

ABORTION PRACTICE IN INDIA A REVIEW OF LITERATURE

Heidi Bart Johnston

Abortion Assessment Project - India



**Centre for Enquiry into Health and Allied Themes, Research Centre of Anusandhan Trust, Survey No. 2804 & 2805, Aaram Society Road, Vakola, Santacruz East, Mumbai - 400055, Maharashtra, India; Ph:(+91-22) 26673154, 26673571; Fax : 26673156; Email:cehat@vsnl.com;
www.cehat.org**

First Published in May 2002

By

**Centre for Enquiry into Health and Allied
Themes (CEHAT)**

Research Centre of Anusandhan Trust

Sai Ashray, Aram Society Road, Vakola

Santacruz (East), Mumbai - 400 055

Telefax : 91-22-614 7727/613 2027

Email: cehat@vsnl.com

©

CEHAT/HEALTHWATCH

Printed at :Chintanakshar Grafics

Mumbai - 400 031

The views and opinions expressed in this publication are those of the author alone and do not necessarily reflect the views of the collaborating organizations.

TECHNICAL ADVISORY COMMITTEE (TAC)

- ☐ **Dr. R.N. Gupta**, Social Scientist and Researcher, Indian Council of Medical Research, New Delhi
- ☐ **Dr. Leela Visaria**, Coordinator of Healthwatch and Researcher, New Delhi
- ☐ **Dr. Saramma Thomas Mathai**, Consultant in Maternal & Child Health, New Delhi
- ☐ **Dr. Thelma Narayan**, Epidemiologist - Community Health Cell, Bangalore
- ☐ **Dr. Padmini Swaminathan**, Senior Economist and Researcher, Madras Institute of Development Studies, Chennai
- ☐ **Ms. Manisha Gupte**, Health and Women's Activist, Mahila Sarvangeen Utkarsha Mandal (MASUM), Pune
- ☐ **Dr. Sudarshan Iyengar**, Researcher and Academician, Director of Gujarat Institute of Development Research, Ahmedabad
- ☐ **Ms. Sudha Tewari**, Provider of Abortion Services, Parivar Seva Sanstha, New Delhi
- ☐ **Dr. Kamini Rao**, Professional, President Federation of Obstetrician and Gynaecological Societies of India (FOGSI), Bangalore
- ☐ **Dr. Narika Namshum**, Asst. Commissioner (Maternal Health), Dept. of Family Welfare, Government of India, New Delhi
- ☐ **Ms. Ena Singh**, Assistant Representative in UNFPA India Country Office, a member in her personal capacity as an experienced Research Administrator, New Delhi

ETHICS CONSULTATIVE GROUP (ECG)

- ☐ **Dr. Sudarshan Iyengar**, Representing the TAC, Gujarat Institute of Development Research, Ahmedabad
- ☐ **Dr. S.V. Joga Rao**, National Law School of India University, Bangalore
- ☐ **Dr. Sanjay Gupte**, Chairperson, Ethics and Medico-Legal Committee, FOGSI, Pune
- ☐ **Dr. Vasantha Muthuswami**, Expert on Bio-Medical Ethics DDG (SG), Indian Council of Medical Research, New Delhi
- ☐ **Dr. Ritu Priya**, Researcher and Academician Jawaharlal Nehru University, New Delhi
- ☐ **Ms. Padma Prakash**, Deputy Editor, Economic and Political Weekly, Mumbai
- ☐ **Dr. V.R. Muraleedharan**, Researcher and Academician, Department of Humanities and Social Sciences Indian Institute of Technology, Chennai
- ☐ **Dr. Amar Jesani**, Programme Co-ordinator, Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala

ACKNOWLEDGEMENTS

This paper was developed in coordination with the Abortion Assessment Project - India (AAP-I).

The author would like to thank members of the Abortion Assessment Project - India for their comments on an earlier draft of the paper, as well as Ravi Duggal, Bela Ganatra, Saramma Mathai, Manisha Gupte, Malini Karkal, Dale Huntington, Priya Nanda and Robert Pelto for their insightful comments.

At Ipas, Jaine Benson, Barbara Crane, Ronnie Johnson and Karen Otsea provided constructive feedback.

The Ford Foundation provided financial support for the development of this paper. Inaccuracies in and shortcomings of the paper are the fault of the author alone.

Please address comments to the author at johnstonhb@ipas.org

PREFACE

Abortions have been around forever. But at different points of time in history it has received attention for differing reasons, some in support of it, but often against it. Abortion is primarily a health concern of women but it is increasingly being governed by patriarchal interests which more often than not curb the freedom of women to seek abortion as a right.

In present times with the entire focus of women's health being on her reproduction, infact preventing or terminating it, abortion practice becomes a critical issue. Given the official perspective of understanding abortion within the context of contraception, it is important to review abortion and abortion practice in India.

The Abortion Assessment Project India (AAP-I) has evolved precisely with this concern and a wide range of studies are being undertaken by a number of institutions and researchers across the length and breadth of the country. The project has five components:

- I. Overview paper on policy related issues, series of working papers based on existing data / research and workshops to pool existing knowledge and information in order to feed into this project.
- II. Multicentric facility survey in six states focusing on the numerous dimensions of provision of abortion services in the public and private sectors
- III. Eight qualitative studies on specific issues to compliment the multicentric studies. These would attempt to understand the abortion and related issues from the women's perspective.
- IV. Household studies to estimate incidence of abortion in two states in India.

- V. Dissemination of information and literature widely and development of an advocacy strategy

This five pronged approach will, hopefully, capture the complex situation as it is obtained on the ground and also give policy makers, administrators and medical professionals' valuable insights into abortion care and what are the areas for public policy interventions and advocacy.

The present publication, the first in the AAP-I series evolved along with the development of this project. In that sense it was a useful input in that process. Ford Foundation supported Ipas to undertake this review and this publication was undertaken through that support. While efforts have been made to cover as much ground as possible there may still be gaps in covering some dimensions of the abortion issue, which we hope to cover in subsequent publications emerging from this project.

We look forward to comments and feedback which may be sent to cehat@vsnl.com Information on this project can be obtained by writing to us or accessing it from the website www.cehat.org

– Ravi Duggal
Coordinator, CEHAT

TABLE OF CONTENTS

EXECUTIVE SUMMARY	
I. INTRODUCTION	1
II. ABORTION RATES AND ASSOCIATED MORBIDITY AND MORTALITY	
A. ABORTION INCIDENCE	1
B. MORBIDITY AND MORTALITY FROM UNSAFE ABORTION	5
III. MEDICAL TERMINATION OF PREGNANCY (MTP) IN INDIA	
A. LEGAL STATUS OF ABORTION	6
B. INADEQUATE LEGAL ABORTION SERVICE PROVISION	7
C. ILLEGAL ABORTION – PROVIDERS AND METHODS	9
D. CHARACTERISTICS OF WOMEN WHO TERMINATE UNWANTED PREGNANCIES	10
E. DECISION-MAKING ISSUES	11
IV. POSTABORTION CARE SERVICES	
A. MANAGEMENT OF ABORTION-RELATED COMPLICATIONS	12
B. CONTRACEPTIVE COUNSELING AND SERVICES	14
C. LINKAGES WITH OTHER REPRODUCTIVE HEALTH SERVICES	14
V. RECOMMENDATIONS	
A. IMPROVING KNOWLEDGE OF ABORTION INCIDENCE	15
B. IMPROVING PREGNANCY TERMINATION SERVICES	15
C. IMPROVING ABORTION CARE	17
VI. CONCLUSIONS	
REFERENCES	19
APPENDIX	
TECHNIQUES USED TO ESTIMATE ABORTION RATES PRESENTED IN THIS REVIEW	23

EXECUTIVE SUMMARY

The Medical Termination of Pregnancy Act of 1971 greatly liberalised the indications for which abortion is legal in India. The Government intended for this Act to reduce the incidence of illegal abortion and consequent maternal morbidity and mortality. However, 30 years after the groundbreaking legislation, the majority of women seeking abortion still turn to uncertified providers for abortion services because of the barriers to legal abortion. While some uncertified providers offer safe services, many provide unsafe abortions that result in complications or death. Women with access to fewer resources, for example low-income rural women and adolescents, are among those most likely to turn to unsafe abortion and have complications. Studies suggest that the choice of specific provider is most often not made by the woman inducing abortion but with or by her husband or other family members.

While the incidence of abortion in India is unknown, the most widely cited figure suggests that around 6.7 million abortions take place annually. According to government data, only about one million of these are performed legally. The remaining abortions are performed by medical and non-medical practitioners. Levels of unsafe abortion are very high in India, especially given that abortion is legal for a broad range of indications, and available in the public and private health sector.

In the current situation abortion services are not adequately decentralized, and regulatory reform will have to take place before decentralization of legal services will happen in a meaningful way. To reduce morbidity and mortality from unsafe abortion in this context, several broad activities require strengthening: decreasing unwanted pregnancies; increasing access to safe abortion services; and increasing the quality of abor-

tion care, including postabortion care.

Results of the studies reviewed suggest that reducing recourse to unsafe abortion will be a complex multi-step process that includes increasing women's access through improvements in service delivery and addresses the more complicated issues of rights and gender power inequities. Strategies to make safe and legal abortion services more attractive to women and decision makers include: increasing geographic accessibility; increasing affordability; providing high quality abortion care and prioritising confidentiality of services. Addressing the system of barriers limiting women's access to safe abortion services may require review and revision of the MTP Act, 1971 and associated rules and regulations.

This review suggests a need for expanded community-based education to address specific issues of women's reproductive health and the broader issues of women's right to high quality health care services. Household decision-makers, men and women, would benefit from awareness raising about the dangers of unsafe abortion and the availability of safe abortion services. Women with reduced access to reproductive health resources, such as adolescents and rural poor, should be a priority focus in community-based education.

This review of the current literature of abortion in India suggests that abortion and

qualified practitioners to attend MTP training courses; reviewing MTP Act and associated rules and regulations to determine how the law can be revised to decentralize abortion services and otherwise better meet the needs of women; upgrading facilities that currently offer MTP services; orienting MTP services to meet the needs of women most at risk of accessing unsafe abortion; increasing awareness among women and men of reproductive age of the availability of safe abortion services and the dangers of unsafe abortion; involving communities and providers at all levels to improve reproductive health care; and improving adolescent reproductive health services in general. Innovative interventions need to be developed, implemented, monitored and scaled up as appropriate.

Clearly a great deal is known about provision of and access to safe and unsafe abortion services in India and the need to improve safe abortion and contraceptive choices to more adequately meet the needs of women experiencing unwanted pregnancies. Still, a great deal more needs to be known before programs are implemented to ensure low-resource Indian women can readily access safe abortion services. The cost in terms of women's health and lives emphasizes the need to efficiently and effectively pursue efforts to make abortion safer and more accessible for Indian women.

About the Author

Heidi Bart Johnston, Ph.D.

Dr. Johnston is a specialist in demography and reproductive health. Her research includes testing methods of quantifying induced abortion rates and identifying perceptions and practices of abortion clients and providers in rural communities. Her current work focuses on exploring means of increasing the demand for high-quality reproductive health care among rural women and decision-makers. She contributes research expertise to Ipas's Asia program.

ABORTION PRACTICE IN INDIA

A REVIEW OF LITERATURE

I. INTRODUCTION

Complications of unsafe abortion are a major public health issue facing women in developing countries. In India, abortion is legal for a broad range of medical and social reasons. Officially, women can access safe abortion services by trained medical personnel in registered facilities, and minors need consent from their husband or father. In practice, limited access to authorized abortion providers, the threat of forced contraceptive acceptance, the financial costs associated with legal abortion, the stigma associated with induced abortion, and low levels of awareness regarding the legality of the procedure bar women from safe abortion services (Khan *et al.* 1999; Sinha *et al.* 1998). As a result, women often resort to untrained clandestine practitioners operating under unsafe conditions. The consequences of abortions performed under such circumstances range from life threatening to chronic reproductive tract morbidity such as infections, chronic disability and infertility (Chhabra and Nuna 1994).

In India each year an estimated 453 women die due to maternal causes for every 100,000 live births (UNFPA 1997). This statistic masks the vast variation among states. While national and state estimates are imprecise, they are able to represent certain trends. Orissa and Madhya Pradesh had approximately 738 and 711 maternal deaths per 100,000 births in 1992. Among the large states, Kerala has a singularly low ratio of 87 maternal deaths reported per 100,000 births. On an average, roughly fifteen percent of maternal deaths in India are thought to result from unsafe abortion (Chhabra and Nuna 1994). In what conditions are these abortions provided? What impact do these unwanted pregnancies

have on women's health and lives? Recognizing the high estimated incidence of abortion-related mortality and morbidity in parts of India this paper reviews the literature on safe and unsafe abortion services, abortion facilities and providers, complications of unsafe abortion, and availability of postabortion care in India. The review aims to synthesize what is known about abortion in India and identify steps that need to be taken to develop abortion related services that more closely meet Indian women's needs.

II. ABORTION RATES AND ASSOCIATED MORBIDITY AND MORTALITY

A. ABORTION INCIDENCE

Induced abortion incidence is extremely difficult to measure in most countries and India is no exception. Data quality is an important consideration in studying abortion. Abortion procedures, whether performed legally by trained professionals using modern technology or illegally using "traditional" methods are subject to substantial underreporting (Huntington *et al.* 1993). Abortion data typically come from one of two sources: clinic or hospital records or individual surveys of women. Clinic or hospital sources tend to be of poor quality where abortion is illegal, highly stigmatized or difficult to obtain (Baretto *et al.* 1992; Frejka 1985; Paxman *et al.* 1993; Remez 1995). Individual surveys underestimate the incidence of induced abortion even where abortion is legal (Anderson *et al.* 1994; Jones and Forrest 1992).

No valid data exist on the incidence of abortion in India (Mathai 1997). Clinic data are published as government statistics but these reflect only reported medical termi-

nation of pregnancy (MTP) cases conducted in clinics recognized by the government (Khan, *et al* n.d.). These abortion statistics show an increase in MTP since the liberalization of abortion laws in 1972 until the early 1980s (Khan *et al.* 1999 from Family Welfare of India Year Book, Government of India, 1993). Since 1982-83 there has been an increase in MTP centers, but no corresponding increase in the reported numbers of MTP performed. Underreporting of MTP could be a reason for this (Mathai 1997).

Illegal and thus unreported abortions are estimated to outnumber legal abortions by a factor of between three and eight (Gupte n.d.; Karkal 1991, as cited in Chhabra and Nuna 1994). Surveys like the National Family Health Survey collect abortion data (International Institute for Population Sciences 1995). These data report a very low incidence of abortion among Indian women and are also considered gross underestimates (Arnold 1999; International Institute for Population Sciences 1995; Mishra *et al.* 1998). In general, large scale DHS-like surveys are inadequate tools for investigating socially stigmatized topics such as induced abortion (Huntington *et al.* 1996).

The Indian Council of Medical Research (ICMR) conducted induced abortion research

in the five states of Haryana, Orissa, Rajasthan, Tamil Nadu and Uttar Pradesh in 1983-84. According to ICMR findings, for the five states combined, 19 per 1000 pregnancies were terminated. Six per thousand were terminated legally, and 13 per 1000 pregnancies were terminated illegally. Applying these proportions to 1990 national abortion data implies that the approximately 600,000 legal abortions reported in 1990 indicate that in total 1.3 million illegal abortions were performed nationwide (Indian Council of Medical Research 1988; World Bank 1996). The ICMR national abortion estimate is substantially lower than Chhabra and Nuna's widely cited indirect estimate of 6.7 million induced abortions annually (Chhabra and Nuna 1994).

Because available direct estimates of abortion rates from clinic and survey data are generally acknowledged to be underestimates, various indirect estimation techniques have been used to measure abortion incidence and relative rates (Chhabra and Nuna 1994; Johnston and Hill 1996; Mishra *et al.* 1998; Shah 1966). Each of the indirect estimation techniques used employ assumptions that affect the resulting estimates. Estimated rates of induced abortion are presented by state in Table 1. See Appendix 1 for details on the calculation of these estimates.

Table 1. Total Abortion Rate Estimates from Three Indirect Estimation Techniques

	<i>TAR Abortion:Birth Ratio</i>	<i>TPIAR Potential Induced Abortion Rate</i>	<i>TAR Residual Technique</i>
India	—	0.97	2.65
North India			
Delhi	1.72	—	2.08
Haryana	1.72	0.94	1.37
Himachal Pradesh	1.68	—	0.59
Jammu (J&K)	—	—	2.25
Punjab	1.91	0.53	1.61
Rajasthan	1.62	0.57	5.35
Central India			
Madhya Pradesh	1.60	0.73	5.29
Uttar Pradesh	1.64	1.39	5.77
East India			
Bihar	1.53	1.13	6.24
Orissa	1.70	0.88	3.88
West Bengal	1.74	1.22	2.39
Northeast India			
Arunachal Pradesh	1.81	—	4.89
Assam	1.91	1.20	2.53
Manipur	2.16	—	2.00
Meghalaya	1.93	—	5.55
Mizoram		—	0.70
Nagaland	2.35	—	6.23
Tripura	1.87	—	3.13
West India			
Goa	1.95	—	2.02
Gujarat	1.68	0.27	1.25
Maharashtra	1.66	0.68	1.73
South India			
Andhra Pradesh	1.55	0.43	3.78
Karnataka	1.72	1.08	2.24
Kerala	1.91	0.42	0.88
Tamil Nadu	1.66	0.79	3.13

Sources: Chhabra and Nuna 1994; Mishra *et al.* 1998; and original data generated for this report: Please see **Appendix 1** for brief descriptions of the three estimation techniques.

Data for Sikkim and Union territories not available. Chattisgarh, Uttaranchal and Jharkhand are included in MP, UP and Bihar respectively.

The data presented in Table 1 show that different methods of estimating abortion generate vastly different rates and relative rates. Rates vary substantially by state. The potential induced abortion and residual estimation techniques take into account variations in reproductive behavior by state and are thought to more accurately reflect relative rates. For the entire country the number of abortions a woman will have on an average throughout her reproductive years is estimated to be between approximately 1.0 and 2.6.

Table 2 makes some sense of the indirect estimates by showing agreement between the different estimation techniques according to states ranked among those having highest abortion rates in the country. States in one or more ranking systems are marked in bold. The states that have high rates of induced abortion in more than one ranking system are Nagaland, Meghalaya, Uttar Pradesh, West Bengal, Assam, Bihar, Arunachal Pradesh, Orissa, Madhya Pradesh, and Tripura. This suggests that abortion rates are highest in Northeast and Central India. Not all states were included in each analysis. However, the larger states were.

Various alternative estimation techniques also yield wide variations in estimates of the number of abortions occurring annually in India, as shown in Table 3. In 1966 the Shah Committee estimated that 3.9 million induced abortions took place annually in India (Chhabra and Nuna 1994). In 1970 IPPF assumed that 200 abortions occurred per 1000 births, and suggested the national figure was close to 6.5 million (Mishra *et al.* 1998). [Goyal *et al.* (1976) presented a range of four to six million in 1976 (Khan *et al.* n.d.).] UNICEF reports that roughly five million induced abortions occur annually in India. Four and a half million of these are said to be performed illegally, and only one-half million are performed within the health services network (Jejeebhoy 1996; UNICEF/India 1991). Based on clinical records, which are recognized to undercount the incidence of abortion, the Government of India reported the total number of induced abortions in India in 1991-92 at 0.63 million. Chhabra and Nuna (1994) used the same technique as the Shah Committee to estimate that 6.7 million induced abortions occur in India annually. This comparison of the same technique suggests that the number of abortions has increased over time.

Table 2. Abortion Rates by Three Different Indirect Estimation Methods

<i>Abortion:Birth Ratio</i>		<i>Abortion Potential</i>		<i>Residual Estimation</i>	
1	Nagaland 2.35	Uttar Pradesh 1.39	Bihar 6.24		
2	Manipur 2.16	West Bengal 1.22	Nagaland 6.23		
3	Meghalaya 1.93	Assam 1.20	Uttar Pradesh 5.77		
4	Punjab 1.91	Bihar 1.13	Meghalaya 5.55		
5	Assam 1.91	Karnataka 1.08	Rajasthan 5.35		
6	Kerala 1.91	Haryana 0.94	Madhya Pradesh 5.29		
7	Tripura 1.87	Orissa 0.88	Arunachal Pradesh 4.89		
8	Arunachal Pradesh 1.81	Tamil Nadu 0.79	Orissa 3.88		
9	West Bengal 1.74	Madhya Pradesh 0.73	Andhra Pradesh 3.78		
10	Delhi 1.72	Maharashtra 0.68	Tripura 3.13		

Sources: Chhabra and Nuna, 1994; Mishra *et al.* 1998; and original data generated for this report.

Table 3. Estimates of number of induced abortions nationwide annually

Source	Number of Induced Abortions Nationwide (millions)
Shah, 1966	3.9
IPPF, 1970	6.5
Goyal <i>et al.</i> , 1976	4.6
UNICEF, 1991	5.0
GOI, 1991-92	0.6
Chhabra and Nuna, 1994	6.7

The gap between reported legal abortion and total abortion estimates suggests that less than 10 percent of the abortions that take place in India are conducted legally (Khan *et al.* n.d.). In the 1983-84 ICMR abortion study, of the 55 percent of abortions conducted in the first trimester, only about 25 percent were conducted by certified doctors or other health staff (Indian Council of Medical Research 1988; World Bank 1996). Abortions conducted in the second trimester are more difficult to access, requiring the authorization of two physicians (United Nations 1993). As such they are more likely to be performed by uncertified providers. While abortion services from some uncertified providers can be completely safe many uncertified providers perform dangerous abortion procedures that result in morbidity and death.

B. Morbidity and Mortality from Unsafe Abortion

Limited data exist on the number of maternal deaths from abortion in India. The Survey of Causes of Death reports that nearly 18 percent of maternal deaths result from abortion (Office of the Registrar General of India n.d.). Data from other sources suggest that the percent of maternal mortality resulting from unsafe abortion ranges from 4.5 to 16.9 percent (See Table 4).

Table 4. Maternal Mortality Attributable to Abortion

Location	Maternal Mortality Attributable to Abortion (percent)	Source
India, 1982-1983	18.1	ICMR
India, Rural, 1989	10.8	Office of the Registrar General 1991*
India, Rural, 1993	11.7	Office of the Registrar General 1993*
India, 1992-1994	11.1	Bhatt 1997@
India, 1993-1994	12.6	ICMR task force 1998@
India, 1994	12.6	GOI 1998@
India, 1991-1995	18.0	Office of the Registrar General of India n.d.#

Sources: * Mathai 1998
World Bank 1996;
@ Ganatra 2001:

Each abortion related death represents many more abortion related complications. In India, the most frequently recognized complications from unsafe abortion are: pelvic infection, incomplete abortion, hemorrhage, uterine injury and cervical injury (Barge *et al.* 1997; Kerrigan *et al.* 1995). Mathai (1998) found Indian women are presenting to medical facilities with grade III sepsis, including sepsis associated with generalized peritonitis, septicemia, septic shock, acute renal failure and disseminated intravascular coagulation (Sharma *et al.* 1992; Sood *et al.* 1995 as cited in Mathai 1998). Gas gangrene, tetanus, severe adhesions and renal failure associated with the use of Fetex Paste are also reported (Mathai 1998). Women presenting at clinics in Uttar Pradesh with abortion complications were reported to have attempted to abort using insertion of a foreign body such as a stick or a root; orally ingested drugs; improper dilation and curettage and other less common means (Barge *et al.* 1997).

Second trimester abortions are a particular health concern. Women who delay accessing abortion or MTP until the second trimester place themselves at a greater risk of complications and death, particularly if the abortion provider is untrained (Jones 1991;

Kerrigan *et al.* 1995). Studies show that unmarried adolescents and women undergoing sex selective abortion are the groups most likely to attempt second trimester abortion (Ganatra *et al.* 2000; Rao and Rao 1990, Aras *et al.* 1987).

Adolescents are particularly prone to abortion related morbidity and mortality. In 1995 almost 50 percent of deaths among women age 15-19 were abortion related. This implies that around twenty percent of abortion-related deaths occur among adolescents (Government of India n.d. as found in Mathai 1998). Adolescents, particularly unmarried adolescents, face fear, anxiety, and the social implications of having a pregnancy. These make unmarried adolescents as a group particularly at risk of delaying obtaining abortion services and of obtaining services from untrained but more confidential providers. Thus adolescents are more vulnerable to suffering complications of second trimester abortions. Of adolescents who sought abortion in the second trimester almost one in four suffered complications, compared to only one percent of those who underwent abortion in the first trimester (Aras 1987).

III. MEDICAL TERMINATION OF PREGNANCY (MTP) IN INDIA

A. Legal Status of Abortion

The Medical Termination of Pregnancy Act, approved in India in 1971 and enacted in 1972, permits abortion (or MTP) for a broad range of social and medical reasons, including: to save the life of the woman; to preserve physical health; to preserve mental health; to terminate a pregnancy resulting from rape or incest and in cases of fetal impairment. Contraceptive failure also is sufficient ground for legal abortion (United Nations 1993).

Barring medical emergencies, legal abortions must be performed within the first 20 weeks of pregnancy and must be

performed by a registered physician in a hospital established or maintained by the government or in a facility approved for the purpose by the government (Mathai 1998). For abortions taking place between twelve and twenty weeks of pregnancy, a second opinion is required except in urgent cases. Women must grant consent prior to the performance of the abortion. In the case of minors (defined as under age 18) and mentally retarded women, written consent of guardian is necessary (United Nations 1993).

Critics of the abortion law admit that when it was introduced it was a great achievement for women's health. Nearly 30 years later, the law and associated rules and regulations are considered overly medicalised and bureaucratic, and as such, not oriented toward women's right to access safe and legal abortion services. The law offers substantial protection for medical providers. Chhabra and Nuna (1947) note that "doctors . . . receive blanket indemnity under the MTP Act - instead of functioning as for other surgical procedures and taking the consequences of any default or neglect". Jesani and Iyer (1995) state "[C]learly the MTP Act does NOT encompass a fundamental right to induced abortion but is limited to the liberalisation of the conditions under which women may have access to abortion services provided by approved medical practitioners". The law constrains women's access to legal abortion services by requiring providers receive a level of training that is difficult to achieve given the shortage of training facilities in the country and the absence of incentives to receive formal training (Khan *et al.* 1999).

Bureaucracy associated with registering MTP facilities with the government and with reporting and recording MTP procedures, further contributes to the end result that many physicians provide abortion illegally (Chhabra and Nuna 1994). When a physician performs abortion without registering the

procedure, the physician can avoid the extensive paperwork associated with reporting MTP (Barge *et al.* 1994; Chhabra and Nuna 1994; Kerrigan *et al.* 1995).

B. Inadequate Legal Abortion Service Provision

Despite the broad range of indications for legal abortion, illegal and unsafe abortions are common in India for many reasons. Women access care from uncertified providers because certified providers are geographically inconvenient; staff at certified facilities tend to not respect women's confidentiality; because women are unaware of certified facilities; because registered facilities often do not have a trained provider and/or the necessary equipment to provide safe abortion services; and many women are unaware that abortion is legal and publicly available. Cost, coercion, moral dilemma, late knowledge of pregnancy and unmarried status are additional reasons women seek abortion from illegal providers. Some providers do not approve of elective abortion and scold the client as they provide treatment; the pressure to accept sterilization or other long-term contraception after an abortion discourages women from using registered facilities. When the reason a woman elects to abort a pregnancy is not legally sanctioned, for example for a sex-selective procedure; or when the procedure is highly socially stigmatized, for example to terminate an extramarital pregnancy, women must access the more confidential services of uncertified abortion providers (Barge *et al.* 1997; Barge, *et al.* 1994; Chhabra and Nuna 1994; Gupte 1997; Kerrigan *et al.* 1995; Khan *et al.* 1999; Khan *et al.* 1998; Ravindran and Sen 1994; World Bank 1996).

Government facilities are acknowledged to be inadequate providers of abortion services. MTP facilities are most often located in urban areas while the vast majority of Indian women live in rural areas. Only about ten percent of the clinics that are registered to provide MTP actually have a trained

provider and the necessary equipment to provide safe abortion services. Many doctors who are authorized to provide MTP feel inadequately trained to provide the service safely. In addition, many women do not know MTP is legally available at government facilities. Unfortunately, many government facilities that are supposed to provide MTP services free of charge actually charge clients for MTP services, placing another barrier to women's access of safe abortion from the formal health care system (Khan *et al.* 1999; Khan *et al.* 1998). Furthermore, evidence suggests that contraceptive acceptance can be a precondition to the abortion (Ganatra *et al.*, 2000; Lakshmi and Pelto, 1999; Gupte *et al.* 1997, as cited in Ganatra 2001).

Table 5 shows that on an average, MTP facilities do not perform high numbers of MTPs annually. Still, there is significant variation among the states in terms of average number of MTPs performed per MTP facility. Assam has the highest number of MTP performed per institution, followed by West Bengal, Orissa, Madhya Pradesh, and Haryana. Gujarat and Karnataka have the fewest number of MTP performed per facility. It is not clear whether states with higher levels of MTP per facilities better meet women's needs and thus attract more clientele or have insufficient number of clinics and thus a heavier client load. Likewise states with fewer MTP per facility may have more adequate number of facilities or may run inadequate facilities that prevent clients from presenting.

More telling statistics are the number of MTPs per 1000 people and the number of MTP facilities per population by state in Table 5. Uttar Pradesh and Bihar have the lowest ratios of MTP per 1000 person yet are ranked to have among the highest levels of total abortion (see Table 1). This combination indicates that more abortions are performed outside certified facilities in Uttar Pradesh and Bihar than in any other Indian states and suggests that the level of unsafe abor-

Table 5: Ratios of MTPs, Government Approved MTP Facilities and Population by State

State	No. of MTPs (1993-94)	No. of Facilities (1993-94)	State Population (1996)	MTP: Facility ratio	MTP: Population ratio	1000 Population Facility ratio
Andhra Pradesh	13719	373	72,155,000	37	0.19	193,445
Assam	21372	100	24,726,000	214	0.86	247,260
Bihar	11060	209	93,005,000	53	0.12	445,000
Gujarat	10263	700	45,548,000	15	0.23	65,069
Haryana	22438	228	18,553,000	98	1.21	81,373
Karnataka	9077	471	49,344,000	19	0.18	104,764
Kerala	34433	559	30,965,000	62	1.11	55,394
Madhya Pradesh	33086	295	74,185,000	112	0.45	251,475
Maharashtra	97079	1775	86,587,000	55	1.12	48,781
Orissa	19510	169	34,440,000	115	0.57	203,787
Punjab	19436	242	22,367,000	80	0.87	92,426
Rajasthan	29023	316	49,724,000	92	0.58	157,354
Tamil Nadu	42364	623	59,452,000	68	0.71	95,429
Uttar Pradesh	12103	425	156,692,000	29	0.08	368,687
West Bengal	64273	452	74,601,000	142	0.86	165,047
India	609915	9271	934,218,000	63	0.65	100,768

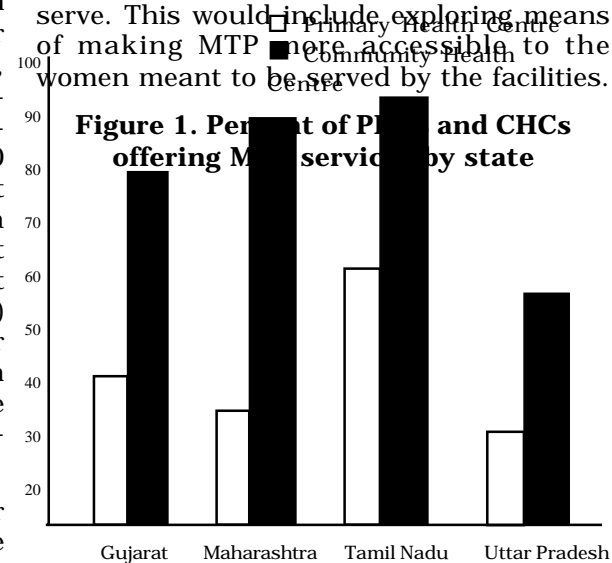
Sources: Number of MTP: Government of India. Ministry of Health and Family Welfare. Family Welfare Program in India: Year Book (1993-94). Number of MTP Facilities: Nirman Bhavan, New Delhi: Ministry of Health and Family Welfare, [n.d.]; State Populations: (UNFPA 1997).

tion may be higher in Uttar Pradesh and Bihar than elsewhere in India.

The population per MTP facility ratios in Table 5 show that Bihar has one MTP center for every 445,000 people. In Uttar Pradesh, Madhya Pradesh, Assam and Orissa MTP facilities are more prevalent but still each facility serves an average of over 200,000 people. The six states that have the highest number of abortions (Assam, Bihar, Madhya Pradesh, Orissa, Uttar Pradesh and West Bengal according to results of three indirect estimation techniques presented in Table 1) mirror the states with fewest facilities per population. This suggests the population most needing access to MTP facilities are also the population least likely to have access to MTP facilities.

The data presented in Table 5 together with the incidence data presented in Table 1 suggest that though MTP facilities are inadequate to meet the needs of the population, the available facilities are underused.

This further suggests that MTP facilities could explore means of improving services to the population the facilities are meant to serve. This would include exploring means of making MTP more accessible to the women meant to be served by the facilities.



Source: Khan *et al.* 1999

In the Seventh Five-Year Plan (1985-1990) the Government of India stated the intention to equip all primary health centres¹ with staff and supplies to conduct abortion services. Khan *et al.* (1999) relay that “according to the national norm, all community health centres², postpartum centres, and similar higher level facilities are expected to provide abortion services”. Figure 1 shows this goal remains unrealised. Around one-quarter of primary health centers in Uttar Pradesh and Maharashtra provide abortion services. One-third and almost two-thirds provide these services in Gujarat and Tamil Nadu, respectively. Among community health centres only 59 percent in Uttar Pradesh and 78 percent in Gujarat provide abortion services. Eighty-nine percent of community health centres provide MTP in Maharashtra. In Tamil Nadu, 95 percent of community health centers and sub-district hospitals provide MTP. However, in Tamil Nadu abortions are offered primarily on sterilization days and according to several studies abortion providers pressure abortion clients to accept sterilization (Khan *et al.* 1999).

Information presented in this section suggests that abortion services from PHCs are inadequate, yet underutilised. This corroborates data from other sources suggesting that women often turn to certified and uncertified providers at private facilities for abortion services. For example, in Maharashtra, over two-thirds of the approved MTP centers are in the private sector (Barge and Rajagopal 1996).

C. Illegal Abortion – Providers and

Methods

Because of the barriers preventing women from accessing MTP, women access abortion from unregistered, uncertified providers. Abortion services from unregistered providers range from completely safe – provided by trained medical doctors in appropriate facilities – to life-threatening – provided by a range of providers in various settings (Mathai 1998; Kerrigan *et al.* 1995; Johnston *et al.* 2001). Uncertified abortion providers can include trained medical doctors and nurses in hospitals, Auxiliary Nurse Midwives (ANM), ayurvedics, homeopaths, *dais* or traditional birth attendants, family health workers, village health practitioners, pharmacy shop-keepers and village women (Bandewar n.d.; Mathai 1998; Johnston *et al.* 2001).

Common methods of inducing abortion include vaginal and oral methods. *Dais* use methods such as inserting sticks, herbs, roots, and foreign bodies into the uterus to induce abortion. Other vaginal methods include pins, laminaria tents, and Fetex Paste³. Rural Medical Providers (RMPs or “quacks”) sell medicines for oral use to induce abortion. ANMs (Auxiliary Nurse/Midwives) and ISMPs (Indian System of Medical Practitioners) use intramniotic injections such as intramniotic saline and intramniotic glycerine with iodine to induce abortion. Orally ingested abortifacants include indigenous and homeopathic medicines, chloroquine tablets, prostoglandins, high dose progesterones and estrogens, papaya seeds with high dose progesterones and estrogens, liquor before distillation, seeds of custard apple and carrots, etc. (Mathai 1998; Johnston *et al.*

¹ Primary health centres (PHCs) cover a population of about 30,000, staffed by a medical officer, associated facility staff and field supervisors (World Bank 1996)

² Community health centres (CHCs) serve as “first referral units” and cover a population of approximately 100,000 staffed by specialists in pediatrics, surgery and obstetrics and gynecology (World Bank 1996).

³ Fetex Paste (brand name) contains benzoin, iodine, thymol, potassium iodide and saponified vegetable oil paste. It is introduced vaginally as an abortifacant (Marathi 1998).

2001). Chloroquine is applied intramuscularly as an abortifacient. Abdominal massage, witchcraft, dilation and curettage, vacuum aspiration and heat applications are also used to induce abortion (Indian Council of Medical Research 1989; Kamalajayaram and Parameswari 1988; Maitra 1998; Meenakshi, *et al* 1995; Rani *et al.* 1996; Sood 1995, as found in Mathai 1998).

D. Characteristics of women who terminate unwanted pregnancies

The reasons Indian women terminate unwanted pregnancies are many and varied. Conditions that can lead to a pregnancy being unwanted include: financial reasons; already having too many children or having too many female children; becoming pregnant after too short a birth interval; experiencing health problems during pregnancy; becoming pregnant at an older age; becoming pregnant soon after marriage; suspecting husband's infidelity; having an extra-marital pregnancy and becoming pregnant as a result of rape are all conditions that can lead to a pregnancy being unwanted (Barge *et al.* 1997; Jejeebhoy 1998; Sinha *et al.* 1998).

For most of these conditions, a more proximate determinant of unwanted pregnancy is lack of access to appropriate contraception. For some women, contraception is not an option because of family pressure. Other women can not access a contraceptive method appropriate for them. For unmarried adolescents, contraception is generally not available. In such cases, abortion may be the predominant means of birth control (Gupte *et al.* 1997).

Contraceptive failure and user failure can lead to unwanted pregnancies that can be aborted legitimately in the Indian medical system. Reasons for contraceptive failure should be explored and addressed and contraceptive options should be made more adequate. Though awareness of

contraception is generally high, lack of availability of spacing methods, misinformation and apprehension about the different contraceptive options prevents widespread contraceptive use and abortion is used as an alternative to contraception (Parivar Seva Sanstha 1998).

Indian women access abortion throughout their reproductive years. A 1990-91 study shows that more than 80 percent of women who obtain MTP are in the 20-34 age group (Chhabra and Nuna 1994). Adolescents, both married and unmarried, also obtain abortion services in significant numbers. According to Chhabra, 27 percent of the 2755 abortions conducted in a clinic in rural Maharashtra in the period 1976-87 were for adolescents (Chhabra 1988) and as many as 30 percent of 1684 abortions conducted in an urban hospital setting were for adolescents (Solapurkar and Sangam 1985). A substantial number of unwanted pregnancies among adolescents result from forced sexual intercourse. A Bombay study published in the late 1970s showed that around 20 percent of pregnancies of adolescents obtaining abortion were reported to have resulted from rape (Divekar *et al.* 1979, as cited in Jejeebhoy 1996).

As adolescents have less access to reproductive health information and services compared to older married counterparts, they are more likely to delay recognising pregnancy, to delay obtaining care, and to access care from unsafe providers (Jejeebhoy 1996; Mathai 1998). Seventy two percent of the unmarried women who sought abortion at a rural clinical facility, most of whom were under age 20, sought MTP in the second trimester (Chhabra 1988). In a clinic-based study conducted in the mid 1980s, a majority (59 percent) of unmarried adolescents presented for second trimester abortions, while a minority (26 percent) of married adolescents came in during their second trimester of

pregnancy (Aras 1987; Jejeebhoy 1996). Data from the 1970s suggest that eighty percent of adolescents receiving abortion sought abortion in the second trimester (Bhatt 1978; Purandare and Krishna 1994). This compares to 34 percent of older women who sought abortion in their second trimester.

India's second trimester abortion rate is thought to be among the highest in the world and increasing (Chhabra and Nuna 1994). Of women accessing legal abortion services at specific teaching hospitals in 1981, a range of between ten and forty percent were in their second trimester (Indian Council of Medical Research 1981). Second trimester abortions increase risks to women in two ways. First, women are more likely to go to an uncertified provider because the procedure is more difficult to obtain legally than first trimester abortion (Kerrigan, *et al.* 1995; Ravindran and Sen 1994). Second, in the second trimester the risk of complications is higher for physiological reasons (Jones 1991).

Sex selective abortions and delay of accessing abortion services for an unwanted pregnancy are the two most common reasons for second trimester abortions (Mathai 1997). A strong son preference and the availability of prenatal diagnostic techniques have resulted in an increased use of prenatal sex tests, even among rural poor. Some private clinics provide prenatal sex tests and offer abortion services (United Nations 1993). While this practice was outlawed in 1994, it apparently remains widespread and impossible to accurately quantify. In 1989, eleven percent of abortions were thought to be to abort a female fetus (Indian Council of Medical Research 1989). Indian non-governmental organizations suggest that over 2 million sex selective abortions are reported every year, representing only the tip of the iceberg, according to a recent newspaper article-Reuters 1999. The

National Family Health Survey (1992-93) reports the sex ratio at birth to have been almost constant at 106.3-106.6 for five-year periods since 1972⁴, offering no support to arguments that sex selective abortion is skewing sex ratios at birth at the national level. As a comparison, in China and South Korea, where sex selective abortion is reportedly common, sex ratios at birth were 119 and 114 respectively in 1992 (International Institute for Population Sciences 1995).

While women from all socio-economic groups access abortion, there is a class differential in where women from different socio-economic groups obtain abortions. Women who obtain abortions at safe facilities tend to be the women who can afford to pay the transport costs and additional associated fees (Barge *et al.* 1997). Because legal abortion is not an option for most Indian women from lower socio-economic classes, these women tend to obtain abortion services from less trained, but more accessible providers (Jejeebhoy 1998).

E. Decision-making issues

Making the decision to abort a pregnancy can be difficult and cause delays in abortion seeking. Factors that cause delays in accessing abortion services include not initially recognizing the pregnancy, postponing communicating the news of an unwanted pregnancy to a decision maker, lack of awareness of available abortion services, lack of resources (financial, transport etc.) to access available services and fear of social stigmatization. For adolescents and unmarried women, the confidentiality of the abortion service is particularly crucial and delays in accessing abortion are more likely (Ganatra 1997; Indian Council of Medical Research 1989 as found in Mathai 1998).

A woman may make the decision to abort a pregnancy but often the decision-making

⁴The typical sex ratio at birth is 104-107 males to 100 females (Shryock and Siegel 1976)

role is taken by husbands, mothers-in-law or other household members or community-level health care providers. Decision makers may support a woman's choice, pressure her into having an abortion or object to her having an abortion. Sinha *et al.* (1998) report women turn to a range of confidants to help make the abortion decision. In a study of 132 women conducted in Uttar Pradesh, the majority of women (32 out of 49) who wanted to abort their unplanned pregnancy first discussed the prospect with their husband. Many husbands were supportive of the decision to abort and actually facilitated the abortion process. Mothers-in-law, sisters-in-law, health workers, neighbours and other relatives were also consulted (Sinha *et al.* 1998). On the other hand, fear of disapproval, opposition or violence can result in women hiding the abortion from her family (Ganatra 2001; Gupte *et al.* 1996).

Choosing an abortion provider can be influenced by multiple factors. Study results show that people who obtain abortion from legal and unregistered facilities generally have different characteristics and priorities. Low-income women and women who live in rural areas are severely limited in choices for abortion services, causing such women to be more likely to access abortion from providers of unsafe abortion. In rural areas, uncertified providers thrive because they can offer abortion services at an affordable price, and are often located closer to women's residences than legal providers (Parivar Seva Sanstha 1998). As a result of limited access to safe providers in rural areas, rates of unsafe abortion are thought to be significantly higher in rural than in urban areas (Kerrigan *et al.* 1995).

Women who have the choice between public and private providers report feeling more satisfied with the services of private providers. Care in government facilities is reportedly inadequate; such facilities

reportedly do not maintain client confidentiality; can be expensive⁵; and tend to be far from where women live and thus difficult to access (Barge *et al.* 1997; Indian Council of Medical Research 1989).

In Uttar Pradesh, a study of women who sought abortion from either legal public or private sector clinics found that the most important priority of women accessing abortion services from private clinics was the clinic's reputation for providing high quality care. In contrast, the most important priority for women who sought care from public clinics was the convenience of the location of the clinic. Other reasons for choosing clinics that were much less important to the respondents included knowing the doctor, family members' suggestions, cooperative behavior of staff and doctor and confidentiality of services (Barge *et al.* 1997).

IV. POSTABORTION CARE SERVICES

A. Management of Abortion-related Complications

Issue of complications related to abortion will exit while, safe abortion services are accessible to all women. Clearly activities should address decreasing unwanted pregnancies and increasing women's access to safe abortion services. However, the need to address ongoing complications from unsafe abortion services cannot be ignored.

The majority of morbidity and deaths from unsafe abortion are preventable. Recognizing abortion complications and accessing appropriate medical care promptly can reduce the risks of chronic morbidity and mortality from complications of unsafe abortion (Greenslade *et al.* 1994; Johnson *et al.* 1992; Salter *et al.* 1997; World Health Organization 1994). The successful treatment of abortion-related complications

⁵ While abortion services are supposed to be free in public sector clinics, clients report having to pay for doctor's fee, hospital room fee, medicine, transport and food (Barge *et al.* 1997).

is highly dependent on the availability of some degree of treatment at all levels of the health care system. The elements of postabortion care (PAC) services that can be integrated into a comprehensive abortion care program include: emergency treatment of incomplete abortion and potentially life-threatening complications; abortion contraceptive counseling and services and links to other emergency services and reproductive health care services (Greenslade *et al.* 1994). The studies and information gathered on abortion in India suggest that both the availability and quality of such aspects of abortion care are inadequate.

Emergency treatment of a complication is an essential aspect of abortion care. The first step for a woman seeking care is recognising that she needs care. Then frontline health providers at the community level must be able to recognise what is needed and treat or refer the woman.

The care a woman receives when a complication is first recognised is crucial. Typically, the woman is first cared for in her own home by the female head of household (Potts *et al.* 1998). Women with complications tend to play a peripheral role in making the decision of whether or not they should obtain care (Ganatra, *et al.* 1998). If obtaining care is determined necessary, the woman may go to a traditional birth attendant, trained midwife, a range of community level providers or a qualified allopathic doctor. There is a general lack of information in rural community about the type of treatment and the providers accused by women for abortion care. If the women who require emergency care following an abortion complication are not obtaining it in the health care system, this service-delivery gap needs to be better understood and addressed (Potts *et al.* 1998; Johnston *et al.* 2001).

Accessing appropriate facilities is a complex issue. Research suggests that providers

are not giving women appropriate care after abortions are provided. For example abdominal pain and prolonged bleeding following abortion are often ignored by providers after providing abortions (Indian Council of Medical Research 1989).

Even when women access facilities that have the basic skills and technology to provide emergency care, women may get inappropriate care. In Uttar Pradesh Potts *et al.* (1998) noted a tendency of registered providers to scold patients when they present with complications of abortion from an unsafe provider. Some clinicians feel the scolding attitude discourages women from having repeat unsafe abortions. There are indications that emergency treatment can be painful, even when pain control is applied (Potts *et al.* 1998).

Delays in receiving appropriate treatment may occur for a number of reasons, including: delay in identifying the symptoms of a complication; inability on the part of the community-level health care provider to diagnose, manage or stabilise patients; lack of awareness or concern of potential complications; lack of awareness of an appropriate higher level facility that accepts referrals for complications of abortion; and lack of transport to higher level facilities and inability to pay for care and associated costs at higher-level facilities (Ganatra, *et al.* 1998; Maitra 1998; Potts *et al.* 1998). Furthermore, women with severe complications have reportedly been sent away from private clinics because the clinic does not want the reputation that women die at their clinic (Kerrigan, *et al.* 1995).

Ensuring the appropriate referral of patients for clinical care is crucial for improving emergency care for complications of abortion. Components of appropriate referral include: accurate clinical assessment of the woman; appropriate stabilization; accurate diagnosis; complete written record of her presenting and referral condition; communi-

cation between the initiating center and the referral center; and assistance with transport to the referral center (Potts *et al.* 1998; Salter *et al.* 1997).

Women with abortion complications need care immediately. Too few resources are available to women who experience abortion complications. The missing resources include knowledge, authority, transport, close appropriate medical care and others.

At the level of District Hospitals and Medical College Hospitals, service-delivery challenges include improving provider attitudes toward abortion patients; ensuring that facility-based policies and management activities support immediate and high-quality emergency postabortion care; ensuring availability of blood products and medicines essential for clinical treatment; working to minimize problems of diagnosis and referral; improving providers' attitudes toward women experiencing abortion complications; maintaining equipment and expertise for suction machines for the treatment of incomplete abortion; promptly treating women with complications and ensuring that patients are not lost to follow-up; recognizing and treating women's reproductive health and other health needs; and identifying women who have been in abusive situations and referring these women to appropriate resources (Potts *et al.* 1998).

B. Contraceptive counseling and services

Another critical element of abortion care is contraceptive counseling and services. Several studies report that the majority of abortion clients accept contraception after an MTP procedure (Barge *et al.* 1997; Chhabra *et al.* 1988). However, acceptors report that accepting the method can be a precondition for getting an MTP (Barge *et al.* 1997). Chhabra *et al.* (1988) report that many women obtaining MTP have to be motivated to accept contraception by clinic staff. They

also noted that women obtaining second trimester abortion at a rural Maharashtra clinic often would agree initially to accept IUD contra-ception, only to refuse the IUD after the procedure and leave the clinic without any method of contraception. A study conducted in rural Uttar Pradesh shows that unregistered abortion providers rarely offer contraceptive services (Johnston *et al.* 2001).

Where postabortion contraceptive counseling exists, it is reportedly inadequate and not based on the principle of informed choice. In Uttar Pradesh only one-third of acceptors were counseled about how the method works, the possible side-effects, and steps to take if side-effects are experienced (Barge *et al.* 1997). Issues such as increasing contraceptive method mix and maintaining a stable supply of contraceptives are longstanding in India. Major logistical issues need to be addressed before the contraceptive needs of Indian couples will be met.

Negative attitudes toward MTP clients by providers and insufficient contraceptive knowledge and counseling skills among MTP providers are thought to be major reasons postabortion contraception is not widely accepted (Kerrigan *et al.* 1995). Other issues that may limit the extent to which contraception is accepted after an abortion include: fear of contraceptive side-effects; husband or other family members may be against contraceptive use; ignorance of the woman and the provider of the immediate return to fertility after an abortion; a lack of knowledge about appropriate contraceptive methods to use; and an inadequate supply of equipment and contraceptive commodities. Additionally, weak referral networks may limit the range of contraceptive method available (Barge *et al.* 1997; Potts *et al.* 1998).

C. Linkages with other reproductive

health services

The third critical aspect of abortion care, linking women to other reproductive health services suffers from a lack of information and appropriate facilities in most countries including India. Several studies conducted in Uttar Pradesh have documented a lack of awareness among medical providers of the risk of sexually transmitted diseases (STDs) or reproductive tract infections (RTIs) contributing to the spread of HIV or morbidity such as secondary infertility and thus a lack of concern for postabortion reproductive health care such as screening for and treating STDs and RTIs (Barge *et al.* 1997; Potts *et al.* 1998). In addition, women who experience repeat spontaneous abortion deserve appropriate counseling and the option of fertility treatment.

Women who obtain abortions and post-abortion care may have experienced rape or domestic violence. Jejeebhoy (1998) reports that an alarming proportion of adolescent abortion seekers became pregnant as a result of rape. In a study conducted in rural Maharashtra, Ganatra *et al.* (1988) found that domestic violence was the second most common cause of deaths during pregnancy, representing additional morbidity associated with pregnancy. The concept of identifying women with additional reproductive health and other needs and effectively linking with appropriate reproductive health services is clearly an area where additional research and training is necessary.

V. RECOMMENDATIONS

Results of the research studies reviewed in this paper suggest that abortion and associated morbidity and mortality from unsafe abortion are common and should be a top priority safe motherhood issue in India and point to areas that need to be explored to improve abortion care. Operations research could be conducted to test the effectiveness of innovative interventions. In addition a

thorough review of MTP policy and service-delivery guidelines may be beneficial.

A. Improving knowledge of abortion incidence

There is an identified absence of verifiable abortion incidence data in India. Suggested rates of abortion and unsafe abortion vary widely. Methods of collecting acceptable abortion incidence data are intensive, use multiple methods of data collection and instruments must be designed based on local cultural norms (Anderson *et al.* 1994; Huntington *et al.* 1996). These fundamental requirements necessitate medium-scale studies (several districts or statewide). Intensive studies of the incidence of abortion and abortion complications would be informative and would yield valuable information particularly as baseline measures and guides for intervention studies.

B. Improving pregnancy termination services

Results of the literature reviewed point to areas that need to be addressed to improve abortion care in India. Operations research could be conducted to test the effectiveness of innovative interventions. A thorough review of MTP policy and service-delivery guidelines may be required. In addition a review of MTP policy and service-delivery guidelines could suggest means of increasing women's access to safe abortion services.

Training: Motivate qualified practitioners to attend MTP training courses. The procedures for training and licensing providers and licensing abortion facilities need to be adapted to current situations. MTP training should include training in the various forms of providing MTP (manual vacuum aspiration, electric vacuum aspiration, and dilation and curettage), emergency postabortion care, postabortion contraceptive services and counseling and linking women to additional reproductive health services

(Khan *et al.* 1999).

Review the MTP Act to determine means in which the Act can be revised to better improve abortion services for women. Each recommendation presented here represents multiple steps of reviewing and improving services to better meet the needs of women and men at the community level. Some recommendations to improve health care go beyond current MTP Act, indicating that the current MTP policy needs to better meet the reproductive health needs of women. Experts have recommended reviewing the criteria for certifying providers and considering including additional care of providers for MR and MTP service delivery; reviewing provider training required; reviewing procedures for licensing facilities and reconsidering MTP rules and regulations in light of medical methods for terminating pregnancies (Chhabra and Nuna 1994; Mathai 1998; Khan *et al.* 1999).

Upgrade facilities that currently offer abortion services. Monitoring of safe abortion service providers may be necessary to ensure that providers are at their sites during clinic hours, that charges do not exceed a set standard, that high quality care is provided from the patient's entry into the clinic throughout service provision and contra-ceptive counseling. Public and private medical officers could provide monitoring services (Mathai 1998; Khan *et al.* 1999; Bandewar 2000).

Orient abortion services to meet the needs of women by:

- Prioritizing confidentiality of abortion services at public facilities. Confidentiality of abortion services is a priority for many women obtaining abortion services. When safe services are not confidential many women will turn to unsafe but more confidential services (Mathai 1998).
- Providing high quality care for

women accessing abortion services. Women report scolding attitudes among pro-viders when presenting for abortion services. Counseling training for providers is essential in terms of providing high quality care in service provision, by interacting with women in a positive manner, providing them with the information they need and helping them to make informed choices (Mathai 1998).

- Increasing geographical accessibility of safe abortion services for women of reproductive age in general, and for adolescents in particular. One key reason women turn to untrained providers is that untrained providers are more accessible at the community level compared to trained providers, which tend to require additional travel time and associated costs. To increase accessibility of safe abortion services, additional providers could be based in rural areas. Certainly more medical providers, particularly women pro-viders, could be trained in abortion provision to staff rural clinics. As many medical providers are unwilling to be based in rural areas, the strategy of training Bachelor of Science Nurses, Lady Health Visitors (LHV) and Auxiliary Nurse Midwives (ANM), to provide safe abortion services with manual vacuum aspiration equipment might be considered (Khan *et al.* 1999).
- Increasing affordability of safe abortion services. Costs associated with publicly and privately provided safe abortion services prompt women to access abortion services from less expensive and untrained providers. Additionally, costs associated with travel and overnight stays prevent women from obtaining care from trained providers who are often

located at substantial distances from women's residences and increase the likelihood women will obtain abortion services from an untrained but more accessible local provider (Johnston *et al.* 2001).

Increase awareness among women and men of reproductive age of the availability of safe abortion services and the dangers of unsafe abortion. Household decision-makers are often husbands and mothers-in-law as well as pregnant women. All could be the focus of campaigns that educate about the availability of safe abortion facilities and methods and the dangers of unsafe abortion services. Safe abortion services need to become a priority for women accessing abortion and those who decide from whom women will access abortion care. The stage of gestation at which a woman can safely abort a fetus is an important component of any campaign to increase awareness (Khan *et al.* 1999; Mathai 1998).

Involve communities and providers at all levels to improve reproductive health care. In implementing activities to make health and medical facilities more responsive to the populations served, important roles can be played by community-level women's, men's and adolescents' organizations. Private, public and NGO medical providers, including paramedics and unregistered practitioners at the community level, the government from the national level to the village level and the press and other media groups can all be included in campaigns to help women access improved reproductive health services, including safe abortion and a wide array of voluntary contraceptive services (Khan *et al.* 1999). This multi-sector involvement is particularly relevant as states are actively decentralizing health systems and local panchayats become increasingly involved in health care delivery.

Involve men in reproductive health edu-

cation. Many women turn to their husbands for decision-making about reproductive health issues. In addition to being informed about the importance of safe abortion services and signs of abortion complications, men should be addressed in reproductive health campaigns that promote small families and educate about temporary or permanent contraceptive use (Khan *et al.* 1999; Mathai 1998; Johnston *et al.* 2001).

Improve adolescent reproductive health services in general. Adolescents are particularly at risk of serious morbidity and mortality from unsafe abortion. Family Life Education programs that target unmarried and married male and female adolescents need to address issues such as preventing unwanted pregnancy and recognising and safely managing unwanted pregnancy. Statistics showing increasing rates of unwanted pregnancies and unsafe abortion among unmarried adolescents demonstrate a need for adolescents to be included in reproductive health education and to be able to access reproductive health services, including abortion and contraception, without the consent of a parent or guardian (Jejeebhoy 1998; Mathai 1998).

C. Improving abortion care

Sparse literature on the care surrounding abortion service delivery demonstrates that this is a target area for additional research. From the available evidence, the following recommendations have been made.

Develop demand for quality emergency abortion care. Women and key decision-makers need to be advised of the need to access high-quality abortion care services immediately if having complications of induced or spontaneous abortion. Women and decision-makers should know that care for abortion complications includes stabilization and referral to appropriate service facilities; emergency treatment as necessary; high quality care, including contraceptive counseling and services and referral to other health facili-

ties as necessary (Maitra 1998; Johnston *et al.* 2001).

Decentralise abortion care services at public and private facilities. Emergency care capabilities should be expanded to lower levels of the formal health care system. Community members and providers should be able to recognize symptoms of emergency complications that require treatment or referral and be able to get women with these complications to appropriate referral facilities. Higher level facilities should be prepared to effectively and efficiently manage cases of emergency complications and provide appropriate postabortion contraceptive counseling and services (Kerrigan *et al.* 1995; Maitra 1998).

The concept of integrating midlevel providers into emergency treatment raises some policy questions. To what degree can ANMs and other midlevel providers and TBAs or *dais* be included in the abortion care system? Can ANMs receive training to provide elements of abortion care, including diagnosing, stabilizing and referral when necessary, aspirating the uterus, providing postabortion contraceptive counseling and linking women to other reproductive health services? What incentives can be introduced to encourage providers to refer patients when appropriate instead of providing treatment for a profit?

Offer informed contraceptive choice. While postabortion contraceptive counseling and services are not being offered at many abortion service sites, postabortion contraception is sometimes imposed coercively (Rajagopal *et al.* 1996). Identifying determinants of voluntary postabortion contraceptive acceptance will be key to introducing successful postabortion contraception programs. Postabortion contraceptive counseling should include information about the correct use of the various available methods, potential side effects associated with available contraceptive methods, and means of maintaining a steady supply of the selected method. Post-abortion contraceptive services should

be reliably available at the community level to ensure easy access (Maitra 1998; Johnston *et al.* 2001).

Provide comprehensive abortion care. Health care providers in general, and particularly those at the referral level, need to be aware that the interface between the woman with the complication and the formal medical system typically represents a rare opportunity to assess other aspects of the patient's reproductive health and provide treatment or refer her to appropriate care. Providers need to be trained in this largely unrecognized aspect of abortion-related care (Johnston *et al.* 2001; Potts *et al.* 1998).

Involve communities and providers at all levels to improve abortion care. In implementing abortion care activities to make health and medical facilities more responsive to the population they serve, important roles can be played by community level women's, men's and adolescents organizations, LHVs and ANMs, and public and private and NGO medical communities. Community level providers, including ANMs, PHC nurses, Anganwadi workers and local doctors, need to be included as much as possible in providing a wide array of voluntary contraceptive services (Johnston *et al.* 2001; Kerrigan *et al.* 1995).

VI. CONCLUSIONS

This review of literature shows that morbidity and mortality from unsafe abortion remains a serious problem for Indian women; 30 years after the indications for legal abortion were greatly liberalized in India. Research results show that unsafe abortions are common; adolescents and unmarried women are most at risk of morbidity and mortality from unsafe abortion. Furthermore, studies show that for a number of reasons current legal abortion services are not meeting the needs of Indian women, particularly rural women. In four states, a large sample of registered facilities and certified providers have been intensively studied and from those four state studies,

REFERENCES

means of improving services have been identified. In addition, facility-based studies of abortion provision have identified means of improving clinical services. A number of qualitative studies have described the needs of women at the community level.

Policy review recommendations based on the literature review are made. Any movement toward revising policy needs to be made collectively involving Members of the Ministry of Health and Family Welfare, public and private abortion providers and key non-governmental organizations.

This review of literature shows that a great deal is known about provision of and access to safe and unsafe abortion services in India and the need to improve safe abortion and contraceptive choices to more adequately meet the needs of women experiencing unwanted pregnancies. Still, a great deal more needs to be known before programs are implemented to ensure low-resource Indian women can readily access safe abortion services. The cost in terms of women's health and lives emphasizes the need to efficiently and effectively pursue efforts to make abortion safer and more accessible for Indian women.

Anderson, Barbara, Kalev Katus, Allan Puur and Brian Silver. 1994. The Validity of Survey Responses on Abortion: Evidence from Estonia. *Demography* 31 (1):115-132.

Aras, R. Y., N. P. Pai and S. G. Jain. 1987. Termination of Pregnancy in Adolescents. *Journal of Postgraduate Medicine* 33 (3):120-124.

Arnold, Fred. 1999. Personal Communication.

Bandewar, Sunita. (2000) Unsafe Abortion. *Seminar* May.

Baretto, T., O. M. R. Campbell, J. L. Davies, V. Fauveau, V. G. A. Filippi, W. J. Graham, M. Mamdani, C. I. F. Rooney and N. F. Toubia. 1992. Investigating induced abortion in developing countries: methods and problems. *Studies in Family Planning* 23:159-170.

Barge, S. and S. Rajagopal. 1996. Situation analysis of MTP facilities in Maharashtra. *Social Change*. 26: 226-244.

Barge, Sandhya, Nayan Kumar, George Philips, Ranjana Sinha, Seema Lakhanpal, Jawahar Vishwakarma, Seema Kumber, Wajahat Ullah Khan, Girish Kumar and Vasant Uttekar. 1997. *Situation Analysis of Medical Termination of Pregnancy Services in Uttar Pradesh*. Baroda: Center for Operations Research and Training.

Barge, S., K. Manjunath and S. Nair. 1994. *Situation analysis of MTP facilities in Gujarat, Baroda, India*: Centre for Operations Research and Training (CORT).

Bhatia, Jagdish C. 1988. *A Study of Maternal Mortality in Anantapur District, Andhra Pradesh, India*. Bangalore: Indian Institute of Management.

Bhatt, R. V. 1978. An Indian Study of the Psychosocial Behavior of Pregnant Teenage Women. *Journal of Reproductive Medicine* 21 (4):275-278.

Bhatt, R. V. 1997. Maternal Mortality in India. *Journal of Obstetrics and Gynaecology* 47:207-214.

Bongaarts, John and Robert G. Potter. 1983. *Fertility, Biology, and Behavior: An analysis of the proximate determinants*: Academic Press.

Chhabra, Rami and Sheel C. Nuna. 1994. *Abortion in India: An Overview*. New Delhi:

Veerendra Printers.

Chhabra, S, N. Gupte, Anita Mehta and Arti Shende. 1988. Medical Termination of Pregnancy and Concurrent Contraceptive Adoption in Rural India. *Studies in Family Planning* 19 (4):244-247.

Divekar, S., A. G. Natarajan, A. C. Ganguli and V. N. Purandare. 1979. Abortion in Unmarried Girls. *Health and Population Perspectives and Issues* 2 (4):308-321.

Frejka, T. 1985. Induced abortion and fertility. *International Family Planning Perspectives* 11:125-129.

Ganatra, B. 2001. 'Abortion Research in India: What We Know, and What We Need to Know'. In R. Ramasubban and S. J. Jejeebhoy (eds.) *Women's Reproductive Health in India*. Rawat Publications:

Ganatra, B. S. S. Hirve, S Walawalkar, L. Garda and V. N. Rao. 2000. *Induced Abortions in a Rural Community in Western Maharashtra: Prevalence and Patterns*. Paper presented at a workshop on Reproductive Health in India: New Evidence and Issues. Pune.

Ganatra, B. R., K. J. Coyaji and V. N. Rao. 1998. Too Far, Too Little, Too Late: A Community-based Case-control Study of Maternal Mortality in Rural West Maharashtra, India. *Bulletin of the World Health Organization* 76 (6):591-598.

Ganatra, B. 1997. *Findings from a Community Study on Induced Abortions*. Paper read at Ford Foundation Meeting on Abortion, May 1997.

Greenslade, Forrest C., Harrison McKay, Merrill Wolf, and Katie McLaurin. 1994. Postabortion Care: A Women's Health Initiative to Combat Unsafe Abortion. In *Advances in Abortion Care*. Carrboro, NC: Ipas.

Gupte, Manisha, Sunita Bandewar, and Hemlata Pisal. 1997. Abortion Needs of Women in India: A Case Study of Rural

Maharashtra. *Reproductive Health Matters* 9 (May):77-86.

Gupte, Manisha, Sunita Bandewar and Hemlata Pisal. 1996. *Women's Role in Decision Making in Abortion: Profiles from Rural Maharashtra*. Unpublished paper. CEHAT.

Huntington, Dale, Barbara Mensch and Vincent Miller. 1996. Survey Questions for the Measurement of Induced Abortion. *Studies in Family Planning* 27 (3):155-161.

Huntington, Dale, Barbara Mensch and Nahid Toubia. 1993. A New Approach to Eliciting Information about Induced Abortion. *Studies in Family Planning* 24 (2):120-124.

Indian Council of Medical Research 1981. Short-term Sequelae of Induced Abortion. New Delhi, India: ICMR.

Indian Council of Medical Research. 1988. Overview of Trends in Maternal Mortality: Report of a Workshop. New Delhi.

Indian Council of Medical Research. 1989. Illegal Abortion in Rural Areas: A Task Force Study. Delhi, India: ICMR.

International Institute for Population Sciences 1995. National Family Health Survey (MCH and FP): India, 1992-93. Bombay: International Institute for Population Sciences.

Jesani, Amar and Aditi Iyer. 1995. Abortion: Who is responsible for our Rights in Karkal M. (ed.) *Our lives. Our Health* New Delhi, Co-ordination Unit, World Conference on Women, Beijing, August.

Jejeebhoy, Shireen J. 1996. Adolescent Sexual and Reproductive Behavior: A Review of the Evidence from India.: ICRW.

Jejeebhoy, Shireen J. 1998. Adolescent Sexual and Reproductive Behavior: A Review of the Evidence from India. *Social Science in Medicine* 46 (10):1275-1290.

Johnson, B. R., J. Benson and B. Leibson

- Hawkins. 1992. Reducing Resource Use and Improving Quality of Care with MVA. *Advances in Abortion Care* 2 (2):1-6.
- Johnston, Heidi Bart and Kenneth H. Hill. 1996. Induced abortion in the developing world: indirect estimates. *International Family Planning Perspectives* 22 (3):108-114 & 137.
- Johnston, Heidi Bart, Rajani Ved, Neena Lyall, and Kavita Agarwal. 2001. *Postabortion Complications and Their Management: A Community Assessment Conducted in Rural Uttar Pradesh, India*. Technical Report #23. Chapel Hill, NC: PRIME II.
- Jones, Elise F, and Jaqueline Darroch Forrest. 1992. Underreporting of Abortion in Surveys of U.S. Women: 1976-1988. *Demography* 29 (1):113-126.
- Jones, Richard E. 1991. *Human Reproductive Biology*. San Diego: Academic Press.
- Kamalajayaram, V. and T. Parameswari. 1988. A study of Septic Abortion Cases in the Last Six Years. *Journal of Obstetrics and Gynecology* (38):389-392.
- Karkal, Malini. 1991. Abortion Laws and the Abortion Situation in India. *Issues in Reproductive and Genetic Engineering* 4 (3).
- Kerrigan, Monica, Lynne Gaffikin and Ron Magarick. 1995. *Postabortion Care Services in Uttar Pradesh State, India*. Baltimore, MD: JHPIEGO.
- Khan, M. E., Sandhya Barge, Nayan Kumar, and Stina Almoth. 1999. Abortion in India: Current Situation and Future Challenges. In Pachauri, S (ed.) *Implementing a Reproductive Health Agenda in India: The Beginning*, New Delhi: Population Council.
- Khan, M. E., Sandhya Barge and George Philips. n.d. *Abortion in India: An Overview*. India: The Population Council, CORT.
- Khan, M. E., S. Rajagopal, S. Barge and N. Kumar. 1998. *Situational Analysis of Medical Termination of Pregnancy Services in Gujarat, Maharashtra, Tamil Nadu, and Uttar Pradesh*. Paper read at International Workshop on Abortion Facilities and Post-abortion Care and Operations Research, January 19-21, at New York.
- Maitra, Nandita. 1998. *Unsafe Abortion: Practices and Solutions*. Paper read at Abortion Facilities and Postabortion Care in the Context of the RCH Program, at New Delhi.
- Mathai, Saramma T. 1997. Making Abortion Safer. *The Journal of Family Welfare* 43 (2):71-80.
- Mathai, Saramma T. 1998. *Review of Incomplete and Septic Abortions in India with Particular Reference to West Bengali*: Department for International Development.
- Mishra, U. S., Mala Ramanathan and S. Irudaya Rajan. 1998. Induced Abortion Potential Among Indian Women. *Social Biology* 45 (3-4):278-288.
- Office of the Registrar General. 1988. Mortality Statistics of Causes of Death, 1985. New Delhi: RGI.
- Office of the Registrar General. 1991. Survey of Causes of Death (Rural), Annual Report, 1989. New Delhi: RGI,
- Office of the Registrar General. 1993. Survey of Causes of Death (Rural): India, Annual Report, 1993. New Delhi: RGI. Vital Statistics Division.
- Office of the Registrar General of India. n.d. Survey of Causes of Death (Rural) India, 1991-1995. New Delhi: Office of the Registrar General of India, Vital Statistics Division.
- Parivar Seva Sanstha. 1998. *Abortion Research, Phase II*: Final Report. New Delhi, India: Parivar Seva Sanstha,.
- Paxman, J. M., A. Rizo, L. Brown and J. Benson. 1993. The Clandestine Epidemic: The Practice of Unsafe Abortion in Latin America. *Studies in Family Planning* 24:205-226.
- Potts, Jennifer L., Harrison E. McKay,

- Sharon Rudy and Wilda Campbell. 1998. *Postabortion Care Site Assessment and Workshop Report*. Uttar Pradesh, India: PRIME.
- Purandare, V. N. and U. R. Krishna. 1994. *Pregnancy and Abortion in Adolescence*. Paper read at World Health Organization Meeting on Pregnancy and Abortion in Adolescence, June 24-28, at Geneva.
- Rajagopal, S., Sandhya Barge, Seema Kumber, Vijay Uttekar, Yeshwant Deshpande and Girish Kumar. 1996. *Situation Analysis of Medical Termination of Pregnancy (MTP) Services in Maharashtra*. Baroda, India: Centre for Operations Research and Training.
- Rani, P. R., A. Bupathy and S. Bala-subramanian. 1996. Maternal Mortality Due to Septic Induced Abortion. *Journal of Obstetrics and Gynecology* (46):73-76.
- Rao, K. Bhaskar. 1988. *Maternal Mortality in India*. Paper read at Annual Meeting of the Indian Medical Association, at New Delhi.
- Ravindran, T. K. Sundari and Rakhi Sen. 1994. Workshop on Service Delivery System in Unsafe Abortion, Feb 21-22, 1994, New Delhi.
- Reddy, P. H. 1992. *Maternal Mortality in Karnataka*. Bangalore: Population Center.
- Remez, L. 1995. Confronting the reality of abortion in Latin America. *International Family Planning Perspectives* 21:32-36.
- Rao, U and K Rao. Abortions Among Adolescents in Rural Areas. *Journal of Obstetrics and Gynecology in India*. 40: 739-741.
- Reuters. 1999. *Indian Doctors to Fight Female Feticide*, November 12, 1999.
- Salter, C. L., H. B. Johnston, and N. Hengen. 1997. Care for Postabortion Complications: Saving Women's Lives. *Population Reports* L (10).
- Shah, S. L. 1966. Report of the Committee to Study the Question of the Legalization of Abortion.
- Sharma, V., U. Sharma, and B. Jain. 1992. Study of Maternal Mortality over a Ten-Year Period (1976-1995) at Umaid Hospital, Jodhpur. *Journal of Obstetrics and Gynecology* (46):73-76.
- Shryock, Henry S. and Jacob S. Siegel. 1976. *The Methods and Materials of Demography*. San Diego, California: Academic Press.
- Sinha, Ranjana, M. E. Khan, Bella C. Patel, Seema Lakhanpal, and Payal Khanna. 1998. *Decision making in acceptance and seeking abortion of unwanted pregnancies*. Paper read at Abortion Facilities and Post-abortion Care in the Context of the RCH Program, at New Delhi.
- Solapurkar, M. L. and R. N. Sangam. 1985. Has the MTP Act in India Proved Beneficial? *Journal of Family Welfare* 31 (3):45-52.
- Sood, M., Y. Juneja and U. Goyal. 1995. Maternal Mortality and Morbidity Associated with Clandestine Abortions. *Journal of the Indian Medical Association* (93):77-78.
- UNFPA. 1997. *India: Towards Population and Development Goals*. Delhi: Oxford University Press.
- UNICEF/India. 1991. *Children and Women in India: A Situational Analysis*. New Delhi: Unicef/India.
- United Nations. 1993. *Abortion Policies: A Global Review*. III vols. Vol. II. New York.
- World Bank. 1996. *Improving Women's Health in India, Development in Practice*. Washington D. C.: The World Bank.
- World Health Organization. 1994. *Complications of Induced Abortion: Technical and Managerial Guidelines for Prevention and Treatment*. Geneva, Switzerland: WHO.

APPENDIX

TECHNIQUES USED TO ESTIMATE ABORTION RATES PRESENTED IN THIS REVIEW

Chhabra and Nuna revised an estimate from a study conducted in 1966 by the Committee to Study the Question of Legalisation of Abortion or the Shah Committee. The Shah Committee's estimates were based on India's 1966 population of 500 million and crude birth rate of 39 and the assumption of a constant ratio of 15 induced abortions per 73 live births. The committee derived this ratio from community studies in Tamil Nadu and hospital studies in Delhi. Chhabra and Nuna's estimates were based on 1991 birth rates and population figures, using the same Shah Committee ratio of abortions to live births and suggested 6.7 million legal and illegal induced abortions take place annually in India (Chhabra and Nuna 1994). This is the most widely cited estimate of numbers of induced abortion in India. The estimation technique is based on the questionable assumption that 15 abortions occur per 73 live births. By assuming a constant ratio of abortions per live births, the variations in abortion rates by state are masked.

Mishra *et al.* (1988) developed an "induced abortion potential" based on information recorded on ill-timed and unwanted pregnancies by the National Family Health Survey 1992-93. Age-specific pregnancy rates (ASPR) are derived from pregnancies resulting in live births by age and age specific fertility rates and represent the number of women in 1000 in a given age category who will conceive in a specified year. Out of the number of women at risk of pregnancy, the number of pregnancies reported as ill-timed or un-wanted are those considered to be potentially aborted. The number of potential abortions in the given age categories is the ASPR multiplied by the

proportion of women reporting ill-timed or unwanted pregnancy. The method of calculating total induced-abortion potential is similar to the method of calculating Total Fertility Rates with age-specific potential induced abortion rates used in place of age-specific fertility rates. The author acknowledges that these rates could easily be underestimated as once a child is born, a woman is much less likely to think of the associated pregnancy as unwanted or ill-timed.

The indirect estimation technique is a residual method based on Bongaarts' proximate determinants of fertility model (Bongaarts and Potter 1983), using data available in the NFHS 1992-93. A standard maximum potential fertility rate is reduced by delayed marriage, contraceptive use, postpartum infecundability and actual observed fertility. The residual represents fertility reduced by the remaining proximate determinant of fertility and induced abortion. This residual can be translated into a total abortion rate, which represents the average total number of abortions a woman will have throughout her reproductive years. A key questionable assumption behind this technique is that the minor proximate determinants, fecundability (frequency of sexual intercourse), intrauterine mortality and sterility, which are included as constants in the proximate determinants of fertility model, do not have a varying influence on residual fertility (Johnston and Hill 1996). The average maximum total potential fertility rate per woman is thought to be 15.3 births per woman. If Indian women experience lower maximum total potential fertility rates, as has been proposed, the rates presented here will reflect overestimates. However, the relative rate of abortion will still be representative.