

# PSYCHOLOGICAL EFFECTS OF ABORTION

(A study of 1739 cases)

By W. F. Tsoi, M. C. E. Cheng, D. Vengadasalam and K. M. Seng

## SYNOPSIS

**A prospective study on the psychological effects of abortion was carried out on 1739 cases. The 6-month follow up rate was 80%. 90% of the abortion was performed by D & C and Vacuum Aspiration.**

**The abortion rate was highest for the age group 30-39 years (72 per 10,000), and the Indian ethnic group (87 per 10,000) when compared with the average rate of 39 per 10,000 Singapore women of ages 15-44 years. The great majority (95%) was married, 86% had total family income between \$100 and \$400, 64% had between 3 to 6 living children, and 95% said their married life was happy and had no sexual difficulties. Their mental health was elicited by two sets of questions relating to their somatic symptoms and psychiatric symptoms. There was a significant drop by 61% for somatic symptom scores and a marked drop by 92% for mental symptom scores. Six months after the abortion those who underwent Sterilization at the same time of abortion (32%) showed a slightly less reduction in somatic symptoms than those who had abortion only.**

**The results of this study showed that legalised abortion had no observable ill effects on the mental health of the patients. On the contrary, there were less somatic and psychiatric complaints and better sexual adjustments six months after the abortion.**

## INTRODUCTION

Before 1969, it was a grave offence to carry out an abortion in Singapore except for the purpose of saving the life of the mother. The Abortion Act, 1969, of Singapore (1), which went into operation on 20.3.70 reformed and liberalised the law relating to Abortion by establishing the "Termination of Pregnancy Authorisation Board" which could authorise treatment to terminate pregnancy by registered medical practitioners.

In 1970, the first year of implementation of the new Abortion Act, there were 3,093 applicants for abortion. Eighty-eight percent were approved and twelve percent rejected. Of those approved for termination, 95% were for socio-economic reasons (3). Too many children and low income were the commonest reasons given. It was the policy of the Board to authorize termination of pregnancy for these applicants.

A prospective study was planned in 1970 to study the psychological sequelae of legalised abortion in Singapore.

## MATERIALS AND METHODS

In 1971, every woman admitted into Kandang Kerbau Hospital and Thomson Road General Hospital for termination of pregnancy was interviewed before the operation by one or two midwives specially recruited for the project. A questionnaire was filled up by the midwife before the procedure and again six months after the abortion. The preoperative part of the questionnaire was intended to provide a crude baseline of the state of mental health of the woman. It included questions on the marital state, ideas and attitudes on abortion, and questions on physical and mental symptoms that reflected their mental health. These women were followed up 2 weeks, 6 weeks and 6 months after the operation.

During 1971, 2,326 legal abortions were performed in Kandang Kerbau Hospital and 876 performed in Thomson Road General Hospital. The total comprised 95% of legal abortions carried out in 1971 in Singapore. As the follow up rate of cases performed in Thomson Road General Hospital were much lower than those performed in Kandang Kerbau Hospital, they were excluded in the analysis. Of the 2,326 cases done in Kandang Kerbau Hospital only 1,739 (74%) were finally coded and analysed. The six-month follow up rate of these 1,739 cases was 80%.

---

Woodbridge Hospital, Singapore.

W.F. TSOI, M.B., B.S., D.P.M., M.R.C.P. (G), M.R.C. Psych. A.M.,  
Medical Superintendent.

Dept. of Obstet. and Gynac., University of Singapore.

M.C.E. CHENG, M.B., B.S., M.R.C.O.G., A.M., Senior Lecturer.

Kandang Kerbau Hospital.

D. VANGADASALAM, M.B., B.S., M.R.C.O.G., A.M.,

Consultant Obstetrician and Gynaecologist.

Kandang Kerbau Hospital.

K.M. SENG, M.B., B.S., M.R.C.O.G., A.M., Senior Registrar.

---

**RESULTS**

**Methods of Abortion**

Dilatation and Curettage, and Vacuum Aspiration accounted for 1,560 (90%) out of the total of 1,739 cases. The details are shown in the Table I below.

Only 1% of the cases had complications during operation of which perforation accounted for 0.3% (5 cases). However, 4% (62 cases) had delayed complications due to haemorrhage (30 cases) and infection (32 cases). The majority was carried out under caudal anaesthesia (54%), followed by general anaesthesia (20%) and spinal anaesthesia (8.4%).

**Patient Characteristics**

The age groups, ethnic groups, marital status and educational status were compared with women between the ages of 15 and 44 years worked out from the Mid-1970 Census of Singapore (7). These comparisons are shown in the Tables II to IV below.

**Family Income and Parity**

This is shown in Tables VI and VII below.

The great majority (86%) of the women had total family incomes between \$100 and \$400 per month (Table VI). This was below the average national per capita income of \$3,071 for 1971, taking into consi-

deration that about two-thirds (64%) of the patients had between 3 to 6 living children. Only 2.1% were nulliparous and 2.7% had one child (Table VII).

The number of women in the Abortion Group expressed as rates per 10,000 women population of Singapore was lowest in the age group 15-19 (3 per 10,000) and highest in the age group 30-39 (72 per 10,000) (Table II). The abortion rate for Indians was 2½ times higher than the rates for Chinese or Malays (Table III). The Malays, who were usually under-represented in hospital statistics, had shown to be more willing to come forward for legalised abortion. The great majority of the women (95%) was married. Only 3.9% was single. The sample showed a lower literacy status than the Singapore women population of the same age range. This is accounted for by the fact Kandang Kerbau Hospital serves the majority of poorer class of patients and the fact that 95% of abortions approved by the Board were for socio-economic reasons. Only 24% practised contraception regularly. On the other hand 26% never practised contraception. The great majority (95%) said that their married life was happy, and 97% found sexual intercourse satisfactory.

The typical profile of the average patient would be a happily married, sexually well adjusted housewife between the ages 20-39, either illiterate or having received only Primary education, with 3-6 children, and a total family income of between \$100

TABLE I  
METHODS OF ABORTION

Methods	D and C	Vac. Asp.	Hysterotomy	Others
Without Ligation	20%	9%	4%	
With Ligation	41%	20%	0.3%	6%
Total	61%	29%	4.3%	6%

TABLE II  
DISTRIBUTION BY AGE GROUP

Age Group	No. in the Abortion Group	Comparative Rate per 10,000 Singapore female Population *	Comparison by Percentage	
			The Abortion Group	Singapore female Population (Age 15-44)
15—19	43	3.5	3%	26%
20—29	218	21.7	13%	22%
25—29	318	48.2	18%	15%
30—34	492	72.4	28%	15%
35—39	391	71.8	23%	12%
40—44	270	57.6	16%	10%
Total	1,732	38.8	100%	100%

\* This is the number of abortions for the age group multiplied by 10,000 and divided by the number of women in the same age group in the Census of Population 1970, Singapore (3).

TABLE III  
DISTRIBUTION BY ETHNIC GROUP

Ethnic Group	Malay	Chinese	Indian	Others	Total
The Abortion Group	13%	72%	13%	1.2%	100%
Singapore Population	14%	78%	5.8%	2.0%	100%
(7) (Female)					
Comparative Rates per 10,000 Singapore Female Population	35.5	35.4	87.0	23.1	

TABLE IV  
DISTRIBUTION BY MARITAL STATUS

Marital Status	Single	Married	Widowed	Divorce or Separated	Total
The Abortion Group	3.9%	95%	0.1%	0.7%	100%
Singapore Women	45%	53%	1.6%	0.6%	100%
Population (7)					

TABLE V  
DISTRIBUTION OF HIGHEST EDUCATIONAL LEVEL REACHED

Highest Educational Level Reached	No Education	Primary Education	Secondary Education	Tertiary Education	Total
The Abortion Group	50%	37%	12%	0.5%	100%
Singapore Women	40%	27%	32%	1.2%	100%
Population (7)					

TABLE VI  
TOTAL FAMILY INCOME PER MONTH

Income	\$100 and under	\$100 to \$200	\$200 to \$400	\$400 to \$600	\$600 and over	Total
Percentage	3.0%	44%	42%	6.4%	4.8%	100%

TABLE VII  
PARITY

Parity	0	1-2	3-4	5-6	7-8	9 and Above	Total
Percentage	2.1%	12%	37%	27%	16%	6.7%	100%

TABLE VIII  
COMPARISON BETWEEN ENGLAND AND WALES AND SINGAPORE

Countries	Year	Age 19 and below	Marital Status Single	Nulliparous
England and Wales	1971	32%	56%	46%
Singapore	1971	3.5%	3.9%	2.1%

to \$400 per month. This differs markedly from England and Wales in 1971 (6) in which out of 94,370 residents who underwent abortion 56% were unmarried, 32% were under the age of 20, and 46% were nulliparous (Table VIII). The difference was even more significant when we consider the fact that Singapore had a younger population compared to England and Wales. The typical woman in England and Wales undergoing abortion in 1971 would probably be a young unmarried girl who had a 50% chance of not having borne a child previously.

**Effects of Abortion on Mental Health**

The great majority of the patients had very little education and were unable to communicate their thoughts or feelings in English. They spoke a variety of languages and Chinese dialects and came from diverse cultural and religious backgrounds. Past experience showed that they often expressed their mental problems in the form of Somatic Symptoms. Because of these handicaps, the assessment of their mental health had to be elicited by answers on simple and straight forward questions relating to their physical and mental experience. Below are the two sets of questions on somatic and psychiatric symptoms.

(a). Questions relating to their Somatic Symptoms

- Do you have frequent bodily discomfort?
- Do you always feel tired or weak?
- Do you have frequent headaches?
- Do you have frequent backaches?

- Do you have chest discomforts?
- Do you have abdominal discomforts?
- (b). Questions relating to Psychiatric Symptoms
  - Do you suffer from insomnia (sleeplessness)?
  - Is your appetite always poor?
  - Do you worry about your failure?
  - Do you have financial worries?
  - Do you worry about your health?
  - Do you have attacks of fear or anxiety?
  - Do you feel sad for no reason?

The patients are required to answer "yes" or "no". The score for "yes" is 1 point and the score for "no" is 0 point. The lower the score the better the state of mental health.

The results for these two sets of questions are as follows:

The scores for somatic and psychiatric symptoms are about the same before the Abortion. There is a significant reduction of somatic symptoms and marked reduction of psychiatric symptoms 6 months after the abortion. The scores showed a reduction by 61% for somatic symptoms and 92% for psychiatric symptoms 6 months after the abortion as shown in the Tables XI and XII below:

**ATTITUDES ON ABORTION**

Only 0.4% (9 patients) regretted having decided to undergo the abortion, and 1.2% (22 patients) did not wish to undergo another abortion. Before the

TABLE IX  
PRESENCE OF SOMATIC SYMPTOMS

No. of Symptoms	0	1	2	3 or more	Total	No. of Cases
Before Abortion	56%	26%	12%	6%	100%	1,739
6 months later	83%	10%	3.7%	2.9%	100%	1,360

TABLE X  
PRESENCE OF PSYCHIATRIC SYMPTOMS

No. of Symptoms	0	1	2	3 or more	Total	No. of Cases
Before Abortion	56%	22%	16%	6%	100%	1,739
6 months later	96.4%	2.5%	0.7%	0.4%	100%	1,357

TABLE XI  
SOMATIC SYMPTOMS BEFORE ABORTION AND 6 MONTHS LATER

	Total Scores	Total No. of Cases	Mean Score per Case	Reduction in score by
Somatic Symptoms before Abortion	1,230	1,739	0.71	61%
Somatic Symptoms 6 months later	378	1,360	0.28	

TABLE XII  
PSYCHIATRIC SYMPTOMS SCORE BEFORE ABORTION  
AND SIX MONTHS LATER

	Total Scores	Total No. of Cases	Mean Score per Case	Reduction in score by
Psychiatric Symptoms before Abortion	1,629	1,739	0.73	92%
Psychiatric Symptoms 6 months later	74	1,357	0.06	

TABLE XIII  
SOMATIC SYMPTOM SCORES OF ABORTION AND  
STERILIZATION CASES COMPARED WITH ABORTION CASES

	Somatic Symptoms before Abortion			Somatic Symptoms 6 months later			Percentage Reduction in Symptoms six months later
	Total Score	Total No. of cases	Mean Score per case	Total Score	Total No. of cases	Mean Score per case	
Abortion and Sterilization	399	500	0.80	131	430	0.30	62.5%
Abortion only	946	1,054	0.90	190	793	0.24	73.3%

TABLE XIV  
PSYCHIATRIC SYMPTOM SCORES OF ABORTION AND  
STERILIZATION CASES COMPARED WITH ABORTION CASES

	Psychiatric Symptoms before Abortion			Psychiatric Symptoms 6 months later			Percentage Reduction in Symptoms six months later
	Total Score	Total No. of cases	Mean Score per case	Total Score	Total No. of cases	Mean Score per case	
Abortion and Sterilization	348	500	0.70	31	429	0.07	90%
Abortion only	783	1,054	0.74	47	791	0.06	92%

abortion 2.4% (44 patients) experienced unsatisfactory sex life. This was reduced to less than 1% (11 patients) 6 months after Abortion. Thirteen percent found the abortion more uncomfortable than childbirth. Twelve percent believed that it was more harmful than childbirth and 6% believed that the abortion had adverse effects on the next child birth.

#### Relationship between Mental Health and other variables

The numbers of somatic symptoms and psychiatric symptoms were cross tabulated with variables like age, ethnic groups, educational status etc., (a) before the Abortion and (b) 6 months after the Abortion.

The results showed that before the Abortion, low scores for somatic symptoms were related to the

younger age groups, the lower income groups, and the non-Chinese ethnic groups. There was little difference in scores for psychiatric symptoms for the above variables except that the scores were higher for Chinese ethnic group before the abortion.

Six months after the abortion, there was no difference in scores between all the variables. There was, however, a marked reduction of scores in all cases.

#### Effects of Sterilization

This is shown in the Tables XIII and XIV. Thirty-two percent underwent sterilization at the time of abortion. The results show that the group that underwent sterilization performed at the time of the abortion showed less reduction in somatic symptom scores (63% reduction) than the group that did not undergo sterilization (73% reduction). However,

there appears to be no difference in reduction of psychiatric symptoms scores (Table XIV).

#### DISCUSSION AND CONCLUSION

Most of the reported studies on the psychological effects of abortion were carried out on small groups of patients who underwent legal abortion on psychiatric grounds. Simon and Senturia (1966) (8) in their review of 28 papers published over the period 1935-1964 showed that the earlier papers tended to suggest that psychiatric illness almost always was the outcome of abortion, and the later papers tended to deny the existence of psychiatric complications. Pare and Raven (1970) (5) in a follow-up study of 321 patients referred for termination of pregnancy, concluded that termination of pregnancy caused little psychiatric disturbance provided the patient wanted an abortion. Granville-Grossman (1971) (2) in his review on the same subject concluded that "severe mental disturbance after termination of pregnancy is uncommon but when it does occur it is often difficult to determine if the illness has been precipitated by the abortion or if it is a continuation of the previous psychiatric disorder". Niswander and Patterson (1967) (4) concluded that 82.8% of 116 patients who underwent abortion showed long-term favourable effects.

The present survey of 1,739 cases is probably the first large-scale prospective study of the psychological effects of abortion in this region. With our simple questionnaire method of study, no observable psychological ill effects on the mental health of this group of patients were revealed six months after the abortion. On the contrary, this study showed that the group had significantly less somatic and psychiatric symptoms, and reported better sexual adjustment six months after the abortion. It is possible

that the higher scores for somatic and psychiatric symptoms before abortion were partly due to morning sickness of pregnancy and the emotional stress of an unwanted pregnancy. It would appear that abortion removes these two factors thereby reducing the number of somatic and psychiatric symptoms six months after abortion.

#### ACKNOWLEDGEMENT

The authors wish to thank Dr. Ho Guan Lim, Director of Medical Services, Singapore, for approving the research grant and permission to publish the paper, Dr. Kwa Soon Bee, then Medical Superintendent of Kandang Kerbau Hospital, Prof. Goon Sek Mun, Prof. Lean Tye Hin and Prof. S. S. Ratnam for their co-operation and encouragement in the execution of this project.

#### REFERENCES

1. The Abortion Act, (No. 25 of 1969) Government Gazette, Acts Supplement, Republic of Singapore, 1969.
2. Granville-Grossman K.: "Recent Advances in Clinical Psychiatry" 276-279, J and A Churchill, London, 1971.
3. Kwa S. B., Quah S. T. and Cheng M. C. E.: "The Abortion Act 1969—A review of the First Year Experience". *Sing. Med. J.* 12, 250-255, 1971.
4. Niswander K. R. and Patterson R. J.: "Psychological reaction to therapeutic abortion" *Obstet. and Gynae.*, 29, 702-706, 1967.
5. Pare C. M. B. and Raven H.: "Follow up of patients referred for termination of pregnancy". *Lancet*, 1, 635-638, 1970.
6. The Registrar General's Statistical Review of England and Wales for the Year 1971, Supplement on Abortion, London.
7. Report on the Census of Population 1970 Singapore, Department of Statistics, Singapore.
8. Simon N. M. and Senturia A. G.: "Psychiatric sequelae of abortion" *Arch. Gen. Psychiat.*, 15, 378-389, 1966.