

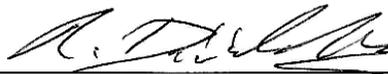
Attitudes Toward Puberty Blockers for Children Experiencing Gender Dysphoria

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Abstract

Children who experience gender dysphoria (i.e., the feeling that one's biological sex is not aligned with their identity) have few options for affirming their identity. One current option is drug series called puberty blockers which can postpone puberty. These drugs are a relatively new treatment for gender dysphoria and opinions about their use in children vary. The current study explores individuals' reasoning behind their opinions about puberty blockers for treating gender dysphoria. Correlates of transphobia are also assessed. Participants (n = 114) read a story about Alex, an 8 year old who would like to begin puberty blockers for treating precocious puberty (control vignette) or gender dysphoria (experimental vignette). Participants also completed a transphobia scale, answered questions about their contact with transgender individuals, and indicated whether, as Alex's hypothetical parent, they would grant permission for Alex to receive puberty blockers and how certain they were of their decision. Vignette was not found to significantly affect granting permission or how sure participants were about granting permission. Politically conservative views were found to be significantly correlated with transphobia. Further findings, including the influence of education and contact with the transgender community, are discussed.

Keywords: gender dysphoria, puberty blockers, transphobia

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Attitudes Toward Puberty Blockers for Children Experiencing Gender Dysphoria

Transgender populations currently face discrimination, unique health concerns, and particularly high rates of depression and suicide. With gender identity forming around 2 ½ years of age, it is crucial that the health of gender nonconforming children is not overlooked (Blakemore, Berenbaum, & Liben, 2009). For children who identify as transgender, options for affirming their identity are limited. One current option is a drug series called puberty blockers¹ which can postpone puberty. Although there are few reported side effects, these drugs are a relatively new treatment for gender dysphoria and opinions about their use in children vary. The current study explores individuals' reasoning behind their opinions about puberty blockers for treating gender dysphoria.

Transphobia Through the Lens of Cultural Psychology

Harré and Gillett (1994) contend that the behavior of an individual can only be understood through the understanding of knowledge structures that influence that individual. In other words, simply observing an individual without considering influencing cultures may lead to false conclusions about that individual's behavior. Herein an attempt is made to consider outside influences on individuals' behavior by approaching the study of transphobia through the lens of cultural psychology.

To begin, the concept of culture can be broken down into two categories: personal and collective culture. This distinction is mostly useful to distinguish the processes of internalization and externalization, where personal culture refers to the combination of internalized and externalized subjective phenomenon and collective culture is made up of externalizations of

¹ The Leuprolide injection, referred to here as puberty blockers, can be used to treat gender dysphoria by postponing the onset of puberty. Common brand names include Eligard, Lupron, Lupron Depot, Lupron Depot-Ped, and Viadur (National Institute of Health, 2011).

surrounding groups of people (Valsiner, 2000, p. 55). Without the individuals, a collective culture of various externalizations cannot occur. Simultaneously, without externalizations that form the collective culture, individuals have little to internalize and that would affect personal cultures. The interactions between internalizations and externalization, and the opposition of the two, help to create culture (Valsiner, 2000, p. 34). From this perspective it is clear that a culture and an individual cannot exist independently. In the study of prejudice and discrimination, as with the study of transphobia, it is necessary to consider the individual as playing an active role of this interaction between internalizations and externalizations. Without these considerations, false conclusions may be drawn and the attempt to decrease prejudice and discrimination may be impeded.

Meaning-Making Processes

Defining meaning-making can yield different results depending on the context. Baumeister (1991) describes meaning-making in general as the “mental representation of possible relationships among things, events, and relationships” (p. 15). The meaning-making process may be used in situations in which an individual is confronted with changes which challenge their mental schemas and assumptions (Janoff-Bulman, 1992). Through the meaning-making process an individual creates new explanations to make sense of the changes. Here, meaning-making is explained through the processes of semiotic mediation and dialogical-self.

Semiotic mediation, or the use of signs to relate with and understand our environment, is a useful function in meaning-making (Valsiner, 2000, p. 15). Through semiotic mediation an individual is able to create symbols which provide specific meanings when used again in the future. Through the text entry portion of the current study, special attention was given to identifying and

exploring the specific symbols used by participants to relate with and understand transgender issues.

The theory of Dialogical-Self is also useful to consider when studying the meaning-making process of participants. The Dialogical-Self Theory (DST) helps to link externalizations and internalizations of the collective and personal cultures (Hermans, 2001). The DST extends the idea of ‘self’ to be a culturally inclusive concept. Rather than the ‘self’ existing as isolated thoughts and behaviors, DST suggests that an internal dialogue helps link the ‘self’ with external culture. Through this internal dialogue we are able to interact with the world around us. By taking a position in an environment, one develops a self-concept of their identity, including outside factors which may help define them (i.e., “I as friend of an African refugee”) (Hermans, 2013, p. 84). Based on these self-concepts, discrepancies may occur, causing the need for further internal dialogue. In the current study participants were asked whether they would grant permission for a child to receive puberty blockers for the treatment of gender dysphoria. Participants were also asked to provide reasons for their decision. This not only provided information regarding the opinions of participants, but also with the elements of the meaning-making process behind reactions to transgender individuals and the latest medical interventions. Gaining an understanding of the symbols and explanations participants use is the first step to understanding the meaning-making process of participants.

The Heterogeneity of the Lesbian, Gay, Bisexual, and Transgender (LGBT) Community

Much research has been done on issues commonly related to homosexuality. Homosexual individuals have been included as the sole participant pools in numerous studies on HIV/AIDS, social stigmas, and various health concerns (Detels, et al., 2012; Hatzenbuehler & McLaughlin, 2014; Jacquez, Koopman, Simon, & Longini, 1994). Unfortunately, results of these studies are

often mistakenly generalized by the public and/or researchers to include the entire LGBT community. Although the queer community and many gender/sexuality scholars consider the L and G of this popular acronym to be distinctly separate from the B and T, the differences between these terms are rarely considered in the public eye and, until recently, have gained little notice in research settings (Klein, Yescavage, & Alexander, 2004). Without making a distinction between the homosexual, bisexual, and transgender subgroups which make up the LGBT community, these generalizations can lead to detriments in our knowledge of the individual concerns each these groups have.

Through the exclusion of transgender populations in “LGBT” research, we are currently left with gaps in our understanding of many health and social issues specific to the transgender community. For example, although some transgender individuals are thought to be at high risk for HIV, little research has been done to explain the causes and risk levels for this group (Bockting, Robinson, & Rosser, 1998). Subgroups of transgender individuals are only beginning to be included in HIV research, but more inclusion is needed to explore HIV as well as other health and social concerns among this population (Herbst, Jacobs, Finlayson, McKleroy, Neumann, & Crepaz 2008).

Transgenderism

Before delving into the current issues surrounding the transgender community, it is important to provide clear definitions of the terms to be used. To begin, the terms *sex* and *gender* are often used interchangeably, however in order to understand transgenderism the two must be differentiated between. *Sex* is strictly biological, referring to the chromosomes, gonads, and hormones of an individual, as Lehmilller (2014) explains. *Gender*, on the other hand, refers to the psychological, cultural, and social aspects of an individual which are traditionally associated with

being male or female. Along with these gender associations often comes stereotypes (such as the expectation in western society for men to be assertive and independent and for women to be sociable and emotionally expressive) and a traditional, binary concept of gender which separates gender into two distinct categories which are often seen as opposites (i.e., only two genders exist: men and women) (Eisenclas, 2013). Transgender individuals, as well as individuals who consider themselves “gender non-conforming,” do not conform to these traditional gender roles. These individuals may identify as crossdressers, bigender persons (one who identifies as being both genders), or transsexuals (Crooks & Baur, 2011; Hyde & Delamater, 2008). As a subgroup of the transgender community, transsexuals are those whose gender and sex do not match (e.g., a biological male who identifies as a woman). Before identifying as transgender, an individual might feel a sense of distress or discomfort as a result of feeling as if their body does not match their identity. This is referred to as gender dysphoria. Transsexual individuals may undergo gender reassignment surgery and/or hormonal therapy with the purpose of changing their physical traits to match their gender identity, but this is not always the case (Crooks & Baur, 2011; Hyde & Delamater, 2008).

Concerns and Issues Particular to the Transgender Community

The transgender community faces unique social and cultural difficulties which can affect the physical and psychological health of these individuals. While gays and lesbians certainly face discrimination today, negative feelings toward transgender individuals can be even more severe. After asking participants to use a 101-point feeling thermometer to rate how warm or cold they felt toward certain groups of people, Norton and Herek (2013) found a correlation between negative feelings toward transsexuals and gay men, lesbians, and bisexuals, yet thermometer ratings for the transsexual group were significantly lower. Personal and social traits such holding

politically conservative views, a strong support of a binary conception of gender, intolerance for ambiguity or “rule breaking”, and (among women) religiosity are strongly correlated with negative feelings toward transgender people (Norton & Herek, 2013). Additionally, a lack of interaction with transgender individuals or seeing transgender individuals as different may correlate with discriminatory views. This is similar to the idea that homophobia may be a result of a lack of interaction with homosexual individuals (Kullasepp, 2007). However, Capezza (2007) suggests that lack of contact with various groups (e.g., straight and gay individuals, gender traditional and nontraditional individuals) can only partially explain negative views toward unfamiliar groups. Further, seeing others as “different” does not breed intolerance on its own; we are all different, and differences are often valued (Maduriera, 2007). The current study added to this body of research by exploring the effect of political views, spirituality, and contact with transgender individuals on transphobia.

In addition to greater discrimination compared to gays and lesbians, transgender individuals experience greater discrimination than racial minority groups (Erich, Tittsworth, Meier, & Lerman, 2010). Findings from a recent study found that participants (all transsexual men and women of colour) experienced more discrimination based on their transsexual identity than based on their racial identities (Erich, Tittsworth, Meier, & Lerman, 2010). As with previous theories, holding strong social and political views as well as having a lack of contact with transgender individuals could explain this difference in expressed prejudice.

Transgender individuals also face unique concerns in childhood. While it is commonly thought that gay and lesbian children do not fully identify as homosexual until mid- to late adolescence, children form gender identities around 2 ½ years of age (Blakemore, Berenbaum, & Liben, 2009; Santrock, 2013, p. 251). If a child begins to play, dress, or otherwise act in a way that

is not considered appropriate based on their outward presentation of their gender, social support surrounding the child may begin to change. The earliest discrimination of gender roles is provided by a child's parents (Santrock, 2013, p. 252). Despite efforts to decrease gender stereotyping based on its detrimental effects, research continues to provide evidence of parents' roles in encouraging gender norms consistent with the child's sex (Bronstein, 2006). School peers and playmates will also often reject a gender non-conforming child, such as a boy who plays with dolls or a girl who plays with toy trucks (Handrinos, Cooper, Pauletti, & Perry, 2012). Through these constant influences, gender non-conforming children may feel increasingly ostracized and left out, leading to depression, substance abuse, and/or suicide (which was estimated in 2006 to be attempted by around 32% of transgender individuals) (Clements-Nolle, Marx, & Katz, 2006).

Options for Children with Gender Dysphoria

In an effort to alleviate the negative social and psychological consequences of identifying as transgender, some individuals may opt for sex reassignment surgery or hormone therapies. It has been estimated that the number of transsexuals in the United States is about 700,000, or about 0.3 percent of adults, with the majority seeking to transition to their desired sex (Williams Institute, 2009). Other estimates indicate this population to be much greater in number. Horton (2008) suggests transgender individuals may be 1 in 1000, while the prevalence of those who have had or will have sex reassignment surgery is 1 in 3100. For many transgender adults, sex reassignment surgery and/or hormone treatments become a likely option. Of course, these options are vastly limited for children. Regardless of a child's desire to change their sex, a minimum age of 18 is required for surgery (Meyer, et al., 2001). In addition to the age requirement for irreversible procedures, such as sex reassignment surgery, many health professionals avoid providing

treatment for these children, fearing that irreversible treatment is premature and that the child may grow up to identify as gay or gender conforming rather than transsexual (Platero, 2014).

However, there are alternatives for individuals under the age of 18. One such option is a series of drugs called hormone blockers, also known as puberty blockers, which can postpone puberty (Navasky & O'Connor, 2015). A major appeal of this option is its characteristic of being reversible while also allowing more time for the child and their parents to make a decision about future efforts for more permanent actions (Navasky & O'Connor, 2015). The extra time puberty blockers give families is crucial for the health and wellbeing of their children. Because many children with gender dysphoria (i.e., the dysphoria or uncomfortable psychological state associated with the feeling that one's sex and gender do not match) do not continue to identify as transgender in adulthood, it is important that these individuals are given enough time to make a sound decision (Wallien, Cohen-Kettenis, 2008). At the same time, the opinions and feelings of these children should be respected rather than ignored until adulthood. Fortunately, if used under the correct timing circumstances, puberty blockers can provide families with more time to consider their options while avoiding irreversible effects and simultaneously show the child respect for their opinions and feelings (Navasky & O'Connor, 2015).

Puberty blockers don't come without a downside. Although there are few negative consequences reported as a result of puberty blockers, very little is known about the long term effects. Use of this option for postponing puberty in children experiencing gender dysphoria is very recent. Because of this, no longitudinal studies have been performed past the extent of about 10 years (Kuper, 2014). However, these same drugs have been used for roughly the past 30 years to treat precocious puberty (this being the only FDA approved use of the drugs), reporting few side effects (Kuper, 2014). While children receiving puberty blockers for the treatment of gender

dysphoria are on the forefront of this medical option, little suggests that the possible side effects outweigh the current detriments of living with gender dysphoria.

Predictions

I am interested in exploring why some individuals are less receptive to the idea of hormone therapy for treating gender dysphoria. The current study looks to explore individual meaning-making concerning transgender health issues. I am interested in the possible responses when participants are presented with the choice of granting a child permission to receive puberty blockers to treat a currently controversial issue. I predicted that participants presented with the option of granting a child permission to receive puberty blockers for the treatment of precocious puberty would be more likely to respond favorably than those presented with the child wanting to treat gender dysphoria. Correlates with transphobia (i.e., politically conservative views, a strong support of a binary conception of gender, intolerance for ambiguity or “rule breaking”, and (among women) religiosity) are also hypothesized to be predictors of high scores on the Transphobia Scale and to predict infrequent *yes* responses to the question of granting permission for the child to receive puberty blockers. In the current study, politically conservative views and religiosity were assessed. Finally, it was hypothesized that participants presented with the control vignette concerning the child with precocious puberty would be more certain of their choice to grant or not grant permission for the child to receive puberty blockers.

Method

Participants

Participants were recruited from California Lutheran University through the SONA system. This study offered participants two participation credits, required for most psychology classes at Cal Lutheran, in exchange for a maximum of 30 minutes necessary to complete the

study. All participants ($N = 114$) were at least 18 years of age and ranged from 18 to 24 ($M = 19.76$, $SD = 1.50$). Men made up 14.0% of the sample ($n = 16$) while the majority (85.1%) were women ($n = 97$). All participants reported as cisgender (i.e., all participants who reported their gender as male also reported their sex as male, and those who reported their gender as female also reported their sex as female), other than one who reported being a female tomboy ($n = 1$, 0.9%). Most of the sample was *Caucasian* ($n = 64$, 56.1%), followed by *Hispanic* ($n = 27$, 23.7%), *Asian* ($n = 7$, 6.1%), *African American* ($n = 4$, 3.5%), *Middle Eastern* ($n = 2$, 1.8%), *Pacific Islander* ($n = 2$, 1.8%), and *Other* ($n = 8$, 7.0%). Participants were also majority freshmen ($n = 37$, 32.4%), with sophomores ($n = 28$) representing 24.6%, juniors ($n = 26$) representing 22.8%, and seniors ($n = 23$) representing 20.2% of the sample. Finally, the majority of the sample reported their area of study as social/behavioral science ($n = 62$, 54.4%) and natural science ($n = 28$, 24.6%). Although participants were asked to indicate their religion, because of a system glitch this data was not able to be collected. Please refer to Figures 1 and 2 below for all remaining participant demographics.

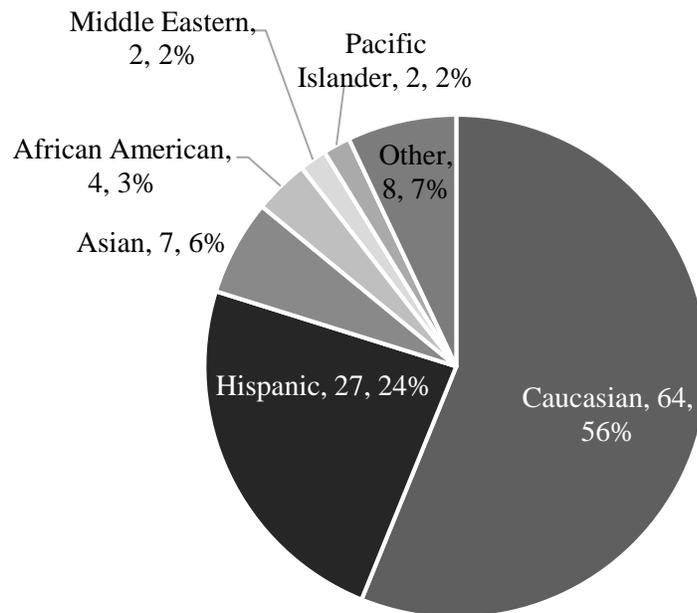


Figure 1. Participants' ethnicity, frequencies and percentages.

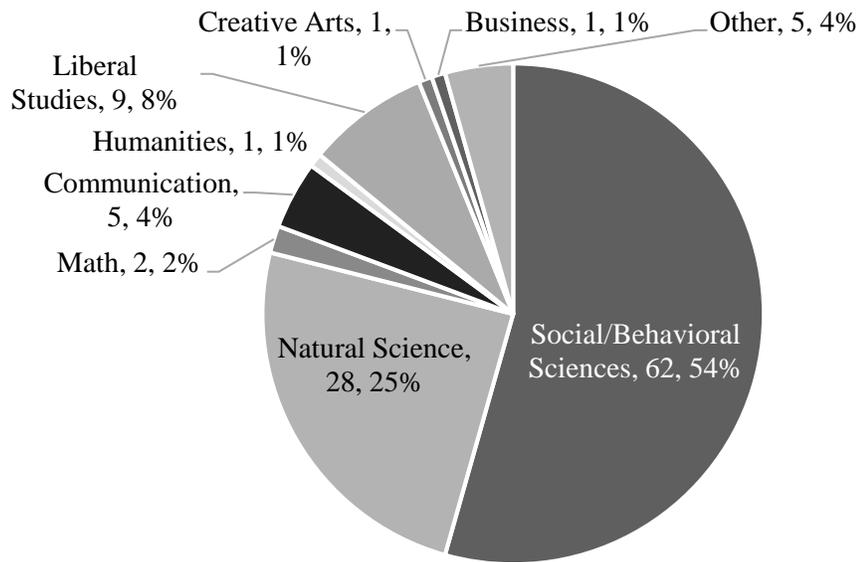


Figure 2. Participants' area of study, frequencies and percentages.

Materials

Informed Consent. The Informed Consent, presented to participants in an online format, informed participants that the purpose of the study is to explore child health decision, that the study would involve completing several questionnaires, it would take no longer than 30 minutes, participation is entirely voluntary, they were free to discontinue at any time without consequences, the study would earn two credits of psychology participation, and that their responses are confidential. Students indicated acceptance of the Informed Consent form before proceeding. See Appendix A for the Informed Consent form.

Assessment scales. A 25-item scale was used to assess transphobia and attitudes toward the medical use of puberty blockers. The Transphobia Scale (TS), adopted from Nagoshi, Adams, Terrell, Hill, Brzuzny, and Nagoshi (2008), is a 9-item scale used to measure prejudice toward transgender individuals by asking participants to rate the extent to which they agree with

statements such as “When I meet someone, it is important for me to be able to identify them as a man or a woman” and “I believe that the male/female dichotomy is natural.” Participants’ responses were averaged to create a final transphobia score. Item nine of the scale (appears as item 25 on the expanded assessment scale listed under Appendix B), mentioned above, asks whether responders believe the male/female dichotomy is natural. After asking participants to explain their understanding of the “male/female dichotomy,” it was found that many could not define the statement. Because of this, item nine was excluded from the final transphobia scale. The remaining questions answered by each participant were averaged. Nine additional questions, adapted from an HPV immunization attitudes and beliefs scale developed by McRee, Brewer, Reiter, Gottlieb, and Smith (2010), were used to assess participants’ attitudes toward puberty blocker injections. An additional seven statements are included as filler and for exploratory reasons. Participants indicated how much they agree or disagree on a 7-point Likert scale (1 = *completely disagree*, 7 = *completely agree*). This scale was prefaced with a statement regarding puberty blockers to familiarize participants with this medical option. See Appendix B for the full assessment scale.

Vignettes. Two vignettes were used, both about a child, Alex, who desires medical intervention. The only difference between the two vignettes concerned the reason for medical intervention needed for each child. The control group read a vignette in which Alex is experiencing precocious puberty, the onset of puberty before 8 years old in girls and before 9 in boys, and is seeking hormone therapy to treat the negative symptoms of precocious puberty by postponing puberty (puberty blocker medications). In the experimental vignette, Alex is experiencing gender dysphoria and currently seeking the same hormone therapy. Both children are 8 years old and presented as emotionally distressed. Please see Appendices C and D for the control and experimental vignettes, respectively.

Dependent variables. Dependent measures were gathered following the assessment scale and vignettes. First, the participants indicated if they would grant the child permission to receive the puberty blocker treatment. Following this yes/no question, participants rated how sure or reluctant they were of their choice using a 7-point Likert scale. Please see Appendix E for the dependent variable assessment.

Text entry responses. Participants were also asked to explain their reasoning behind indications of granting or not granting permission through text entry responses. Further text entry questions were included to assess participants' understanding of the male/female dichotomy², alternative options to puberty blockers for the child in the vignettes, and conceptualization of transgenderism. Please see Appendix F for all text entry questions.

Follow up questions. Following the dependent variable questions, participants were asked about their history of education on the topic of transgenderism and their known contact with transgender individuals. Questions concerning known contact with transgender individuals were asked in two parts in order to encourage participants to consider the question thoroughly. The first question specifically asked about personal contact (e.g., a friend, coworker, child of a friend, spouse's cousin, friend's sibling, etc.), while the other asked about other relations (e.g., strangers, business related, casual meetings, etc.). Answers to these questions were combined in analyses to create a variable considering overall known contact with transgender individuals. If participants answered yes to either having personal or non-personal contact with a transgender individual, they were considered to overall have contact and were recorded as such in the combined variable. Please see Appendix G for a full list of follow up questions.

² Based on responses to the question "What does the male/female dichotomy mean to you" it was concluded that few participants understood this reference. Because of this lack of understanding, item 25 of the transphobia scale ("I believe that the male/female dichotomy (i.e., contrast or split) is natural") was taken out of the final transphobia score.

Demographic questions. Participants were asked to indicate various demographic characteristics including their age, gender, sex, ethnicity, major, and year in school. Predictors of transphobia were also assessed, including political views and religiosity (Norton & Herek, 2013). See Appendix H for demographic questions.

Procedure

Student volunteers who were at least 18 years of age signed up and completed the study through an online system. The study began with an Informed Consent Form. Students indicated acceptance of the Informed Consent form before proceeding. Students who agreed to participate were then randomly assigned to one of four groups (based on 1. the order of presentations of the assessment scale and vignette, and 2. the vignette to be read). Half of the participants completed the assessment scale before the vignette, and half read the vignette before the assessment scale to control for order effects. Participants were also randomly assigned to the control or experimental vignette. Participants in the control group were presented the vignette about a child with precocious puberty. The experimental group read about a child experiencing gender dysphoria. Participants were then asked a set of dependent variable assessment questions, most notably whether or not they would permit the child they read about to receive puberty blockers. Finally, the study concluded with the follow up questions and the demographic assessment. Participants were debriefed following their participation and given the researchers' email address again, in case they have any questions or comments. See Appendix I for the debriefing sheet to be presented to participants.

Results

Hypotheses

Hypothesis 1: Vignette on granting permission. First, it was predicated that the participants presented with the option of granting a child permission to receive puberty blockers for the treatment of precocious puberty would be more likely to respond favorably (i.e., with a *yes* response to the question of granting the child permission to receive puberty blockers) compared to those presented with the child wanting to treat gender dysphoria. A Chi-Square test was used to assess this hypothesis. No significant difference based on vignette was found.

Hypothesis 2: Correlates of transphobia. Second, select correlates with transphobia, including politically conservative views and religiosity, were hypothesized to be predictors of high scores on the Transphobia Scale and to predict infrequent *yes* responses to the question of granting permission for the child to receive puberty blockers. After splitting the data based on vignette, a linear regression was performed to assess the significance of political views on predicting granting permission for the child to receive puberty blockers. This test was also performed without the data split, by grouping all data together. For each vignette, as well as overall, political views were not found to significantly predict granting permission. Refer to Table 5a in Appendix J for regression coefficients for the control group, 5b for the experimental group, and 5c for overall effect of politically conservative views on granting permission. This same statistical method was used to assess the effect of political views on transphobia scores. Political views were found to significantly predict transphobia scores, where those who reported having more conservative political views scored higher on the transphobia scale, indicating more transphobia, $F(1, 110) = 17.30, p < .001, R^2 = .14$. This is a moderate effect size indicating that 14% of variability in

transphobia is explained by political views. Please refer to Table 1a for regression coefficients for each vignette, and Table 1b for regression coefficients with both vignettes combined.

A Chi-Square test was then used to assess the effect of frequency of religious gathering attendance on granting permission for the child to receive puberty blockers. No significant effect was found. A Factorial ANOVA was also performed to assess the effect of frequency of religious gatherings and granting permission on transphobia score, however it should be noted that *daily* and *2-3 times a week* options are underpowered, with only one participant in each of these categories with a *no* response to granting permission. Because of this, additional data should be collected in order to draw conclusions about the effect of religiosity on transphobia.

As a separate measure, spirituality was found to be significantly and positively correlated with transphobia, $r = .21$, $p = .03$. This indicates that as feelings of spirituality go up, transphobia also increases.

Table 1a

Political Views Predicting Transphobia for Control Vignette (Precocious Puberty) and Experimental Vignette (Gender Dysphoria)

Predictor	Vignette					
	Precocious puberty			Gender dysphoria		
	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>B</i>	<i>B</i>	β
Political Views	.315**	.111	.359	.236**	.078	.386
<i>Df</i>		1		1		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 1b

Political Views Predicting Transphobia for Overall

Predictor	<i>B</i>	<i>B</i>	β
Political Views	.280***	.067	.369
<i>Df</i>	1		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Hypothesis 3: Vignette on certainty of decision of granting permission. Finally, it was hypothesized that participants presented with the control vignette concerning the child with precocious puberty would be more certain of their choice to grant or not grant permission for the child to receive puberty blockers compared to those presented with the gender dysphoria vignette. This hypothesis was tested using an independent groups t-test. No significant difference was found based on vignette. See Table 6 in the Appendix J for means and standard deviations.

Education on Transgender Topics as a Predictor Variable

Education and transphobia. Exploratory analyses were performed to assess other measures collected, most notably education and contact with transgender individuals. Participants were asked about their education on transgender topics, including classes, lectures, social clubs, public events and/or festivals. Results of an independent groups t-test indicated a trending effect of education as a predictor of transphobia, $t(18.46) = -2.00, p = .06, d = -.60$. This a medium to large effect size. Those who reported having had education on the topic of transgenderism had significantly lower transphobia scores ($M = 2.34, SD = 1.07$) compared to those who reported not having education on transgender topics ($M = 3.17, SD = 1.64$). It is important to note that Levene's Test for Equality of Variances found that the transphobia score variable had significant outliers ($F = 6.60, p = .01$), however these scores were important for the analysis as they represented the upper range of transphobia scores collected. Because of this, the t-test was adjusted and the appropriate t and p values were reported to account for unequal variances within each group. While no causal relationship can be stated, as the education variable was not manipulated, this relationship between education and transphobia score does provide directions for future research. These future directions are proposed in the discussion section.

Education and contact with transgender individuals. Participants' education on transgender topics was also considered in the context of their contact with transgender individuals. In order to assess this interaction and how it impacts how sure participants were about their choice to grant or not grant permission for the child to receive puberty blockers, a Factorial ANOVA was performed. Before running this statistical test, the data was split based on the "grant permission" variable in order to assess participants' certainty of their answers. In other words, separate Factorial ANOVAs were performed, one for those who answered *no* to granting permission for the child to receive puberty blockers, and one for those who answered *yes*. Results from each test indicate different effects of contact and education on participants' indication of how sure they were about their choice to grant or not grant permission.

Did not grant permission. For the group that did not grant permission for puberty blockers, a significant main effect was found for education on certainty of deciding not to grant permission for puberty blockers, $F(1, 33) = 4.93, p = .03, \eta_p^2 = .13$. Those who have had education on transgender topics ($M = 4.29, SD = 1.50$) were significantly less sure of their choice to not grant the child permission to receive puberty blockers compared to those who have not had education on transgender topics ($M = 5.44, SD = 1.19$). The effect size of .13 is a large effect. No significant interaction or main effect for contact was found.

Granted permission. Among the group that responded *yes* to granting the child permission to receive puberty blockers, no main effects were found for education on transgender topics or personal contact, however a significant interaction between the two variables on certainty of decision to grant permission was found, $F(2, 69) = 4.26, p = .02, \eta_p^2 = .11$. This a medium-large effect size. In this group of *yes* responders, among those who reported not having education on transgender topics, those who also had no contact with transgender individuals ($M = 3.36, SD =$

.61) were significantly less sure of their decision to grant permission compared to those were unsure of having had contact with transgender individuals ($M = 6.51, SD = 1.21$). In this same group who granted permission and reported not having education on transgender topics, those who had contact with transgender individuals fell in-between those who had no contact and those who were unsure of contact in their rating of certainty ($M = 4.37, SD = .61$). Among those who reported having education on transgender topics, those who have not had contact with transgender individuals were the most certain of their decision to grant permission ($M = 5.02, SD = .31$), while those who were unsure for their contact were the least sure ($M = 3.93, SD = .50$). For this group who granted permission and reported having education on transgender topics, those who have had contact with transgender individuals again fell in-between the other no contact and unsure contact groups in their certainty ($M = 4.67, SD = .18$).

Overall, education was not found to cause participants to feel more certain about their decision. Instead, participants who had education and decided not to grant permission for the child to receive puberty blockers were less certain of that decision. Only for those who granted permission, personal contact with transgender individuals interacted with education to impact their certainty of granting permission. When comparing between those who had education and those who did not, individuals with personal contact were more consistently certain of their choice (mean difference = .30) compared to those who haven't had contact (mean difference = 1.67) and those who were unsure of having contact (mean difference = -2.58). Please refer to Figure 3 for a line graph depicting this interaction among participants who granted permission.

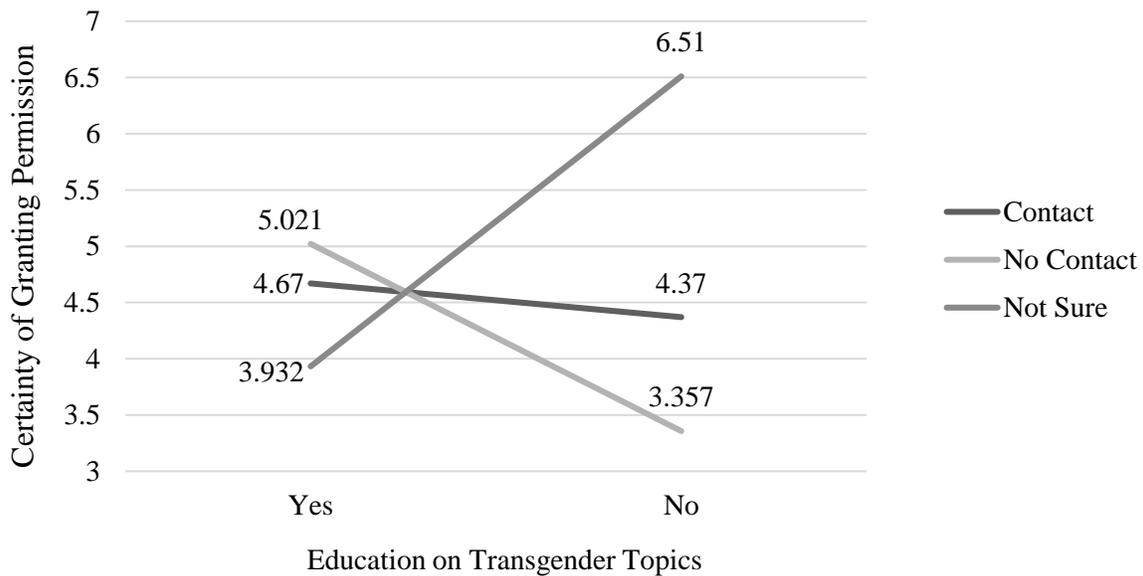


Figure 3. Contact with transgender individuals and education on transgender topics interacting to effect certainty about granting permission for the child to receive puberty blockers among those who granted permission.

Transphobia as an Outcome of Granting Permission

A regression was conducted to assess the relationship between participants' indication of granting permission for the child to receive puberty blockers and participants' transphobia scores. Granting permission was found to significantly predict transphobia score, $F(1, 112) = 4.26$, $p = .04$, $R^2 = .04$. This is a small to medium effect size. For every one point increase in not granting permission there was a .48 point increase in transphobia predicted. In other words, those who did not grant permission were more likely to have higher levels of transphobia. Please refer to Table 2 below for unstandardized and standardized betas, standard error, and significant values.

Further analyses indicate that after separating participants based on vignette, this effect is no longer present. While granting permission was found to predict transphobia overall, the effect

was non-significant in the control and experimental groups separately. Please see Table 11 in Appendix J for the effects in the control and experimental groups, respectively.

Table 2

Granting Permission Predicting Transphobia

Predictor	<i>B</i>	<i>SD B</i>	β
Granting Permission	.482**	.234	.191
<i>Df</i>	1		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Effect of Medical Phobia on Granting Permission

Because puberty blockers are a series of injections, feelings about injection treatments were taken into account when considering participants' responses to granting permission for puberty blockers.

Belief in safety of puberty blockers. A series of questions asked participants about how safe they felt the puberty/hormone blocker treatment is. As a part of the transphobia assessment scale, questions included "hormone blockers might cause short term problems like decrease in bone density," "Hormone blockers might cause lasting health problems," and "I think hormone blockers are unsafe." After running a linear regression, it was found that a stronger belief in puberty blockers being unsafe predicted less likelihood of granting permission, $F(1, 112) = 13.51, p < .001, R^2 = .11$. This is a medium effect size. For every 1 point increase in belief that puberty blockers are unsafe, 0.11 point increase in likelihood of not granting permission to receive puberty blockers. Please refer to Table 3 for standardized and unstandardized coefficients.

Belief in ability to find puberty blocker clinics. Participants were also asked about their belief that an affordable clinic providing the puberty blocker treatment would be easy to find. These questions included "I think it would be easy to find a provider or clinic where a parent can

afford hormone blockers” and “It would be easy to find a provider or clinic that has hormone blockers available.” Another linear regression was performed to assess this association. A trending association between belief that it is easy to find a provider of puberty blockers and granting permission was found, $F(1, 112) = 2.84, p = .10, R^2 = .03$. This is a small effect size. For every 1 point increase in belief that puberty blocker clinics are easy to find, there was a .06 point decrease in likelihood of denying permission for puberty blockers (i.e., increased belief that puberty blocker clinics are easy to find predicts higher likelihood of granting permission). Please refer to Table 4 for standardized and unstandardized coefficients.

Table 3

Belief in Puberty Blockers Being Unsafe Predicting Granting Permission – Linear Regression Coefficients

Predictor	<i>B</i>	<i>SE B</i>	β
Puberty Blockers “Unsafe” Belief	.107***	.029	.329
<i>Df</i>	1		

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4

Belief That Puberty Blockers Clinics are Easy to Find Predicting Granting Permission – Linear Regression Coefficients

Predictor	<i>B</i>	<i>SE B</i>	β
Clinics Easy to Find Belief	-.056	.034	-.157
<i>Df</i>	1		

Themes Found in Participants’ Explanations of Granting or Not Granting Permission

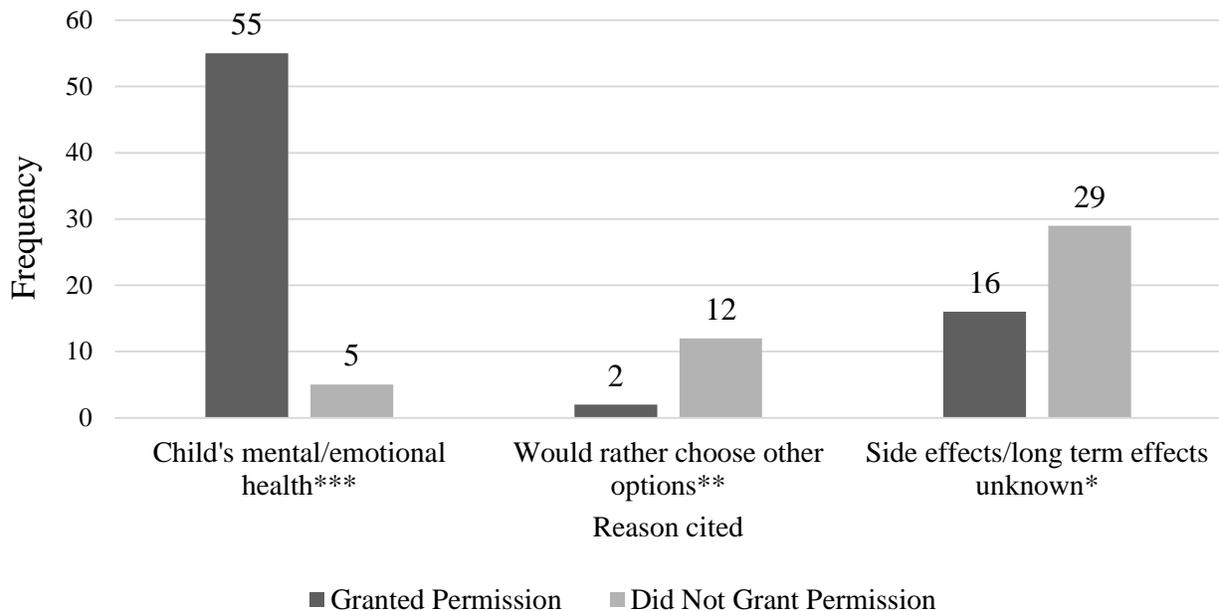
Participants were asked to answer a free response question about their decision making process. Through the text entry response, participants gave specific reasons for their decision to either grant or not grant permission for the child to receive puberty blockers. These responses were used to explore the various aspects or “ingredients” used in the participants’ meaning-making

processes. Participants' answers were coded for the most frequent themes present, including puberty blockers' lack of FDA approval, lack of research about puberty blockers, unknown side effects and long term effects, preference for other treatment options, consideration of the child's mental and emotional health, and treatment being against religious and moral beliefs. These themes were found after reading the text entry responses and were not defined before reading participants' responses.

All demographics for participants included in the quantitative analyses are the same as previously listed, however one participant did not answer the free response question and was excluded from the analyses. In total, 113 participants were included in the frequency analyses.

Most participants ($N = 75$, 65.79%) indicated they would give the child permission to receive the puberty blocker treatment, however negative factors such as the lack of research and knowledge of long term effects were still brought up. While many cited that side effects and long term effects are unknown ($N = 45$, 39.82%), not all considered this a deal breaker for puberty blockers. Overall, there was a large lack of knowledge, whether it be personal understanding of puberty blockers or citing that little research has been done on the topic. Twenty participants (17.70%) cited lack of knowledge as a factor in deciding whether or not to give permission for the child to receive puberty blockers. After splitting participants based on granting permission (i.e., yes or no), it was found that significantly more participants who gave permission cited the child's mental or emotional state ($N = 55$), compared to those who did not grant permission ($N = 5$), $X^2(1, N = 113) = 41.67, p < 0.001$. It was also found that participants who did not grant permission said they would rather choose an option other than puberty blockers ($N = 12$), compared to those who granted permission ($N = 2$), $X^2(1, N = 113) = 7.14, p = .01$. Finally, a significant difference was found based on granting permission where those who did not grant permission cited the lack of

understanding about long term effects of puberty blockers ($N = 27$) significantly more frequently than those who granted permission ($N = 16$), $X^2(1, N = 113) = 3.76, p = .05$. Refer to Figure 4 below for significant differences in reasons cited. Please refer to Table 7 in Appendix J for non-significant differences in frequencies of responses separated by those who gave permission and those who did not. No significant differences in responses were found based on the vignette that the participant read. Refer to Table 8 in Appendix J for frequencies of responses separated by vignette the participant read.



* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 4. Reasons cited for choice to grant or not grant permission for puberty blockers.

Non-Significant Results

Further analyses were performed to assess possible factors influencing transphobia and granting permission. Included here, as well as in Appendix J, are non-significant findings.

A marginally significant effect of personal contact with transgender individuals on transphobia was found $F(2, 111) = 2.03, p = .14, \eta_p^2 = .04$. Average transphobia score among those

who were unsure about their contact with transgender individuals ($M = 3.06$, $SD = .32$) was marginally significantly higher than those who have had personal contact with transgender individuals ($M = 2.40$, $SD = .14$) and those who have not had contact with transgender individuals ($M = 2.34$, $SD = .23$). No significant difference was found between those who have and have not had contact. Please see Table 9 in Appendix J.

Participants' gender was considered as a possible predictor of granting permission. No significant effect was found, $X^2(2, N = 114) = 1.23$, $p = \text{n.s.}$ See Table 10 for frequencies. The data was then split based on vignette to assess whether granting permission significantly effects transphobia. Although granting permission was found to significantly predict transphobia overall, two additional t-tests were performed to assess the effect of granting permission on transphobia for the precocious puberty and gender dysphoria vignettes separately. For the control (precocious puberty) group, transphobia scores for responding *yes* to grant permission for puberty blockers ($M = 2.36$, $SD = 1.25$), and *no* ($M = 2.91$, $SD = 1.41$) were not significant different, $t(55) = -1.53$, $p = \text{n.s.}$ Similarly, in the experimental (gender dysphoria) group, transphobia scores for responding *yes* to grant permission for puberty blockers ($M = 2.25$, $SD = 1.09$), and *no* ($M = 2.64$, $SD = 1.01$) were not significant different, $t(55) = -1.29$, $p = \text{n.s.}$ See Tables 13a and 13b for transphobia score means based on choice to grant or not grant permission among the control group (13a) and the experimental group (13b).

A Chi-Square test was also performed to assess the effect of having previous knowledge of the puberty blocker option for treating gender dysphoria on participants' choice of granting permission for the child to receive puberty blockers. No significant effect was found, $X^2(1, N = 114) = .69$, $p = \text{n.s.}$ See Table 12 for frequencies in each group.

Finally, frequency of attending religious gatherings was also considered as a possible predictor of granting permission. After running a Chi-Square, no significant effect of religious gathering frequency on granting permission was found, $X^2(5, N = 114) = 7.67, p = \text{n.s.}$ Please refer to Table 13 for frequencies.

Discussion

Findings

Puberty blockers. As discussed earlier, the main appeal of puberty blockers for the treatment of gender dysphoria is their characteristic of being reversible while also allowing more time for the child and their parents to make a decision about future efforts for more permanent actions (Navasky & O'Connor, 2015). Because the majority of children experiencing gender dysphoria do not go on to identify as transgender or gender non-conforming, it is important that these children and their families are provided the maximum amount of time to consider the child's gender identity while also acknowledging the child's psychological wellbeing (Wallien, Cohen-Kettenis, 2008). That being said, parents of children experiencing gender dysphoria remain skeptical about the puberty blocker option, citing the lack of longitudinal understanding of puberty blockers and lack of FDA approval for their use in treating gender dysphoria (Navasky & O'Connor, 2015). These concerns were confirmed in the current study. When considering granting permission for the child they read about to receive puberty blockers, 39.82% cited the lack of understanding of long term effects, 11.50% cited the lack of FDA approval of the treatment option, and 17.70% cited the overall lack of understanding (either personal understanding of the participant or lack of research and empirical understanding of puberty blockers) when making their decision. These results help confirm the idea that parents are in need of more detailed information when making the choice to grant permission for their child to receive treatment.

In the case of gender dysphoria, parents are not only confronted with the difficult decision of granting or not granting permission for their child to receive a hormone treatment, but the child's psychological health is at risk. With gender identity usually forming around 2½ years of age, a child with gender dysphoria has likely been experiencing distress for many years over the feeling that their body and identity don't match (Blakemore, Berenbaum, & Liben, 2009; Santrock, 2013, p. 251). As the child approaches puberty and begins asking for puberty blockers, both the parent and the child have likely experienced years of distress. As supported by the current study's results, the child's emotional experiences surrounding their gender identity are often considered by the individual responsible for granting permission for the puberty blocker treatment. In my sample, 53.10% of participants cited the child's mental or emotional health when making their decision to grant or not grant permission. Although the long term effects and lack of understanding of puberty blockers were prominent concerns for participants, the majority were concerned by the child's negative emotional responses associated with gender dysphoria.

Meaning-making process. Through text entry responses, participants were asked to provide reasons for their decisions to grant or not grant permission for the child to receive puberty blockers. These answers were used to gain insight into the meaning-making processes of participants. Because responses were relatively short (under 200 characters) a full analysis of the meaning-making processes was not possible. Participants' answers were instead used to explore the "ingredients" of their meaning-making processes.

As discussed earlier, collective and personal cultures are constantly interacting and it is this interaction which creates culture (Valsiner, 2000). The Dialogical-Self Theory (DST) offers an explanation of how the externalizations and internalizations of the collective and personal cultures interact through the use of an internal dialogue (Hermans, 2001). By presenting participants with

the task of deciding whether or not to grant permission for a child to receive puberty blockers, participants engaged in their own internal dialogue. Participants were then asked to share this internal dialogue through text entry responses.

Frequently cited responses for participants' decisions to grant or not grant permission for the child to receive puberty blockers included lack of FDA approval, lack of research about puberty blockers, unknown side effects and long term effects, preference for other treatment options, consideration of the child's mental and emotional health, and treatment being against religious and moral beliefs. After comparing responses from participants who granted permission versus those who did not grant permission, significant differences were found. Participants who granted permission were significantly more likely to cite the child's emotional and mental health, while those who did not grant permission were significantly more likely to cite the unknown side effects and lack of understanding of the long term effects of puberty blockers. This provides insight into how participants' are supporting their decisions to grant or not grant permission. After making their decisions, those who granted permission were much more likely to use the child's emotional distress as support for granting permission, while those who did not grant permission were more likely to bring up the potential negative effects of puberty blockers. Whether they chose to grant permission or not, each individual was able to use their own internal dialogue to support their decision. With many benefits and disadvantages to the puberty blocker option, is it possible to justify either decision. However, even if a parent decides not to grant their child permission to receive puberty blockers based on their rational concern of the unknown long term effects, the child's condition goes untreated. Because of this, future research into the long term effects of puberty blockers for treating gender dysphoria is essential to decreasing the number of children

who go untreated and continue to experience the harmful symptoms of gender dysphoria. Suggestions for longitudinal research are discussed in the future directions section.

Transphobia. Various factors were found to significantly predict transphobia. Previous studies have found correlations between transphobia and politically conservative views and religiosity (among women only) (Norton & Herek, 2013). As predicted, in the current study politically conservative views were found to significantly and positively correlate with transphobia, but more data must be collected in order to draw conclusions based on the religiosity variable.

When studying homophobia, Copezza (2007) found that homophobia can be partially explained by a lack of contact with homosexual people, where less interaction was associated with more homophobia. As discussed in the non-significant results section, a marginally significant effect of contact on transphobia was found. Transphobia was highest among those who were unsure about their contact with transgender individuals ($M = 3.06$, $SD = .32$), compared to those who have had personal contact with transgender individual ($M = 2.40$, $SD = .14$) and those have not had contact with transgender individuals ($M = 2.34$, $SD = .23$). Although these findings were not statistically significant, a more detailed assessment of contact with transgender individuals on transphobia can be performed. Rather than having participants simply report if they have had contact with transgender individuals with the categorical answer options of *yes*, *no*, and *I'm not sure*, further studies can ask participants more detailed questions about how close they are with transgender individuals. While personal contact was defined for participants by including examples of personal relationships (e.g., friend, coworker, child of a friend, spouse's cousin, friend's sibling), more detailed questions about participants' relationship with transgender individuals may provide noteworthy results. Varying degrees of relationship closeness with

transgender individuals may yield more or less transphobia, as individuals with closer relationships with transgender individuals were predicted to have less transphobia. Contact, however, should not be considered as a main avenue to reduce discrimination. First, increasing contact with transgender individuals is not a practical solution. Second, as Copezza (2007) points out while commenting on the influence between contact with minority groups, although most men have contact with women, sexism and negative views toward women persist. Because of this, contact with a marginalized group of people is not a “cure all” remedy to discrimination. Discrimination persists even after the humanization of minority groups in the eyes of those with discriminatory views. Other avenues to potentially reduce transphobia must be considered.

One such avenue could be encouraging education on the topic of transgenderism. In the current study, having education on transgender topics was found to be correlated with lower transphobia.³ When participants were asked about their education on transgender topics, many options were considered to be education. Examples provided to participants included classes, lectures, social clubs, and public events/festivals. Even though education was not defined as only including traditional or formal learning settings, such as semester long classes, a trending effect of education on transphobia with a medium-large effect size was still found. This points to the practical significance of encouraging education on transgender topics. Further, a formal setting is not required for this correlation to be present. Even with some participants reporting their only education as a single lecture, attending parties or clubs, talking to a roommate about their “Queer Theology” class, or brief discussions in unrelated courses, this effect still produces a strong trend.

³ Before continuing, it should be noted that education was not a manipulated variable and no causal relationships can be claimed. Suggestions for further studies on the effect of education on transphobia are suggested in the future directions section of the discussion.

Limitations

Sample characteristics. While the sample size was adequate ($N = 114$), sample characteristics could have skewed the results. The majority of the sample were female ($n = 97$, 85.1%), Caucasian ($n = 64$, 56.1%), and majors within the social and behavioral sciences ($n = 62$, 54.4%) and natural science ($n = 28$, 24.6%). All participants were between the ages of 18 to 24 ($M = 19.76$, $SD = 1.50$), were nonparents, and students at Cal Lutheran University. These characteristics, with special attention given to the lack of participants who were primary caregivers of a child, limits the reality factor of the study's parent-child decision making feature. Additionally, students at Cal Lutheran are often in contact with the LGBT community on campus. With clubs on campus, many classes covering LGBT topics, events throughout the year, and constant reminders of Cal Lutheran's mission for inclusivity, compared to the general US population this sample is likely more conscious of the LGBT community. Younger populations such as traditional university students are also frequently exposed to popular culture media outlets. With the LGBT community currently receiving a lot of attention in pop culture, this becomes another factor influencing this sample's contact with and acceptance of the LGBT community. These factors may have led to lower transphobia scores and more frequent choices to grant permission for puberty blockers compared to a more heterogeneous sample outside the university.

Hypotheses. Two hypotheses were not confirmed. A significant effect for vignette was predicted, such that 1. participants who read the control vignette (depicting a child experiencing precocious puberty) would grant permission for the child to receive puberty blockers significantly more frequently compared to participants who read the experimental vignette (depicting a child experiencing gender dysphoria) and 2. those presented with the control vignette would be significantly more sure of their decision to grant or not grant permission. These predictions were

based on the assumption that precocious puberty is perceived as less pathological than gender dysphoria and therefore serves as an adequate control group. Future studies should include manipulation checks to assure that this difference is present. With this alteration, the predicted effect should be further studied. The similar prediction that participants in the control group would be more sure of their choice to grant or not grant permission for the child to receive puberty blockers could have had a similar issue of an inadequate control group.

Future Directions

Suggestions for education on transgender topics. The most substantial findings of this study included education on transgender topics and its effect on transphobia and the medical use of puberty blockers. However, because the education variable was not manipulated in this study, no causal relationship can be claimed. Future studies should include education as a manipulated independent variable to assess its impact on transphobia. The current study defined education on transgender topics as classes, lectures, social clubs, and public events or festivals. Future studies should look at these education settings separately to assess the impact of direct education about transgender populations (e.g., understanding gender vs. sex, society's impact on gender identity, etc.) versus education which simply exposes students to the general idea of transgenderism (e.g., Pride festivals, social clubs, etc.). With these future studies, possible causal relationship between education and transphobia can be assessed.

Although no causal statements can be made, education was consistently and significantly associated with transphobia and granting permission for the child to receive puberty blockers. Because of this, it is suggested that lessons including the topic of transgenderism are implemented in middle and high school classes already established. The topic of transgenderism can fit in social studies classes by discussing the impact of society on gender identity and expression, or in biology

and health classes by discussing the age range in which gender identity form and differences between sex and gender. With these classes already being taught in public high schools across the US, implementing discussions on transgenderism does not require large changes to current curriculum. While further research is needed to assess the depth of information needed to reduce transphobia, the current study suggests that simply exposing students to the idea of transgenderism and the individuals of the community can reduce transphobia.

Longitudinal studies. For parents considering the treatment option of puberty blockers, the themes brought up by participants in their text entry responses may be difficult obstacles in getting their child treatment. While puberty blockers are FDA approved for the use of treating precocious puberty but not gender dysphoria, all participants were told that they are not FDA approved for either diagnosis in order to provide a better control group. Because of this, many participants who read about the child experiencing precocious puberty cited the lack of FDA approval as the reason for granting permission for the treatment even though puberty blockers are FDA approved to treat precocious puberty. Although this is not an issues for actual families with children experiencing precocious puberty, families dealing with children experiencing gender dysphoria may be concerned by the lack of FDA approval for this treatment. Although their doctor may prescribe puberty blockers for the treatment of gender dysphoria, some parents may see the lack of FDA approval as a barrier to giving permission for their child to receive the treatment.

Another serious issue for families in this situation is the lack of knowledge concerning the long term effects of puberty blockers for children experiencing gender dysphoria. Although puberty blockers have been used for roughly the past 30 years to treat precocious puberty and longitudinal studies have found few long term effects of the treatment, longitudinal studies on gender dysphoric populations have only been performed at the extent of 10 years (Kuper, 2014).

For many families, unknown long term effects are enough to avoid the treatment all together, leaving children with gender dysphoria without medical treatment. Fifty seven and a half percent of participants overall cited unknown side-effects, long term effects, and little research or overall knowledge on puberty blockers as concerns when making the decision to grant or not grant permission. Of those who brought up the unknown effects of puberty blockers, 56.9% chose not to give permission for the child to receive puberty blockers, indicating that the lack of longitudinal data is preventing many children from receiving the puberty blocker treatment for gender dysphoria.

Gender dysphoria continues to be a distressing experience. Fortunately, puberty blockers are a viable treatment option for improving the psychological health of these children; however, this option is not being utilized by many parents of gender non-conforming children. There remains little data considering the long term physical and psychological effects of the use of puberty blockers. Further studies in this area and the development of health education programs featuring transgender topics have the potential of positively impacting the health and wellbeing of children experiencing gender dysphoria.

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Appendix A

Informed Consent

Before beginning the study, please take as much time as needed to read through this consent form thoroughly and be sure you feel comfortable with and clear about the procedures. Please also know that your name is not attached to any of these materials and any identifying information will be held confidential.

You may contact Kala Randazzo at krandazz@callutheran.edu if you have any questions either before, during, or after participating in this study.

Purpose of the Study: This study is being conducted to complete requirements for departmental honors in psychology. Approximately 80-150 CLU students will participate in the study. The study is exploring child health decisions. Your participation is greatly appreciated. It is also possible that this project will result in a publication or presentation on or off campus.

Procedures: The study will involve completing several questionnaires online, reading a vignette, and responding to several questions through text entry responses. It should take no longer than 30 minutes.

Risks: While there is some risk inherent in everyday activities, there is no particular risk anticipated from participating in this study. This study will take up to 30 minutes complete and it is possible that the activities will bore you. Additionally, some of the topics presented, such as the topic of transgenderism, may cause you to feel uncomfortable. If you feel that any questions or topics cause you too much discomfort, you may skip any question or end your participation without consequence.

Benefits: You may find participation to be interesting, and you will be offered further information about the purpose and findings for the study upon its completion. The SONA system will also provide proof of participation in studies in case your instructors offer you course credit for volunteering in research. Completion of this study will earn 2 credits.

Confidentiality: Your privacy will be protected -- all of your responses will be kept confidential. Data will be transmitted to a server through a secure, encrypted website. Your IP address will be decoupled from your responses and all data will be password protected with access given only to the student researcher and her faculty supervisor. We will make every attempt to maintain the security of all data to the degree to which the technology allows, but we cannot make guarantees regarding interception of data sent via the Internet by third parties. All questionnaires will be separated from any names or identifying information. Data will be stored on a flash drive in a locked filing cabinet in the office of faculty advisor Dr. Rainer Diriwaechter for a minimum of 3 years. No names will be associated with any materials, all responses will immediately be coded for group analyses, and the confidentiality of your individual responses will be protected. No individual results will be shared – only overall findings will be shared through possible publication and/or presentations.

Whom to Contact: Please let the researchers know if you have any questions before, during, or after participating in the study. You may contact either the student researcher, Kala Randazzo (krandazz@callutheran.edu), or faculty supervisor, Dr. Rainer Diriwächter (rdiriwae@callutheran.edu, 805-493-3442, Swenson 207) with any questions or concerns. If you would like a summary of the study's overall findings, you may contact Kala (krandazz@callutheran.edu) or provide your email at the end of the study. Your choice to provide or not provide your email will not affect your participation in any way and your email will not be connected to your other responses. You may also contact the CLU Institutional Review Board at irb@callutheran.edu if you have any questions about your rights as a participant

Coercion and Withdrawal: Your participation is entirely voluntary and you are free to withdraw from the study at any time without prejudice, including receiving course credit for participation. Furthermore, while it is important for the validity of the study that all questions be answered honestly, you have the right to choose not to respond to any items.

Please copy and paste this form in a separate document and save or print for your records.

Thank you.

___ I am at least 18 years of age and consent to participate in this study. I also agree to not share this study's procedures with anyone other than the experimenters listed above.

___ I do not wish to participate in the study

Appendix B

Assessment Scale

(All items are rated using a 7-point scale, 1 = *strongly disagree*, 7 = *strongly agree*)

Hormone blockers are injections that are sometimes used by doctors to treat children who have medical conditions which would benefit from the delay of puberty

1. I tend to be open to discussing sexual issues with my partner(s).
2. Hormone blockers might cause short term problems, like decrease in bone density.
3. I would rather a child be raised in an orphanage than be adopted by a gay couple.
4. I don't like it when someone is flirting with me, and I can't tell if they are a man or a woman.
5. Hormone therapies might cause lasting health problems.
6. I think hormone therapy is unsafe.
7. I think there is something wrong with a person who says that they are neither a man nor a woman.
8. I believe it is important for partners in a committed relationship to have independent activities, aside from work or school.
9. How hard do you think it would be to find a provider or clinic where a parent can afford hormone therapy?
10. I would be upset, if someone I'd known a long time revealed to me that they used to be another gender.
11. How hard do you think it would be to find a provider or clinic that is easy to get to?
12. I avoid people on the street whose gender is unclear to me.
13. Homosexual individuals choose to be gay.
14. How hard do you think it would be to find a provider or clinic that has hormone therapy available?
15. How hard do you think it would be to find a provider or clinic where you don't have to wait long to get an appointment?
16. When I meet someone, it is important for me to be able to identify them as a man or a woman.
17. Homosexuality is an inborn trait.
18. Men should be careful to avoid acting feminine.
19. I am uncomfortable around people who don't conform to traditional gender roles, e.g., aggressive women or emotional men.
20. How effective do you think hormone therapy is in medical conditions triggered by puberty?
21. I believe that a person can never change their gender.
22. A person's genitalia define what gender they are, e.g., a penis defines a person as being a man, a vagina defines a person as being a woman.
23. I don't have enough information about hormone therapy to decide whether or not it should be used to treat children.
24. The government should fund more scientific research.
25. I believe that the male/female dichotomy (i.e., contrast or split) is natural.

Appendix C

Control Vignette

Imagine you are the parent of Alex, an 8 year old who, until recently, could be described as doing well in school, having many friends, and appearing happy. Recently Alex's outlook has changed as a result of issues with precocious puberty. Precocious puberty is when puberty begins too early (at 8 years old or earlier in girls and 9 years old or earlier in boys). An individual experiencing precocious puberty will develop secondary sex characteristic, such as facial hair, breasts, and menstruation (depending on the sex of the individual) well before any other their classmates. Because of experiencing precocious puberty, Alex no longer has the motivation to focus on schoolwork, play sports, or spend time with friends, and often comes home from school crying or noticeably depressed. Although Alex's teachers are aware of the precocious puberty diagnosis, they are unsympathetic to Alex's emotional pain. You decide to have a one-on-one meeting with faculty members at Alex's school, however they are of little help stating that this is a personal matter and legally they cannot intervene. You now decide to turn to therapy. After numerous sessions with a therapist, you are told that the onset of puberty is a common cause for negative emotional changes in children experiencing precocious puberty. The therapist also tells you that Alex's emotional concerns are in dire need of clinical attention and that waiting to act may result in anxiety, depression, mental health issues, or suicide. To help with Alex's distress, the therapist recommends a new hormone blockers which will delay the onset of puberty, making the daily effects of precocious puberty less stressful. Since all changes caused by the hormone blockers are reversible, if you or Alex decide in the future that the hormone blockers are causing unwanted changes, the treatment can be stopped and conventional puberty will resume. You are also told that the hormone blockers are so new that the long term effects are unknown, however there have been few negative effects found in other children receiving the same hormone blockers. Finally, while hormone blockers have been successful in other children, the treatment option is not approved by the FDA for the treatment of precocious puberty and instead has been approved for other uses.

Appendix D

Experimental Vignette

Imagine you are the parent of Alex, an 8 year old who, until recently, could be described as doing well in school, having many friends, and appearing happy. Recently Alex's outlook has changed as a result of issues with gender dysphoria. Gender dysphoria can be described as feeling as though one's gender at birth does not match the one they identify with. An individual who is experiencing gender dysphoria feels as if their body, being male or female, does not match their actual identity as a woman or a man. Because of experiencing gender dysphoria, Alex no longer has the motivation to focus on schoolwork, play sports, or spend time with friends, and often comes home from school crying or noticeably depressed. Although Alex's teachers are aware of the gender dysphoria diagnosis, they are unsympathetic to Alex's emotional pain. You decide to have a one-on-one meeting with faculty members at Alex's school, however they are of little help stating that this is a personal matter and legally they cannot intervene. You now decide to turn to therapy. After numerous sessions with a therapist, you are told that the onset of puberty is a common cause for negative emotional changes in children experiencing gender dysphoria. The therapist also tells you that Alex's emotional concerns are in dire need of clinical attention and that waiting to act may result in anxiety, depression, mental health issues, or suicide. To help with Alex's distress, the therapist recommends a new hormone blockers which will delay the onset of puberty, making the daily effects of gender dysphoria less stressful. Since all changes caused by the hormone blockers are reversible, if you or Alex decide in the future that the hormone blockers are causing unwanted changes, the treatment can be stopped and conventional puberty will resume. You are also told that the hormone blockers are so new that the long term effects are unknown, however there have been few negative effects found in other children receiving the same hormone blockers. Finally, while hormone blockers have been successful in other children, the treatment option is not approved by the FDA for the treatment of gender dysphoria and instead has been approved for other uses.

Appendix E

Dependent Variable Assessment

1. As Alex's parent, would you grant Alex permission to receive the hormone therapy?

Yes No

2. How sure/relevant are you of your decision?

1 2 3 4 5 6 7

Very Reluctant

Very Sure

3. Why would you/would you not grant permission for Alex to receive hormone therapy?

Please be as detailed as possible in your response.

4. Other than the options listed in the story (therapy and talking to Alex's teachers), what alternative do you see to the option of hormone treatment?

Give as many options as possible. Please be as detailed as possible in your response.

5. What does a "male/female dichotomy" mean to you?

6. What does transgenderism mean to you? Please be as detailed as possible in your response.

Appendix F

Text Entry Responses

1. Why would you/would you not grant permission for Alex to receive hormone therapy? (please be as detailed as possible in your response)

2. Other than the options listed in the story (therapy and talking to Alex's teachers), what alternative do you see to the option of hormone treatment? Give as many options as possible.

(please be as detailed as possible in your response)

3. What does a "male/female dichotomy" mean to you?

4. What does transgenderism mean to you? Please be as detailed as possible in your response.

Appendix G

Follow Up Questions

A transgender individual is someone whose sex (anatomy at birth) and gender (identity) do not conform to traditional gender roles. Gender nonconforming refers to an individual who does not follow others' ideas about how they should dress or act based on their biological sex. Transgender and gender nonconforming individuals may identify as crossdressers, bigender persons (one who identifies as being both genders), transsexuals, or one of many other identities.

1. Are you personally aware of anyone who identifies as transgender or gender nonconforming (e.g., friend, coworker, child of a friend, spouse's cousin, friend's sibling, etc.)?

Yes No Not Sure

2. (If answered yes to previous questions) What is/are their relation(s) to you?

3. Have you had any contact (outside of personal relationships mentioned above) with anyone you knew to be transgender or gender nonconforming (e.g., strangers, business related, casual meetings, etc.)?

Yes No Not Sure

4. (If answered yes to previous questions) What is/are their relation(s) to you?

5. Have you had any exposure to the topic of transgenderism (e.g., classes, lectures, social clubs, public events/festivals, etc.)?

Yes No

6. (If answered yes to previous questions) Please specify any exposure you have had to the topic of transgenderism.

7. Are you the parent of legal guardian of any children?

Yes No

8. (If answered yes to previous question) How many children do you have?

9. Before participating in this study, were you aware of hormone therapy options for children experiencing gender dysphoria?

Yes No

Appendix H

Demographic Questions

What is your age?

Gender:

Man_____

Woman_____

Transgender

Other_____

Sex:

Male_____

Female_____

Intersex_____

Other_____

Ethnicity:

Caucasian_____

Hispanic_____

Asian_____

Pacific Islander_____

African American_____

Middle Eastern_____

Other (please specify):_____

Year in school:

Freshman_____

Sophomore_____

Junior_____

Senior_____

Other (please specify):_____

Please indicate your primary area of study:

Social/Behavioral Science_____

Natural Science_____

Math_____

Computer Science_____

Language_____

Communications_____

Humanities_____

Liberal Studies_____

Creative Arts_____

Business _____

Other (please specify): _____

Religion:

Jewish _____

Muslim _____

Christian _____

Buddhist _____

Catholic _____

Hindu _____

Mormon _____

Atheist _____

Agnostic _____

I don't know _____

None _____

Decline to state _____

Other (please specify): _____

How often do you go to religious gatherings (church, temple, mosque, study groups, etc.)?

Never

Less than once per month

1-3 times a month

Once a week

2-3 times a week

Daily

How spiritual do you feel on average?

1

2

3

4

5

6

7

None

A lot

How would you rate your political views?

1

2

3

4

5

6

7

Strongly
Liberal

Strongly
Conservative

Appendix I

Debriefing

Child Health Decisions

If you would like to receive information about the results of this study, please copy and paste this link into a new window.
(outside link inserted here)

This study is concerned with the use of hormone blockers (also known as puberty blockers) as a treatment option for children experiencing gender dysphoria. Very little medical or sociological research has been conducted on the use of this treatment for gender dysphoria. We were interested in your opinions about the use of hormone blockers for children experiencing gender dysphoria.

Why is this important to study?

Children experiencing gender dysphoria are often anxious and distressed about the onset of puberty. Imagine a child who was born as a biological female but very early in life identifies as a boy. This child is probably very distressed about the thought of developing hips, breasts, and other female secondary sex characteristics.

Hormone blockers can be used, with the permission of the child's parents, in order to postpone puberty. This allows the family more time to decide whether more permanent action should be taken to help the child express their identity. Although we know that the effects of hormone blockers are reversible, very little is known about the long term effects. This study helps add to our knowledge about the attitudes and beliefs surrounding hormone blockers with the hope of better helping children experiencing gender dysphoria.

What if I want to know more?

If you are interested in learning more about gender dysphoria and this study or if you have any questions or comments concerning your participation, please contact Kala Randazzo at krandazz@callutheran.edu or Rainer Diriwaechter (faculty advisor) at rdiriwae@callutheran.edu. If you have any questions about your rights as a volunteer in this research, contact the staff in the Institutional Review Board at California Lutheran University at irb@callutheran.edu.

If you feel you would like to discuss any personal subjects which have come up before, during, or after your participation, please contact CLU Student Counseling Services at (805) 493-3727 or visit them at 3222 Luther Avenue Thousand Oaks, Ca 91360.

Thank you again for your participation! Your time and thoughtful answers are appreciated.

Appendix J

Non-Significant Results

Table 5a

Political Views Predicting Granting Permission (Control Vignette only) – Linear Regression Coefficients

Predictor	<i>B</i>	<i>SE B</i>	β
Political Views	.005	.044	.016
<i>Df</i>	1		

Table 5b

Political Views Predicting Granting Permission (Experimental Vignette only) – Linear Regression Coefficients

Predictor	<i>B</i>	<i>SE B</i>	β
Political Views	.039	.042	.126
<i>Df</i>	1		

Table 5c

Political Views Predicting Granting Permission (Both Vignettes) – Linear Regression Coefficients

Predictor	<i>B</i>	<i>SE B</i>	β
Political Views	.023	.030	.073
<i>Df</i>	1		

Table 6

Vignette on Certainty of Granting Permission

Predictor	Vignette			
	Precocious puberty		Gender dysphoria	
	Mean	SD	Mean	SD
Certainty of Granting Permission	4.51	1.44	4.66	1.24

Table 7

Frequency of Cited Rationale for Granting Permission Separated Based on Permission Choice

Reason cited	Granted Permission		χ^2
	Yes	No	
Child's mental/emotional health	55	5	41.67***
Other children will eventually "catch up" (For the child experiencing precocious puberty)	2	6	2.00
Would rather choose options other than puberty blockers	2	12	7.14**
Side effects/long term effects of puberty blockers unknown	16	29	3.76*
Puberty blockers not FDA approved for this treatment ⁴	4	9	1.92
Current knowledge and understanding of puberty blockers is limited	12	8	0.80
Against religious/moral beliefs	0	2	2.00

⁴ Although puberty blockers are FDA approved for the treatment of precocious puberty and not gender dysphoria, to create a better control group both vignettes stated that they are not FDA approved.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 8

Frequency of Cited Rationale for Granting Permission Separated Based on Vignette

Reason cited	Vignette		χ^2
	Precocious puberty	Gender dysphoria	
Child's mental/emotional health	28	32	0.27
Would rather choose options other than puberty blockers	6	8	0.29
Side effects/long term effects of puberty blockers unknown	26	19	1.09
Puberty blockers not FDA approved for this treatment ²	6	7	0.08
Current knowledge and understanding of puberty blockers is limited	11	9	0.20
Against religious/moral beliefs	1	1	0.00

Table 9

Personal Contact with Transgender Individuals on Transphobia Score

Predictor	Model	Personal Contact			
		Yes		No	
		Mean	SD	Mean	SD
Transphobia Score		2.40	.14	2.34	.23
F	2.03				
η_p^2	.04				

Table 10

Crosstabulation of Gender and Granting Permission

Gender	Grant Permission		χ^2
	Yes	No	
Male	9	7	1.23
Female	65	32	

Table 11

Granting Permission on Transphobia Separated by Vignette

Vignette	Granted permission				$t(55)$	95% CI	
	Yes		No			<i>LL</i>	<i>UL</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Precocious puberty	2.36	1.25	2.91	1.41	-1.53	-1.27	.17
Gender dysphoria	2.25	1.09	2.64	1.01	-1.29	-1.00	.22

Table 12

Crosstabulation of Previous Knowledge of Puberty Blockers and Granting Permission

Previous knowledge of puberty blockers	Grant Permission		χ^2
	Yes	No	
Yes	31	13	.69
No	44	26	

Table 13

Crosstabulation of Frequency of Religious Gathering Attendance and Granting Permission

Frequency of religious gathering attendance	Grant permission		χ^2
	Yes	No	
Never	25	12	7.67
Less than once a month	23	8	
1-3 times a month	13	6	
Once a week	9	11	
2-3 times a week	5	1	
Daily	0	1	