, neither definition of desistance used requires the youth to self-describe as cisgender at follow-up.

In their introduction, Elkadi et al also raise concerns about the increase in presentations of what they refer to as rapid onset gender dysphoria (ROGD) cases. Secondary referencing indirectly cites a 2018 study (Littman, 2018) which is now heavily discredited for its severely biased sampling, methodological flaws, and misleading conclusions (see Ashley, 2020; CAAPS statement, 2021; Restar, 2020). However, even if ROGD itself were not discredited, the authors could not meaningfully advance insights on it with these data. Their sample of 79 participants included only 4 “adolescent onset” participants, none of whom met DSM criteria for any kind of GD, rapid-onset or otherwise.

Scrupulous ethical conduct of research is essential for research with marginalized populations, including explicit efforts to ensure that the interpretation of research findings does not contribute to already high levels of minority stress (National Statement, 2007–2018; Veale et al., 2022; Hendricks & Testa, 2012). Yet Elkadi and colleagues have not protected participants’ confidential information. Descriptive identifiable detail about the 6 participants who ceased treatment is provided. This includes unwarranted and stigmatizing detail, presented in outdated language. This level of detail about individual cases in a small sample from a small clinic population threatens the privacy and confidentiality of participants. This violates a fundamental tenet of ethical research.

Moreover, best-practice standards in longitudinal research projects require that young people who are enrolled in studies as minors under parental consent must be re-consented from the age of 18 to continuing participation, and given the opportunity to decline participation. Elkadi and colleagues do not provide information about whether such processes were followed in this study.

Misrepresentation and misinterpretation of findings

Elkadi and colleagues (2023) observed that 6 of their 62 participants who received hormonal treatments subsequently stopped. This small proportion of participants stopping hormonal treatment is consistent with data reported in larger studies (Carmichael et al., 2021; Chen et al., 2023; Khatchadourian et al., 2014; Kuper et al., 2020; Tollit et al., 2023), but how the authors represented and interpreted these findings warrants further scrutiny.

Three of the 49 participants who started puberty suppression with GnRHa stopped without proceeding onto estrogen or testosterone. It is expected that some young trans people will stop puberty suppression in this way. A key stated reason for puberty suppression is to allow a young person and their family time to consider whether to progress to treatment with gender affirming hormone treatment without experiencing distressing bodily changes of their endogenous puberty (Delemarre-van de Waal & Cohen-Kettenis, 2006). Once blockers are ceased, endogenous puberty resumes. Of the three who stopped blockers in Elkadi et al. (2023), two were explicitly described as “gender neutral.” However, the authors included these as people who “desisted from the transgender pathway,” despite the fact that only one of the three participants who ceased blockers actually self-identified as being cisgender—the only participant in the entire study who had initiated medical treatment of any kind to do so.

Three of the 51 participants who started estrogen or testosterone treatment subsequently stopped. Two of these were reported as maintaining trans identities, the other was unknown. To suggest the former two participants “desisted from the transgender pathway” as the authors claimed is again a misclassification, while the status of the third cannot be properly determined. The authors explicitly admit as much in their results section, but nevertheless include these participants in their calculation of “desistance,” and in their broader claims about exposure to potentially inappropriate treatments. As noted above, it is expected that some trans people will also stop hormones—for any number of potential reasons that do not actually involve identification with one’s designated birth gender.

In relation to those participants who either stopped puberty blockers, estrogen or testosterone, the authors' interpretation does not recognize the reality that not all trans people want or need GAMT. In this way, they erroneously use the term “desistance” to describe a wide range of possible experiences of young people with gender diversity and related distress, including the experience of still identifying as trans, but not starting or continuing medical gender-affirming treatment. They claim that 17 participants (22.1%) traveled an “alternate pathway” instead of a “transgender pathway” because they did not continuously seek medical affirmation, even though 8 of these participants still expressed a gender-diverse identity at the time of follow-up. Of the nine that identified as cisgender, only one had met the diagnostic criteria for gender dysphoria at any point.

One of Elkadi and colleagues' key claims is that if the children in their study were seen in a service without biopsychosocial assessment, they would all have accessed GAMT and this would have resulted in 22.1% receiving treatment unnecessarily (p.17). The authors selectively quote a section on individualized care from *The Australian Standards of Care and Treatment Guidelines for transgender and gender diverse children and adolescents*, to suggest that Australian children's gender services are “driven by the child” and neglect psychosocial assessment despite these same guidelines clearly describing comprehensive psychosocial assessment (Telfer et al., 2018). The Australian guidelines were published under peer review and developed in consultation with over 44 child & adolescent psychiatrists, pediatricians, pediatric endocrinologists, and allied health specialists who worked clinically in the area of transgender health across Australia, as well as with trans and gender diverse adults, young people, and their families (Telfer et al., 2018). Together with international guidelines (Coleman et al., 2022), the Australian guidelines inform the care provided in all major children's gender services and describe multi-disciplinary, comprehensive pediatric assessment and care for trans children and their families. With comprehensive assessment, individualized support and collaborative discussions between the young person, their family and the medical and mental health professionals, only a minority of young people referred to gender clinics actually decide to commence GAMT, as reported in a 10-year review of patients attending a large gender service in Australia (Tollit et al., 2023).

Related to their claim above, Elkadi et al (2023) discuss “alternative models of care” that promote psychosocial therapies as first line treatment for gender dysphoria before any consideration of GAMT. Notwithstanding the fact that all major Australian children's gender clinics already undertake psychosocial assessment and psychosocial interventions in tandem with GAMT and in partnership with other health care providers, it should be noted that there is no scientific evidence demonstrating relief of gender dysphoria following extended

psychodynamic or “exploratory” therapy alone, as Elkadi and colleagues appear to advocate. In contrast, research has found substantial psychological harm, including increased suicidality, in people who have been exposed to “conversion therapy” or “gender identity change efforts” (Turban et al., 2020b) and poorer mental health in people who wished for, but could not access GAMT (Turban et al., 2020a, 2020b).

Elkadi and colleagues (2023) also report the participants' mental health data in a way which does not allow for meaningful longitudinal comparison. For the 50 patients for whom mental health follow-up data was available, the authors report a similarly high prevalence of mental health concerns from baseline to follow-up, and infer a lack of benefit of gender affirming care (p.18). However, mental health concerns at follow-up were based largely on unstructured self-report and cannot be compared to that collected through direct assessment at baseline. Moreover, given the levels of stigma and minority stress that continue to be reported by trans people (Bauer et al., 2009; Hunter et al., 2021; Price et al., 2023; Strauss et al., 2020; Thoma et al., 2019; Toomey et al., 2018; Werner-Seidler et al., 2023), a relatively high ongoing prevalence of mental health concerns in this population is not surprising and should not be conflated with a lack of GAMT effect.

Finally, it is important to highlight the limitations of the peer review and editorial processes by *Children*, given that the questionable interpretations in Elkadi et al were not rectified (Elkadi et al., 2023). That the publicly available, brief peer reviews did not identify any of the obvious flaws is a concern, as is the fact the article was submitted, reviewed, revised and accepted for publication all within only 10 days, an unusually short time frame. Journals must do their due diligence in ensuring that research they publish does not, through inaccuracies or errors of interpretation, cause harm to a population that is already highly marginalized and vulnerable. This includes a process of thorough review of the methodology and interpretation conducted by knowledgeable reviewers with subject expertise. *Children* states that it is a member of the Committee on Publication Ethics (COPE) which has clear guidelines supporting post publication critiques (COPE, 2021), but *Children* declined to publish our critique.

We call for best practice and clear communication regarding care of trans young people

Clinicians providing care for trans young people should understand that human gender identity is naturally diverse and that trans children, adolescents and adults have always existed in different cultures and geographical regions throughout human history. Person-centered and family-centered assessment and treatment models that

support each individual's path are essential for good care. Adolescents and young adults who seek GAMT can engage in shared decision-making with their expert clinicians and their families, weighing the benefits, risks, knowns and unknowns of treatment options, in order to make competent decisions about their health care (Giordano & Holm, 2020; Telfer et al., 2018; Vrouenraets et al., 2021).

While further research is needed to help inform clinical care of trans young people, randomized placebo-controlled trials are inappropriate and not a suitable study design for GAMTs for the following reasons: (1) it is unethical to deny GAMT due to the substantial existing evidence and expert consensus in favor of psychosocial benefits, (2) patients would be unwilling to risk being randomized to no treatment, and (3) treatments have obvious effects which would invalidate placebo control (Ashley et al., 2023). Moreover, studies involving a comparison group should scrupulously avoid bias in the selection of control samples. An earlier paper from the same research study as Elkadi and colleagues by Kozłowska et al. (2021) is an example of questionable research design in this area, with a “non-clinical comparison group” which recruited the well children of well, employed adults, and excluded all those who had a personal or family history of mental illness or had ever seen a counselor or psychologist.

This profound selection bias undermines the study's conclusions, and it is highly concerning that this paper has been used in multiple United States jurisdictions to defend bans on care for trans youth (e.g. Florida, *Dekker v. Weida*; Arkansas, *Brandt v. Rutledge*) and to justify heavily restricting care access for trans adults as well (Florida ACHA, 2021). Looking ahead, we call for prospective observational clinical cohort studies, with larger sample sizes, optimized methodology, longer follow up, and outcome measures which are relevant to the participants. Importantly, research should be designed and conducted in partnership with trans people and their families. Such studies are under way in Australia and many centers around the world, and findings will continue to build the evidence base, informing care for trans young people.

In summary, the article by Elkadi and colleagues (2023) is scientifically and methodologically flawed, and perpetuates a narrative that demotes the interests of a vulnerable group of young people we as clinicians and researchers are obligated to protect and support. As Australian leaders in this field, who work directly with trans youth, and in partnership with community-led support organizations, we reject the rhetoric and unsupported conclusions presented in the Elkadi et al. article. Research in this field must always seek to improve trans health care and prevent harm. Research, clinical care and the wider public discourse should always recognize trans identities as a respected, valued and celebrated part of human diversity.

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ORCID

S. Rachel Skinner  <http://orcid.org/0000-0003-1970-9792>
Julia K. Moore  <http://orcid.org/0000-0002-2313-7048>

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S. Rachel Skinner 

*Department of Adolescent Medicine, Children's Hospital
Westmead, Sydney Children's Hospitals Network,
Westmead, Australia
Children's Hospital Westmead Clinical School, Faculty of
Medicine and Health, University of Sydney, Westmead,
Australia*

 Rachel.skinner@health.nsw.gov.au

Quinnehtukqut McLamore


*Psychological Sciences, University of Missouri at
Columbia, Columbia, Missouri, USA*

Olivia Donaghy

*Child and Youth Mental Health Service, Children's Health
Queensland Hospital and Health Service, Brisbane,
Australia
School of Psychology, University of Queensland, Brisbane,
Australia*

Stephen Stathis

*Child and Youth Mental Health Service, Children's Health
Queensland Hospital and Health Service, Brisbane,
Australia*

Julia K. Moore 

*Child and Adolescent Health Service Gender Diversity
Service, Perth Children's Hospital, Perth, Australia
School of Psychiatry and School of Paediatrics and Child
Health, The University of Western Australia, Nedlands,
Australia*

Tram Nguyen and Cate Rayner

*Department of Adolescent Medicine, The Royal Children's
Hospital, Parkville, Australia*

Robert Tait

*Maple Leaf House, John Hunter Children's Hospital,
Newcastle, Australia*

Jemma Anderson

Women's and Children's Hospital, Adelaide, Australia

Ken C. Pang

*Department of Adolescent Medicine, The Royal Children's
Hospital, Parkville, Australia
Murdoch Children's Research Institute, Parkville, Australia
Department of Paediatrics, The University of Melbourne,
Melbourne, Australia*