

The prevalence of transsexualism in Singapore

W. F. Tsoi

Department of Psychological Medicine (Head: Professor W. F. Tsoi), National University of Singapore, Singapore

ABSTRACT - The prevalence of transsexualism in Singapore was estimated by counting all the patients who sought sex-reassignment surgery and were subsequently diagnosed as transsexuals by psychiatrists. Up to 1986, there were a total of 458 Singapore-born transsexuals, of which 343 were males and 115 were females. This was a prevalence of 35.2 per 100,000 population age 15 and above (or 1/2900) for male transsexualism, and 12.0 per 100,000 (or 1/8300) for female transsexualism. The sex ratio was about 3 males to 1 female. The main reason for the high prevalence was the availability of sex-reassignment surgery.

Received February 13, 1988; accepted for publication April 9, 1988

The prevalence of transsexualism in Singapore appears to be much higher than reported elsewhere in the world (1-5). In this paper, an attempt is made to report on the prevalence of transsexualism in Singapore and to suggest reasons why it is so much higher than in other countries. Singapore is an ideal place for a prevalence study because it is a well circumscribed island-city republic where all its residents are registered. In this report, prevalence was defined as the total number of Singapore-born transsexuals who were alive in 1986. This would include those transsexuals who had emigrated from Singapore but exclude those who immigrated to Singapore.

Material and methods

The prevalence was estimated by counting all the patients who sought sex-reassignment surgery and were subsequently diagnosed as transsexuals by psychiatrists. Except for 6% who had undergone sex-reassignment surgery after being examined by two private psychiatrists, the rest (94%) were diagnosed by the author using the criteria of Wälinder (6). There were two sources of infor-

mation: the Department of Obstetrics and Gynaecology, National University of Singapore, and private surgeons. The case records of transsexuals in the Department of Obstetrics and Gynaecology were available. Letters were sent to the three private surgeons who performed sex-reassignment surgery. The cases collected were matched to eliminate double reporting. This was made possible by the fact that every resident in Singapore has a unique identity card number.

Results

Sex. Up to 1986, there were a total 458 Singapore-born transsexuals, of which 438 (94%) were reported by the Department of Obstetrics and Gynaecology and only 30 (6%) were reported by two private surgeons. Of these 458 transsexuals, 343 were male transsexuals and 115 were female transsexuals, giving a sex ratio of 3:1. In June 1986, there were 979,300 males and 954,900 females age 15 and above in Singapore. The prevalence was 35.2 per 100,000 population (or 1/2900) for male transsexualism, and 12.0 per 100,000 (or 1/8300) for female transsexualism.

Age. The mean age at the time of inception was the same for both sexes: 24.1 years. The age range was 15 to 48 years for males, and 15 to 41 years for females. More than half the cases were in the age group 20-24 (mode) for both sexes (Table 1). The mean age was younger than those reported from such developed countries as the United States (1), Sweden (2), England (3) and Australia (4), in which the mean age was about 30 years.

Ethnic groups (Table 2). There are three major ethnic groups in Singapore: Chinese (76%), Malay (16%) and Indians (6%). The remaining 2% comprises all other ethnic groups, most of whom are Eurasians. In absolute numbers, most of the transsexuals were Chinese, but the Indians and other ethnic groups (combined here for statistical purposes) had the highest rate for male transsexualism (42.5 per 100,000), and the Chinese had the highest rate for female transsexualism (13.2 per 100,000).

Discussion

Pauly (1) reported that the Gender Clinic of Johns Hopkins Hospital received over 1000 applications from people requesting sex-reassignment surgery. From this he estimated that there were at least 2000 male and 500 female transsexuals in the United States. The prevalence of transsexualism would then be about 1 per 100,000 for males and 0.25 per 100,000 for females. This was an underestimate, as many had not come forward to seek medical treatment.

Wälinder (2) sent letters to all psychiatrists treating adults in Sweden, who reported 91 cases, of which 67 were judged to be transsexuals. Added to his own 43 cases, he estimated 110 transsexuals age 15 and above in Sweden on 31 December 1965 (1.9 per 100,000). There were 81 men and 29 women, giving a male-female ratio of 2.8 and a prevalence of 2.7 per 100,000 for men and 1.0 per 100,000 for women.

Hoening & Kenna (3) collected data on 66 transsexuals (49 males and 17 females); age 15 and above, at the University Department of Psychiatry, Manchester between 1958 and 1986. From this, they estimated the prevalence rate of 3 per 100,000 (or 1 in 34,000) for males and 0.93 per 100,000 (or 1 in 108,000) for females, and a male-female ratio of 3.25 after allowance was made for the unequal sex distribution in the Manchester population. The rates were higher in metropolitan areas.

Ross et al. (4) sent letters to all registered psychiatrists in Australia and New Zealand and found 209 male and 34 female transsexuals. From this they estimated the prevalence of transsexualism in Australia as 4.2 per 100,000 (1/24,000) for males and 0.67 per 100,000 (1/150,000) for females. They explained that the increased rate in Australia was caused by anti-homosexual attitudes, backlog, publicity and societal pressure. Using a sociological approach, they identified two factors: the degree of sex-role differentiation in society (the more rigid the sex roles, the more deviation from the norm), and anti-homosexual attitudes. This has caused an increase in the proportion of transsexuals presenting as patients.

Table 1
Age of transsexuals at inception

Age at inception (years)	Male transsexuals		Female transsexuals		Total	
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
15-19	41	12	10	9	51	12
20-24	168	51	58	51	226	51
25-29	82	25	37	33	119	27
30-34	36	11	6	5	42	9
≥ 35	3	1	2	2	5	1
Total	330		113		443	
Unknown	13		2		15	
Mean age (years)	24.1		24.1		24.1	

Table 2
Transsexuals and ethnic group

Ethnic group	Male transsexuals		Female transsexuals	
	n	Rate*	n	Rate*
Chinese	250	33.1	100	13.2
Malay	53	36	12	8.8
Indian and others	40	42	3	4

*per 100,000 population age 15 years and above

to all psychiatrists reported 91 cases, to be transsexuals. He estimated 110 cases in Sweden on 31 (100). There were 81 male-female ratio .7 per 100,000 for women.

and data on 66 transsexuals); aged 15 and treatment of Psychiatry 8 and 1986. From prevalence rate of 3 per males and 0.93 per females, and a liter allowance was distribution in the rates were higher in

all registered psychiatrists in Zealand and found transsexuals. From this of transsexualism in (1/24,000) for males (1/10,000) for females. recorded rate in Australia latitudes, backlog, Using a sociological actors: the degree of rigidity (the more rigid the from the norm), and this has caused an transsexuals present-

total	(%)
n	
51	12
226	51
119	27
42	9
5	1
443	
15	

24.1

O'Gorman (5) estimated the prevalence of transsexualism in Northern Ireland as 1.9 per 100,000 (1/52,000) with a ratio of 3 males to 1 female. He based this on 28 patients (21 males, 7 females) known to the Department of Mental Health, Queen's University, Belfast, Northern Ireland, over a 14-year period.

The prevalence of transsexualism depends on the diagnostic criteria and the methodology used. Money (7) pointed out that it is essentially meaningless to estimate the prevalence of transsexualism in the absence of proper epidemiological sampling. The method used to estimate the prevalence from medical case records (2-5) tends to underestimate prevalence, because not all transsexuals are registered with medical professionals. On the other hand, the prevalence of transsexualism is so low (about 1-10 per 100,000) that even an epidemiological sample size of 100,000 may not give a reliable estimate. Yeh et al. (8) were able to discover 3 transsexuals (1 male and 2 female) in a survey of 5000 people in Taipei City, Taiwan, using the Chinese Modified Version of the Diagnostic Interview Schedule (DIS-CM-II). Because of the small number, the result was difficult to interpret. Another problem confounding an epidemiological survey is that transsexuals tend to congregate in cities and in certain parts of cities, and most of them do not want to be identified. Hence, the epidemiological method may not be more accurate than tracing through medical records.

The use of medical records for estimating prevalence depends largely on the number of transsexuals reporting for sex-reassignment surgery. As the publicity about transsexualism increases in the future, more cases of transsexuals will be recorded in later estimates until the backlog is exhausted. This could account for the

larger number of transsexuals recorded in Singapore in 1986, when the figure for male transsexuals was 35 per 100,000 compared with 1.0 per 100,000 in 1968 (1), 2.9 per 100,000 in 1974 (3), and 4.2 per 100,000 in 1984 (4). Using a similar method (medical records), the prevalence of transsexualism in Singapore appears to be about 10 times higher than those reported in such countries as Sweden (2), the United States (1), England (3) and Northern Ireland (5).

The following are possible reasons for the high prevalence of transsexualism in Singapore.

1. Sex reassignment surgery is well established in Singapore. Hence many transsexuals who would otherwise have remained hidden have made themselves known to the medical profession.
2. The study was carried out more recently than the other comparable studies when more transsexuals had come forward to seek sex-reassignment surgery.
3. Transsexuals are not suppressed or harassed by the police in Singapore, and were therefore more willing to reveal their identity.

The Singapore transsexuals were also found to be younger than in other areas. The percentages of transsexuals below age 30 for Singapore were: males 82% and females 93%, compared with Sweden: male 66% and female 62% [2], and Manchester: male 66% and female 71% [3]. There are four possible reasons for the younger age of inception: the Singapore population is younger than those of developed countries; the Singapore transsexuals sought medical help earlier because of greater awareness and easier accessibility to sex-reassignment surgery; male transsexuals were required to declare themselves

Table 3
Prevalence of transsexuals (age 15 and above)

Country	Male	Female	M:F
Singapore	35 per 100,000	12 per 100,000	3.0:1
USA* (1)	1.0 per 100,000*	0.25 per 100,000*	4.0:1
Sweden (2)	2.7 per 100,000	0.97 per 100,000	2.8:1
England (Manchester) (3)	2.9 per 100,000	0.93 per 100,000	3.2:1
Australia (4)	4.2 per 100,000	0.67 per 100,000	6.1:1
Northern Ireland (Belfast) (5)	2.8 per 100,000	1 per 100,000	3:1

*for all ages

when they were enlisted for national service at age 19-20; and there could be genetic and cultural differences.

The transsexual male-female sex ratio in prevalence studies varies from a high of 8:1 estimated by Benjamin (9) to 2.8:1 by Wälinder (2) (Table 3). If transsexuals were counted on a yearly basis, the annual incidence ratio for transsexuals tended to approach 1:1 in Sweden (10). As the estimates were based on the number of transsexuals requesting sex-reassignment surgery, the ratio would also depend on whether female-to-male sex-reassignment surgery was offered, and whether such centres were publicized. Cultural factors also played a role, as stigmatization of homosexuality raises the number of male transsexuals (4). These factors also apply to Singapore, where the sex ratio peaked at 20:1 in 1972-74, dropped to 1.4:1 in 1978-80, after which it remained at a constant ratio of 2.5:1 in 1981-83 and 1984-86 (Table 4).

References

1. Pauly I B. Current status of change of sex operation. *J Nerv Ment Dis* 1968;147:460-471.
2. Wälinder J. Transsexualism: definition, prevalence and sex distribution. *Acta Psychiatr Scand* 1968;203:255-257.
3. Hoening J, Kenna J C. The prevalence of transsexualism in England and Wales. *Br J Psychiatry* 1974;124:181-190.
4. Ross M W, Wälinder J, Lundström B, Thuwe J. Cross-cultural approaches to transsexualism. *Acta Psychiatr Scand* 1981;63:75-82.
5. O'Gorinan E C. A retrospective study of epidemiological and clinical aspects of 28 transsexual patients. *Arch Sex Behav* 1982;11:231-236.
6. Wälinder J. Transsexualism: a study of forty-three cases. Göteborg: Scandinavian University Books, 1967.
7. Money J, Gaskin R J. Sex reassignment. *Int J Psychiatry* 1971;9:249-268.
8. Yeh E K, Hwu H G, Chang L Y. Prevalence of mental disorders in Taipei city by Chinese modified diagnostic interview schedule: a preliminary report. *Bull Chin Soc Neurol Psychiatry* 1984;10:18-32.
9. Benjamin H. The transsexual phenomenon. New York: Julian Press, 1966.
10. Wälinder J. Incidence and sex ratio of transsexualism in Sweden. *Acta Psychiatr Scand* 1968;203:255-257.

Address

Dr. Wing Foo Tsoi, MBBS, DPM, FRCPsych,
FRANZCP, FRCPG, AM
Department of Psychological Medicine
National University Hospital
Singapore 0511