

## Relation Between Identity Disclosure to Family Members and Mental Health in Japanese Transgender People

Yu Zhou<sup>a</sup>, Michiyo Furutani<sup>a</sup>, Rukmali Athurupana<sup>a</sup>, and Mikiya Nakatsuka<sup>a,b\*</sup>

<sup>a</sup>Graduate School of Health Sciences, Okayama University, <sup>b</sup>Department of Obstetrics and Gynecology and Gender Clinic, Okayama University Hospital, Okayama 700-8558, Japan

Family members are critical mediators of the experiences of transgender people. We studied whether transgender subjects had disclosed their identity to their families and their families' reactions after the disclosure. We also evaluated the subjects' mental state and its association with disclosure status. Transgender people were recruited for this anonymous questionnaire survey in the Okayama University Hospital gender clinic. Subjects disclosed their identity to family members at the following rates: 68.7% to the father, 89.1% to the mother, 59.1% to a brother, 77.8% to a sister, and 47.6% to grandparents. Fathers had the lowest rate (26.7%) of positive reactions, while over 50% of fathers showed an ambiguous response. Approximately 20% of parents showed a negative response. The majority of parents agreed to hormonal treatment and sex-reassignment surgery and that the transgender child should live with the gender they wanted to express. However, the rate of subjects with mood and anxiety disorders according to the Kessler 6 scale was significantly higher in those who experienced negative or ambiguous reactions from family members compared to those who experienced positive reactions. Educational and mental health professionals should support the disclosure process of transgender people as well as their family members.

**Key words:** disclosure, family functioning, gender nonconformity, mental health, transgender

Transgender people have a gender identity and often a gender expression that differ from their sex assigned at birth. The primary terms used under the transgender umbrella were "female to male" (FtM) for men who transition from female to male, and "male to female" (MtF) for women who transition from male to female. These terms have now been superseded by "trans-man" and "trans-woman," respectively, and the terms "trans-masculine" or "trans-feminine" are increasingly in use.

Transgender individuals often experience discrimination and victimization attributed to their identity and minority status. They sometimes suffer from severe

depression due to the social stigma associated with their gender identity. A growing number of studies have found that transgender people have a high risk of adverse mental health outcomes and psychological distress, including suicidality, depression, and anxiety.

Approximately half (46.0%) of transgender people have reported high or very high levels of psychological distress [1]. It was also reported that respondents to a survey of transgender people had high prevalence rates of clinical depression (44.1%), anxiety (33.2%), and somatization (27.5%) [2]. According to the national survey on LGBTQ youth mental health (2019), more than half of transgender and non-binary youth have seriously considered suicide [3]. In a national survey of

transgender adults in the U.S., 40% of the respondents said they have attempted suicide in their lifetime, which is nearly nine times the rate in the U.S. public [4]. According to our previous study, approximately 30% of Japanese transgender people who visited the gender clinic had experienced school refusal and suicide attempts [5]. They had also experienced suicidal ideation at the rate of approximately 60% and low self-evaluations of their own mental state. Moreover, the rate of transfeminine individuals who needed psychiatric treatment because of depression and/or anxiety was as high as 25% while it was 11% in transmasculine individuals. Therefore, more assistance is needed for the mental support of transgender people, especially for transfeminine people. It is necessary to consider the differences between transfeminine and transmasculine individuals before performing an analysis.

Many studies have explored the protective and harmful factors influencing the mental health of transgender or gender-non-conforming people. These factors include the relationships of transgender individuals with their families, friends, and partners, and general social policy [6]. Family intimacy and parental support have been proven to have an especially protective effect on the mental health of transgender people. Suicide attempt history, gender nonconformity during childhood, searching for their gender, and prospective hopelessness and victimization were associated with greater self-harm [7]. Younger age, feeling unable to turn to family members for support, and victimization experiences were associated with greater psychological distress [1].

For transgender people, coming out is an important experience, and it is very important for them to be accepted by their family. The reactions of parents and important others are reported to affect their mental health [8]. A study from the perspective of the parents of transgender youth showed that parents' advocacy for their children was also associated with more supportive responses from important others, including school personnel and extended family members [9].

Ben-Ari's research on children disclosing their non-heterosexual sexual orientation to their parents reported that direct disclosure was associated with more supportive responses [10]. Research on the disclosure of sexual identity by people in sexual minorities has indicated that the reaction of the disclosure object influences the self-acceptance and self-esteem of the

individual [11].

Parental support is known to be significantly associated with higher life satisfaction, a lower perceived burden of being transgender, and fewer depressive symptoms [12]. Furthermore, it has been reported that transgender children who are supported in their identity by their families show no difference in mental health from matched cisgender children [13].

However, few studies have explored the process and details of disclosure to direct and extended family members and their relation to mental health in Japanese transgender people. This relation may also be different depending on whether the transgender person is transfeminine or transmasculine. The present study aims to investigate the disclosure of gender identity to family members by Japanese transgender people. Reactions of the family members to the disclosure and their effect on the mental health of transgender people were also studied.

## Materials and Methods

**Participants and procedure.** Participants were recruited from the gender clinic of Okayama University Hospital from October to December 2019. All patients diagnosed with gender dysphoria were eligible; 130 questionnaires were distributed while 87 questionnaires were enrolled (recovery rate 66.9%). The questionnaires without responses to the mental health scale questions were excluded ( $n = 16$ ). The final number of participants was 71 in total: 34 transmasculine subjects, and 37 transfeminine subjects. We explained the purpose of this study and handed the questionnaire to transgender people visiting the gender clinic. We obtained informed consent from each subject by asking if they were willing to participate in the anonymous questionnaire. The study was approved by the ethics committee of the Graduate School of Health Science, Okayama University (D18-11).

The demographic description included age, sex assigned at birth, gender identity, household registered sex, sexual preference, profession, education, change of registered sex, status of hormone therapy and surgery, family members living together, and the time when they first felt gender nonconforming and realized that they had gender dysphoria.

**Questionnaire.** We first conducted an interview survey with transmasculine and transfeminine subjects

and medical doctors in the gender clinic. From this preliminary study and our previous studies [5], we made a list of questions and carefully chose the wording for them. The questionnaire included one-choice questions and multiple-choice questions. The one-choice questions had yes or no answers. The statement “It is a multiple-choice question” was written after the multiple-choice questions on the questionnaire. For some multiple-choice questions, the open-ended alternative “others” was also included. The disclosure status was assessed through the question “Did you come out to your father/mother/brother/sister/grandparents?” (yes/no). A question about “opportunity for disclosing” included five response options, and the question “What are your thoughts towards your family regarding your gender identity?” included 6 response options. The thinking of the participants after the disclosure was analyzed through one question, “What were your thoughts after disclosing to your family? (I should have disclosed earlier/The timing of coming out was just right/I wish I had not disclosed).”

The questions assessing the initial reactions of family members after the participants’ disclosure was as follows: “Family members’ attitude after disclosure (positive/negative/neither positive nor negative).” Other items that probed the further reactions of the family included the following: “Topics which can be discussed with family” and “Things which parents approved after disclosure.” In addition, open-ended questions like “What good and unpleasant effects did the coming-out have?” and “What were the difficult parts of the process of disclosing and getting recognition from your family” were used to gain a deeper understanding of the psychological process of disclosure. Some questions did not apply to specific participants. For instance, some of them had no father or mother or other family members. The rates of various responses were calculated after excluding the participants to whom specific questions did not apply.

**Assessment of mental health.** The questionnaire also included self-administered questions to measure the subjects’ self-assessment of their mental health state (point ranges 0-100, with higher numbers indicating better mental health states). The Kessler 6 (K6) scale is a 6-item self-reported measure of psychological distress intended to be used as a quick tool to assess a subject’s risk for mental illness [14]. Participants indicated how often they have had 6 different feelings or experiences

using a 5-point Likert scale based on the past 30 days and on the period with the worst emotional state: 4 (all of the time), 3 (most of the time), 2 (some of the time), 1 (a little of the time), and 0 (none of the time). The total score for the scale was computed by summing the points for the 6 items. The scores ranged from 0-24, with a score equal to or above 9 indicating a mood or anxiety disorder, and a score equal to or above 13 possibly indicating a severe mood or anxiety disorder.

**Statistical analysis.** The data were analyzed using SPSS version 23. The data were first described qualitatively using frequencies, and then the chi-square test and Kruskal-Wallis H-test were used to analyze group differences and the *t*-test was used to analyze the continuous variables.

## Results

**Background of subjects.** There were 71 participants in total ( $33.6 \pm 11.7$  [17-69] (mean  $\pm$  S.D. [range]) years old), including 34 transmasculine subjects ( $30.0 \pm 8.1$  [18-51] years old) and 37 transfeminine subjects ( $37.0 \pm 13.6$  [17-69] years old). The age of the transfeminine subjects was significantly higher than that of the transmasculine subjects ( $p=0.007$ ) (Table 1). For the sex of their preferred partner, 51.3% of the transfeminine subjects reported heterosexuality (sexual orientation to a male) and 82.4% of the transmasculine subjects reported heterosexuality (sexual orientation to a female). There was no significant difference in the rate of household registered gender change between transfeminine and transmasculine subjects.

Transfeminine subjects received hormone therapy significantly more often than transmasculine subjects ( $p<0.001$ ). There was no significant difference in the rate of surgery between transfeminine and transmasculine subjects.

**Onset of gender nonconformity and recognition of gender dysphoria.** In response to the question “When did you start to feel gender nonconformity?”, 31.0% of the subjects experienced feelings of gender nonconformity before entering elementary school, and more than half (53.5%) of the participants felt them in elementary school, which indicates that 84.5% of the participants had experienced feelings of gender nonconformity before junior high school (Table 2). There was no significant difference between transfeminine and transmasculine subjects regarding when they started to

Table 1 Background information

	Total (n=71)	Transfeminine (n=37)	Transmasculine (n=34)
Age in years, M(SD)	33.6 ± 11.7 [17–69]	37 ± 13.6 [17–69]	30 ± 8.1 [18–51]
Sex assigned at birth			
Male	40% (28/70)	77.8% (28/36)	
Female	55.7% (39/70)	13.9% (5/36)	100% (34/34)
I don't know	1.4% (1/70)	2.8% (1/36)	
Other sex	2.9% (2/70)	5.6% (2/36)	
Gender identity			
Trans masculine	46.5% (33/71)	0% (0/37)	97.1% (33/34)
Trans feminine	46.5% (33/71)	89.2% (33/37)	
Non-binary	2.8% (2/71)	5.4% (2/37)	
Not sure	2.8% (2/71)	2.7% (1/37)	2.9% (1/34)
I don't know	1.4% (1/71)	2.7% (1/37)	
Legal sex/ household registered sex			
Male	46.5% (33/71)	81.1% (30/37)	8.8% (3/34)
Female	50.7% (36/71)	13.5% (5/37)	91.2% (31/34)
Other sex	2.8% (2/71)	5.4% (2/37)	0% (0/34)
Sexual preference			
Male	28.2% (20/71)	51.3% (19/37)	2.9% (1/34)
Female	45.1% (32/71)	10.8% (4/37)	82.4% (28/34)
Non-binary	11.3% (8/71)	16.2% (6/37)	5.9% (2/34)
Not sure	1.4% (1/71)	0% (0/37)	2.9% (1/34)
I don't know	12.7% (9/71)	16.2% (6/37)	8.8% (3/34)
Other sex	4.2% (3/71)	5.4% (2/37)	2.9% (1/34)
Gender change in family register			
No	80% (56/70)	75.7% (28/37)	84.8% (28/33)
Yes	20% (14/70)	24.3% (9/37)	15.2% (5/33)
Employment			
Employed	83.6% (51/61)	70% (21/30)	96.8% (30/31)
Regular employee	57.3% (35/61)	43.3% (13/30)	71% (22/31)
Irregular employee	26.2% (16/61)	26.7% (8/30)	25.8% (8/31)
Hormone therapy			
No treatment	25.7% (18/70)	8.1% (3/37)	45.5% (15/33)
Gonadotropin-releasing hormone agonists	1.4% (1/70)	2.7% (1/37)	
Feminizing or masculinizing hormone therapy	74.3% (52/70)	91.9% (34/37)	54.5% (18/33)
Surgery			
No surgery	48.3% (28/58)	48.1% (13/27)	48.4% (15/31)
Mastectomy	27.6% (16/58)		51.6% (16/31)
Uterine oophorectomy	17.2% (10/58)		32.3% (10/31)
Feminization augmentation mammoplasty	3.4% (2/58)	7.4% (2/27)	
Orchiectomy	17.2% (10/58)	37% (10/27)	
Penis amputation	12.1% (7/58)	25.9% (7/27)	
Vaginoplasty	15.5% (9/58)	33.3% (9/27)	

experience feelings of gender nonconformity.

In response to the question ‘When did you realize that you had gender dysphoria?’, 56.4% of the subjects said they realized that they had gender dysphoria during junior high school to university. During high school period, the ratio of transmasculine subjects realizing that they had gender dysphoria (41.2%) was significantly higher than that of transfeminine subjects

(13.5%) ( $p=0.009$ ).

#### **Opportunity to disclose gender nonconformity.**

The majority of the subjects felt that it was easy to talk about their discomfort and distress to their mothers (62.3%) whereas a much smaller percentage felt that it was easy to speak with their fathers (14.3%) (Table 3). The rate of transmasculine subjects who felt that it was easy to talk to their fathers, brothers, sisters and

**Table 2** Onset of gender nonconformity and recognition of gender dysphoria

	Total (n = 71)	Transfeminine (n = 37)	Transmasculine (n = 34)	P-value
When did you start to feel gender nonconformity?				
Before elementary school	31.0% (22/71)	29.7% (11/37)	32.4% (11/34)	n.s.
Lower grades of elementary school	29.6% (21/71)	29.7% (11/37)	29.4% (10/34)	
Upper grades of elementary school	23.9% (17/71)	24.3% (9/37)	23.5% (8/34)	
Junior high school	9.9% (7/71)	8.1% (3/37)	11.8% (4/34)	
High school	2.8% (2/71)	5.4% (2/37)	0% (0/34)	
University or college	1.4% (1/71)	0% (0/37)	2.9% (1/34)	
Other periods	1.4% (1/71)	2.7% (1/37)	0% (0/34)	
When did you realize that you are gender dysphoria?				
Before elementary school	4.2% (3/71)	2.7% (1/37)	5.9% (2/34)	0.009**
Lower grades of elementary school	9.9% (7/71)	13.5% (5/37)	5.9% (2/34)	
Upper grades of elementary school	8.5% (6/71)	8.1% (3/37)	8.9% (3/34)	
Junior high school	18.3% (13/71)	21.6% (8/37)	14.7% (5/34)	
High school	26.8% (19/71)	13.5% (5/37)	41.2% (14/34)	
University or college	11.3% (8/71)	10.8% (4/37)	11.8% (4/34)	
Other periods	21.1% (15/71)	29.7% (11/37)	11.7% (4/34)	

**Table 3** Opportunity to come out

	Total (n = 71)	Transfeminine (n = 37)	Transmasculine (n = 34)	P-value
Family members who are easy to talk about discomfort and distress				
Father	14.3% (8/56)	3.6% (1/28)	25% (7/28)	0.051
Mother	62.3% (38/61)	65.6% (21/32)	58.6% (17/29)	n.s.
Brother	23.1% (9/39)	13.6% (3/22)	35.3% (6/17)	n.s.
Sister	22.7% (10/44)	26.1% (6/23)	61.9% (13/21)	0.017*
Grandparents	10% (4/40)	5.6% (1/18)	13.6% (3/22)	n.s.
What are your thoughts to your family regard to your gender identity?				
My family wouldn't understand me	46.8% (29/62)	51.5% (17/33)	41.4% (12/29)	n.s.
I feel that my family is in trouble	45.2% (28/62)	45.5% (15/33)	44.8% (13/29)	n.s.
I feel shame	4.8% (3/62)	3.0% (1/33)	6.9% (2/29)	n.s.
I feel sorry to my family for being a gender-nonconforming	51.6% (32/62)	36.4% (12/33)	69% (20/29)	0.013*
I believe it is the parents' responsibility	1.6% (1/62)	0% (0/33)	3.4% (1/29)	n.s.
Other feelings	8.1% (5/62)	6.1% (2/33)	10.3% (3/29)	n.s.
Opportunity to disclose				
I didn't disclose to anyone	4.4% (3/68)	5.7% (2/35)	3% (1/33)	n.s.
I decided the time by myself	70.6% (48/68)	60% (21/35)	81.8% (27/33)	0.048*
An unfortunate coincidence forced me	7.4% (5/68)	14.3% (5/35)	0% (0/33)	0.054
I was questioned	5.9% (4/68)	5.7% (2/35)	6.1% (2/33)	n.s.
Others	13.2% (9/68)	14.3% (5/35)	12.1% (4/33)	n.s.

n.s., no significance.

grandparents was higher than that of transfeminine subjects. Significantly more transmasculine subjects than transfeminine subjects felt that it was easy to talk with their sisters ( $p = 0.017$ ).

Regarding being gender-nonconforming, approximately half of the subjects answered “I feel sorry to my family for being a gender-nonconforming” (51.6%), “My family can't understand my gender nonconfor-

mity” (46.8%), and “I feel that my family is in trouble” (45.2%). Approximately 5% of the subjects felt ashamed of themselves for being transgender. Transmasculine subjects felt sorry that the family has to go through this trauma for their gender nonconformity and it was significantly higher than transfeminine subjects ( $p = 0.013$ ).

Approximately 70% of the subjects answered “I decided on the time to disclose my gender nonconfor-

mity by myself.” Significantly more transmasculine subjects (81.8%) than transfeminine subjects (60.0%) chose the timing of the disclosure by themselves ( $p=0.048$ ). Only transfeminine subjects answered “An unfortunate coincidence forced me to disclose” (14.3%).

**Disclosure and reaction of family.** The rates of disclosure to family members were 68.7% to the father, 89.1% to the mother, 59.1% to a brother, 77.8% to a sister, and 47.6% to grandparents (Table 4). Significantly more transfeminine subjects than transmasculine subjects had disclosed their gender nonconformity to their grandparents ( $p=0.031$ ).

In comparison to parents and grandparents, brothers and sisters were more inclined to respond positively to the disclosure. The positive rates for brothers and sisters were 59.1% and 66.7%, respectively. The rate of fathers who reacted positively was the lowest among

family members (26.7%). Over 50% of fathers showed an ambiguous response. Approximately 20% of the parents and grandparents had a negative response to the subject’s disclosure.

In response to disclosure by transfeminine subjects, fathers showed the lowest rate of positive response (22.7%) and the highest rate of negative response (31.8%) among the family members. Approximately 50% of the other family members showed a positive response to the transfeminine subject’s disclosure. In response to disclosure by transmasculine subjects, fathers showed the highest rate of ambiguous response (22.7%). Grandparents showed the lowest rate of positive response (22.2%) and the highest negative rate (33.3%).

Compared to the fathers of transfeminine subjects, the fathers of transmasculine subjects had a more posi-

Table 4 Disclosure and reaction of family

	Total (n=71)	Transfeminine (n=37)	Transmasculine (n=34)	P-value
<b>Father</b>				
Coming out	68.7% (44/64)	67.7% (21/31)	69.7% (23/33)	n.s.
Age of coming out Reaction	27.2 ± 12.1 [13–68]	31.4 ± 15.1 [16–68]	22.8 ± 5.5 [13–34]	
Positive	26.7% (12/45)	22.7% (5/22)	30.4% (7/23)	0.022*
Negative	17.8% (8/45)	31.8% (7/22)	4.3% (1/23)	
Neither positive nor negative	55.6% (25/45)	45.5% (10/22)	65.2% (15/23)	
<b>Mother</b>				
Coming out	89.1% (57/64)	90.9% (30/33)	87.1% (27/31)	n.s.
Age of coming out Reaction	26.0 ± 11.3 [13–66]	29.8 ± 13.5 [15–66]	21.6 ± 5.8 [13–41]	
Positive	50.8% (30/59)	55.2% (16/29)	46.7% (14/30)	n.s.
Negative	18.6% (11/59)	17.2% (5/29)	20% (6/30)	
Neither positive nor negative	30.5% (18/59)	27.6% (8/29)	33.3% (10/30)	
<b>Brother</b>				
Coming out	59.1% (26/44)	59.1% (13/22)	59.1% (13/22)	n.s.
Age of coming out Reaction	26.7 ± 9.2 [15–47]	30.2 ± 10.1 [18–47]	22.9 ± 6.6 [15–37]	
Positive	60% (15/25)	50% (6/12)	69.2% (9/13)	n.s.
Negative	8% (2/25)	8.3% (1/12)	7.7% (1/13)	
Neither positive nor negative	32% (8/25)	41.7% (5/12)	23.1% (3/13)	
<b>Sister</b>				
Coming out	77.8% (35/45)	69.6% (16/23)	86.4% (19/22)	n.s.
Age of coming out Reaction	26.5 ± 10.1 [13–53]	28.9 ± 11.6 [17–53]	24.3 ± 8.2 [13–47]	
Positive	66.7% (24/36)	56.3% (9/16)	75% (15/20)	n.s.
Negative	8.3% (3/36)	6.3% (1/16)	10% (2/20)	
Neither positive nor negative	25% (9/36)	37.5% (6/16)	15% (3/20)	
<b>Grandparents</b>				
Coming out	47.6% (20/42)	68.8% (11/16)	34.6% (9/26)	0.031*
Age of coming out Reaction	21.7 ± 4.6 [10–28]	21.8 ± 4.7 [15–28]	21.5 ± 4.8 [15–28]	
Positive	45% (9/20)	63.6% (7/11)	22.2% (2/9)	0.092
Negative	20% (4/20)	9% (1/11)	33.3% (3/9)	
Neither positive nor negative	35% (7/20)	27.3% (3/11)	44.4% (4/9)	

n.s., no significance.

tive response to the disclosure ( $p=0.022$ ). Grandparents' attitudes toward the subjects' disclosure were also totally different between transfeminine and transmasculine subjects.

**Thoughts or feelings after disclosing to family members.** Half of the subjects thought "I should have disclosed earlier" when they disclosed to the parents (Table 5). However, approximately 5% of the subjects thought "I wish I had not disclosed." The rate of subjects who felt regrets regarding their disclosure to their grandparents (11.8%) was the highest among the family members. Fewer transfeminine subjects than transmasculine subjects thought "I should have disclosed earlier," although the difference did not reach statistical significance.

According to the free descriptions given by the subjects, good things had happened as a result of disclosure. They felt released and as if they had unloaded a burden, and some of them were able to start hormonal treatment because they had gained understanding and acceptance from their family members. They were able to speak out without concealing anything and they could live with their desired gender expression.

However, there were also unpleasant effects after the disclosure. If estrangement occurred after the disclosure, it made the subjects feel isolated. They felt guilty

for bringing troubles to their families, and this made them unhappy.

**Topics that could be discussed with the family after disclosure.** Over 10% of the subjects were unable to speak out anything related to gender identity with their family members even after the disclosure (Table 6). Approximately 70% of the subjects answered that they were able to talk with their family members about clothing and fashion. A certain percentage of subjects could talk with their family members about life plans like work (42.2%), romance (42.2%), marriage (26.2%), and having children (18.8%). Significantly more transmasculine than transfeminine subjects were able to talk with their family members after the disclosure about various topics but not about clothing and fashion.

**Things that parents approved of after disclosure.** Over 70% of parents agreed that the subject should go to the gender clinic, although approximately 8% of parents did not agree to cooperate with the subject in any way regarding their gender identity (Table 6). The majority of the parents agreed to hormonal treatment, to sex-reassignment surgery, that the subject should live with the gender they want to express, and to change the subject's name and sex in the family register.

There were no significant differences in the rate of parents' agreement with going to the hospital, hor-

**Table 5** Thoughts or feelings after disclosing to family members

	Total (n=71)	Transfeminine (n=37)	Transmasculine (n=34)	P-value
<b>Father</b>				
I should have disclosed earlier	50% (19/38)	41.2% (7/17)	57.1% (12/21)	n.s.
The time of coming out is just right	44.7% (17/38)	52.9% (9/17)	38.1% (8/21)	
I wish I had not disclosed	5.3% (2/38)	5.9% (1/17)	4.8% (1/21)	
<b>Mother</b>				
I should have disclosed earlier	50% (27/54)	46.2% (12/26)	53.6% (15/28)	n.s.
The timing of coming out is just right	44.4% (24/54)	46.2% (12/26)	42.9% (12/28)	
I wish I had not disclosed	5.6% (3/54)	7.7% (2/26)	3.6% (1/28)	
<b>Brother</b>				
I should have disclosed earlier	40% (10/25)	36.4% (4/11)	42.9% (6/14)	n.s.
The timing of coming out is just right	60% (15/25)	63.6% (7/11)	57.1% (8/14)	
I wish I had not disclosed	0%	0% (0/11)	0% (0/14)	
<b>Sister</b>				
I should have disclosed earlier	41.1% (14/34)	33.3% (5/15)	47.4% (9/19)	n.s.
The timing of coming out is just right	50% (17/34)	60% (9/15)	42.1% (8/19)	
I wish I had not disclosed	8.8% (3/34)	6.7% (1/15)	10.5% (2/19)	
<b>Grandparents</b>				
I should have disclosed earlier	29.4% (5/17)	25% (2/8)	33.3% (3/9)	n.s.
The timing of coming out is just right	58.8% (10/17)	62.5% (5/8)	55.6% (5/9)	
I wish I had not disclosed	11.8% (2/17)	12.5% (1/8)	11.1% (1/9)	

n.s., no significance.

Table 6 Things happened by disclosure

	Total (n=71)	Transfeminine (n=37)	Transmasculine (n=34)	P-value
Topics which can be discussed with family after disclosure				
Nothing can communicate with family related to gender identity	12.5% (8/64)	18.2% (6/33)	6.5% (2/31)	n.s.
Enter a higher school	18.8% (12/64)	12.1% (4/33)	25.8% (8/31)	n.s.
Work	42.2% (27/64)	30.3% (10/33)	54.8% (17/31)	0.047*
Clothing and fashion	68.8% (44/64)	72.7% (24/33)	64.5% (20/31)	n.s.
Romance	42.2% (27/64)	30.3% (10/33)	54.8% (17/31)	0.047*
Marriage	26.6% (17/64)	15.2% (5/33)	38.7% (12/31)	n.s.
Having children	18.8% (12/64)	9.1% (3/33)	29% (9/31)	0.041*
Privacy	26.6% (17/64)	15.2% (5/33)	38.7% (12/31)	0.033*
Others	4.7% (3/64)	3% (1/33)	6.5% (2/31)	n.s.
Things which parents approved after disclosure				
All disapprove	8.3% (5/60)	9.7% (3/31)	6.9% (2/29)	n.s.
Go to the hospital	71.7% (43/60)	74.2% (23/31)	69% (20/29)	n.s.
Hormone therapy	68.3% (41/60)	74.2% (23/31)	62.1% (18/29)	n.s.
SRS	60% (36/60)	54.8% (17/31)	65.5% (19/29)	n.s.
Household register name change	51.7% (31/60)	51.6% (16/31)	51.7% (15/29)	n.s.
Household register sex change	55% (33/60)	48.4% (15/31)	62.1% (18/29)	n.s.
Living with desired sex	68.3% (41/60)	61.3% (19/31)	75.9% (22/29)	n.s.
Participate in trans community	20% (12/60)	25.8% (8/31)	13.8% (4/29)	n.s.
Parents participants in trans community	11.7% (7/60)	12.9% (4/31)	10.3% (3/29)	n.s.
Come with me to gender clinic and take care	40% (24/60)	32.3% (10/31)	48.3% (14/29)	n.s.
Parents learn about gender dysphoria	25% (15/60)	19.4% (6/31)	31% (9/29)	n.s.

n.s., no significance.

monal treatment, and participation in the trans-community between transfeminine and transmasculine subjects.

In the free descriptions provided by the subjects, there were various descriptions of problems that arose at the time of disclosure. Some examples include: "It was difficult to make the parents accept and understand gender dysphoria when they had not received enough information about transgender identity"; "Elderly parents are difficult to convince regarding the necessity of hormonal treatment and they feel anxiety because they have insufficient information."

**Advice about disclosure for other transgender individuals and their families.** The suggestions included: "It is important for the individuals and their parents to understand that it is not anyone's fault to have a gender dysphoria"; "Before the disclosure, it is better to explain some information about LGBT or transgender identities to their family members and observe their attitude"; "It is important for individuals to have a good discussion with their family members and explain their thoughts and feelings"; and "If family members cannot understand, it would be better if they ignored the

transgender individual."

**Self-evaluation of mental state before and after disclosure.** The average mental state score as evaluated by the subjects themselves was significantly improved after disclosure (from 25.7 to 53.3 points out of 100 points) (Table 7). This improvement was observed in both transfeminine and transmasculine subjects.

**Mood or anxiety disorders as evaluated by K6 score.** A mood or anxiety disorder ( $\geq 9$ ) was observed in 16.9% of the subjects, and a severe mood or anxiety disorder ( $\geq 13$ ) was observed in 23.9% of them when evaluated using the K6 score (Table 7). Approximately half of the transfeminine subjects were evaluated as having a mood or anxiety disorder. A severe mood or anxiety disorder was also observed in approximately 30% of transfeminine subjects. However, there was no significant difference between them and transmasculine subjects.

**Association of background factors and disclosure status with K6 score.** Regardless of the subjects' age or employment, the subjects' status regarding hormonal treatment and SRS (sex-reassignment surgery), and whether the gender change was recorded in the family

**Table 7** Self-evaluation of mental state before and after disclosure and K6 score

	Total (n = 71)	Transfeminine (n = 37)	Transmasculine (n = 34)	P-value
Self-evaluation of mental state				
Before coming out	25.7 ± 24.5	19.5 ± 19.4	32.0 ± 27.7	n.s.
After coming out	53.3 ± 31.1	41.0 ± 27.5	64.8 ± 30.3	0.002**
Now	62.3 ± 30	58.5 ± 30.2	66.6 ± 29.6	n.s.
K6 score				
Normal	59.2% (42/71)	48.6% (18/37)	70.6% (24/34)	n.s. (0.17)
Mood/anxiety disorder	16.9% (12/71)	21.6% (8/37)	11.8% (4/34)	
Severe mood/anxiety disorder	23.9% (17/71)	29.7% (11/37)	17.6% (6/34)	

Self-evaluation of mental state; Point ranges 0-100, higher point indicates better mental health state.

Point 100: The most lively and enjoyable state you can imagine. Mann-Whitney *U* test, n.s.: no significance.

K6 score; <8: Normal, 9-12: Mood or anxiety disorder, > 13: Severe mood or anxiety disorder.

register, there were no significant differences in the rate of mood or anxiety disorders as evaluated by K6 score (Table 8).

There were also no significant differences in the rate of mood or anxiety disorders as evaluated by the K6 score between the subjects who had disclosed their gender dysphoria to any family member compared to those who had not disclosed. Regarding the timing of and opportunity for the disclosure, the rate of mood or anxiety disorders was significantly lower in the subjects who had chosen the time by themselves with compared to those with other coming-out methods.

Although the rate of mood or anxiety disorders was not affected by whether the subjects had disclosed to someone or not, it was affected by the reactions of the family members, especially the father. For the subjects whose fathers' reaction was positive, the rate of mood or anxiety disorders as evaluated by the K6 score was significantly lower than in subjects whose fathers had other reactions, including negative and neither positive nor negative reactions.

## Discussion

In the present study, more than 90% of the subjects had experienced feelings of gender nonconformity before high school, a finding that is similar to what we had observed previously [11]. The majority of transgender individuals who visited the gender clinic realized that they had gender dysphoria in junior high school or high school. However, we reported that approximately 90% of Japanese transgender people could not disclose their feelings of gender nonconformity during childhood [5].

The present study revealed that mood or anxiety disorders were observed in approximately 40% of all subjects and were observed at an even higher rate (51.3%) in transfeminine subjects. The National Transgender Discrimination Study ( $N = 27,715$ ) reported that 40% of transgender persons had attempted suicide [4]. It was reported that transgender youth had a two- to three-fold increased risk of depression, anxiety disorder, suicidal ideation, suicide attempts, self-harm behaviors, and utilization of both inpatient and outpatient mental health services compared to cisgender youth [15].

The present study revealed that subjects' self-evaluations of their mental state were improved after the disclosure to family members. Transgender people have shown improved mental health when their family members respond appropriately after the disclosure. Among transgender persons aged 14-18 years old, family connectedness was the strongest protective factor [16]. Transgender youth who had strong parental support for their gender identity and expression reported higher life satisfaction, higher self-esteem, and better mental health including less depression and fewer suicide attempts compared to those without strong parental support [17]. A qualitative study of resiliency among transgender youth found that they described their families as a primary source of resilience [18].

In the present study, approximately 70% of mothers expressed a positive reaction after the disclosure, which occurred in these cases when the subjects were under the age of 20. Caregivers have a significant impact on the well-being of transgender youth [19]. They manage expressions of gender such as clothing purchases and haircuts and play a large role in potentially reducing the

Table 8 K6 score: association with background or disclosure status

	Normal	Anxiety/mood disorder	Severe anxiety/mood disorder	P-value
Age				n.s.
<30	71% (22/31)	12.9% (4/31)	16.1% (5/31)	
30-40	57.1% (12/21)	14.3% (3/21)	28.6% (6/21)	
>=40	38.9% (7/18)	27.8% (5/18)	33.3% (6/18)	
Employment				n.s.
Employed	62.7% (32/51)	17.6% (9/51)	19.6% (10/51)	
Unemployed	40% (4/10)	20% (2/10)	40% (4/10)	
Hormone treatment				n.s.
Yes	59.6% (31/52)	17.3% (9/52)	23.1% (12/52)	
No	61.1% (11/18)	11.1% (2/18)	27.8% (5/18)	
Sex reassignment surgery				n.s.
Yes	66.7% (20/30)	10% (3/30)	23.3% (7/30)	
No	50% (14/28)	21.4% (6/28)	28.6% (8/28)	
Gender change in family register				n.s.
Yes	57.1% (8/14)	14.3% (2/14)	28.6% (4/14)	
No	58.9% (33/56)	17.8% (10/56)	23.2% (13/56)	
Opportunity of disclosure				0.013*
I decided the time by myself	68.7% (33/48)	14.6% (7/48)	16.7% (8/48)	
A bad coincidence forced me.	40% (2/5)	40% (2/5)	20% (1/5)	
I was questioned.	25% (1/4)	0% (0/4)	75% (3/4)	
Others	33.3% (3/9)	22.2% (2/9)	44.4% (4/9)	
Father				n.s.
Disclosure				
Yes	61.4% (27/44)	15.9% (7/44)	22.7% (10/44)	
No	55% (11/20)	15% (3/20)	30% (6/30)	
Reaction after disclosure				0.022*
Positive a	91.7% (11/12)	8.3% (1/12)	0% (0/12)	a vs. b: 0.009**
Negative b	37.5% (3/8)	12.5% (1/8)	50% (4/8)	a vs. c: 0.034*
Neither positive nor negative c	56% (14/25)	16% (4/25)	28% (7/25)	
Mother				n.s.
Disclosure				
Yes	63.1% (36/57)	14% (8/57)	22.8% (13/57)	
No	42.8% (3/7)	14.3% (1/7)	42.8% (3/7)	
Reaction after disclosure				n.s.
Positive	60% (18/30)	10% (3/30)	30% (9/30)	
Negative	45.4% (5/11)	18.2% (2/11)	36.4% (4/11)	
Neither positive nor negative	66.7% (12/18)	22.2% (4/18)	11.1% (2/18)	
Brother				n.s.
Disclosure				
Yes	61.5% (16/26)	15.4% (4/26)	23.1% (6/26)	
No	66.7% (12/18)	11.1% (2/18)	22.2% (4/18)	
Reaction after disclosure				n.s.
Positive	73.3% (11/15)	6.7% (1/15)	20% (3/15)	
Negative	50% (1/2)	50% (1/2)	0% (0/2)	
Neither positive nor negative	37.5% (3/8)	25% (2/8)	37.5% (3/8)	
Sister				n.s.
Disclosure				
Yes	60% (21/35)	14.3% (5/35)	25.7% (9/35)	
No	60% (6/10)	10% (1/10)	30% (3/10)	
Reaction after disclosure				0.039*
Positive a	70.8% (17/24)	12.5% (3/24)	16.7% (4/24)	a vs. c: 0.011*
Negative b	66.7% (2/3)	0% (0/3)	33.3% (1/3)	
Neither positive nor negative c	22.2% (2/9)	22.2% (2/9)	55.6% (5/9)	
Grandparents				n.s.
Disclosure				
Yes	65% (13/20)	10% (2/20)	25% (5/20)	
No	77.3% (17/22)	18.2% (4/22)	4.5% (1/22)	
Reaction after disclosure				n.s.
Positive	44.4% (4/9)	22.2% (2/9)	33.3% (3/9)	
Negative	75% (3/4)	0% (0/4)	25% (1/4)	
Neither positive nor negative	71.4% (5/7)	0% (0/7)	28.6% (2/7)	

n.s., no significance.

distress that transgender youth may experience by allowing their children to undergo the necessary social transition [20].

In 2009, the Endocrine Society issued a clinical practice guideline for the treatment of transsexual persons, including support for pubertal suppression in carefully screened and supported transgender adolescents [21]. The primary goals of this medical intervention with GnRH (gonadotropin-releasing hormone) agonists include prevention of the development of unwanted secondary sex characteristics of the biological sex and a reduction in dysphoric feelings. This intervention is also thought to improve co-morbid depression, anxiety, and suicidality. For transgender children, being able to talk to their parents about their gender identity may lead to medical care, which is associated with an improved quality of life.

In the present study, approximately 5% of the subjects felt that their gender identity was shameful for their families. It has been reported that the feeling of shame was negatively correlated with social/personal and work/school outness and with being out to family and friends [22]. Transgender people may internalize gender norms and expectations, and they may develop shame and self-hatred because of their lack of conformity with culturally established definitions of masculinity and femininity [23,24]. It is known that transgender people may experience intense shame and guilt about being transgender and that they may conceal their feelings of gender nonconformity from others by attempting to either conform to their sex assigned at birth or pass as a cisgender member of the other sex [22].

Over 50% of our subjects answered that they felt sorry for their families, which may have resulted from believing that their family members felt embarrassed and ashamed of them. Japanese transgender people are more likely to have such feelings than those in other countries. With the help of mental health professionals and educational professionals, parents and other family members can lessen the feelings of shame that transgender children experience and make it easier for transgender children to disclose their gender nonconformity.

In the present study, the reaction of approximately 60% of the fathers to the disclosure of the subjects was negative or neither positive nor negative, *i.e.*, unsupportive. A transgender survey in the U.S. reported that

a majority of respondents (60%) who had come out to their immediate families said that their family was generally supportive of their transgender identity, while 18% said that their family was unsupportive, and 22% said that their family was neither supportive nor unsupportive [4]. However, Grossman and his colleagues reported that 54% of mothers and 63% of fathers expressed negative reactions after the initial disclosure according to gender-variant youth, while according to Jennifer's study, 73% of parents expressed full acceptance of their child's gender identity [9]. Our data also partly support Jennifer's study, but the fathers' rates of negative reactions or neither positive nor negative reactions were even higher in the present study. Although caregivers may initially experience surprise related to their child's transgender identity, they often adjust to having a transgender child as their awareness of the needs of their child grows [23]. However, 50% of mothers and 44% of fathers were reported to have a continued negative reaction to their child's identity at the time of the study (an average of three years after disclosure) [8].

In comparison to transgender people in the group with a supportive family, those in the group with an unsupportive family had a high rate of negative experiences such as homelessness, attempting suicide, or experiencing serious psychological distress [4]. Family acceptance is known to predict greater self-esteem, greater social support, and a better general health status [24]. Furthermore, family acceptance is also known to protect against depression, substance abuse, and suicidal ideation and behaviors. Appropriate disclosure and undergoing a gender transition are important not only to transgender children but to their whole families.

The rate of mood or anxiety disorders as evaluated by the K6 score in transfeminine subjects tended to be higher than that in transmasculine subjects. We also observed that the mental state self-evaluation scores both before and after their disclosure were significantly lower in transfeminine subjects than in transmasculine subjects. Compared to transmasculine subjects, transfeminine subjects had a higher rate of negative reactions from their fathers at disclosure. Furthermore, transfeminine subjects were not able to talk with their family members about their life plans including work and having children, even after disclosure. Providing emotional support as well as esteem, informational and tangible support for the transfeminine subjects might

reduce their K6 scores.

Even accepting parents feel stress in association with their acceptance of their children, including a nagging sense of “am I doing the right thing?” that is reflective of the transphobic and genderist cultures in which they are raising gender-variant children [25]. Furthermore, parents sometimes encounter a lack of transgender education and endure judgments by miseducated educational and mental health professionals. Transgender people with a lack of support from their family members have to build a new support network throughout the transition process [26]. This process of building a support network entails establishing new family members who are supportive and understanding of their gender identities. Educational and mental health professionals can also provide the means of building good relationships with family members and ways to supplement their network of transgender friends and allies [27]. Structured programs including support groups and mentoring organizations connect youth with other transgender youth and provide opportunities to be mentored and to be mentors themselves [28]. Parents may also be connected with other parents of transgender individuals in these formal groups.

The subjects in the present study were recruited from among those who came to the gender clinic searching for medical intervention. Our study has the following limitations. The sample size was small, and the participants were drawn only from subjects who came to the gender clinic seeking medical intervention. In Japan, there may be many hidden transgender people who cannot disclose their gender nonconformity to their family members. Although some of these transgender people disclose their identity to teachers, including school nurse teachers, most of them cannot gain access to educational and mental health professionals nor to a gender clinic.

Further study is necessary to reveal the association between whether a transgender subject has disclosed their status to family members and their mental condition among the whole transgender population, including those who have not visited a gender clinic. Furthermore, little is known about the mental health of transgender children who disclose their identities and are supported by their families from early childhood. They may show low levels of suicidal ideation, school refusal, depression, and anxiety.

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