

Brief report

# Clinical characteristics of patients with gender identity disorder at a Japanese gender identity disorder clinic

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## Abstract

The aim of this study was to examine the clinical characteristics of patients with gender identity disorder (GID) at a GID clinic in Japan. A total of 603 consecutive patients were evaluated at the GID clinic using clinical information and results of physical and neurological examinations. Using DSM-IV criteria, 579 patients (96.0%) were diagnosed with GID. Four patients were excluded for transvestic fetishism, eight for homosexuality, five for schizophrenia, three for personality disorders, and four for other psychiatric disorders. Among the GID patients, 349 (60.3%) were the female-to-male (FTM) type, and 230 (39.7%) were the male-to-female (MTF) type. Almost all FTM-type GID patients started to feel discomfort with their sex before puberty and were sexually attracted to females. The proportion of FTM patients who had experienced marriage as a female was very low, and very few had children. Therefore, FTM-type GID patients seem to be highly homogeneous. On the other hand, various patterns of age at onset and sexual attraction existed among MTF patients. Among the MTF-type GID patients, 28.3% had married as males and 18.7% had sired children. Thus, MTF-type GID patients seem to be more heterogeneous.

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*Keywords:* Gender identity disorder; Gender ratio; Frequency; Female-to-male type; Male-to-female type

## 1. Introduction

Gender identity disorder (GID) is characterized by a strong and persistent identification with the opposite sex and discomfort with one's own sex (American Psychiatric Association, 1994). Compared with many other

psychiatric disorders, GID is rare, with an estimated worldwide lifetime prevalence of 0.001%–0.002% (Roberto, 1983) or 0.0019%–0.0024% (Landen et al., 1996a). The incidence of GID patients in Sweden who requested sex reassignment therapy was reported to be 0.14/100,000/year (Landen et al., 1996b). Thus, it has been difficult to establish demographic characteristics, and reports of large samples are limited. There has been little systematic research from countries outside of North America and Western Europe that might be helpful in identifying the similarities and differences in the disorder, including its associated features, across

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Table 1  
Age at onset

	Before elementary school	Lower grades of elementary school	Upper grades of elementary school	Junior high school	Senior high school <sup>a</sup>	Total
FTM <sup>b</sup>	245 (70%)	51 (15%)	28 (8%)	18 (5%)	7 (2%)	349
MTF <sup>c</sup>	63 (28%)	33 (14%)	33 (14%)	52 (23%)	49 (21%)	230
Total	308 (52%)	84 (15%)	61 (11%)	70 (12%)	56 (10%)	579

<sup>a</sup> Senior high school, senior high school and thereafter.

<sup>b</sup> FTM, female-to-male type.

<sup>c</sup> MTF, male-to-female type comparison of age at onset between FTM and MTF groups:  $P < 0.001$  (Mann–Whitney's  $U$ ,  $z = -11.747$ ).

cultural groups and nationalities. This is the first report on GID with a large sample size outside North America and Western Europe.

## 2. Methods

### 2.1. Subjects

A total of 603 consecutive Japanese patients examined at the outpatient GID Clinic of Okayama University Hospital between April 1, 1997, and October 31, 2005, were included in this study. All patients were comprehensively evaluated independently by at least two senior psychiatrists with a special interest in this area, and if possible, they were evaluated neuropsychologically by a clinical psychologist. Of 603 patients, 579 fulfilled the criteria for GID according to the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV).

All patients underwent a standard psychiatric evaluation to exclude major functional psychiatric disorders such as schizophrenia, mood disorder, and neurosis. The age at onset of GID was defined as the age at which the patient's first well-defined discomfort with his or her sexual identity was perceived. Early-onset GID was defined as GID with age at onset before graduation from elementary school (Haraldsen et al., 2003), and late-onset GID as GID with age at onset after entering junior high school. All patients were evaluated by physical and neurological examinations, and screened chromosomally and endocrinologically. All participants signed an informed consent form.

The GID Clinic at Okayama University Hospital, the second oldest GID clinic in Japan, was established in Okayama in 1997. During the study period, it was the only dedicated GID clinic in western Japan. It consists of four departments: psychiatry, urology, gynecology, and plastic and reconstructive surgery. The services at the GID Clinic include diagnostic assessment, counseling, genetic testing, hormonal therapy, plastic surgery, and coordination of social services resources.

All aspects of the present study were approved by the Ethical Committee of Okayama University Hospital.

### 2.2. Diagnostic assessment

GID was diagnosed according to DSM-IV. All GID patients included fulfilled criteria A to D in DSM-IV. Of the 603 patients assessed, 579 patients (96.0%) met the criteria for GID. Four patients were excluded for transvestic fetishism, eight for homosexuality, five for schizophrenia, three for personality disorders, and four for other psychiatric disorders.

### 2.3. Statistics (data analysis)

Statistical analysis was conducted using SPSS 12.0J (SPSS Inc., Chicago, IL, USA). Independent sample  $t$ -tests were used for comparison of the age at first visit to our clinic. Other comparisons between male-to-female (MTF) and female-to-male (FTM) groups were performed using the Mann–Whitney's  $U$  test. The significance level was set at  $P < 0.05$ , and a confidence interval of a 95% confidence interval was used.

## 3. Results

From April 1997 to October 2005, 579 GID patients were diagnosed with GID at the GID Clinic of Okayama University Hospital. A total of 349 (60.3%) were the FTM-type, and 230 (39.7%) were the MTF-type. The mean age at first examination was  $26.5 \pm 6.1$  years for the FTM-type GID patients, and  $32.0 \pm 10.2$  years for the MTF-type ( $P < 0.001$ ; independent sample  $t$ -test,  $t = -8.116$ ,  $df = 575$ ).

Of the 349 FTM-type GID patients, 245 (70.2%) first felt discomfort with their sexual identity before they entered elementary school, and almost all FTM-type GID patients (324/349, 92.8%) started to feel discomfort with their sexual identity before graduation from

Table 2  
Stage of therapy at first examination

	No therapy	Hormonal therapy <sup>c</sup>	Sex reassignment surgery <sup>d</sup>	Unknown	Total
FTM <sup>a</sup>	212 (61%)	96 (28%)	36 (10%)	5 (1%)	349
MTF <sup>b</sup>	108 (48%)	88 (38%)	33 (14%)	1 (0%)	230
total	320 (55%)	184 (32%)	69 (12%)	6 (1%)	579

<sup>a</sup> FTM, female to male type.

<sup>b</sup> MTF, male to female type.

<sup>c</sup> Hormonal therapy, hormonal therapy without genital plastic surgery.

<sup>d</sup> Sex assignment surgery, including mastectomy and mammoplasty.

elementary school (Table 1). In contrast, only 63 of the 230 (27.4%) MTF-type GID patients first felt discomfort with their sexual identity before they entered elementary school, and about half the FTM-type GID patients (101/230, 43.9%) started to feel discomfort with their sexual identity after graduation from elementary school (Table 1).

At first examination, 212/349 (60.7%) of the FTM-type GID patients and 108/230 (47.0%) of the MTF-type GID patients had not undertaken hormonal or surgical therapy (Table 2). Within the two groups, 36 of 349 (10.3%) FTM GID patients and 33 of 230 (14.3%) MTF GID patients had already undergone total or partial sex reassignment surgery (Table 2). Many patients who have had total sex reassignment surgery come to our clinic to get a medical certificate to legally register the change.

Among the FTM-type GID patients, almost all patients (322/349, 92.3%) were sexually attracted to females (Table 3), whereas several patterns coexisted among MTF-type GID patients. Namely, they were attracted to males (92/230, 40.0%), or to females (42/230, 18.3%), to both (32/230, 13.9%), or to neither (62/230, 27.0%) at the time of investigation (Table 3).

Among the FTM-type GID patients, almost all patients had experienced emotional love as a male (311/349, 89.1%), and had not experienced marriage as a female (332/349, 95.1%) (Table 4). In contrast, among

Table 3  
Sexual attachment

	To females	To males	To both <sup>c</sup>	Hyposexuality	Unknown	Total
FTM <sup>a</sup>	322 (92%)	8 (2%)	7 (2%)	10 (3%)	2 (1%)	349
MTF <sup>b</sup>	42 (18%)	92 (40%)	32 (14%)	62 (27%)	2 (1%)	230
Total	364 (63%)	100 (17%)	39 (7%)	72 (12%)	4 (1%)	579

Comparison of sexual attachment between FTM and MTF groups:  $P < 0.001$  (Mann–Whitney  $U$ ,  $z = -16.491$ ).

<sup>a</sup> FTM, female-to-male type.

<sup>b</sup> MTF, male-to-female type.

<sup>c</sup> To both, to both female and male.

Table 4  
Experience of emotional love or marriage, and presence of partner or child

	Experience of emotional love <sup>c</sup>	Presence of steady partner <sup>d</sup>	Experience of marriage <sup>e</sup>	Existence of child <sup>f</sup>
FTM <sup>a</sup>	311/28/10	209/138/2	17/332	7/342
MTF <sup>b</sup>	155/61/14	75/155/0	65/165	43/187
Total	466/89/24	284/293/2	82/497	50/529

Comparison between FTM and MTF groups; experience of emotional love:  $P < 0.001$  (Mann–Whitney  $U$ ,  $z = -6.189$ ); presence of steady partner:  $P < 0.001$  (Mann–Whitney  $U$ ,  $z = -6.688$ ), experience of marriage:  $P < 0.001$  (Mann–Whitney  $U$ ,  $z = -7.617$ ), existence of child:  $P < 0.001$  (Mann–Whitney  $U$ ,  $z = -6.367$ ).

<sup>a</sup> FTM, female to male type.

<sup>b</sup> MTF, male to female type.

<sup>c</sup> Experience of emotional love, yes/no/unknown.

<sup>d</sup> Presence of steady partner, yes/no/unknown.

<sup>e</sup> Experience of marriage, yes/no.

<sup>f</sup> Existence of child, yes/no.

the MTF-type GID patients, 65 of 230 (28.3%) patients had experienced marriage as a male, and 43/230 (18.7%) fathered a child (Table 4).

## 4. Discussion

### 4.1. Gender ratio

In our study, 349 GID patients (60.3%) were the FTM-type, and 230 (39.7%) were the MTF-type. Thus, the ratio of FTM:MTF was 1:0.66. In previous reports in Western countries, the FTM:MTF ratios were 1:8.7 (Bower, 2001), 1:6.6 (Zucker et al., 1997), 1:5.8 (Cohen-Kettenis et al., 2003), and 1:2.9 (Cohen-Kettenis et al., 2003). The discrepancy between our result and previous reports in Western countries is obvious.

In Japan, vaginoplasty is relatively widely performed because the operation is not very difficult, although it is not covered by health insurance, whereas penis construction is performed at only a few hospitals, including ours, because the operation requires a high level of

technical skill. Therefore, MTF-type GID patients can undergo vaginoplasty relatively easily anywhere, whereas FTM-type GID patients have few options outside our hospital. We hypothesize that this is the reason our clinic attracts more FTM-type GID patients than MTF-type GID patients.

#### 4.2. Frequency

GID is rare, with an estimated worldwide lifetime prevalence of 0.001%–0.002% (Roberto, 1983). However, a previous study noted that the prevalence of GID appears to be higher in The Netherlands, with MTF-type GID found in about 1 in 12,000 inhabitants, whereas FTM-type GID is seen in 1 in 30,000 inhabitants (Bakker et al., 1993).

There are about 40 million people living in western Japan. At our clinic, a total of 349 FTM-type GID patients, most of whom came from western Japan, were seen. Therefore, FTM-type GID patients are present with a prevalence of at least 0.0009%. This figure is not far from an estimated lifetime prevalence of 0.001%–0.002%.

#### 4.3. Comparison of FTM and MTF groups

Among FTM patients, almost all started to feel discomfort with their sexual identity before puberty and felt sexually attracted to females. Thus, the proportion of patients who had experienced marriage as a female was low, and having borne children was rare. Therefore, FTM patients seem to be highly homogeneous. On the other hand, various patterns exist among MTF patients in age at onset and sexual attraction. More than 40% of the MTF-type GID patients started to feel discomfort with their sexual identity after puberty, and a third of the MTF-type GID patients feel sexual attraction to females. As a result, 28.3% had experienced marriage as a male and 18.7% had fathered children. Thus, MTF patients seem to be more heterogeneous.

Previous research in Western countries reported similar results. MTF-type GID patients were thought to fall into two groups: primary and secondary (Person and Ovesey, 1974a,b). The former have GID throughout the course of their development, but the latter are effeminate homosexuals and transvestites who develop GID under stress. Our results are in line with previous reports in Western countries. The homogeneity of FTM-type GID patients suggests that the occurrence of FTM-type GID is determined by congenital factors, whereas the heterogeneity of MTF-type GID patients suggests the existence of subgroups.

#### 4.4. Limitation of this study

Some limitations of this study have to be considered. Firstly, this study is clinic-based rather than a field study. Therefore, the exact prevalence of GID is unclear. Secondly, one significant factor affecting the proportion of each diagnosis in this study may be referral bias because MTF-type GID patients can obtain vaginoplasty relatively easily in Japan, whereas the GID Clinic of Okayama University Hospital is the only facility in western Japan that can perform FTM surgery. As a result, general psychiatrists may refer patients with FTM-type GID patients to our center more often.

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