

Understanding Gender Diversity in Prepubertal Children: A Longitudinal Study Protocol.

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Abstract

Introduction: Prepubertal transgender, non-binary, and gender-diverse (TGD) children, defined as those asserting a gender identity or expressing gender-role behavior outside of culturally defined norms for their sex registered at birth, are increasingly seeking care at pediatric gender clinics worldwide. Many TGD children experience gender dysphoria (GD), which entails distress stemming from the incongruence between their gender identity and registered sex at birth. A growing number of TGD children seek care. Yet, limited empirical research on the longitudinal development of prepubertal gender identity, gender-role behavior, and gender dysphoria in this population have contributed to a lack of consensus clinical approaches to best support these youth.

Specific Aim: This presentation introduces the ongoing research study protocol aimed at informing clinical care for prepubertal TGD children. The study seeks to establish a US-based longitudinal cohort comprising 248 prepubertal TGD children and their caregivers, with prospective follow-up visits at 6-month intervals over 18 months.

Materials and Methods: Data collection occurs virtually at each timepoint, involving clinical and behavioral assessments from both child and caregiver perspectives. Latent Class Analysis (LCA), among other analytical methods, will be employed to identify subgroups within the TGD cohort and characterize longitudinal patterns of gender identity and gender expressions. These analyses will also explore the relationship between these identified TGD subgroups and mental/behavioral health outcomes, including the potential moderating effect of family-initiated social gender transition (when present) on these associations.

Results: Baseline data collection involving 248 participants is complete, with anticipated identification of TGD subgroups using LCA in 2024. The study aims to complete all four waves of data collection by July 2024, followed by longitudinal analyses expected to conclude by Winter 2024.

Conclusions: Through its longitudinal observational design, this research endeavors to contribute empirical insights into the gender development, mental health symptomatology, and functioning of prepubertal TGD children and how family-initiated social gender transition may impact mental health outcomes over time. The study findings may offer valuable guidance for clinicians and families navigating the developmental journey of TGD children into adolescence.

Introduction

A Call for Lifespan Research on Gender-Diverse Children
Increasing numbers of prepubertal transgender, nonbinary, and gender-diverse (TGD) children, asserting and expressing a gender identity outside of culturally defined norms related to their sex registered at birth [1], are presenting to pediatric gender clinics across the United States and abroad [2-4]. In the absence of research based on the more recent GD criteria, conclusions from research based on GD have been influential in guiding clinical decisions.

Prepubertal TGD children continue to remain a poorly understood and understudied population in the United States. The validity of epidemiological findings from previous studies has been questioned due to notable sampling limitations and methodology for measuring and evaluating gender status in prepubertal children [16]. Concerns have been raised that the absence of more recent research on GD has yielded proliferate misinformation that informs legislative efforts to challenge gender-affirming policies within schools or health care [17].

To Affirm or Not to Affirm: Discordant Clinical Approaches to Prepubertal GD
The perspective of a gender health professional as to (1) the extent to which gender identity among prepubertal TGD children is stable over time and (2) the extent to which GD in prepubescence can be reliably predictive of GD into Tanner 2 and beyond may inform the extent to which they support a caregiver facilitating a prepubertal social gender transition (SGT). SGT is a caregiver-led approach aimed to address GD in transgender and nonbinary children through various reversible social interventions (eg, by changing the first name, gender pronouns, and manner of dress and grooming) [14].

Intro. (continued)

Emergent empirical findings suggest potential mental health benefits of SGT in prepubertal transgender and nonbinary children [18, 19]. In 2 cross-sectional studies, transgender and nonbinary children, aged 3-12 years [19] and 6-14 years [18], who underwent family-initiated social gender transition exhibited age-normative depressive and anxiety symptoms with anxiety rates slightly higher than controls (ie, cisgender siblings and age-matched controls) but still well below a clinical level. Informed by this research and expert consensus, the current World Professional Association for Transgender Health Standards of Care support social transition for prepubertal TGD children on an individualized basis, with the understanding that gender identity can evolve and change over time [13]. However, no known research has observed mental health effects of social gender transition, when present, at more than 3 timepoints across childhood.

Mental Health Correlates Among TGD Children

Although sparse, the existing body of scientific evidence documenting the health and well-being of prepubertal TGD children suggest transgender and nonbinary children may experience and be at risk for developing mental health problems [21, 22]. Beyond the existing studies is the need to longitudinally examine mental and behavioral health outcomes (both positive and negative) in prepubertal TGD children in the United States including the extent to which family rejection or support factors may moderate these outcomes.

Gender Journeys: Gender Identity Development in Prepubertal TGD Children

A dearth of empirical evidence exists on the extent to which prepubertal TGD children understand their gender; gender cognition. The features of these milestones include the extent to which patterns of gender identity development, gender expression, and role behavior are stable over time, and what factors predict continuity or change in these patterns as children age. In one known cross-sectional comparison study examining gender cognition among prepubertal TGD and cisgender children, gender-cognition ability was comparable [32], thereby suggesting similarity of milestone attainment across both groups. Nonetheless, without longitudinal observation of these milestones, there is no empirical basis for understanding these developmental markers in TGD children.

Gender Journey Project: Overarching Goal and Specific Aims

The goal of this study, Gender Journey Project, is to provide evidence to inform clinical care for prepubertal TGD children. We are pursuing 3 scientific aims, which include:

- **Aim 1:** Describe characteristics of gender identity and expression in a cross-section of prepubertal TGD children to inform clinical classification and care;
- **Aim 2:** Describe and characterize longitudinal patterns of gender identity development and gender expression to inform the timing of clinical intervention; and,
- **Aim 3:** Longitudinally characterize the relationship between identity-expression-dysphoria profiles and mental and behavioral health outcomes—both negative (eg, GD and externalizing behaviors) and positive (strengthened resilience and social confidence)—and the moderating role of social gender transition (when present) on these relationships.

Materials and Methods

Study Design

This ongoing study uses a longitudinal, observational multisite design to better understand prepubescent trajectories of gender diversity (identity and behavior), GD, mental health, and well-being among a cohort of TGD children. Participants include a TGD child and 1 caregiver who were studied prospectively over an 18-month period.

Community Engagement

At several junctures throughout the study period, our team employs community-engagement methods in the form of Key Informant Advisory Boards, a participant feedback survey, and a feedback item in the finalized child and parent surveys to help tailor methods of the study protocol to our target population while also seeking to limit participant burden.

Study Population and Recruitment

A total of 248 prepubertal TGD children and their caregivers are enrolled in the study. Participants were recruited nationally through pathways including recruitment from 4 affiliated sites, referred from local community providers, or self-referred. Eligibility criteria include: residing in the United States, a caregiver-reported history of gender-nonconformity for at least the past 6 months or a GD diagnosis per DSM-5 criteria, Tanner stage 1 pubertal development (ie, lack of pubertal development) per structured prescreening by caregiver or child, aged 6-13 years, the ability to understand English, access to a computer with webcam, microphone and internet capabilities, willingness to provide informed assent, and a caregiver willing to provide caregiver permission for the child to participate. The exclusion criteria included prior use of gonadotropin-releasing hormone agonist to suppress puberty, the presence of serious psychiatric symptoms that would impair abilities to assent or complete baseline, or being visibly distraught.

The institutional review board (IRB) of the record is UCLA (10-00029) through a single-IRB agreement established to include USC/CHLA, NU/LCH, and UCSF. Child and caregiver participants are each provided US \$25, disbursed to a cash card immediately following the completion of the study visit.

Data Collection and Measures Overview

To accommodate public health social-distancing requirements, study visits are all conducted remotely; child report measures collected through a computer-assisted survey conducted by a research associate over a video-conferencing platform, caregiver report through a computer-assisted self-completed survey. Caregiver and child participants completed the survey in 40-65 minutes and 50-90 minutes, respectively. Multiple 3- to 5-minute breaks are issued to the child.

Domains Common in Child and Parent Surveys

Child and caregiver surveys are completed at baseline, 6, 12, and 18 months. Both surveys include domains assessing the child participant's GD-specific experiences (including feelings about primary sex characteristics and other aspects of anatomy), mental health, and social relationships.

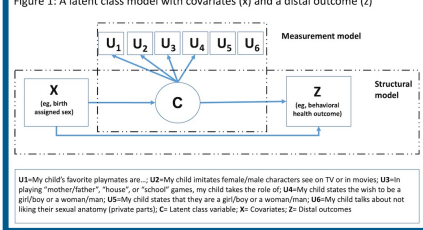
Domains Specific to Child Survey

Unique to the child survey is a domain related to implicit gender cognition.

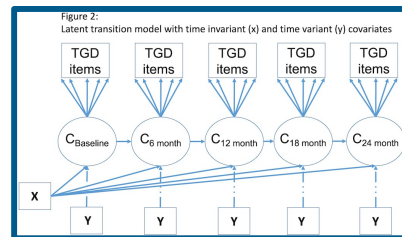
Domains Specific to Caregiver Survey

Unique to the parent survey are additional domains related to caregiver stress, caregiver support related to child gender diversity, medical information about the child, the impact of COVID-19 on the family, and demographics. Caregivers also complete the Brief Problem Monitor for Ages 6-18 [33], an empirically validated measure for rating children's internalizing and externalizing problems.

Figure 1: A latent class model with covariates (x) and a distal outcome (z)



U1=My child's favorite playmates are...; U2=My child imitates female/male characters seen on TV or in movies; U3=In playing "mother/father", "house", or "school" games, my child takes the role of...; U4=My child states the wish to be a girl/boy or a woman/man; U5=My child states that they are a girl/boy or a woman/man; U6=My child talks about not liking their sexual anatomy (private parts); C= Latent class variable; X= Covariates; Z= Distal outcomes



Statistical Analysis Overview

We employed latent class analysis (LCA) in line with similar person-centered approaches employed in other, recent research on TGD youths [27,34-36].

To address Aim 1, separate latent class models will be estimated for caregiver and child ratings of gender identity and gender expression using indicators from the gender development scale [37]. Using a structural equation modeling approach, the circle in Figure 1 refers to a categorical latent variable representing the discrete number of latent groups and the boxes represent observed variables. To address Aim 2, a longitudinal extension of LCA will be implemented, namely latent transition analysis (LTA) [44-46] (Figure 2 [44]). To address Aim 3, selected mental and behavioral health variables are included as outcomes in the wave-specific LCA models (Figure 1).

Results

Baseline data collection (N=248) is complete, and the identification of TGD subgroups based on gender identity and expression using latent class analysis is anticipated in late 2024. All 4 waves of data collection were completed in July 2024, coinciding with the start of a no-cost study extension period. We anticipate longitudinal analyses to be completed in winter 2024-2025.

Conclusions

The current researchers anticipate expanding the investigation into a program of research that examines the experiences and needs of TGD youths from early childhood through early adulthood. This study sets up an ideal framework to continue collecting longitudinal data from the cohort recruited for this initial work, and further elucidate the developmental complexities of this population to complement findings from the TYCUS study.

Acknowledgements

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References: Please refer to Hidalgo MA, Chen D, Tishelman AC, Olson-Kennedy J, Chan Y-M, Garofalo R, Petras H, Rosenthal SM, Ehrensaft D. Childhood Gender Diversity and Mental Health: Protocol for the Longitudinal, Observational Gender Journey Project. JMIR Res Protoc 2024;13:e55538 URL: <https://www.researchprotocols.org/2024/1/e55538> doi: 10.2196/55538