

**Mental health aspects of women's
reproductive health**

A global review of the literature



World Health
Organization



UNFPA

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Foreword

The World Health Organization and the United Nations Population Fund in collaboration with the Key Centre for Women's Health in Society, in the School of Population Health at the University of Melbourne, Australia are pleased to present this joint publication of available evidence on the intricate relationship between women's mental and reproductive health. The review comprises the most recent information on the ways in which mental health concerns intersect with women's reproductive health. It includes a discussion of the bio-psycho-social factors that increase vulnerability to poor mental health, those that might be protective and the types of programmes that could mitigate adverse effects and promote mental health. This review is our unique contribution towards raising awareness on an emerging issue of major importance to public health. Its purpose is to provide information on the often neglected interlinks between these two areas so that public health professionals, planners, policy makers, and programme managers may engage in dialogue to consider policies and interventions that address the multiple dimensions of reproductive health in an integrated way.

A complete review would examine all mental health aspects of reproductive health and functioning throughout the lifespan for both men and women. However, the potential scope of the topic of reproductive mental health far outstrips the available evidence base. Most research into the mental health implications of reproductive health has focussed on a relatively small number of reproductive health conditions experienced worldwide and has investigated most usually, married women of reproductive age. A more comprehensive review is thus not possible yet. The focus on women in this review is not only because of the lack of evidence and data on men's reproductive mental health but also because reproductive health conditions impose a considerably greater burden on women's health and lives. The review comprises the most recent data from both high- and low-income countries on the ways in which women's mental health intersects with their reproductive health. The framework for analysis employed here is informed by two interconnected concepts: gender and human rights, especially reproductive rights.

Dramatic contrasts are apparent between industrialized and developing countries in terms of reproductive health services and status. These include access to contraception, antenatal care, safe facilities in which to give birth and trained staff to provide pregnancy, delivery and postpartum care; the diagnosis and treatment of sexually transmitted infections (STIs) including HIV, infertility treatment, and care for unsafe or unintended pregnancy. Around the world, reproductive health initiatives aim to address the complex of economic, sociodemographic, health status and health service factors associated with elevated risk of morbidity and mortality related to reproductive events during the life course. At present, the central contributing factors to disparities in reproductive health have been identified as: reproductive choice; nutritional and social status; co-incidental infectious diseases; information needs; access to health system and services and the training and skill of health workers. The most prominent risks to life are identified as those directly associated with pregnancy, childbirth and the puerperium, including haemorrhage, infection, unsafe abortion, pregnancy related illness and complications of childbirth. There is however, very limited consideration of mental health as a determinant of reproductive mortality and morbidity especially in the developing regions of the world.

Mental health problems may develop as a consequence of reproductive health problems or events. These include lack of choice in reproductive decisions, unintended pregnancy, unsafe abortion, sexually transmissible infections including HIV, infertility and pregnancy complications such as miscarriage, stillbirth, premature birth or fistula. Mental health is closely interwoven with physical health. It is generally worse when physical health including nutritional status is poor. Depression after childbirth is associated with maternal physical morbidity, including persistent unhealed abdominal or perineal wounds and incontinence.

Mental health is also governed by social circumstances. Women are at higher risk of mental health problems because they:

- carry a disproportionate unpaid workload of care for children or other dependent relations and household tasks;
- are more likely to be poor and not to be able to influence financial decision-making;
- are more likely to experience violence and coercion from an intimate partner than are men; and
- are less likely to have access to the protective factors of full participation in education, paid employment and political decision-making.

Health care behaviours including compliance with medical regimens such as anti-retroviral therapy (ARV) or appropriate use of contraceptives are diminished in the context of mental health problems. Poor mental health can be associated with risky sexual behaviour and substance abuse through impaired judgement and decision-making which can have dramatic consequences on reproductive health including heightened vulnerability to unintended pregnancy, STIs including HIV, and gender-based violence.

There is consistent evidence that women are at least twice as likely to experience depression and anxiety than men are. They are also more prone to self harm and suicide attempts, particularly if they have experienced childhood abuse or sexual or domestic violence. Adolescent girls with unplanned pregnancies are at elevated risk of suicide, as are women suffering from fistula, a childbirth injury caused by lack of emergency obstetric care. Suicide is a significant but often unrecognised contributor to maternal mortality, for example in Viet Nam, up to 14% of pregnancy-related deaths are by suicide. People living with HIV/AIDS have higher suicide rates, which stem from factors such as multiple bereavements, loss of physical and financial independence, stigma and discrimination, and lack of treatment, care and support.

More recently the adverse effects of poor maternal mental health have become the subject of renewed attention and concern because of increased awareness of the high rates of depression in mothers with small children in impoverished communities. About 10-15% of women in industrialized countries, and between 20-40 % of women in developing countries experience depression during pregnancy or after childbirth. Perinatal depression is one of the most prevalent and severe complications of pregnancy and childbirth. The effects of depression, anxiety and demoralization are amplified in the context of social adversity and poverty. These conditions have a pervasive adverse impact on women's health and wellbeing and caretaking capacity, with effects on the home environment, family life and parenting. They compromise women's capacity to provide sensitive, responsive and stimulating care, which is especially important for infants and children. Children of depressed mothers have poorer emotional, cognitive and social development than infants and children of non depressed mothers especially when the depression is severe and chronic and occurs in conjunction with other risks such as socioeconomic adversity. There is new evidence suggesting that maternal depression in developing countries may contribute to infant risk of growth impairment and illness through inadvertent reduced attention to and care of children's needs.

At present, the number of women having access to care that incorporates their mental health concerns is quite dismal. Even though the relationship between mental health problems and reproductive functions in women has fascinated the scientific community for some time, it is well recognized that mental health promotion, social change to prevent problems and develop acceptable treatments are under-investigated. This is particularly true for developing countries where the intersecting determinants of reproductive events or conditions and the mental health problems faced by women are simply not recognized. For example many women have questions and concerns about the psychological aspects of menstruation, contraceptive technologies, pregnancy, sexually transmitted infections, infertility and menopause. Feelings about hysterectomy or the loss or termination of a pregnancy may have a major impact on reproductive choices and well being. Sexual abuse is a frequent feature in the history of women with co-occurring mental health problems but is not addressed systematically. Survivors of gender-based violence commonly experience fear, anxiety, shame, guilt, anger and stigma; as a result, about a third of rape victims develop post traumatic stress disorder, the risk of depression and anxiety disorders increases three- to four-fold, and a proportion of women commit suicide. Other types of gender-based violence such as female genital mutilation (FGM), trafficking of girls/women, sexual abuse and forced marriage, commonly cause mental

health problems. Besides encouraging the non tolerance of these practices, we must address the needs of those who are already victims and afflicted with these conditions.

Not only are feasible and cost effective interventions possible, but early detection and diagnosis of mental health problems can be undertaken by trained primary health care workers. Both simple psychological interventions such as supportive, interpersonal, cognitive-behavioural and brief solution focused therapies and when needed, psychotropic medications can be delivered through primary health care services for the treatment of many mental health problems. It has been shown, for example, that:

- the treatment of maternal depression can reduce the likelihood of maternal physical morbidity and mortality along with the likelihood of physical and mental or behavioural disorders in their children;
- the reduction of illicit drug-injection or the treatment of mood disorders can reduce the risk for HIV and AIDS and other STIs, unintended pregnancy and gender-based violence; and
- the treatment of depression, anxiety and trauma reactions results in better physical health, quality of life and social functioning of survivors of domestic violence.

Health care providers can involve the family, partner and peers in supporting women as agents of change in the family environment. The social environment, including health systems, and community organizations can be made more aware and receptive to the mental health problems of women and families. In many settings, culture-bound religious or other healing rituals which have shown to be effective can also play an important role.

Women's sexuality and reproductive health needs to be considered comprehensively with due consideration to the critical contribution of social and contextual factors. There is tremendous under-recognition of these experiences and conditions by the health professionals as well as by society at large. This lack of awareness compounded by women's low status has resulted in women considering their problems to be 'normal'. The social stigma attached to the expression of emotional distress and mental health problems leads women to accept them as part of being female and to fear being labeled as abnormal if they are unable to function.

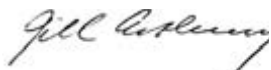
The World Health Report 2005: Make Every Mother and Child Count (WHO, 2005) recognizes the importance of mental health in maternal, newborn and child health, especially as it relates to maternal depression and suicide, and of providing support and training to health workers for recognition, assessment and treatment of mothers with mental health problems. The International Conference on Population and Development (ICPD) Programme of Action and the Beijing Platform for Action urged member states to take action on the mental health consequences of gender-based violence and unsafe abortion in particular so that such major threats to the health and lives of women could be understood and addressed better. In addition, the mental health aspects of reproductive health are critical to achieving Millennium Development Goal (MDG) 1 on poverty reduction, MDG 3 on gender equality, MDG 4 on child mortality reduction, MDG 5 on improving maternal health and MDG 6 on the fight against HIV and AIDS and other communicable diseases. Moreover, humans are emotional beings and reproductive health can only be achieved when mental health is fully addressed as informed by the WHO's definition of health and the definition of right to health in the International Covenant of Economic, Social and Cultural Rights.

In response to these mandates, the present document has reviewed the research undertaken on a broad range of reproductive health issues and their mental health determinants/consequences over the last 15 years from both high- and low-income countries. Evidence from peer-reviewed journals has been used wherever possible but has been augmented with results of a specific survey initiated to gather state of the art information on reproductive and mental health issues from a variety of researchers and interested parties. Valuable data from consultant reports, national programme evaluations and postgraduate research work was also compiled, analyzed and synthesized.

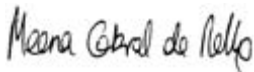
Where evidence exists, suggestions have been made regarding the most feasible ways in which health authorities could advance policies, formulate programmes and reorient services to meet the mental

health needs of women during their reproductive lives. Where gaps in the evidence are identified, recommendations are made about the areas and topics of research that need to be investigated. It is noteworthy that the evidence base everywhere, in both high- and low-income countries, has major gaps but there is a large divide between the amount of research undertaken and the health conditions chosen for research in low income compared with middle and high income countries. There is lack of information on chronic morbidities that are experienced disproportionately by women living in resource-poor and research-poor settings. It is important that lack of evidence and research on the mental health effects of such conditions predominantly affecting women in low income countries is not taken as implying that there are no mental health consequences of these conditions. All these facts justify the necessity of investigating and understanding the mental health determinants and consequences of reproductive health and the mechanisms through which the common mental health problems such as depression and anxiety disorders can be prevented and managed in low income countries as a matter of priority.

We hope that this review will draw attention to the substantial and important overlap between mental health and reproductive health, stimulate much needed additional research and assist in advocating for policy makers and reproductive health service providers to expand the scope of existing services to embrace a mental health perspective. Policy makers as well as service providers face a dual challenge: address the inseparable and inevitable mental health dimensions of many reproductive health conditions and improve the ways in which women are treated within reproductive health services, both of which have profound implications for mental as well as physical health. It is time that all reproductive health providers become sensitized to the fact that reproductive life events have mental health consequences and that without mental health there is no health.



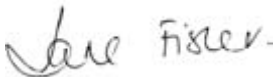
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Chapter 1

Overview of key issues

Jill Astbury

“Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this last condition are the right of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health-care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant. In line with the above definition of reproductive health, reproductive health care is defined as the constellation of methods, techniques and services that contribute to reproductive health and well-being by preventing and solving reproductive health problems. It also includes sexual health, the purpose of which is the enhancement of life and personal relations, and not merely counselling and care related to reproduction and sexually transmitted diseases”.

Programme of Action of the International Conference on Population and Development, para 7.2 (UNFPA, 1994)

Mental health as a component of reproductive health has generally been - and still is - inconspicuous, peripheral and marginal. The lack of attention it has received is unfortunate, given the significant contributions of both mental health and reproductive health to the global burden of disease and disability.

Of the ten leading causes of disability worldwide, five are neuropsychiatric disorders. Of these, depression is the most common, accounting for more than one in ten disability-adjusted life-years (DALYs) lost (Murray & Lopez, 1996). Depression occurs approximately twice as often in women as in men, and commonly presents with unexplained physical symptoms, such as tiredness, aches and pains, dizziness, palpitations and sleep problems (Katon

& Walker, 1998; Hotopf et al., 1998). It is the most frequently encountered women's mental health problem and the leading women's health problem overall. Rates of depression in women of reproductive age are expected to increase in developing countries, and it is predicted that, by 2020, unipolar major depression will be the leading cause of DALYs lost by women (Murray & Lopez, 1996). More than 150 million people experience depression each year worldwide. Reproductive health programmes need to acknowledge the importance of mental health problems for women, and incorporate activities to address them in their services.

Reproductive health conditions also make a major contribution to the global burden of disability, particularly for women, accounting for

21.9% of DALYs lost for women annually compared with only 3.1% for men (Murray & Lopez, 1998). An estimated 40% of pregnant women (50 million per year) experience health problems directly related to the pregnancy, with 15% suffering serious or long-term complications. As a consequence, at any given time, 300 million women are suffering from pregnancy-related health problems and disabilities, including anaemia, uterine prolapse, fistulae (holes in the birth canal that allow leakage from the bladder or rectum into the vagina), pelvic inflammatory disease, and infertility (Family Care International, 1998). Further, more than 529 000 women die of pregnancy-related causes each year (WHO, 2006).

A global review of the interaction between reproductive health and mental health is potentially a vast undertaking, since each is in itself a large, specialized field of clinical, programmatic and research endeavours. Moreover, there are multiple points of intersection between mental health and reproductive health: for example, psychological issues related to pregnancy, childbirth and the postpartum period, and the mental health effects of violence, including sexual violence, adverse maternal outcomes, such as stillbirths and miscarriage, surgery on and removal of reproductive organs, sterilization, premarital pregnancies in adolescents, human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS), menopause and infertility (Patel & Oomman, 1999).



A complete review would examine all mental health aspects of reproductive health and functioning throughout the lifespan for both men and women. Such a review would consider in detail the relationships between mental and reproductive health at all levels, beginning with the individual and encompassing the effects of interpersonal relationships, and community and societal factors, including cultural values, mores

and laws. It would seek to explain the prevalence and severity of reproductive mental health problems and their intercountry variations. Such a review is impossible at present, because the necessary evidence is simply not available.

There are several possible reasons for the lack of a comprehensive database on reproductive mental health. First, the obvious lack of integration between mental health and reproductive health may reflect an enduring intellectual habit of mind-body dualism. The study of women's bodies and reproductive events has generally been rigidly separated from the study of their minds, including how women might think, feel and respond to these events and experiences. Second, efforts to examine the mental health implications of reproductive health have focused on a relatively small number of sexual and reproductive health conditions. For example, a Medline search for papers published between 1992 and March 2006 found more than 1500 papers on postnatal depression, but none on depression following vaginal fistula.

Third, there is a significant divide between the amount of research undertaken and the health conditions studied in low-income countries, compared with middle- and high-income ones. Chronic morbidities, including vesicovaginal fistula, perineal tears or poorly performed episiotomies, and uterovaginal prolapse, are much more common among women living in resource-poor and research-poor settings. It is important to bear in mind that the lack of evidence and research on the mental health effects of conditions that predominantly affect women in low-income countries does not imply that there are no mental health consequences of these conditions.

Fourth, the evidence base everywhere - in both high- and low-income countries - has significant gaps. Thus, the true impact on women's mental health of the multiple reproductive health conditions experienced over the course of their life cannot currently be ascertained.

The global burden of reproductive ill-health

Reproductive health conditions are estimated to account for between 5% and 15% of the overall disease burden, depending on the definition of reproductive health employed (Murray & Lopez, 1998). Even the higher figure is likely to

be an underestimate, for several reasons. First, a number of conditions are not included in the calculations. These include fistulae, incontinence, uterine prolapse, menstrual disorders, non-sexually transmitted reproductive tract infections, female genital mutilation, and reproductive health morbidities associated with violence. Second, as Murray & Lopez (1996) note, there is a lack of data on the epidemiology of important non-fatal health conditions, such as those mentioned above, especially in low-income countries. Third, co-morbidities, such as the combination of poor mental and poor reproductive health, have not been assessed in terms of their contribution to DALYs. For example, suicidal ideation may be the outcome of a calamitous sequence of disabilities, initiated by obstructed labour resulting in organ prolapse or fistula; the calculation of burden of disease and disability in such a context is particularly difficult. Dependent co-disability, whereby one disability increases the likelihood of another developing, is extremely difficult to quantify (Murray & Lopez, 1996).

The available evidence on reproductive mental health conditions comes overwhelmingly from middle- and high-income countries, conveying the false impression that such conditions do not affect or concern women in low-income countries. Certain physical aspects of women's reproductive health, however, including fertility and its control, pregnancy, childbirth and lactation, receive significant attention in low-income countries, often in line with the narrow goals of population control policies. Unfortunately, the mental health effects of these reproductive health conditions are neither considered nor measured. The mental health and emotional needs of women are seen as being outside the scope of reproductive health services, which consequently provide no support or assistance in this regard. Even in Safe Motherhood Initiatives, "safety" is narrowly defined as physical safety, and the links between safe reproductive health care practices, treatments or services and the mental health of mothers are rarely considered. Mental health often appears to be considered an unaffordable "luxury" for women in resource-poor settings.

Another deficiency in the existing evidence base derives from the fact that research on reproductive health has predominantly been carried out on married women of childbearing age. Evidence on the reproductive health of single women, adolescent girls, and women past the age of child-

bearing is meagre. Moreover, men's reproductive health and the inter-relationships between women's and men's reproductive health are seriously underinvestigated.

Researchers' views

To augment the evidence obtained from peer-reviewed journals, to ascertain the extent of overlap between mental and reproductive health research, and to obtain further information on unmet research needs, a questionnaire was sent to 246 researchers around the world, working in either reproductive health or mental health. The questionnaire sought information about research being undertaken on the epidemiology, determinants and outcomes of reproductive health and mental health (Annex 1).

Respondents were asked to send copies of any relevant reports or publications to assist with the review, and to suggest which aspects of reproductive mental health required increased attention. Only 31 responses were received - a very low response rate of just over 12%. These responses supported the view that reproductive mental health is underinvestigated. Less than a quarter (8/31) of those who responded reported that they had investigated the impact of reproductive health on mental health, and only four had been involved in policy, programmes or services addressing both women's mental health and their reproductive health.

Just over half of the respondents (16/31) identified aspects of reproductive mental health that required increased attention. The two most important broad areas suggested for further inquiry were gender-based violence, specifically domestic violence (7/31), and maternal morbidity and gynaecological conditions generally (5/31). Within these areas, a number of concerns were raised, including access to safe abortion in the context of the threat of violence towards women seeking a termination of pregnancy, impairment of sexual health as a result of violence and abuse, and lack of control over contraceptive choice and the prevention of sexually transmissible infections, including HIV. Gynaecological topics requiring further investigation included unexplained vaginal discharge, fistula, cervical cancer prevention, and pregnancy-related issues, such as fear of childbirth, multiple pregnancies, and infertility. Premenstrual tension and menopause were mentioned as problems of the female reproduc-

tive cycle that warranted further investigation, and some respondents urged a stronger focus on adolescent health, sex education and high-risk behaviour in relation to both unwanted pregnancies and infections. One respondent urged that sexual enjoyment for women should be an objective of reproductive health programmes. Others commented on the importance of investigating all reproductive mental health topics with due regard to the psychosocial context in which they arose and an awareness of the additional problems faced by particular groups of women. Such groups included indigenous women, the elderly, the homeless, women living in rural or remote areas, persons with disabilities and those belonging to stigmatized or marginalized groups, including women with mental health problems who were also parents.

Women's views

Little research is available on women's own perceptions of their mental health or on their health priorities. For women themselves, mental health is critically important. One study reported that women's interest in mental health concerns actually outweighed their interest in reproductive health. Avotri & Walters (1999), in their study of women in the Volta region of Ghana, West Africa, found that psychosocial problems related to a heavy burden of work and a high level of worry predominated over reproductive health concerns. Women attributed their psychosocial distress to financial insecurity, financial and emotional responsibility for children, heavy workloads and a strict gender-based division of labour that put a disproportionate burden on them. In another study of HIV-positive women, mental health and well-being was the main focus of participants' concerns (Napravnik et al., 2000).

Focus and framework of the current review

The mental health aspects of women's reproductive health are the focus of this review, not only because of the lack of evidence on men's reproductive mental health but also because reproductive health conditions impose a considerably greater burden on women's health and lives.

To identify and reduce the emotional distress and poor mental health associated with the significant burden that reproductive health condi-

tions place on women, it is imperative to identify the relevant risk factors. The framework used for the analysis is informed by two interconnected concepts: gender and human rights, especially reproductive rights. Because of the inextricable relationship between health and human rights, the latter must be taken into account in any attempt to understand reproductive mental health. The public health goal of ensuring the conditions in which people can be healthy overlaps with the human rights goal of identifying, promoting and protecting the societal determinants of human well-being (Mann et al., 1999).

Gender analysis is necessary to elucidate how and why gender-based differences influence reproductive mental health. Areas for study include:

- risk and protective factors;
- access to resources that promote and protect mental and physical health, including information, education, technology and services;
- the manifestations, severity and frequency of disease, as well as health outcomes;
- the social and cultural determinants of ill-health/disease;
- the response of health systems and services;
- the roles of women and men as formal and informal health care providers.

Reproductive rights

Reproductive rights comprise a constellation of rights, established by international human rights documents, and related to people's ability to make decisions that affect their sexual and reproductive health (Sundari Ravindran, 2001). Two conferences in the 1990s were critical in promoting reproductive rights. The first was the International Conference on Population and Development (ICPD), held in Cairo in 1994, which produced a "Programme of Action" raising issues of reproductive rights and health concerning family planning, sexually transmitted diseases and adolescent reproductive health.. This was followed by the Fourth World Conference on Women (FWCW), in Beijing in 1995, which acknowledged women's right to have control over their sexuality, and articulated concepts

of reproductive rights and health (Sundari Ravindran, 2001).

Reproductive rights include the basic rights of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children, to have the information and means to do so, and to attain the highest possible standard of sexual and reproductive health. They also include their right to make decisions concerning reproduction free of discrimination, coercion and violence, as expressed in human rights documents (UNFPA, 1994 (para 7.3)).

All the major causes of death and disability associated with pregnancy, including haemorrhage, infection, eclampsia, obstructed labour and unsafe abortion, are potentially preventable or treatable (Berg et al., 2005). A denial of the right to timely and appropriate reproductive health care is a critical factor in increasing mortality and morbidity rates among women of reproductive age. Identifying and analysing violations of rights in relation to health contributes a new perspective to the socioeconomic and structural factors usually considered within a social model of health. Research that looks only at socioeconomic indicators of risk fails to examine the “normative orders” that influence those indicators. The use of a rights-based approach offers a powerful lens to examine those normative orders and how they hamper women (in this instance) in realizing their right to good mental health in relation to reproduction (WHO, 2001).

Adding a gender and rights perspective helps to move away from a stereotyped conceptualization of reproductive health problems as “women’s troubles”. A gender and rights perspective moves beyond biological explanations of women’s vulnerability to mental disorder to consider their vulnerability to a range of human rights violations. This vulnerability has little to do with biology and much to do with gender-based inequalities in power and resources. From a gender and rights perspective, improvements in women’s reproductive mental health are contingent on the promotion and protection of women’s human rights rather than the paternalistic protection of women as the “weaker sex”. This perspective does not deny the role of biology; rather it considers how biological vulnerability interacts with, and is affected by, other sources of vulnerability including gender power imbalances, and how these can be remedied (WHO, 2001).

Although human rights violations are recognized as having a negative impact on mental health (Tarantola, 2001), there have been surprisingly few investigations of women’s mental health, including reproductive mental health, in relation to their human rights (Astbury, 2001). Nevertheless, the higher risk of depression among women clearly underlines the importance of using a gender and rights perspective.

Gender, rights and reproductive mental health

The current review focuses on the common mental disorders, such as depression, anxiety and somatic complaints. This focus is based on the evidence that depression is the most important mental health condition for women worldwide and makes a significant contribution to the global burden of disease. Women suffer more often than men from the common disorders of depression and anxiety, both singly and as comorbidities.

Reproductive rights include:

- the right to life;
- rights to bodily integrity and security of the person (against sexual violence, assault, compelled sterilization or abortion, denial of family planning services);
- the right to privacy (in relation to sexuality);
- the right to the benefits of scientific progress (e.g. control of reproduction);
- the right to seek, receive and impart information (informed choices);
- the right to education (to allow full development of sexuality and the self);
- the right to health (occupational, environmental);
- the right to equality in marriage and divorce;
- the right to non-discrimination (recognition of gender biases).

(Sundari Ravindran, 2001)

The gender-related nature of the most common mental disorders becomes even clearer when it is appreciated that high rates of depression, anxiety and co-morbidity are significantly linked to gender-based violence and socioeconomic disadvantage, situations that predominantly affect women (Astbury & Cabral de Mello, 2000). These same factors have pronounced negative impacts on a wide range of reproductive health conditions (Berer & Ravindran, 1999).

The current review does not attempt a comprehensive examination of reproductive mental health; rather it is a first step in bringing this important but neglected issue to the attention of a wide readership. Evidence indicates that depression is closely linked with a disproportionate exposure to risk factors, stressful life events, and adverse life experiences that are more common for women and that also affect their reproductive health (Patel & Oomman, 1999; Astbury & Cabral de Mello, 2000). If these risks serve as markers of multiple violations of women's human rights, it is imperative to name these violations. It is in their remedy that many risks for women's reproductive mental health will be eliminated or reduced.

This review addresses the following aspects of the reproductive health and mental health of women

- Mental health dimensions of pregnancy, childbirth and the postpartum period.
- Psychological aspects of contraception and elective abortion.
- Mental health consequences of miscarriage.
- Menopause and depression.
- Gynaecological morbidity and its impact on mental health.
- Mental health in the context of HIV/AIDS.
- Infertility and assisted reproduction.
- Mental health and female genital mutilation.

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Chapter 2

Pregnancy, childbirth and the postpartum period

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In 1997, following a conference to address the gross disparities in maternal mortality rates between resource-poor and industrialized countries, a number of international organizations, including the World Health Organization, World Bank, and United Nations Population Fund, and government agencies established the Making Pregnancy Safer (Safe Motherhood) Initiative (Tinker & Koblinsky, 1993). Dramatic contrasts were apparent between industrialized and developing countries in terms of access to contraception, antenatal care, medical facilities for childbirth, and trained medical and nursing staff to provide pregnancy and obstetric health care. The multifaceted initiative aimed to address the complex economic, sociodemographic, health status and health service factors associated with an elevated risk of death related to pregnancy. Centrally important contributing factors were identified as: reproductive choice; nutritional status, co-existing infectious diseases; access to information; access to services; and training and skill of health workers (Lissner, 2001).

The most prominent risks to life were identified as those directly associated with pregnancy, childbirth and the puerperium, including haemorrhage, infection, unsafe abortion, pregnancy illnesses, such as pre-eclampsia and gestational diabetes, and complications of delivery. The initiative, however, gave very limited consideration to mental health as a determinant of maternal mortality or morbidity

In the industrialized world, as pregnancy and childbirth have become safer and maternal mortality rates have declined, awareness has grown in the clinical and research communities of psychological factors associated with health in pregnancy, childbirth and the postpartum period. While there are historical references to disturbed behaviour associated with childbirth, it was not until the 1960s that systematic reports were published of elevated rates of admission to psychiatric hospital in the month after parturition (Robinson & Stewart, 1993).

In 1964, Paffenberger reported the nature and course of psychoses following childbirth (Paffenberger, 1964) and in 1968 Pitt (1968) described an atypical depression observable in some women following childbirth. These reports stimulated the substantial research of the past four decades into the nosology of psychiatric illness associated with human reproduction. The determinants and adverse effects of poor mental health during pregnancy, childbirth and the postpartum year are now the subject of considerable attention and concern. The 2001

World Health Report was devoted to the burden of mental ill-health carried by individuals, families, communities and societies, and the need for accurate understanding of risk factors and prevalence in order to introduce effective prevention and treatment strategies (WHO, 2001). Most research has been conducted in Australia, Canada, Europe, and the United States of America; relatively little evidence is available from developing countries.



Mental health and maternal mortality

The predominant focus in endeavours to reduce maternal deaths has been on the direct causes of adverse pregnancy outcomes - obstructed labour, haemorrhage and infection - and on the health services needed to address them (Stokoe, 1991; Maine & Rosenfield, 1999; Goodburn & Campbell, 2001). Much less attention has been paid to mental health as a contributing factor to maternal deaths. In particular, violence - in the form of self-harm or of harm inflicted by others - during pregnancy or after childbirth has been under-recognized as a contributing factor to maternal mortality (Frautschi, Cerulli & Maine, 1994). The 2001 World Health Report identified a highly significant relationship between exposure to violence and suicide (WHO, 2001).

Despite close investigation, rates and determinants of suicide in pregnancy or after childbirth have proved difficult to determine, because of the extent to which the problem is underestimated or obscured in recording of causes of death or because systematic data are unavailable (Brockington, 2001). Socially stigmatized causes of death are less reliably recorded and probably under-reported (Radovanovic, 1994; Graham, Filippi & Ronsmans, 1996). Postmortem examinations after suicide do not always include the uterine examination necessary to confirm pregnancy and studies that have examined primary records in addition to death certificates have identified significant under-recognition (Weir, 1984; Brockington, 2001). Investigations of suicide in women often fail to report pregnancy status or consider it as an explanatory factor (Hjelmeland et al., 2002; Pearson et al., 2002; Hicks & Bhugra, 2003). There are substantial apparent intercountry variations in rates of suicide. Maternal mortality data combine records of deaths occurring during pregnancy and up to 42 days after the end of a pregnancy and, in many settings, specific data regarding suicide or parasuicide in pregnancy are unavailable. In industrialized countries, there is generally an excess of male to female deaths by suicide (Brockington, 2001). However, in the countries of South and East Asia for which data are available, the ratio is reversed, especially among younger women, who have suicide rates up to 25% higher than men (Lee, 2000; Ji, Kleinman & Becker, 2001; Phillips, Li & Zhang, 2002). Overall, suicide accounted for 50-75% of all deaths in women aged 10-19 years in a 10-year period in Vellore,

Southern India (Aaron et al., 2004). In these settings, women often have more limited educational opportunities than men, less access to financial resources and control of expenditure, restricted autonomy and greater likelihood of being threatened with violence. It is suggested that these gender disparities are linked to poorer mental health and higher risk of despair and consequent self-harm (Brockington, 2001; Ji, Kleinman & Becker 2001; Batra, 2003; Fikree & Pasha, 2004; Kumar, 2003). Completion of suicide in South and East Asia is related in part to the lethality of the method of self-harm, in particular self-poisoning by pesticides and herbicides, which are readily accessible in rural farming communities (Pearson et al., 2002; Fleischman et al., 2005).

It has been argued that pregnancy is a period of stable mood and relative emotional well-being and that pregnant women are, therefore, at lower risk of suicide than non-pregnant women (Marzuk et al., 1997; Sharma, 1997). In industrialized countries, rates of suicide in pregnancy have declined over the past 50 years, a change attributed to the increased availability of contraception, affordable and accessible services for the termination of pregnancy, and reduction in the stigma associated with births to unmarried women (Kendell, 1991; Frautschi et al., 1994).

Summary reviews have found that suicide in pregnancy is not common; however, when it happens, it is primarily associated with unwanted pregnancy or entrapment in situations of sexual or physical abuse or poverty (Brockington, 2001; Frautschi, Cerulli & Maine, 1994).

Suicide is disproportionately associated with adolescent pregnancy, and appears to be the last resort for women with an unwanted pregnancy in settings where reproductive choice is limited; for example, where single women are not legally able to obtain contraceptives, and legal pregnancy termination services are unavailable (Appleby, 1991; Frautschi, Cerulli & Maine, 1994). Young women who fear parental or social sanction, or who lack the financial means to pay for an abortion, or who cannot obtain a legal abortion may attempt to induce abortion themselves. Women who do this by self-poisoning, use of instru-

ments, self-inflicted trauma, or herbal and folk remedies are at increased risk of death by misadventure (Smith, 1998). Investigations in three districts in Turkey found that suicide was one of the five leading causes of death among women of reproductive age, and was associated with age under 25 years and being unmarried; pregnancy status was not reported (Tezcan & Guciz Dogan, 1990). Ganatra & Hirve (2002), in a population survey of mortality associated with abortion in Maharashtra, India, found that death rates from abortion-related complications was disproportionately higher among adolescents, because they were more likely than older women to use untrained service providers. In addition, a number of adolescents had committed suicide to preserve the family honour without seeking abortion. Young women from minority ethnic groups are at increased risk of suicide in pregnancy (Church & Scanlan, 2002).

There has been relatively limited investigation of suicide after childbirth, but in industrialized countries reported rates are lower than expected, and usually associated with severe depression or postpartum psychosis (Appleby, Mortensen & Faragher, 1998).

The British Confidential Enquiries into Maternal Deaths found that maternal deaths from psychological causes, most usually suicide, were at least as prevalent as deaths from hypertensive disorders of pregnancy when data collection was extended to twelve months postpartum, and that, overall, suicide was the leading cause of maternal death (Department of Health, 1999).

Attachment to the infant appears to reduce the risk of suicide in mothers of newborns (Appleby, 1991), but population-based comparisons indicate that the rate of suicide among women who have just given birth is not significantly different from the general female suicide rate (Oates, 2003a). Maternal suicide is associated with a heightened risk of infanticide (Brockington, 2001).

Confining assessment of maternal mortality to the first 6 weeks postpartum probably leads to underestimation of maternal mortality from suicide, which may occur much later in the postpartum period (Yip, Chung & Lee, 1997).

Suicide in combination with other deaths attributable to psychiatric problems, particularly substance abuse, accounted for 28% of maternal

deaths in the United Kingdom in 1997-99 - more than any other single cause (Oates, 2003b). In Sweden, teenage mothers aged under 17 years were found to be at elevated risk of premature death, including suicide, and alcohol abuse compared with mothers aged over 20 years (Otterblad Olausson et al., 2004). The deaths were not only associated with severe mental illness, but were also related to domestic violence and the complications of substance abuse. Two large data linkage studies found that, compared with childbirth, miscarriage and, more strongly, pregnancy termination were associated with increased suicide risk in the following year, especially among unmarried, young women of low socioeconomic status. These findings were attributed to either a risk factor common to both depression and induced abortion, most probably domestic violence, or depression associated with loss of pregnancy (Gissler & Hemminki, 1999; Gissler, Hemminki & Lonnqvist, 1996; Reardon et al., 2002).

There have been very few systematic studies of suicide after childbirth in developing countries. In a detailed classification of cause of 2882 deaths during pregnancy or up to 42 days postpartum, in three provinces in Viet Nam in 1994-1995, the leading cause (29%) was external events, including accidents, murder and suicide. Overall 14% of the deaths were by suicide (Hieu et al., 1999). Lal et al. (1995) reviewed 219 deaths among 9894 women who had given birth in three rural areas of Haryana, India, in 1992, and found that 20% were due to suicide or accidental burns. Granja, Zacarias & Bergstrom (2002), in a review of pregnancy-related deaths at Maputo Central Hospital, Mozambique, in 1991-1995, found that 9 of 27 (33%) deaths not attributable to pregnancy or coincidental illness were by suicide. Seven of the nine suicide deaths were in women aged less than 25 years. In the United Kingdom, the report of the Confidential Enquiries into Maternal Deaths recommended that all maternal deaths should be classified as occurring by violent or non-violent means (Department of Health, 1999). The Centers for Disease Control and Prevention and the American College of Obstetricians and Gynecologists now recommend that the definition of maternal death should include any death of a woman while she is pregnant or within one calendar year of termination of the pregnancy, and that these should be classified as to whether or not they occurred by

violent means (American College of Obstetricians and Gynecologists, 2003).

Although completed suicide may be rare, parasuicide - thoughts of suicide and attempts to self-harm - is up to 20 times more common (Brockington, 2001). Parasuicide is more prevalent in women than men in most countries. It is associated with low education and socioeconomic status, but predominantly with childhood sexual and physical abuse, and sexual and domestic violence (Brockington, 2001; Stark & Flitcraft, 1995). In pregnancy, suicidal ideation and attempts at self-harm are significantly more common in women with a history of childhood sexual abuse than those without such a history (Bayatpour, Wells & Holford, 1992; Farber, Herbert & Reviere, 1996). Women with a history of sexual and physical abuse in childhood are also more likely than those without such a history to have attempted suicide prior to pregnancy (Farber, Herbert & Reviere, 1996). Past physical abuse is itself a risk factor for pregnancy in adolescence (Adams & East, 1999). Both unwanted pregnancy and parasuicide are more common in adolescents without a psychiatric history who have experienced physical or sexual "dating violence" (Silverman et al., 2001). In addition, women who attempt suicide in pregnancy are significantly more likely to have been subject to domestic violence (Stark & Flitcraft, 1995), and suicide attempts by self-poisoning are most likely to occur in the early weeks of an unwelcome pregnancy (Czeizel, Timar & Susanszky, 1999).

Appleby & Turnbull (1995) found that rates of self-harm treated in hospital in the first postnatal year were low in the United Kingdom, and argue that maternal concerns for infant well-being are protective. The Edinburgh Postnatal Depression Scale (EPDS), a widely used screening and research instrument, has a specific item assessing the presence and intensity of suicidal ideation (Cox, Holden & Sagovsky, 1987). Most studies using this instrument have not presented data specifically related to this item, but one of the scale's developers (Holden, 1991; Holden, 1994) has reported that women who are severely depressed commonly have a positive score on it. There is a small emerging body of literature on postpartum parasuicide in developing countries, which suggests that it is not uncommon. Rahman & Hafeez (2003) report that more than one-third (36%) of mothers caring for young

children and living in refugee camps in the North West Frontier Province of Pakistan had a mental disorder and that 91% of these women had suicidal thoughts. Fisher et al. (2004) found that, among a consecutive cohort of 506 women attending infant health clinics six weeks postpartum in Ho Chi Minh City, Viet Nam, 20% acknowledged thoughts of wanting to die.

Intense grief reactions can accompany pregnancy loss and may increase parasuicide rates. Parasuicide rates are 93 times higher in the year after treatment for ectopic pregnancy than among non-pregnant age-matched controls; this is interpreted as a response to the loss of the pregnancy and the potential loss of fertility as well as damage to self-regard, and recovery from unanticipated surgery (Farhi, Ben-Rafael & Dicker, 1994). Although no systematic evidence is currently available, Adamson (1996) has suggested that parasuicide and suicide may also be consequences of the profound distress that accompanies vesicovaginal fistula in women in some developing countries.

Maternal deaths by inflicted violence

Deaths of women during pregnancy or within 42 days of termination of pregnancy, from causes not related to or aggravated by the pregnancy or its management, are termed pregnancy-related deaths. Deaths from inflicted violence have been underascertained in standard recording of maternal mortality, which is limited to pregnancy and the first 42 days postpartum. Violence-related maternal deaths are under-reported in routine data collection and are often inaccurately regarded as incidental or chance events (Granja, Zacarias & Bergstrom, 2002)

A number of meticulous studies, using detailed scrutiny of primary health, coroner's court and hospital records in addition to death certificates, have had remarkably consistent findings (Dannenberg et al., 1995; Fildes et al., 1992; Gissler & Hemminki, 1999; Horon & Cheng, 2001; Parsons & Harper, 1999). Fildes et al. (1992) found that the leading cause of death during pregnancy or after childbirth in one American county (accounting for 46.3% of pregnancy-related deaths) was trauma, including homicide (57% of them) and suicide (9%). Dannenberg et al. (1995) reported that 39% of deaths of pregnant or newly delivered women in New York City were not directly related to the

pregnancy, 63% of which were by homicide and 13% by suicide; women from minority ethnic groups were at heightened risk. In the county of Maryland, USA, Horon & Cheng (2001) found that 20% of all pregnancy-related deaths were by homicide, which was the leading cause of such deaths in 1993-1998. Pregnancy was not recorded on 50% of the death certificates, so linkage of multiple vital records was essential for accurate identification. Parsons & Harper (1999) found that 51% of non-maternal deaths in North Carolina followed domestic violence, and that obstetric care providers were not aware of the severe risks faced by these individuals. Gissler & Hemminki (1999) reported that one-third of deaths in Finland in the year after childbirth or termination of pregnancy were attributable to homicide, more commonly following induced abortion than a live birth. Otterblad Olausson et al. (2004) showed that violence inflicted on adolescent mothers contributed to increased premature mortality later in life, compared with older mothers.

In developing countries, intimate partner violence or violence from other family members is associated with increased maternal mortality, although systematic representative international studies are unavailable. Granja, Zacarias & Bergstrom (2002) found that 37% of pregnancy-related deaths in their investigation in Mozambique were by homicide and 22% were accidents. Batra (2003), in describing deaths from burning among young married women in India, noted that 47.8% of the deaths were suicide, with torture by in-laws the most common explanatory factor.

In general, these studies concluded that maternal mortality could be accurately ascertained only if causes of death were expanded to include deaths due to violence inflicted by self or others.

Mental health and antenatal morbidity

In contrast to the substantial investigations of women's psychological functioning after childbirth, relatively little research has been devoted specifically to mental health during pregnancy (Llewellyn, Stowe & Nemeroff, 1997). Research has generally focused on the risks for the fetus of poor maternal mental health, in terms of adverse alterations to the intrauterine environment, risky

behaviours, in particular substance abuse, failure to attend antenatal clinics, and increased risk of adverse obstetric outcome. Conventionally, pregnancy has been regarded as a period of general psychological well-being for women, with a lower rate of hospital admissions for psychiatric illness (Oppenheim, 1985; Kendell, Chalmers & Platz, 1987), reduced risk of suicide (Marzuk et al., 1997) and lower rates of panic disorder (Sharma, 1997). However, Viguera et al. (2002) reported that risk of recurrence of bipolar affective disorder was not diminished in pregnancy.

Depression in pregnancy

Llewellyn et al. (1997) suggest that certain symptoms of depression, including appetite change, lowered energy, sleep disturbance and reduced libido, are considered "normal" in pregnancy and their psychological significance is therefore underestimated. A range of psychosocial factors has been associated with depression in pregnancy, including unwanted conception, unmarried status, unemployment and low income (Pajulo et al., 2001; Zuckerman et al., 1989). Certain early experiences within the family of origin, in particular recalled conflict and divorce, appear to increase depressive symptoms and contribute to reduced personal resources (Bernazzani et al., 1997). Three sources of support appear to influence mood in pregnancy: the woman's own parents, in particular her mother; her partner; and her wider social group, including same-age peers (Berthiaume et al., 1996; Brugha et al., 1998; Pajulo et al., 2001).

Despite the impression of well-being in pregnancy, comparable rates of depressive symptoms have been found among pregnant and non-pregnant women. Large systematic studies have shown that rates of depression in late pregnancy are as high or higher than rates of postpartum depression (Zuckerman et al., 1989; Da Costa et al., 2000; Evans et al., 2001; Josefsson et al., 2001).

Only a few studies of the prevalence of antenatal depression in South and East Asian, African or South American countries are available. Chen et al. (2004) surveyed pregnant women attending antenatal clinics at a Singapore obstetric hospital, and reported that 20% had clinically significant depressive symptoms. Young women and women with complicated pregnancies were at

elevated risk. Lee et al. (2004a) found that 6.4% of 157 Hong Kong Chinese women in advanced pregnancy were depressed. Fatoye, Adeyemi & Oladimeji (2004) found higher rates of depressive and anxious symptoms in pregnant women than in matched non-pregnant women in Nigeria. Depression was associated with having a polygamous partner, a previous termination of pregnancy, and a previous caesarean birth. In a small study of 33 low-income Brazilian women, Da Silva et al. (1998) found that 12% were depressed in late pregnancy, and that depression was associated with insufficient support from the partner and lower parity. Chandran et al. (2002) interviewed a consecutive cohort of 359 women registered for antenatal care in a rural community in Tamil Nadu, India, and found that 16.2% were depressed in the last trimester. Rahman, Iqbal & Harrington (2003) established that 25% of pregnant women attending services in Kahuta, a rural community in Pakistan, were depressed in the third trimester of pregnancy. Risk was increased among the poorest women and those experiencing coincidental adverse life events.

Anxiety in pregnancy

There has been a widely held belief that anxiety in pregnancy is harmful to the fetus and contributes to adverse obstetric outcomes. The incidence of anxiety disorders is the same in pregnant women and those who are not pregnant (Diket & Nolan, 1997). Subclinical levels of anxiety vary normally through pregnancy, with peaks in the first and third trimester, and are specifically focused on infant health and well-being and childbirth (Lubin, Gardener & Roth, 1975; Elliott et al., 1983). Anxiety in pregnancy is higher among younger, less well-educated women of low socioeconomic status (Glazer, 1980). Elevated anxiety may have adaptive value as a maturational force in impelling women to prepare for a major life transition (Astbury, 1980). In a detailed and comprehensive review, Istvan (1986) concluded that there was little evidence to support the contention that, in humans, maternal stress or anxiety influenced either neonatal health or obstetric outcome. He commented further that previous research had failed to account for the complex interactive effects of poverty, age and reproductive choice in attributing poor pregnancy outcomes to women's mental health. However, recent investigations have revisited the issue, with suggestions that mater-

nal anxiety in pregnancy has adverse effects on birth weight (Texiera, Fisk & Glover, 1999) and on later behavioural and emotional problems in the children (Glover et al., 2002; Glover & O'Connor, 2002; O'Connor, Heron, & Glover, 2002; O'Connor et al., 2002). These recent studies have been criticised because, in assessing anxiety in the last trimester of pregnancy, they failed to take into account the mother's knowledge of the health and development of her baby acquired through antenatal care. Anxiety is likely to be higher in women who know that their infant's intrauterine development is compromised (Perkin, 1999). Sjostrom et al. (2002) found that maternal anxiety did not affect fetal movements or fetal heart rate in late pregnancy. Brooke et al. (1989) demonstrated that smoking in pregnancy was the main determinant of low birth weight and that psychological and social factors had no direct effect independent of smoking.

Pregnant women are generally encouraged to modify their self-care and personal habits to ensure optimal maternal and fetal health. This includes advice to alter their diet, avoid alcohol, stop smoking cigarettes, gain a specified amount of weight, exercise (but not to excess), rest, relax and have regular health checks. The evidence for some of this advice is poor, and the recommendations have been criticised for failing to take into account personal circumstances and social realities (Lumley & Astbury, 1989). It is difficult for women to ensure adequate nutrition for themselves if they are poor or have restricted access to shared resources (Nga & Morrow, 1999). Smoking and substance abuse in pregnancy are associated with depression arising from conflict in marital and family relationships, domestic violence and financial concerns (Kitamura et al., 1996; Bullock et al., 2001; Pajulo et al., 2001). Women who smoke in pregnancy have poorer nutritional intake (Haste et al., 1990). Both physical and sexual abuse are predictive of substance abuse in pregnant adolescents (Bayatpour, Wells & Holford, 1992). Pregnant women who are dependent on opiates and have a co-morbid diagnosis of post-traumatic stress disorder (PTSD) are more likely than those without PTSD to have a history of sexual abuse and to have experienced severe conflict in their family of origin (Moylan et al., 2001). Poorer health in pregnancy and delay in accessing antenatal care are linked to insufficient social support (Webster et al., 2000).

In addition to social factors, participation in prenatal genetic screening and diagnosis can also generate anxiety (Green, 1990a). This occurs independently of the results of the test, and is worse if there is a long interval between the test and the result becoming available (Green, 1990a). The anxiety can be modified by skilled genetic counselling and psychosocial support, but may persist (Keenan et al., 1991). Although screening may be beneficial, anxieties are unnecessarily aroused by false-positive results for women whose fetus is actually healthy. Normal results in follow-up tests do not always provide effective reassurance (Marteau et al., 1992). False-negative results of prenatal screening, encouraging parents to believe they are giving birth to a healthy child, have a modest adverse effect on parental adjustment, which may still be evident 2-6 years after the birth (Hall, Bobrow & Marteau, 2000). In the past decade, research has focused on the determinants of informed, autonomous decision making and uptake of services, but not on the emotional consequences of participation in prenatal genetic screening and diagnosis. There is currently no evidence of the psychological impact of increased surveillance during pregnancy on the overall experience of pregnancy and the postnatal period. Systematic investigations are difficult because services are changing rapidly.

Termination of pregnancy for fetal abnormality is relatively rare, but can have significant and lasting psychological consequences (Green, 1990a). There is little social understanding or support for either parents or the health professionals involved (Kolker & Burke, 1993). Hunfeld et al. (1997) compared 27 women with a history of late pregnancy loss (after 20 weeks) due to fetal abnormality, who subsequently had a live birth, with 27 mothers of newborns without such a history. Those with prior pregnancy loss had significantly greater anxiety and depression than women without such a history; this was interpreted as re-evoked grief about the previous loss. They also perceived their infants as having more problems and were more anxious about infant care (Hunfeld, Wladimiroff & Passchier, 1994; Hunfeld et al., 1997). Prenatal screening and diagnosis can now be carried out early in pregnancy, and little is known about the psychological consequences of first trimester termination of pregnancy for fetal abnormality. Most research on first-trimester abortion has focused on

those carried out for social reasons, after which psychological morbidity is low (Adler, 2000). Termination of a planned and wanted pregnancy is likely to have a different meaning, and research findings for one group cannot be generalized to the other. Decision-making about first-trimester abortion for fetal abnormality is complicated by the fact that many affected pregnancies, if left, will terminate spontaneously (McFadyen et al., 1998). There is no evidence on the psychological aspects of forced termination of pregnancy, or pregnancy termination associated with sex selection, in settings with restrictions on family size and a preference for male children.

Cultural preferences and mental health in pregnancy

In many cultures, there is a preference for sons rather than daughters; the psychological consequences of this for pregnant women have not been systematically investigated. Country-level sex ratios are skewed in favour of males in China, India and the Republic of Korea (Fathalla, 1998; Bandyopadhyay, 2003). Clinicians can use techniques such as ultrasound, amniocentesis, and chorionic villus sampling to determine fetal sex, and female fetuses may subsequently be aborted selectively (Kristof, 1993). Although legislation prohibits this practice, it is known to persist. Women can be blamed for sex determination and may not be able to make a free choice about continuing or terminating a pregnancy (Fathalla, 1998; Bandyopadhyay, 2003). The birth of a daughter was found to contribute independently to postpartum depression in women in India and Pakistan (Patel, Rodrigues & DeSouza, 2002; Chandran et al., 2002; Rahman, Iqbal & Harrington., 2003); it is therefore reasonable to speculate that mental health during pregnancy may also be adversely affected by the family and social reaction to the conception of a daughter.

Inflicted violence and mental health in pregnancy

Violence is estimated to occur in between 4% and 8% of pregnancies (Petersen et al., 1997), although higher rates have been reported: 11% in South Carolina between 1993 and 1995 (Cokkinides et al., 1999); 13.5% in an American prenatal care programme (Covington et al., 2001); 15.7% among women attending an antenatal clinic in a hospital in Hong Kong, China (Leung et al., 1999); and 22% among women

attending a routine antenatal clinic in Nagpur, India (Purwar et al., 1999).

Women who are the victims of domestic violence during pregnancy, including verbal aggression and minor and severe physical abuse, are significantly more likely to rate their relationship with their male partner as poor (Cloutier et al., 2002). Investigations have focused on the links between violence and adverse maternal and neonatal outcomes, with relatively little emphasis to date on mental health (Petersen et al., 1997; Shumway et al., 1999). However Muhajarine & D'Arcy (1999) found that women who had experienced physical abuse in pregnancy reported higher stress and more coincidental adverse life events, while Webster, Chandler, & Battistutta (1996) reported that they were more likely to be taking antidepressant medication than women who had not experienced violence. Stewart & Cecutti (1993) found that abused women in a range of prenatal care settings were significantly more emotionally distressed than non-abused women.

Eating disorders and pregnancy

There has been much less exploration of other psychological conditions in pregnancy. However, there is evidence that women with an eating disorder - anorexia nervosa or bulimia nervosa - may be unwilling to disclose these conditions during routine care. They are at increased risk of miscarriage and intrauterine growth retardation, and may have co-morbid depression and anxiety (Franko & Spurrell, 2000).

Mental health and postpartum morbidity

In becoming a mother, a woman often has to relinquish her autonomy, personal liberty, occupational identity, capacity to generate an income, and social and leisure activities in favour of caring for the infant. The adaptation to her new required roles, major responsibilities, moving from being in the childless generation to the parent generation, increased unpaid workload and, for some, harm to bodily integrity through unexpected adverse reproductive events places great demands both on individual psychological resources and on existing relationships. Psychological disequilibrium is normal during life transitions and in adapting to change, and

there is continuing theoretical consideration of the extent to which perinatal psychological disorder should be regarded as a normal process. However, there is now substantial evidence that women's mental health can be compromised by childbirth and that some women experience psychiatric illness. Debate continues about whether psychiatric illnesses occurring in pregnancy or after childbirth are clinically distinct from those observed at other phases of the life cycle, and of the relative etiological contributions of biological and psychosocial factors. There is now a consistent view that psychological disturbance following childbirth can be conceptualized as fitting one of three distinct conditions, of differing severity: transient mood disturbance, depression and psychotic illness.

Postpartum blues or mild transient mood disturbance

Maternity, third day or postpartum blues are a phenomenon occurring in up to 80% of women in the days immediately following childbirth (Pitt, 1973; Kennerley & Gath, 1986). The syndrome is characterized by a range of symptoms, most commonly a lability of mood between euphoria and misery, heightened sensitivity, tearfulness often without associated sadness, restlessness, poor concentration, anxiety and irritability (Yalom et al., 1968; Stein, 1982). Disturbed sleep (Wilkie & Shapiro, 1992), feelings of unreality and detachment from the baby have also been reported (Robinson & Stewart, 1993). There have been a small number of specific transcultural studies of the nature and incidence of postpartum blues, which have reported rates in non-Anglophone countries ranging from 13% to 50% (Howard, 1993; Kumar, 1994). Sutter et al. (1997) reported a rate of 42.5% in a sample of French mothers. Very limited evidence is available about postpartum blues in developing countries. Davidson (1972) reported that 60% of newly delivered women in Jamaica were tearful or sad, while Ghubash & Abou-Saleh (1997) found that 24.5% of Arab women met the criteria for a clinical case of psychiatric morbidity using the WHO Self Reporting Questionnaire on the second day after birth.

The birth of an infant demands a dramatic adaptation by women.

The coincidence of the maternity blues with the major hormonal changes associated with parturition has led investigators to look for a biological basis to the condition, but findings are generally inconsistent (Robinson & Stewart, 1993; Steiner, 1998). Similarly, there is no consistent evidence for the contribution of parity (Kendell et al., 1981), obstetric factors (Condon & Watson, 1987; Oakley, 1980), hospital or home as place of delivery (Kendell et al., 1981; Pop et al., 1995), or personal or family history of mood disorder (O'Hara et al., 1991) to the incidence or severity of the condition. The distress peaks between three and five days postpartum, and usually resolves spontaneously without specialist intervention. However, in some women a more persistent and severe depression develops. There is some evidence that the more severe symptoms of blues, including early self-reports of feeling depressed, having thoughts about death or being unable to stop crying, predict later development of depression (O'Hara et al., 1991; Sutter et al., 1997). Steiner's (1998) summary review concluded that the evidence base was insufficient to predict, diagnose, prevent, treat or give prognostic indicators for the maternity blues.

Postpartum psychotic illness

A very small group of women (approximately 1 or 2 per 1000) develop an acute psychosis within the first month postpartum; this is the most severe psychiatric illness associated with childbirth. Relative lifetime risk and incidence are usually calculated in terms of psychiatric admissions for treatment of psychotic illness after childbirth. The risk for women of experiencing a psychotic illness is highly elevated for the first thirty days postpartum and remains elevated, but at a lower rate, for two years following childbirth (Kendell, Chalmers & Platz, 1987; McNeil & Blenow, 1988). Clinical characteristics include acute onset and extreme affective variation, with mania and elation as well as sadness, thought disorder, delusions, hallucinations, disturbed behaviour and confusion (Marks et al., 1992; Pfuhmann, Stoeber & Beckmann, 2002; Scottish Intercollegiate Guidelines Network, 2002). Postpartum psychoses are most accurately construed as episodes of cycloid affective illness; rates of schizophrenic psychotic episodes are not elevated postnatally (Brockington, Winokur & Dean, 1982; Kendell, Chalmers & Platz, 1987; Brockington, 1992; Kumar, 1994; Pfuhmann, Stoeber & Beckmann, 2002). Although treat-

ment is similar, there is a divergence of views as to whether puerperal psychotic episodes in an individual with an existing diagnosis of bipolar affective disorder should be understood to be the same as first episodes following childbirth (Pfuhmann, Stoeber & Beckmann, 2002). Risk of recurrence after subsequent pregnancies is between 51% and 69% (Pfuhmann, Stoeber & Beckmann, 2002).

There is continuing conjecture about the relative contributions of biological and psychosocial etiological factors to the development of postpartum psychoses and the possibilities of meta-analysis to elucidate this are restricted by methodological limitations in existing studies (Pfuhmann, Stoeber & Beckmann, 2002). However, the timing of onset of the illness, family history and molecular genetic studies support an underlying biological etiology, with childbirth as the precipitating factor (Pfuhmann, Stoeber & Beckmann, 2002). Postpartum psychosis has been associated with primiparity, personal or family history of affective psychosis, unmarried status and perinatal death of an infant (Kendell, 1985; Kendell, Chalmers & Platz, 1987). The contribution of obstetric factors is not clear, but there is some evidence that caesarean delivery increases the risk of postpartum psychosis and of relapse after subsequent births (Kendell et al., 1981; Nott, 1982; McNeil & Blenow, 1988). Puerperal and non-puerperal episodes of psychosis are predicted most strongly by a history of psychotic episodes and by marital difficulties (Marks et al., 1992).

Systematic international comparisons of the prevalence, clinical characteristics and course of postnatal psychotic illnesses, including in developing countries, are not available. However, in all countries in which studies have been conducted, psychotic illnesses following childbirth have been identified (Howard, 1993; Kumar, 1994). Investigations of women admitted to hospital with postpartum mental illness in countries outside Western Europe and North America report higher rates of puerperal psychosis. Schizophrenia is reported more commonly than affective illness in those settings, but these patterns may reflect intercountry differences in diagnostic criteria (Howard, 1993; Kumar, 1994). Both Howard (1993) and Kumar (1994) highlighted the higher incidence in developing countries of puerperal psychoses associated with organic illness, including confusional

states related to fever from infections or to poor nutrition. Ndosi & Mtawali (2002) described a case series of 86 women who developed psychosis within six weeks of giving birth in the United Republic of Tanzania; the incidence rate of 3.2 per 1000 was approximately double that reported in industrialized countries. Most of the women were young and primiparous; co-existing anaemia and infectious illnesses were common and 80% of the illnesses were categorized as organic psychoses.

There is much less evidence about the complex reproductive mental and physical health needs of women with pre-existing chronic severe mental illness (Kumar, Hipwell & Lawson, 1994). Although people with schizophrenic illnesses appear to have reduced fertility and smaller families, this effect is less marked for women than for men, and many are parents (McGrath et al., 1999; Nimgaonkar, 1998; Nimgoankar et al., 1997). Among those with severe chronic mental illness, frequency of sexual activity may be normal, but contraceptive use may be lower and autonomous reproductive decision-making compromised (Thomas et al., 1996; Cole, 2000). The multiple psychosocial difficulties experienced by those with severe chronic mental illnesses can have adverse effects on the formation of mother-infant attachment. The children of parents with psychiatric illnesses are at increased risk of neglect or inadequate care and the later development of psychopathology (Kumar, Hipwell & Lawson, 1994; Nimgoankar et al., 1997; Oates, 1989; Cole, 2000).

Postpartum depression

Over the lifespan, on average, women experience major depression between 1.6 and 2.6 times more often than men. This difference is most apparent in the life phase of caring for infants and young children (Epperson, 1999; Astbury, 2001). Depression arising after childbirth has attracted substantial research interest in the past 40 years, and there is now an extensive literature on its nature, prevalence, prediction, course and associations with risk and protective factors.

Postpartum depression is a clinical and research construct used to describe an episode of major or minor depression arising after childbirth (Cox, 1994; Epperson, 1999; Paykel, 2002). The International Classification of Diseases (ICD 10) (WHO, 1992) does not have a specific diagnostic

category of postpartum depression, and classifies depression after childbirth as a depressive episode of either mild (four symptoms), moderate (five symptoms), or severe (at least five symptoms, with agitation, feelings of worthlessness or guilt or suicidal thoughts or acts). Although onset within one month of giving birth is specified for an episode to be labelled as postpartum depression in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM IV) (American Psychiatric Association 1994), it is not distinguished nosologically from depressive episodes in general (Cramer, 1993; Paykel, 2002).

While there is debate about whether depression following childbirth is a clinically distinct condition, there is consistent evidence that 10-15% of women in industrialized countries will experience non-psychotic clinical depression in the year after giving birth, with most developing it in the first five weeks postpartum (Cox, Murray & Chapman, 1993; O'Hara & Swain, 1996; Epperson, 1999). Severe depression, needing inpatient treatment, occurs in 3-7% of women after childbirth (O'Hara & Zekoski, 1988).



It is still not clear whether postnatal depression is a continuation of an existing state, or first occurs after delivery. There is also a lack of clarity over how long the postpartum period should be considered to last, and therefore for how long after delivery a depression can be regarded as specifically postnatal in onset (Cooper & Murray, 1997; Paykel, 2002). There is a clustering of new cases around childbirth, which is argued to be distinctive (Cramer, 1993). DSM IV specifies within a month of parturition, but Nott (1987) found that the highest incidence of new cases occurred 3-9 months postpartum. Chaudron et al. (2001) demonstrated that 5.8% of cases of depression identified at four months postpartum were not

apparent at one month. Most conceptualizations take a categorical approach, in which individuals are classified as satisfying the criteria for a clinical case, or are regarded as well. Some authors, however (Green, 1998; Romito, 1989; Fisher,

Postpartum depression is characterized by the persistent presence for at least two weeks of cognitive and affective symptoms including: low mood, guilt, despondency, self-deprecation, anhedonia, impaired concentration, irritability, elevated anxiety, rumination and social withdrawal. The somatic symptoms of sleep and appetite disturbance are also present, but are not uncommon in normal postpartum adjustment (Campbell & Cohn, 1991).

Feekery & Rowe-Murray, 2002), argue that adjustment processes, including transient dysphoria and symptoms of depression, can be observed in most women postpartum, and that a continuum of emotional well-being or a broad spectrum of adjustment experiences may be a more accurate conceptualization. Mood in the first year after childbirth is dynamic

and determined by multiple factors (Gjerdingen & Chaloner, 1994; Evans et al., 2001). In practice, it is common for any episode of depression during this period to be regarded as linked to the birth (Scottish Intercollegiate Guidelines Network, 2002). Postpartum depression is of serious public health concern because of its demonstrated adverse consequences on the development of maternal confidence and the cognitive, emotional and social development of their infant (Murray, 1997; Murray et al., 1999).

Biological risk factors for postpartum depression

The causes of depression in the postpartum period are still the subject of controversy, debate and research. Broadly, the arguments concern the relative contributions of biological and psychosocial factors. The evidence for a biological contribution is derived from a number of sources. Biochemical hypotheses hold that the dramatic hormonal changes that follow childbirth and are involved in lactation may precipitate or maintain depression (Hendrick, Altshuler & Suri, 1998; Epperson, 1999). Links between postpartum depression and a history of premenstrual mood change or increased familial vulnerability to affective illness and alcohol dependence are cited

in support of a biological etiology (Stowe & Nemeroff, 1995). However, summary and systematic reviews have concluded that, although some women may be particularly psychologically vulnerable to hormonal change, a direct link between hormones or other neurochemicals and postpartum depression has not yet been demonstrated (Robinson & Stewart, 1993; Hendrick, Altshuler & Suri, 1998; Scottish Intercollegiate Guidelines Network, 2002).

Two medical conditions may contribute to altered mood after childbirth. The incidence of abnormal thyroid function is higher in the first six months postpartum (7% versus 3% in the wider population) (Hendrick, Altshuler & Suri, 1998; Epperson, 1999). Although most women with postpartum depression have normal thyroid function, fatigue, lowered mood and impaired volition have been associated with hypothyroidism, while agitation and excessive weight loss are linked to hyperthyroidism. Postpartum haemorrhage and lactation are associated with iron deficiency anaemia, which contributes to fatigue and lowered mood (Epperson, 1999). These conditions are often under-recognized.

Psychosocial risk factors for postpartum depression

The prevalence of schizophrenia and bipolar affective disorder, for which there is evidence of genetic vulnerability, is similar in men and women. Patel (2005) argues cogently that sex differences in the prevalence of depression and anxiety cannot be attributed to "over-simplistic biological or hormonal explanations for the female excess because few biological parameters show this degree of variability". He concludes that women's vulnerability to depression is attributable to social, economic and cultural factors beyond individual control. Evidence that a range of psychological, social and economic factors contribute to postpartum depression is more substantial than that for biological explanatory models. Nevertheless, associations between risk factors and conditions cannot be interpreted as causal links, and there is a general view that postpartum depression is unlikely to be attributable to a single cause, but is probably the outcome of the interaction of a number of risk and protective factors (Cramer, 1993; O'Hara & Swain, 1996; Wilson et al., 1996; Beck, 2001; Scottish Intercollegiate Guidelines Network, 2002).

A personal history of mood disorder, previous psychiatric hospitalization, and anxious or depressed mood in pregnancy are consistently found to be predictive of postpartum depression (O'Hara et al., 1991; Webster et al., 1994; O'Hara & Swain, 1996; Wilson et al., 1996; Beck, 2001; Scottish Intercollegiate Guidelines Network, 2002). Although this phenomenon is widely observed, the factors that contribute to disturbed affect in women are not well understood. Studies consistently assess prevalence of psychiatric illness, in particular mood disorder and alcohol dependence in the family of origin (Stowe & Nemeroff, 1995), and report elevated rates in those with postpartum depression. However, histories of abuse or exposure to violence have rarely been considered or assessed. Poor parental care, especially poor maternal care and neglect in childhood (Boyce, Hickie & Parker, 1991; Boyce et al., 1998; Douglas, 2000), and childhood sexual and physical abuse (Buist & Barnett, 1995; Buist & Janson, 2001) contribute to adult depression and appear to be associated with postpartum mood disorders. Women who have been sexually abused in childhood have increased anxiety about their own children's safety and feel inhibited in providing intimate parenting to their infants (Douglas, 2000).

A poor relationship between the woman and her partner is now regarded as a major predictor of depression after childbirth (Romito, 1989; O'Hara & Swain, 1996; Cooper & Murray, 1997; Beck, 2001; Scottish Intercollegiate Guidelines Network, 2002). The problems in this relationship have been variously conceptualized as: increased marital conflict (Kumar & Robson, 1984); men being less available after delivery, and providing insufficient practical support (O'Hara, 1986) or poor emotional support (Paykel et al., 1980; Dimitrovsky, Perez-Hirshberg & Istkowitz, 1987); poor adjustment or unhappiness (Webster et al., 1994); low satisfaction (Beck, 2001); insufficient involvement in infant care (Romito, 1989); and holding rigid traditional sex role expectations (Wilson et al., 1996). The relationship with the partner also appears to significantly affect the time taken to recover (Gjerdingen & Chaloner, 1994). Very similar findings have emerged from transcultural studies. A poor quality of marital relationship - variously described as inability to confide in an intimate partner or lack of support, or arguments and tension in the relationship - is centrally related to women's mental health postpartum, and

has been found to distinguish depressed from non-depressed women in Hong Kong, China (Chan et al., 2002), India (Chandran et al., 2002; Rodrigues et al., 2003), Pakistan (Rahman, Iqbal & Harrington, 2003), Brazil (Da Silva et al., 2003) and Viet Nam (Fisher et al., 2004).

Some authors have suggested that depressed women are more likely to be irritable and socially withdrawn, and that for this reason they may be difficult for their partners to relate to, or may be providing less care for their partners, or may perceive their relationship as poor (Cramer, 1993). Boyce, Hickie & Parker (1991) stated that a woman who is depressed postnatally "may be particularly incapable of evoking additional care and support from her partner" or "may tend to choose a partner incapable of providing care or to behave in a way which elicits uncaring responses from her intimate". The alternative proposition - that the behaviour of male partners contributes to maternal depression - has not usually been considered.

Although there have been some investigations into whether men's mental health might also be adversely affected by childbirth, overall there has been much less systematic examination of perinatal psychological functioning in men than in women. Marks & Lovestone (1995) postulated that men may feel excluded from the intimate relationship between mother and infant, and themselves become depressed or anxious. Men are not at elevated risk of psychotic illness after the birth of a baby (Marks & Lovestone, 1995). Rates of depression among men in the postpartum period appear to be low: less than 5% among Portuguese fathers 12 weeks postpartum (Areias et al., 1996); 1.2% among Irish fathers six weeks postpartum (Lane et al., 1997); 3% among fathers in the Avon Longitudinal Study of Pregnancy and Childhood (Deater-Deckard et al., 1998); and 2.8% among Australian fathers four months postpartum (Matthey et al., 2000). In one study, severe postpartum intrusive stress symptoms were found in 9% of mothers and 2% of fathers (Skari et al., 2002). Condon, Boyce & Corkindale (2004) conducted one of the first-ever systematic prospective studies of men's psychological well-being, involving 312 first-time fathers. They found that the greatest level of psychological symptoms was during mid-pregnancy, and that there was actually some improvement in mood by three months postpartum. Overall, only 1.9% of the sample had a clinically signifi-

cant score on the EPDS at three months after the birth. The authors suggest that distress may be expressed in other ways, perhaps as increased alcohol use or irritability, but that men actually experience little mood change during the period of their partner's pregnancy and after the birth. Matthey et al. (2001) suggest that distress may be under-reported by men, and that screening instruments may require different cut-off scores to detect clinically significant symptoms in men and in women.

Violence against women by their intimate partners has been described as "the most prevalent ... gender-based cause of depression in women" (Astbury, 2001). Criticism, coercion, control, humiliation, and verbal or physical violence by an intimate partner on whom the woman is dependent, is causally linked to depression and anxiety (Astbury, 2001). Unfortunately, most research on the etiology of postpartum depression has not assessed the effect of coercion, intimidation and violence by the intimate partner. Boyce, Hickie & Parker (1991), Schweitzer, Logan & Strassberg (1992), and Matthey et al. (2000), using the Intimate Bonds Measure (Wilhelm & Parker, 1988), found that women whose partnerships were characterized by high levels of control and low levels of care were at increased risk of postpartum depression. However, fear of intimidation and actual experience of abuse were not ascertained. A prospective cohort study of 838 parturient Chinese women in Hong Kong, China (Leung et al., 2002), using the Abuse Assessment Screen, found that 16.6% had been abused in the previous year. Among women who had experienced domestic violence, higher scores on the EPDS were reported 2-3 days after delivery, 1-2 days after discharge from hospital, and six weeks postpartum than among those with no experience of violence. There was no difference between the two groups of women in terms of sociodemographic factors, although the abused women were more likely to report that their pregnancy had been unplanned. Women admitted to an early parenting service were significantly more likely to be depressed if they had experienced an act of physical violence in the previous year, or if they perceived their partners as critical and coercive (Fisher, Feekery & Rowe-Murray, 2002). Stewart & Robinson (1996), in a review of the literature on violence, identified a tendency to promote the idea of "female masochism ... [suggesting] that women are in some

way responsible for their own victimisation". The literature has generally failed to acknowledge or examine the social factors, including financial dependence and desire to maintain the integrity of their relationship, that prevent women from leaving violent relationships.



Broader social factors are also associated with depression after childbirth. Poor social support, including having few friends or confiding relationships and lack of assistance in crises, is related to postpartum depression. General dissatisfaction with available support, rather than specific characteristics or number or quality of relationships, appears to be relevant (Boyce et al., 1998; Beck, 2001; Scottish Intercollegiate Guidelines Network, 2002). Postpartum depression has been found to be more common among young mothers and single women (Paykel et al., 1980; Feggetter, Cooper, & Gath, 1981; Webster et al., 1994). Having a first child at over 30 years of age has also been implicated (Dennerstein, Leherter & Riphagen, 1989; Astbury et al., 1994; Chaudron et al., 2001), and it is possible that women who have babies at a different time than most of their peers have social needs that are not met. Social disruption associated with recent immigration or relocation, especially if compounded by being unable to speak the local language and understand and obtain local services, also heightens the risk of difficulties in adjusting to parenthood (Howard, 1993; Webster et al., 1994; Fisher et al., 2002; Parvin, Jones & Hull, 2004).

International studies have also found that a lack of practical assistance from family, including dedicated care during the early postpartum period, is more commonly reported by women who are depressed than those who are not depressed (Mills, Finchilescu & Lea, 1995; Chandran et al., 2002; Inandi et al., 2002; Rahman, Iqbal &

Harrington, 2003; Rodrigues et al., 2003; Fisher et al., 2004; Lee et al., 2004). If this practical dedicated support is available from a supportive and uncritical person, it is psychologically protective (Rahman, Iqbal & Harrington, 2003; Fisher et al., 2004; Lee et al., 2004b). Problematic relationships with the partner's family, especially critical coercion from the mother-in-law, have been found to be more common among women who are depressed in both qualitative (Rodrigues et al., 2003;) and survey investigations (Chandran et al., 2002; Inandi et al., 2002; Rahman, Iqbal & Harrington, 2003; Fisher et al., 2004; Lee et al., 2004b).

Although some have argued that socioeconomic status is not associated with postpartum depression (Paykel et al., 1980), this claim has not been tested accurately since young, poorly educated women in low-status occupations are less likely to be recruited to, and retained in, studies. Women receiving obstetric care in the private health care sector - who are likely to be of higher socioeconomic status - consistently have a better mood in pregnancy and the postpartum year than those receiving care in the public sector (Kermode, Fisher & Jolley, 2000). Groups found to be more likely to be depressed include: parturient women who are unemployed or in low-status unskilled occupations (Zelkowitz & Milet, 1995; Righetti-Veltema et al., 1998; Chaudron et al., 2001; Rubertsson et al., 2005); those who do not have a job to return to after a period of maternity leave (Warner et al., 1996); and those who have to resume employment sooner than desired or work for more hours than desired (Gjerdingen & Chaloner, 1994). Social disadvantage exerts pervasive adverse effects that may not be distinguishable in settings where poverty is endemic. However, there is consistent evidence that maternal mental health is directly affected by poverty in resource-poor countries (Cooper et al., 2002). Limited education reduces women's access to paid occupations and secure employment. Women living in poverty and experiencing economic difficulties, who have low education and no access to employment that allow them time to care for their infant, are more likely to be depressed (Chandran et al., 2002; Inandi et al., 2002; Rodrigues et al., 2003; Fatoye, Adeyemi & Oladimeji, 2004; Fisher et al., 2004).

Adverse life events coincidental with childbirth, such as bereavement, serious illness in the family, conflict with friends, or serious financial

problems, can make the psychological adjustment to parenthood more difficult and distressing (Kumar & Robson, 1984; O'Hara and Swain, 1996; Boyce et al., 1998; Beck, 2001; Scottish Intercollegiate Guidelines Network, 2002). In developing countries, bereavement or serious illness in the family, the partner not having an income, housing difficulties, crowded living conditions and lack of privacy are associated with higher rates of maternal depression (Chandran et al., 2002; Patel et al., 2002; Rahman, Iqbal & Harrington, 2003; Fisher et al., 2004). The distress associated with an unwanted or unwelcome pregnancy does not necessarily diminish during pregnancy, can persist postpartum, and be associated with depression (Kumar & Robson, 1984; Warner et al., 1996; Scottish Intercollegiate Guidelines Network, 2002). The contribution of sexual violence or forced intercourse to unwanted pregnancy and depression has not been examined.

Certain aspects of personality are also implicated in the propensity to become depressed, particularly at times of major life transition, including childbirth. These include: heightened sensitivity to the opinions of others; over-eagerness to please; lack of assertiveness and timidity, obsessiveness; and excessive worrying (Boyce, Hickie & Parker, 1991; Boyce & Mason, 1996; Grazioli & Terry, 2000; Scottish Intercollegiate Guidelines Network, 2002). A meta-analysis by Beck (2001) identified low self-esteem as an independent risk factor for postpartum depression. However, the familial, social and cultural factors that contribute to personality development in women, including a propensity to be uncomplaining, compliant, and unassertive and to have a low sense of entitlement, have not been considered in relation to these findings.

Physical health and postpartum depression

The contribution of intrapartum experiences to postpartum mood has been considered, using two approaches. Some investigators have constructed composite scores to assess cumulative exposure to obstetric interventions, and then correlated the scores with later mood (Oakley, 1980; Elliott et al., 1984; Astbury et al., 1994). Others have examined the impact of particular procedures. In general there is no correlation between cumulative exposure to obstetric procedures and mood (Elliott et al., 1984; Astbury

et al., 1994), but there is consistent evidence that certain modes of delivery - particularly instrumental intervention in vaginal birth (e.g. forceps) and caesarean surgery - can have adverse psychological consequences (Green, 1990b; Campbell & Cohn, 1991; Boyce & Todd, 1992; Hannah et al., 1992; Brown & Lumley, 1994; Fisher, Astbury & Smith, 1997; O'Neill, Murphy & Greene, 1990). These have been variously conceptualized as depression, disappointment, grief and dissatisfaction; however, mode of delivery does not appear to contribute independently to postpartum depression when other risk factors are taken into account (Johnstone et al., 2001). Emergency surgery during childbirth, in particular caesarean section, can induce acute stress reactions and disrupt the first encounter between mother and infant (Fisher, Astbury & Smith, 1997; Righetti-Veltema et al., 1998; Rowe-Murray & Fisher, 2001, 2002). There is emerging evidence that childbirth events can lead to post-traumatic stress disorders, but the effect is not direct and appears to be moderated by quality of care and of personal support (Ayers and Pickering, 2001). In addition to being associated with prolonged physical recovery and fatigue, surgery can also compromise the development of maternal confidence (Garel et al., 1990; Brown & Lumley, 1994; Rowe-Murray & Fisher, 2001).

Poor physical health after childbirth contributes to poor mental health (Gjerdingen & Chaloner, 1994; Brown, 1998). Physical problems related to the birth can persist for months and are often undiagnosed and untreated (Gunn et al., 1998). Not breastfeeding has been associated with increased likelihood of postpartum depression (Warner et al., 1996; Eberhard-Gran et al., 2002) and may be an early indicator of vulnerability (Eberhard-Gran et al., 2002). The effects of length of stay in hospital after childbirth on physical and psychological recovery are equivocal. Profound fatigue is widespread among mothers of newborns (Brown, 1998), but is often considered normal or trivial, despite its adverse impact on daily functioning (Milligan et al., 1996). Excessive tiredness has been regarded as symptomatic of depression (Stowe & Nemeroff, 1995), but an alternative view is that it is associated with the unrecognized and unpaid workload of caring for a newborn baby. Exhaustion may lead to depression in women whose workload is neither acknowledged nor shared (Fisher, Feekery & Rowe-Murray, 2002).

Large community surveys have not found an effect of early discharge from maternity hospital (Brown, 1998; Thompson et al., 2000), but 20% of women admitted to a residential service for treatment of early parenting difficulties considered that their maternity stay had been too short (Fisher et al., 2002).

Premature birth and the birth of an infant with disabilities are highly distressing events that can lead to depression (Calhoun & Calhoun, 1980; Kumar & Robson, 1984). Women with a multiple gestation have increased risk of ill-health, pregnancy loss and premature or operative birth, all of which are associated with anxiety in pregnancy. Because of the competing and major demands of caring for more than one infant, multiple births are also associated with increased risk of postpartum depression and complicated grief reactions (Fisher & Stocky, 2003).

Infant factors and maternal mental health

Investigations of both infant development and mother-infant interaction have presumed that infants are essentially normative and that variations in developmental outcomes primarily reflect parenting factors (Murray & Cooper, 1997). Cross-sectional cohort comparisons have found that mothers who are depressed are significantly more likely to report excessive infant crying and disturbed infant sleep and feeding than mothers who are not depressed (Milgrom, Westley, & McCloud, 1995; Armstrong et al., 1998a; Righetti-Veltema et al., 2002). Some authors have interpreted this as indicating that the behaviour of depressed mothers increases the likelihood of disturbed infant behaviour (Milgrom, Westley & McCloud, 1995; Righetti-Veltema et al., 2002). However, others acknowledge that the care of an unsettled, crying infant, who resists soothing and has deregulated sleep, undermines maternal confidence and well-being and may be relevant to the onset of maternal depression and to disturbances in mother-infant interaction. These inter-relationships have not yet been well conceptualized and are generally under-investigated, but evidence is emerging that they may be more significant than has previously been acknowledged (Cramer, 1993; Murray & Cooper, 1997; Armstrong et al., 1998b).

Babies are born with distinguishable variations in intrinsic characteristics or temperament, and these exert a significant effect on the infant's in-

teractions with the environment, especially with caregivers (Oberklaid et al., 1984). Nine dimensions of infant temperament have been identified in comprehensive interview- and observation-based rating studies of large samples of infants: motor activity; regularity of sleeping and feeding patterns; response to unfamiliar people or stimuli; ease of adaptation to change; intensity of emotional reactions; threshold to reaction; overall mood; distractibility; and persistence (Oberklaid et al., 1984; Sanson et al., 1987). Infants are more temperamentally difficult when they: have little rhythm in sleeping and feeding patterns; are easily aroused; have difficulty in adapting to changes in the environment; and react with great intensity. Hopkins, Campbell & Marcus (1987) compared 25 depressed mothers of six-week-old babies with 24 non-depressed mothers of the same age, socioeconomic status and religious affiliation. They found that the infants of the depressed mothers had more neonatal complications and were less adaptable and fussier than those of the mothers who were not depressed.



Infant crying is highly arousing to carers, but there is wide individual variation in the amount and intensity of infant crying and fussing in the first year of life (Lehtonen & Barr, 2000). Contemporary advice on infant care encourages mothers to trust their intuition and do what

feels appropriate. They are told to distinguish their infant's cries, and discern whether these are indicating pain, hunger, a startle reaction or fatigue. However, there is little empirical support for the notion that cries are in fact specific or distinguishable, and in reality parents have to use other contextual and behavioural cues to decode them (Craig, Gilbert-Macleod & Lilley, 2000). Mothers most often attribute infant cries to hunger, and the widespread contemporary advice to "feed on demand" may promote the notion that babies only cry when hungry (Craig, Gilbert-Macleod & Lilley, 2000). Excessive prolonged crying is often presumed to be because of gastrointestinal pain, but gastrointestinal pathology is rarely found on clinical investigation. Inconsolable crying, deregulated behaviour and resistance to soothing are usually difficult to explain, and are now thought to be early indicators of a difficult temperament (Barr & Gunnar, 2000). Up to 25% of mothers of 4-6-month-old infants report that their babies cry for more than three hours a day (Beebe, Casey & Pinto-Martin, 1993). Mothers can feel ineffective and helpless caring for an inconsolable infant. Confidence can diminish rapidly and they are less likely to experience their infants as a source of positive reinforcement (Beebe, Casey & Pinto-Martin, 1993). Excessive infant crying is associated with earlier cessation of breastfeeding, frequent changes of infant formula, maternal irritability, poor mother-infant relationship, deterioration in the familial emotional environment, and heightened risk of infant abuse (Wolke, Gray & Meyer, 1994; Lehtonen & Barr, 2000). Infant feeding difficulties, including refusal of breast or bottle, frequent small feeds, and multiple overnight waking for feeds, frequently occur in conjunction with deregulated sleep and persistent crying (Barber et al., 1997). Parents of inconsolable infants receive less positive reinforcement from the infant, such as laughing or responding to soothing, and have greater exposure to the negative stimulus of infant crying. This can reduce their confidence in their ability to parent, and may increase the likelihood of postpartum depression (Mayberry & Affonso, 1993). It is not surprising that longitudinal studies have shown that infant sleep problems precede maternal depression (Lam, Hiscock & Wake, 2003)

Cultural specificity of postpartum mood disturbance

There is debate about whether the ways depression and other mood disturbances are expressed are universal or culturally determined (Jenkins, Kleinman, & Good, 1991). In cultures in which discussion of emotions is proscribed, or in which distress is associated with shame or stigma, depression may be manifested as non-specific somatic symptoms (Ng, 1997). It has been argued that culturally prescribed ritual forms of peripartum care for women are psychologically protective (Cox, 1996; Howard, 1993; Manderson, 1981; Stern & Kruckman, 1983). Socially structured peripartum customs are characterized as providing dedicated care, an honoured status, relief from normal tasks and responsibilities, and social seclusion for the mother and her newborn (Howard, 1993; Kumar, 1994; Stern & Kruckman, 1983). Stern & Kruckman (1983) concluded that ethnographic studies in cultures where such customs were observed showed little evidence of postpartum depression.

More recent studies have used validated screening and diagnostic tools to investigate whether postpartum depression is a culture-bound condition. While there is still debate about appropriate methods of measurement, it appears that - if the complexities of translation, literacy levels and familiarity with test-taking are taken into account - structured interviews and screening instruments, such as the Edinburgh Postnatal Depression Scale, can be used cross-culturally (Clifford et al., 1999; Laungani, 2000; Small, 2000).

A number of studies have compared peripartum experiences, rates of depression, and risk factors in groups of different ethnicity living in industrialized countries. Fuggle et al. (2002) examined small groups of Bangladeshi women living in London and Dhaka with English women, and found an overall rate of depression of 11.5%, with no difference between groups. Matthey, Barnett, & Elliot (1997) reported that there were no differences in scores in the clinical range on the EPDS between Vietnamese, Arabic and Anglo-Celtic women living in south-west Sydney. Despite some variation in the ranking of the contribution of different risk factors by ethnic group (Stuchbery, Matthey, & Barnett, 1998), the risk factors identified as relevant to all groups were highly consistent. They were: in-

ability to confide in the partner and insufficient practical support from the partner (Matthey, Barnett & Elliot, 1997; Stuchbery, Matthey & Barnett, 1998) or from parents or the wider social circle (Fuggle et al., 2002).

Studies using structured clinical interviews or screening questionnaires have been conducted in a range of non-English-speaking countries, to establish the incidence and correlates of clinically significant depressive symptoms in the early postpartum period. In Europe, the following incidence rates were found: 8.7% in Malta (Felice et al., 2004); 14% in Iceland (Thome, 2000); 9% in Italy and 11% in France (Romito, Saurel-Cubizolles & Lelong, 1999); 11.4% in Sweden and 14.5% in Finland (Affonso et al., 2000); and 29.7% in Spain (based on clinical case criteria in the General Health Questionnaire (GHQ)) (Escriba et al., 1999). In Singapore, 3.5% of postpartum women satisfied the criteria for a clinical case, but 86% had some depressive symptoms three months postpartum (Kok, Chan & Ratnam, 1994); in Hong Kong, China, 13.5% of postpartum women had a diagnosable psychiatric illness (Lee et al., 2001); and in Japan the incidence was 17% (Yamashita et al., 2000). In Israel, Glasser et al. (1998) found that 22.6% of women had EPDS scores in the clinical range at six weeks postpartum.

Some comparable investigations have been undertaken in resource-poor countries; these are summarized in Table 2.1. Contrary to previous beliefs, very high rates of depression - 2-3 times those in industrialized countries - were observed. There is little evidence to support the notion that women in developing countries do not experience depression (Moon Park & Dimigen, 1995; Patel & Andrew, 2001; Fisher et al., 2004). The finding of high rates of postpartum depression in developing country contexts challenges the anthropological view that ritual postpartum care protects women. It appears that this assertion may be an oversimplification and warrants more comprehensive and detailed investigation. Even where it is culturally prescribed, ritual may not be available to all women (Inandi et al, 2002; Fisher et al., 2004). Observation of postpartum rituals, including lying over heat, wearing warm clothes and using cotton swabs in the ears to protect the body against "cold", and taking herbal preparations, was no less common among Vietnamese women who were depressed than among those who were not (Fisher et al, 2004).

Still, increased care that provides dedicated, practical support for a defined period, especially from the woman's family of origin, may be protective (Moon Park & Dimigen, 1995; Rodrigues et al., 2003; Lee et al., 2004). In contrast, ritual care that imposes control and restricts the woman's autonomy might actually be harmful (Chan et al., 2002; Fisher et al., 2004; Lee et al., 2004b).

While differences in instruments, sampling and method of data collection may have contributed to the range of rates of depression found, questions assessing psychological state were meaningful and recognizable to women in these studies (Fisher et al., 2004). In countries where most women give birth without being attended by a skilled health worker, hospital-based samples are highly biased and likely to under-represent the experiences of the poorest women. For example, in East Africa, only 32.5% of women give birth attended by health professionals, while in West Africa the figure is 39.7%; many of these take place in community clinics, and are accessible only to relatively wealthy women (WHO, 2005). Most women in these settings give birth at home, assisted either by family members or by traditional birth attendants. It is probable, therefore, that the city hospital-based samples used by Cox (1983) in Kampala (Uganda), Aderibigbe, Gureje & Omigbodun (1993) in Ibadan (Nigeria), and Regmi et al. (2002) in Kathmandu (Nepal) represent relatively advantaged women whose rates of poor mental health are likely to be similar to those of women in rich countries. There are striking similarities between the risk factors for depression identified in these investigations and those that are well established in the industrialized world.

The first is that a poor quality of relationship with the intimate partner is consistently found to distinguish depressed from non-depressed women postpartum (Mills, Finchilescu & Lea, 1995; Chan et al., 2002; Chandran et al., 2002; Rahman, Iqbal & Harrington, 2003; Rodrigues et al., 2003; Da Silva et al., 2003; Fisher et al., 2004). This relationship is variously described as inability to confide in, or lack of support from, the partner, or arguments and tension in the relationship. Intimate partner violence has not been specifically assessed in most investigations of risk factors for postnatal depression. However, Patel et al. (2002) demonstrated unequivocally that women who are exposed to intimidation or

physical violence from a partner are at greatly increased risk of becoming depressed after childbirth. Wider family relationships are also implicated, but as yet the evidence available is limited. However, problematic relationships with the partner's family, especially critical coercion from a mother-in-law, have been reported to be more common among women who are depressed in both qualitative investigations (Rodrigues et al., 2003) and survey investigations (Chandran et al., 2002; Inandi et al., 2002; Rahman, Iqbal & Harrington, 2003; Fisher et al., 2004). In addition, a lack of practical assistance from the family, including dedicated care during the early postpartum period, is more commonly reported by women who are depressed than those who are not depressed (Mills, Finchilescu & Lea, 1995; Chandran et al., 2002; Inandi et al., 2002; Rahman, Iqbal & Harrington, 2003; Rodrigues et al., 2003; Fisher et al., 2004). If practical dedicated support is available, it is psychologically protective (Rahman, Iqbal & Harrington, 2003; Fisher et al., 2004).



There is consistent evidence that maternal mental health is also influenced by socioeconomic factors (Cooper et al., 2002). Limited education reduces women's access to paid occupations and secure employment. Women living in poverty and experiencing economic difficulties, who have low education and no access to employment that allows them time to care for their infant are more likely to be depressed (Chandran et al., 2002; Inandi et al., 2002; Rodrigues et al., 2003; Fatoye, Adeyemi & Oladimeji, 2004; Fisher et al., 2004).

Coincidental adverse life events, including bereavement or serious illness in the family, the partner not having an income, housing difficulties, crowded living conditions and lack of privacy are also associated with higher rates of

Table 2.1 Postpartum mental health in developing countries

Authors	Sample	Setting	Measures	Results
Cox, 1983	183 parturient women	Kasangati Hospital, Kampala, Uganda	Goldberg's Standardised Psychiatric Interview, 3 months postpartum	10% depressive illness, 3 anxiety disorders
Aderibigbe, Gureje & Omiyibode, 1993	162 pregnant women	University College Hospital, Ibadan, Nigeria	General Health Questionnaire 28, Psychiatric Assessment Schedule at 6–8 weeks postpartum	14% postpartum psychiatric caseness
Ghubash & Abou-Saleh, 1997	Consecutive cohort of 95 parturient women	New Dubai Hospital, United Arab Emirates	EPDS score ≥ 12 on day 7, and Present State Examination score ≥ 5 at 8 and 30 weeks postpartum	24.5% (of which 17.8% was depression) on day 7; 15.8% at week 8
Nhivatiwa, Patel & Acuda, 1998	Consecutive cohort of 500 pregnant women	Periurban settlement, Zimbabwe	Shona Symptom Questionnaire, Revised Clinical Interview Schedule	16% met criteria for psychiatric case (85% of which was depression)
Cooper et al., 1999	147 parturient women	Obstetric clinics in Khayelitsha, a periurban township, South Africa	Structured clinical interview for DSM IV, 2 months postpartum	34.7% major depression
Inandi et al., 2002	2514 women who had given birth in the previous year	Women selected systematically from villages in five relatively undeveloped provinces of eastern and central Turkey	EPDS score >12	27.2%
Regmi et al., 2002	Consecutive sample of 100 postpartum women and 40 non-postpartum women	Hospital postnatal clinic, Kathmandu, Nepal. Comparison group of nurses and their friends	EPDS score >12 and DSM-IV structured clinical interview, 2–3 months postpartum	Prevalence of depression: 12% in postpartum women and 12.5% in comparison group
Patel, Rodrigues & De Souza, 2002	Consecutive cohort of 270 pregnant women	District hospital, Goa, India	General Health Questionnaire 12, EPDS and Revised Clinical Interview Schedule, 6–8 weeks and 6 months postpartum	23% depressive disorder at 6–8 weeks postpartum
Chandran et al., 2002	Cohort of 359 pregnant women	Tamil Nadu, India	EPDS score >12 , 6–12 weeks postpartum	11%
Rahman, Iqbal & Harrington, 2003	Consecutive cohort of 632 pregnant women	Southern Kahuta, Pakistan	WHO Schedule for Clinical Assessment in Neuropsychiatry and structured questionnaires, in late pregnancy and 12 weeks postpartum	28% depressive disorder 12 weeks postpartum
Rahman et al., 2003	Consecutive cohort of 172 mothers and infants	Immunization clinic, Rawalpindi, Pakistan	WHO Self-reporting Questionnaire - 20, Assets Questionnaire, and structured questionnaires, 9 months postpartum	40% met SRQ-20 criteria for clinically significant mental distress
Fisher et al., 2004	Consecutive cohort of 506 women	Immunization clinics at Hung Vuong Obstetrics and Gynaecology Hospital and Maternal and Child Health and Family Planning Centre, Ho Chi Minh City, Viet Nam	Structured interview including EPDS, 6 weeks postpartum	32.7% (EPDS score >12)

maternal depression (Chandran et al., 2002; Patel et al., 2002; Rahman, Iqbal & Harrington, 2003; Fisher et al., 2004). Social support from peers, including companionship and opportunities to confide, has not been systematically assessed in many of these studies; however, Mills, Finchilescu & Lea (1995) and Rahman, Iqbal & Harrington (2003) demonstrated that women who lacked it were more likely to be depressed.

A comprehensive assessment of the links between reproductive experiences and mental health in developing countries is not yet available. However, evidence is emerging that women who have adverse obstetric experiences, including operative birth, poor postpartum health and difficulties in breastfeeding, are more likely to report depressive symptoms in the immediate postpartum period (Mills, Finchilescu & Lea, 1995; Fatoye, Adeyemi & Oladimeji, 2004; Fisher et al., 2004).

There are also some risk factors that appear to be more common in cultural contexts where women face restrictions related to strong gender-role expectations. Lack of reproductive choice, including about use of contraceptive, contributes to unwanted pregnancy, which in a number of these investigations was associated with a greater likelihood of depression (Inandi et al., 2002; Fisher et al., 2004). In cultures with a strong preference for sons, giving birth to a daughter was consistently associated with depression (Patel et al., 2002; Inandi et al., 2003; Fatoye, Adeyemi & Oladimeji, 2004), particularly for women who had already given birth to a daughter (Rahman, Iqbal & Harrington, 2003). The social and psychological complexities faced by women caring for an infant while living in their parents-in-law's multigenerational household have not been systematically examined. It is known that autonomy, especially in regard to household finances, is linked to mental health. Power disparities between a woman and her mother-in-law may restrict her autonomy, especially during the period of increased dependence that follows childbirth; this may contribute to poor mental health (Chan et al., 2002; Chandran et al., 2002; Lee et al., 2004b).

The focus on postpartum depression has excluded consideration of other relevant expressions of psychological distress in women after childbirth. In particular, relatively little attention has been devoted to the nature and prevalence

of postnatal anxiety disorders, despite evidence of substantial co-morbidity with depression (Barnett & Parker, 1986; Stuart et al., 1998). The relevance of post-traumatic stress disorders to mental health in pregnancy, and the potential of childbirth and other reproductive events to evoke post-traumatic stress reactions, remain underexplored (Fisher, Astbury & Smith, 1997; Wijma, Soderquist & Wijma, 1997; Boyce & Condon, 2001). Research into the determinants of postpartum onset of panic disorder, and the links between maternal experience and a history of an eating disorder, are only now being considered.

Maternal mental health, infant development and the mother-infant relationship

Depression after childbirth, through its negative impact on the mother's interpersonal functioning, disrupts the quality and sensitivity of the mother-infant interaction. This can have adverse effects on the emotional, cognitive and social development of the infant. Postnatal depression reduces the sensitivity, warmth, acceptance and responsiveness of the mother to her infant (Murray et al., 1996a).

At the same time, the infant's own sensitivity to its interpersonal environment, including the lowered mood and social behaviour of the mother, exacerbates the effect of reduced maternal sensitivity. An infant is less likely to form a secure emotional attachment if the mother is depressed or insensitive (Murray, 1992; Murray & Cooper, 1997). Examinations of the behaviour of infants in face-to-face interactions with their depressed mothers have reported fewer positive facial expressions, more negative expressions and protest behaviour, higher levels of withdrawal and avoidance, more fussing, and an absence of positive affect (Field et al., 1990). Two-month-old infants whose mothers were depressed had higher rates of disrupted behaviour and were more likely to avoid contact with their mothers than comparison infants (Murray et al., 1996a). Effects are more marked in socioeconomically disadvantaged populations, in particular among adolescents and those who are single. In lower-risk populations, there are fewer differences in the mother-infant interactions of depressed and non-depressed mothers (Campbell, Cohn, & Meyers, 1995; Murray et al., 1996a). The link

between postnatal depression and impairment of the mother-infant relationship has been reported in middle- and high-income countries, such as the United Kingdom (Murray, 1992; Murray & Cooper, 2003) and the United States of America (Field et al., 1990), and in a low-income cohort in South Africa (Cooper et al., 1999).

Independently of the adverse effects of poverty, crowded living conditions and infectious diseases, maternal depression contributes to infant failure to thrive in resource-poor settings (Patel et al., 2004). Patel, Desouza & Rodrigues (2003) examined the impact of maternal depression 6-8 weeks postpartum on the subsequent growth and development of infants in Goa, India. Compared with controls, infants of depressed mothers were more than twice as likely to be underweight at six months of age (30% versus 12%) and three times more likely to be short for age (25% versus 8%). They also had significantly lower mental development scores, even after adjustment for birth weight and maternal education (Patel, Desouza & Rodrigues, 2003). Anoop et al. (2004), in a case-control study in a rural community in Tamil Nadu, India, found that infants whose weight was 50-80% of the expected weight for age were significantly more likely to have a mother who was depressed than infants of normal weight.

These effects do not necessarily remit when maternal mood improves. There is consistent evidence of poorer cognitive development in preschool-age children of mothers who were depressed postnatally (Lyons-Ruth et al., 1986; Murray, 1992; Murray et al., 1996). Young boys whose mothers were depressed postnatally were found to have poorer cognitive development and to display more antisocial behaviour, overactivity and distractibility compared with boys whose mothers were not postnatally depressed (Cogill et al., 1986; Murray et al., 1996b; Sinclair & Murray, 1998).

Hay et al. (2001) examined the long-term consequences of maternal depression in a community sample of 132 11-year-old children from south London, whose mothers had completed psychiatric interviews three months postpartum. Children, especially boys, whose mothers had been depressed had significantly lower intelligence scores, and a higher rate of special educational needs, including difficulties in mathematical reasoning and visuomotor performance,

and more attentional problems than those whose mothers had been well (Hay et al., 2001). Possible confounders, such as parental intelligence, social disadvantage and later mental health problems in the mothers, did not alter the effect of maternal postnatal depression on the children's intellectual status. Luoma et al. (2001) assessed a group of school-age children whose mothers had been depressed, according to the EPDS, antenatally, postnatally or currently. They found that depression present both during pregnancy and after childbirth was strongly predictive of behavioural problems in the children at 8-9 years of age. The worst child outcomes were predicted by a combination of prenatal and recurrent maternal depression (Luoma et al., 2001).

A meta-analysis of nine studies (Tatano Beck, 1998) found small but significant adverse effects of maternal postpartum depression on the cognitive and emotional development of children older than one year. However, other investigators have found no association between postnatal depression and adverse child development in women who are socially advantaged (Murray et al., 1996b). When social adversity is taken into account, statistical differences between depressed and non-depressed groups often disappear (Murray et al., 2003). Hay et al. (2001) found that breastfed children of women who had been depressed postpartum did not have verbal or mathematical cognitive deficits. Similarly, Sharp et al. (1995) found that breastfeeding was a reliable predictor of intellectual functioning in three-year-old children, as measured by the McCarthy Scales of Children's Abilities. These findings on the importance of breastfeeding for cognitive development are important, because mothers who are depressed are more likely to stop breastfeeding early (Cooper, Murray & Stein, 1993).

The sensitivity of fathers is also a crucial mediating factor. Sensitive fathers reduce the impact of maternal depression and reduced responsiveness, especially for temperamentally reactive infants. Conversely, maternal sensitivity is reduced and risk of depression is increased if the partner behaves aggressively either during pregnancy or postpartum (Leung et al., 1999; Crockenberg & Leerkes, 2003). In general, the long-term adverse effects of maternal depression on child cognitive outcomes are mostly confined to socioeconomically disadvantaged groups, and are worse for boys.

Most of the research into the impact of maternal postnatal depression on child development has been done in developed countries. The recent findings in developing countries of the close relationship between the mental health of mothers and the physical and mental development of their children are of vital importance to both child health and maternal and reproductive health programmes, especially in areas with high rates of poor infant growth.

Prevention and treatment of maternal mental health problems

In spite of the high prevalence of perinatal mood disorders, there is relatively little systematic data about the efficacy of prevention and treatment strategies (Boath & Henshaw, 2001; Lumley & Austin, 2001). Most mild depression in the postpartum year resolves as mothers gain more experience and their confidence grows.

While identification and effective treatment of perinatal psychological disturbance are important, there is an equally vital need to reduce the risk factors that render women vulnerable to depression and anxiety. Reduction of poverty, attention to the human rights of reproductive choice, personal safety and equality of access to education, and occupational conditions that acknowledge women's multiple roles and provide secure and family-friendly employment can help ensure good mental health during pregnancy, in childbirth, and while caring for a newborn baby.

However, more severe depression can persist, becoming chronic or recurring from time to time (Cooper & Murray, 1995).

A range of interventions to prevent the development of depression have been tested in randomized controlled trials; most have had only a modest or negligible effect. Screening questionnaires administered during pregnancy to identify women at risk of becoming depressed

after childbirth have low positive predictive values, and reviewers have concluded that there is insufficient evidence to introduce screening as part of routine antenatal care (Lumley & Austin, 2001). "Preparation-for-parenthood" groups for women during pregnancy did not prevent postpartum depression, except when partners were included in at least one session (Gordon & Gordon, 1960; Elliot et al., 2000). Although the quality of a woman's relationships, in particular with her partner, is central to her

emotional well-being during pregnancy and after childbirth, most interventions have not involved family members. A single session during the postpartum hospital stay, in which women could talk with a midwife about their experience of caesarean or forceps-assisted delivery, did not reduce the rate of depression (Small et al., 2000). Two recent systematic reviews have concluded that the research base on preventive interventions is extremely limited, and there is currently no compelling evidence to support the introduction of any of the interventions that have been tested in primary prevention trials (Lumley & Austin, 2001; Scottish Intercollegiate Guidelines Network, 2002).

There have been a number of randomized controlled trials of treatments for postnatal depression, but many are limited because of high rates of loss to follow-up, a short follow-up period, or potential bias because most eligible respondents refused to participate (Hoffbrand, Howard, & Crawley, 2001; Ray & Hodnett, 2001). Both pharmacological and psychological treatments have been found to reduce the severity of symptoms and the duration of depression (Appleby, Koren, & Sharp, 1999). Decisions about prescribing pharmacological treatments - usually antidepressant medication - have to be weighed against the potential harm to the fetus or infant, as the drug may be transmitted through the placenta and in breast milk. Most women prefer a non-pharmacological approach (O'Hara & Swain, 1996). Psychological approaches, combining problem-solving strategies, supportive empathic listening, and opportunities to focus on past and present relationships, either in groups or individually, are more effective than routine care in reducing depression. A randomized trial comparing non-directive counselling, cognitive behavioural therapy, psychodynamic therapy and routine primary care found short-term improvements in maternal mood with all treatments; however, only psychodynamic therapy significantly reduced depression (Cooper et al., 2003). None of the benefits of treatment were evident by nine months postpartum; treatment did not prevent subsequent episodes of depression; and in the long term the benefits were not superior to spontaneous remission (Cooper et al., 2003). MacArthur et al. (2002) demonstrated that specifically trained community health visitors could provide care for mothers of newborns that led to reduced rates of depression at four months postpartum compared with women cared for by

health visitors who had not been trained. Short-term benefits were also apparent in the pilot test of a randomized trial of increased peer support for women at high risk of developing depression (Dennis, 2003). Teaching mothers how to soothe their infants and settle them to sleep, either in clinics or during home visits, improved maternal mood (Armstrong et al., 1999, 2000; Hiscock & Wake, 2002). In Taiwan, China, women who attended weekly support group meetings had lower scores on the Beck Depression Inventory, less perceived stress and improved perception of interpersonal support than controls who did not attend group meetings (Chen et al., 2000). It is generally agreed that a team approach, involving primary care providers, allied health workers and specialist mental health practitioners, as well as a range of health facilities, is needed (Brockington, 1992; Barnett & Morgan, 1996).

While there have been a number of trials of treatments for postnatal depression, relatively few have been designed to improve developmental outcomes for the child. Murray et al. (2003), in a comparison of home visits by professional health visitors trained to provide one of three psychotherapies to depressed mothers of newborns, found that non-directive counselling fostered more sensitive mother-infant interactions among those who were experiencing social adversity than psychodynamic or cognitive behavioural therapies. At four months, mothers who received counselling reported fewer difficulties in various aspects of their relationship with their infant, such as play, separation and management of infant needs for attention, compared with those who received routine primary care. This benefit was sustained in more positive maternal reports of infant emotional and behavioural functioning at 18 months. However, there was no significant impact of any of the treatments on cognitive development or emotional and behavioural adjustment at home or in school when the children reached 5 years of age (Murray et al., 2003).

In conclusion, mental health is inextricably linked to maternal mortality and morbidity, but has been generally neglected in initiatives to improve maternal health. In the field of perinatal mental health, a disproportionate emphasis has been placed on identifying the correlates and consequences of poor maternal mental health, and much less on exploring the contribution of

paternal, familial or social factors, with an increased risk of misattribution of causality and victim-blaming (Wilson et al., 1996)

Summary

Future research

1. Research attention has focused disproportionately on mental health after childbirth, compared with mental health during pregnancy, which warrants more comprehensive investigation.
2. There is increasing evidence about the predictors, prevalence and correlates of poor postpartum mental health in developing countries, but investigations have yet to be conducted in some of the poorest countries.
3. The contribution of maternal mental health to maternal mortality should be ascertained, covering events up to one year postpartum.
4. Interventions to prevent the development of psychopathology after childbirth have focused almost exclusively on women. Emerging evidence suggests that strategies involving partners may be more effective, but these need to be designed and appropriately evaluated.
5. Randomized controlled trials are needed of treatments for depression, during pregnancy and after childbirth that are suitable for use in primary care settings.
6. Investigations of infant development following maternal depression should ascertain and control for the contribution of social adversity.
7. The contribution of intimate partner violence and coercion to women's perinatal mental health has been neglected and warrants inclusion in future investigations.

Policy

1. Risk factors for poor mental health should be ascertained as part of routine primary perinatal health care.
2. Mental health is integral to safe motherhood, and should be included in all future initiatives, programmes and recommendations for standard care.

Services

1. All health professionals in perinatal and maternal and infant services should have the skills needed to assess psychological well-being and provide comprehensive, psychologically informed care.
2. Assessment of risk factors for poor reproductive mental health should be routine in perinatal health care. These include: past personal or family history of psychiatric illness or substance abuse; past personal history of sexual, physical or emotional abuse; current exposure to intimate partner violence or coercion; current social adversity; coincidental adverse life events; and unsettled infant behaviour or developmental difficulties.
3. Specialist perinatal mental health services require an understanding of the contribution of denial of human rights to poor mental health.

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Chapter 3

Psychosocial aspects of fertility regulation

Contraceptive use – Jill Astbury

Elective abortion – Susie Allanson

The availability of safe, reliable, acceptable and affordable contraceptive methods has a profound impact on women's health, including their mental health. It has been estimated that some 123 million women, mostly in developing countries, are not using contraception, despite an expressed wish to space or limit the number of their births (Ross & Winfrey, 2002). At least 350 million couples worldwide do not have access to the full range of modern family planning methods (WHO, 2002).

Contraceptive use interacts with mental health in two main ways. First, the methods themselves may have a direct effect on mood, through biological, biochemical or hormonal pathways. Second, decision-making about the initiation and continuation of contraceptive use may lead to conflict between partners; this, in association with other social determinants, can contribute to depression and anxiety in women. Such decision-making is likely to be influenced by beliefs about gender roles, autonomy and women's reproductive rights. To date, most research in the field has examined the direct effects of contraceptive methods on psychological distress or disorder. The need for increased research on sexuality, gender roles and gender relationships in different cultures, and in particular the effects of discrimination and violence against women, was identified in 1993, as one of the eleven recommendations of the International Symposium on Contraceptive Research and Development for the Year 2000 and Beyond (International Symposium on "Contraceptive Research & Development for the year 2000 and beyond", Mexico City, 1993).

One of the most serious consequences of unintended pregnancy is unsafe abortion. Unsafe abortions, performed by people not trained in medicine and usually carried out in a clandestine manner, contribute significantly to maternal mortality and morbidity in developing regions of the world. It is estimated that 19 million unsafe abortions took place in the year 2000, i.e. approximately one in ten pregnancies ended in an unsafe abortion, giving a ratio of one unsafe abortion to about seven live births. Almost all unsafe abortions take place in developing countries (Ahman & Shah, 2004). Safe abortion, carried out by qualified and trained medical practitioners in a proper medical environment, is a simple and inexpensive procedure (WHO, 2003)

This chapter has two sections. The first summarizes the evidence on the direct effects of various contraceptive methods on women's mental health. The relationship between depression in women and the psychosocial factors that prevent or make it difficult for them to control their fertility are reviewed. Central to this discussion is the question of women's ability to act independently, and how a gender-based lack of power and control can affect their freedom to make contraceptive choices, without duress from their male partners or state reproductive health policies, and can undermine their mental health and emotional well-being. The contraceptive needs of women with severe chronic mental illness are also considered. The second section addresses the psychological aspects of elective abortion.

Contraceptive use and mental health

Effects of contraception on mental health

Methods of contraception can be classified as: modern and reversible (oral contraceptive pills, emergency hormonal contraception, intrauterine devices (IUDs), injectable contraceptives, such as depot medroxyprogesterone acetate (DMPA), levonorgestrel implants (Norplant), and male and female condoms); modern and permanent (male and female sterilization) or traditional (coitus interruptus and abstinence). Different methods have different impacts on rates of psychological disorder and on mood. Hormonal contraceptives have been most thoroughly studied for their possible effect on psychological functioning, followed by sterilization.

A recent survey in five European countries (France, Germany, Italy, Spain and the United Kingdom), of more than 12 000 randomly selected women between 15 and 49 years of age, confirmed that oral contraceptives were the most widely used method of contraception, and were associated with high levels of satisfaction for more than 90% of the women surveyed (Skouby, 2004).

Studies in Malaysia, Nigeria and the West Indies did not find any negative psychological sequelae among women using contraceptive implants, who reported high rates of satisfaction (Arshat et al., 1990; Rattray et al., 1997; Arowojolu & Ladipo, 2003). However, evaluations in the United States have reported cases of major depression and panic disorder developing in women with no prior psychiatric history (Wagner & Berenson, 1994; Wagner, 1996). A study in London, England, which explored acceptability and reasons for discontinuation of implants, found that 5% and 3% of women reported side-effects of depression and mood swings, respectively, and 6% of the women gave mood swings as the main reason for discontinuing use of the contraceptive (Erskine et al., 2000).

A population-based prospective study of users of DMPA in the United States, which looked specifically at effects on depressive symptoms, found an increased likelihood of reporting depressive symptoms among both DMPA users and discontinuers, in comparison with non-users. Women who had discontinued DMPA use had more severe depressive symptoms prior

to and immediately following discontinuation (Civic et al., 2000). A double-blind, randomized, placebo-controlled trial on the effect of postnatal administration of the long-acting injectable progestogen contraceptive, norethisterone enantate, in a hospital in Johannesburg, South Africa, concluded that women receiving injectable progestogens in the postnatal period are at an increased risk of depression (Lawrie et al., 1998).

Larger systematic investigations have not reached the same conclusion. A prospective cohort study of more than 900 users of contraceptive implants (Westhoff et al., 1998) reported no significant increase in depression scores over 2 years of use. A multicentre study on the relationship between depressive symptoms and two different hormonal contraceptive methods, DMPA and levonorgestrel implants, found no significant increase in such symptoms after one year of DMPA use or two years of implant use (Kaunitz, 1999). Moreover, a five-year follow-up post-marketing surveillance study, conducted in 32 family planning clinics in eight countries (Bangladesh, Chile, China, Colombia, Egypt, Indonesia, Sri Lanka, and Thailand) from 1987 to 1997, came to the conclusion that rates of mood disorders, anxiety and depression were similar in women using levonorgestrel implants and in those using hormonal methods containing estrogen (Fraser et al., 1998). Women are most likely to cease using implants because of concerns about weight gain, headache, raised blood pressure or menstrual problems (Glantz et al., 2000; Arowojolu & Ladipo, 2003).

A placebo-controlled double-blind study in Scotland and the Philippines found that the progestogen-only pill had adverse effects on sexual functioning and was associated with some improvement in well-being in both the centres (Graham et al., 1995). In its review of evidence to determine eligibility criteria for use of hormonal contraceptives, WHO (2000) concluded that there was no evidence to suggest that women with a history of depression should be excluded from using hormonal contraceptives.

Much of the research on the psychological effects of other methods of contraception, including female sterilization and IUDs was carried out in the 1970s and 1980s, and therefore lies outside the timeframe of the current review. Rather more research has been conducted on the

psychological effects of voluntary sterilization. In a survey of 1466 German women (Oddens, 1999; den Tonkelaar & Oddens, 2001), 92% of those who had undergone sterilization and 59% of IUD users were satisfied with these forms of contraception, and reported general improvements in their sexual relationships. Negative effects on mood were most usually attributable to lack of confidence in the effectiveness of the method, rather than to side-effects. Khanam, Mullich & Munib (1993) assessed psychiatric symptoms in 100 Bangladeshi women who had been sterilized, and found that 20% were clinically depressed, but that this mood disturbance was more likely to be attributable to coincidental adverse life events, relationship problems and a family history of psychiatric illness than to the procedure. A comprehensive review of studies in Asia, Latin America, North America and Europe (mainly United Kingdom) conducted up to the mid-1980s found that most women do not experience any significant change in sexual activity, and some experience increased sexual enjoyment once the risk of pregnancy is removed (Philliber & Philliber, 1985). Most women reported minimal or negligible change in the quality of the marital relationship after female sterilization and few women regretted being sterilized. However, negative psychological effects were found among certain groups of women, including those who had been coerced into being sterilized, those who did not understand the consequences of sterilization or who experienced health complications after the procedure, those who disagreed with their partner about the sterilization, and those whose marriage was unstable before sterilization (Philliber & Philliber, 1985). Hence, adverse psychological effects were more likely to occur as a consequence of violations of reproductive rights, including the right to accurate health information and the right to give free and informed consent to medical intervention, than to the procedure itself.

More recent research confirms the importance to psychological well-being of women being given adequate information before the procedure, and feeling they have been able to make their own decisions, without pressure from either partners or health care providers (Neuhaus & Bolte, 1995). The timing of the sterilization procedure is also relevant; women who were sterilized immediately after childbirth, Caesarean section or abortion had an increased incidence of psychosomatic complaints and depressive symptoms

(Neuhaus & Bolte, 1995). Guidelines for presterilization counselling emphasize the importance of providing accurate information regarding the actual surgical procedure and possible physical health consequences, including failure rates and risk of ectopic pregnancy. They also recommend involving both partners in decision-making, presenting male sterilization as a viable option, and screening for the possibility of poststerilization regret (Association for Voluntary Surgical Contraception, 1996).

Psychosocial determinants of contraceptive use

Reproductive rights and family planning

Contraceptives are crucial to women's ability to exercise their reproductive right to control their fertility and to make decisions about whether, when and how often to become pregnant. Yet, women's ability to exercise this right and to protect themselves against sexually transmitted disease is contingent on their status and position within the family and the broader society. The right to sexual and reproductive health is linked to other important human rights, including economic and social rights and the right to education. Both the International Conference on Population and Development (ICPD) (UNFPA, 1994) and the Fourth World Conference on Women (FWCW) (United Nations, 1995) stressed that the empowerment of women and the provision of comprehensive reproductive health services were critical to the improvement of women's health throughout the world. The concept of reproductive health goes beyond consideration of the biological factors involved in reproduction to encompass the cultural and social context. Government policies determine who has access to health care, including reproductive health care. Social and religious disapproval of sex outside marriage, or of certain forms of contraception, may influence government policy and lead to strict criteria regarding eligibility for government-funded reproductive health care, and restrictions on the types of contraceptive methods available.

Much of the evidence that informs the planning and provision of family planning services is based on data collected from married women aged 15–49 years, who have participated in Demographic and Health Surveys, which have been conducted so far in 70 countries. In many

countries, good quality evidence is available only for married women of childbearing age and for the methods of fertility control offered by government or donor-funded family planning programmes. Sexually active unmarried women face the same health risks as their married counterparts, related to pregnancy and sexually transmissible infections. Due to this gap in data collection, many unmarried women who could benefit from the services offered by family planning programmes may not be adequately attended to. However, over the past ten years, the provision of services to women has become less discriminatory in terms of age and marital status. For example, while services to unmarried adolescents were once illegal in many countries (Eschen & Whittaker, 1993), recent recognition of their health needs has led to an increase in the number of adolescent reproductive health services.

Male involvement in the control of women's fertility

Gender inequality persists in most spheres of life (UNDP, 2003), including decision-making around contraceptive use and participation in family planning. Few contraceptive methods are delivered through systems that emphasize the equality and responsibility of both partners (Humble, 1995). The ICPD Programme of Action (UNFPA, 1994) and the Beijing Platform for Action (United Nations, 1995) articulated “the basic right of all couples and individuals to decide freely and responsibly the number and spacing and timing of their children and to have the information and means to do so ...”.

Historically, reproductive health and family planning programmes have sought to slow down population growth in order to achieve national development objectives. With this goal, women have been the main targets of efforts to promote participation in family planning and to increase uptake of reliable contraceptive methods. While male involvement in family planning programmes is now being increasingly promoted, women remain the predominant users of the contraceptive methods offered. Fertility control therefore presupposes control of women's behaviour in relation to contraceptive use. Male involvement in family planning programmes may serve to increase the level of gender-related control over women's bodies rather than assist in the realization of gender equality in family planning.

For the latter to be achieved, male involvement should not be relied on as a means of increasing female compliance with contraceptive use or of legitimizing (albeit inadvertently) male control over contraceptive decision-making. Moreover, male involvement in family planning, when the male involved is physically, sexually or emotionally violent towards his partner, is dangerous and may exacerbate the woman's risk of violence.

Unmet need, contraceptive intentions and actual behaviour

The relationship between broader situational and interpersonal determinants of contraceptive use, decision-making and the development of emotional distress, depression and other psychological disorders in women has not been adequately investigated. This is puzzling, because there is evidence of the importance of decision-making and control to mental health. Programmes to increase contraceptive use need to be based on an accurate understanding of the multiple determinants involved.

Most research on predictors of contraceptive demand, and the magnitude of and reasons for unmet need for contraception, has been conducted with women. Unmet need has been defined as the number of non-pregnant women who are not currently using contraceptives but who wish to limit family size plus the number of pregnant women who report that the pregnancy was unwanted or untimely. The availability of contraceptive methods may be a necessary condition for their use, but alone is insufficient. Researchers have sought to quantify the extent of unmet need, as well as the disparity between women's stated intention or desire to use contraceptives and their subsequent behaviour, and the reasons for this.

Studies in different contexts (India, Kuwait, Nigeria, Somalia, eastern Turkey) have found that, while a majority of women expressed a desire to use contraception, many did not actually do so. Often, the women gave no explanation for this discrepancy, but those who did cited fear of side-effects, not having a need, not being married, religion and the need for more children. Among some women, religious teachings, their status relative to men, and the impact of an oral tradition in forming attitudes contributed to the low uptake of family planning services. Other women mentioned not having the approval of

The ICPD Programme of Action (UNFPA, 1994) emphasized the importance of male responsibility and participation, stating:

Men play a key role in bringing about gender equality since, in most societies, they exercise preponderant power in nearly every sphere of life. The objective is to promote gender equality and to encourage and enable men to take responsibility for their sexual and reproductive behaviour and their social and family roles. Governments should promote equal participation of women and men in all areas of family and household responsibilities, including, among others, responsible parenthood, sexual and reproductive behaviour, prevention of sexually transmitted diseases, and shared control in and contribution to family income and children's welfare.

With specific reference to family planning, the Programme of Action states:

Actions are recommended to help couples and individuals meet their reproductive goals; to prevent unwanted pregnancies and reduce the incidence of high-risk pregnancies and morbidity and mortality; to make quality services affordable, acceptable and accessible to all who need and want them; to improve the quality of advice, information, education, communication, counselling and services; **to increase the participation and sharing of responsibility of men in the actual practice of family planning; ...**

The publication, *Selected practice recommendations for contraceptive use* (WHO, 2002), refers to the importance of improving access to high quality care in family planning, and "ensuring that men's and women's rights and perspectives are taken into account in the planning, management and evaluation of services; promoting the widest availability of different contraceptive methods so that people may select what is most appropriate to their needs and circumstances".

the husband or a religious leader, or a belief that family planning was a sin and that use of contraceptives had side-effects. In other studies the negative attitudes of husbands and of the women themselves were critical factors in non-use of contraception (Roy et al., 2003; Orji & Onwudiegwu, 2002; Comerasamy et al., 2003; Sahin & Sahin, 2003; Shah et al., 2003). Erci (2003) investigated decision-making power and perception of status within the family among more than 300 women in Erzurum, Turkey. Women had lower rates of decision-making than men in almost every domain surveyed, except selecting clothes. Men predominated in all decisions related to family planning, including the use of birth control and family size. Women's perception of their position in the family was significantly related to their decision-making status, which was governed by age, educational level and employment status. A low level of education, inadequate income and a large age dif-

ference between husband and wife resulted in women having an ineffective role in decision-making and a low position in the family. Fear of the husband's disapproval is known to be a key reason for discontinuation of use of contraception among women (Jain & Bruce, 1994).

Men's suspicions about the motives of family planning campaigns can also determine whether their wives are allowed to participate in family planning. Hasna (2003) investigated attitudes towards family planning in a Palestinian refugee camp and found that men were more suspicious than women. Men regarded family planning projects as coercive and a mechanism of war, designed to further dispossess and eradicate Palestinians. At the same time, male status was partly related to the exercise of control over family size, wives and children. Another study, in rural Bangladesh, reported that decisions about acceptability of long term contraceptive meth-

ods were governed by the number of living male children and by husband's preferences for more children (Nayer et al., 2004).

The beliefs and behaviour of health care providers may also influence contraceptive use. Fears regarding the side-effects and safety of IUDs were expressed by 44% and 69%, respectively, of 107 Navajo Indian health service providers, in response to a question about why they did not recommend this form of contraception to their clients (Espey et al., 2003). While most health care providers in a New Delhi health care facility were familiar with emergency contraception, very few knew about timing of doses or efficacy (Tripathi, Rathore & Sachdeva, 2003). Oral contraceptives are widely used in India, but discontinuation rates are high. A low frequency of field worker visits was found to be strongly associated with discontinuation, and 70% of the women who discontinued did not use any other contraceptive method, despite wishing to avoid pregnancy (Roy et al., 2003).

It is inaccurate to conclude that inconsistencies between intentions to use contraception and actual behaviour indicate that "women failed to adhere to their intention" (Roy et al., 2003). If women's intentions are the only predictors assessed, other influences on their contraceptive behaviour may be overlooked. Service providers and researchers need to recognize the potential impact of gender and gender inequality and to consider whether women possess sufficient independence to make and implement decisions about contraceptive use. It is imperative to determine whether, in reality, women possess sufficient autonomy and decision-making power and resources to formulate and implement their preferences and intentions.

Violence and control of contraceptive decision-making

Sexuality and sexual violence have been largely ignored in family planning programmes (Sundstrom, 2001). Some of the earliest research on the links between contraceptive use and sexual violence was carried out in Latin America. Women reported having little control over their husband's use of contraception and anger when they refused to use it. Some of this was related to "a sense of deep depersonalization, humiliation and physical dissatisfaction" because their husbands mistreated them during sexual rela-

tions (Dixon-Mueller, 1989:147). Various forms of violence, including verbal abuse and sexual coercion, reduce contraceptive use and result in increased rates of unwanted pregnancy and termination of pregnancy (Gazmararian et al., 2000; Jewkes et al., 2001; Rickert et al., 2002; Cabral et al., 2003).

There is substantial evidence that intimate partner violence, including sexual violence, has multiple negative physical, mental and reproductive health effects (Heise & Moreno, 2002; Jewkes, Purna Sen & Garcia-Moreno, 2002; Krug et al., 2002). Multiple mental disorders can result from violence, including depression, anxiety, dysthymia, stress-related syndromes especially post-traumatic stress disorder, phobias, substance use and suicidal ideas (Kilpatrick, Edmunds, & Seymour, 1992; Campbell & Lewandowski, 1997; Resnick, Acierno & Kilpatrick, 1997; Roberts et al., 1998; Campbell & Soeken, 1999; Astbury & Cabral de Mello, 2000). Sexual violence, in particular, carries an increased risk of a range of sexual and reproductive health problems, including unintended pregnancy, abortion, sexually transmissible infection including human papillomavirus and human immunodeficiency virus (HIV) infection, urinary tract infection, chronic pelvic pain, fibroids, vaginal bleeding and cervical dysplasia (Springs & Friedrich, 1992; Lechner et al., 1993; Plichta & Abraham, 1996; Resnick, Acierno, & Kilpatrick, 1997; Letourneau, Holmes & Chasendunn-Roark, 1999; Coker et al., 2000). In addition, sexual violence is associated with decreased use of preventive health care, cervical screening and antenatal care, as well as poorer pregnancy outcomes for both the woman and her offspring (Springs & Friedrich, 1992; Coker et al., 2000; Gazmararian et al., 2000).

The use of coercive control by violent partners is known to extend to areas of behaviour that family planning programmes seek to modify, such as decision-making around contraception. A comparative study in the USA on the sexuality of college students, the circumstances of first intercourse, including the use of contraceptives, and psychological reactions to first intercourse, reported highly significant differences between men and women. Overall, 38.5% of women, but only 8.8% of men said they had felt coerced to have their first sexual encounter ($p \leq 0.0001$); 63.2% of women and 57.4% of men reported that they did not use birth control during first inter-

course. Women did not use contraception because the intercourse was unplanned, and men because contraception was not available to them (Darling, Davidson & Passarello, 1992).

In a review of sexual relations among young people in developing countries (WHO, 2001a), many studies highlighted the fact that sexual activity of young women was not always consensual. In the majority of case studies included in the review, between 5% and 15% of young women reported a forced or coercive sexual experience. In several case studies, the figure was higher: 21% among adolescents in Selibe Phikwe, Mahalapye and Kang, Botswana (Kgosidintsi, 1997); 20% among secondary school students in Lima, Cusco and Iquitos, Peru (Alarcon & Gonzales, 2001); and 41% among young women attending night study centres in Lima, Peru (Villanueva, 1992). Among women working in an export zone in the Republic of Korea, 9% reported that their sexual debut had been forced by a factory supervisor or colleague (Kwon, Jin & Cho, 1994). In a case study in Manila, Philippines, 6% of unwed mothers reported that their pregnancy had resulted from rape, and another 7% that it had resulted from sex in exchange for money to support a drug habit (Bautista, 2001). In rural areas of north and north-east Thailand, three of 11 sexually active adolescent females reported that their sexual debut was a result of force or pressure from their partner (Isarabhakdi, 2001). An investigation in South Africa (Jewkes et al., 2001) found that pregnant teenagers were significantly more likely than their non-pregnant counterparts to have experienced forced sexual initiation and to have been beaten, and were less likely to have confronted partners when they discovered they were unfaithful.

Inconsistent use of condoms and prescription contraceptives was associated with verbal abuse of young women, aged between 14 and 26 years, attending family planning clinics in south-east Texas, USA. Clients who had used dual contraception (such as a barrier and a hormonal method) during the last intercourse were less likely to have experienced verbal abuse (Rickert et al., 2002). In a study of 600 American women attending sexual health clinics, personal control in the relationship was predictive of female condom use when male condoms were not used. Male and female condoms were more likely to be used in relationships in which women reported having more control, but both were less likely to

be used in relationships characterized by a history of conflict (Cabral et al., 2003).

Contraception and women with serious mental illness, substance use or intellectual disability

Women who are mentally ill or who abuse alcohol or drugs may be unable to consent to sexual activity, are less likely to use contraception effectively, and are at high risk of sexual exploitation (Hankoff & Darney, 1993). They are as likely to be sexually active as women without mental illness (Nimgoankar et al., 1997). Hypomanic behaviour is associated with risky sexual behaviours, including intercourse with multiple partners and rates of unplanned pregnancy are high in women with severe mental illness (Hankoff & Darney, 1993). Compliance with methods that require regular self-administration, particularly oral contraceptives, is lower in women with psychiatric illness. Since some hormonal contraceptives may alter mood and contribute to depression, it is recommended that they are not prescribed to women who are currently depressed (Hankoff & Darney, 1993). However, health professionals are less likely to discuss contraception with women who have serious psychiatric illness (McCandless & Sladen, 2003), and provision of contraception is problematic for groups who do not attend routine medical or reproductive health services.

The reproductive health, rights and contraceptive needs of women with intellectual disabilities have been the subject of extensive legal, ethical and health care deliberations in the United States (Paransky & Zurawin, 2003). The concerns of parents and carers regarding pregnancy and menstrual management have in some cases led to women being surgically sterilized or undergoing hysterectomy (Diekema, 2003). The women's capacity to make autonomous decisions and to care for children is not always clear, and the rights and wishes of the individual women have to be protected as far as possible (Diekema, 2003). Newer medical options, including hormonal implants, permit less invasive and reversible management of fertility and menstruation (Paransky & Zurawin, 2003).

Extensive research on the situations that trigger clinical depression has revealed critical areas of overlap with intimate partner violence. Situations or events that engender depression are

typically characterised by a sense of loss, defeat, humiliation and entrapment, diminished self-esteem, and poor coping and decision-making ability. Identical psychological effects are caused by violence (Brown, Harris & Hepworth, 1995; Astbury & Cabral de Mello, 2000). Family planning programmes need to extend their explanatory models for unmet need and non-use or inconsistent use of contraceptives to include the possibility that intimate partner violence may be a major cause of low rates of contraceptive use and several poor reproductive health outcomes.

Women's decision-making latitude, including their control over participation in family planning programmes and use of contraception, is critically linked to their emotional well-being and their status in the family. Support from health professionals for autonomous decision-making is associated with fewer psychosomatic complaints and depressive symptoms.

Mental health and elective abortion

The direct and indirect societal and personal impact of elective abortion varies widely from country to country, because of differences in legal, social, political, religious, cultural and medical restrictions, stigma and practices (Henshaw, Singh and Haas, 1999). In many countries, women cannot access legal, safe, timely or affordable abortion, and they resort to unsafe, clandestine or "backyard" abortions by unqualified practitioners, or to unsafe self-inflicted procedures. Unsafe abortion is one of the major causes of preventable death (WHO, 2005). Safe abortion is a simple and inexpensive procedure (WHO, 2003), with surgical vacuum aspiration the preferred method in the first twelve weeks of gestation and medical abortion (using mifepristone and a prostaglandin) possible in early pregnancy (WHO, 2003). At abortion providing services with medically trained practitioners, women usually simultaneously access contraceptive and other health services, ultimately decreasing the abortion rate and improving their reproductive health (Henshaw, Singh & Haas, 1999).

It is difficult to obtain reliable estimates of abortion rates because there have been few comprehensive epidemiological studies, the terminology used to describe elective abortion is often ambiguous (e.g. induced miscarriage, menstrual regulation), induced abortion may not be distinguished from spontaneous abortion, and

clandestine abortions in both developing and developed countries are likely to be unrecorded (Huntington, Nawar & Abdel-Hady, 1997; Kaye, 2001; Ahman & Shah, 2002; Rossier, 2003). Estimates suggest that 26 million legal abortions and 20 million illegal abortions were performed worldwide in 1995, with one pregnancy termination for every three live births (Henshaw, Singh & Haas, 1999). WHO estimates that 19.7 million unsafe abortions took place in 2003, almost all of which were in the developing world, resulting in approximately 66 500 deaths (WHO, 2007). Some countries, e.g. Ireland and Poland, report near-zero legal abortion rates but these figures say nothing about the number of clandestine abortions and the extent to which women travel to nearby countries for abortion (Henshaw, Singh & Haas, 1999).

The United Nations (1999; 2003) has collected information on the legal status of abortion in countries throughout the world, and has compared the legal grounds on which abortion is permitted in developed and developing countries. The respective percentages of developed and developing countries that permit abortion on specific grounds are as follows: to save a woman's life (96% and 99%); to preserve physical health (88% and 56%); to preserve mental health (85% and 54%); in cases of rape or incest (83% and 32%); in cases of fetal impairment (83% and 27%); for socioeconomic reasons (77% and 19%); on request (67% and 15%). Abortion is totally prohibited in four countries, three in the developing world and one developed country. Laws that permit abortion to protect a woman's health, and more specifically her mental health, suggest recognition of the potential serious adverse impact on women's mental health of having to continue with an unwanted pregnancy. However, such legislation may be implemented leniently, accepting a broad definition of health and mental health, or in a highly restrictive fashion, by requiring that women demonstrate significant physical or psychiatric pathology (Aries, 2002; de Crespigny & Savulescu, 2004; Pinter, 2002; Whittaker, 2002). Legislation may also include gestational limits. Little is known about the incidence of clandestine early abortions (up to twelve weeks' gestation) versus later abortions. In countries with liberal abortion legislation, estimates suggest that more than 90% of legal abortions are early (British Medical Association, 2005; Chan & Sage, 2005).

The following discussion of the mental health aspects of abortion is limited in a number of ways. First, the special cases of late abortion and abortion following a diagnosed fetal abnormality are excluded. Second, the causes of the unintended pregnancy are not examined, notwithstanding the fact that the biopsychosocial context of conception may have an impact on the woman's subsequent decision-making and adjustment to the pregnancy. Variations in women's access to contraceptive methods, contraceptive fallibility, education, economic security, and vulnerability to violence, may all exert independent effects on mental health. Third, there is no detailed examination of the impact on women's mental health of having their requests to abort a pregnancy denied. A rigorous, longitudinal study in the Czech Republic to examine the effects of denied abortion (David et al., 1988; David, Dytrych & Matejcek, 2003; Kubicka et al., 2003) found that women go to great lengths to obtain an abortion when one is initially denied. A significant minority of women who were twice denied abortion in a pregnancy experienced difficulties with long-term adjustment and mother–infant attachment and their children had higher rates of long-term, adverse developmental and emotional consequences than those born to a matched cohort of mothers who desired the pregnancy. Sigal (2004) has made similar observations in a 50-year study of unwanted babies in Quebec, Canada.

Abortion milieu

An ecological model (Krug et al., 2002) suggests that the mental health aspects of abortion may be inextricably linked to the particular "abortion milieu" (Stotland, 1996). Where the abortion milieu is legally restricted, risk is stratified along economic lines, with poor women more likely to resort to unsafe abortion (Whittaker, 2001; Herrera & Zivy, 2002). The medical consequences of unsafe or incomplete abortion can include haemorrhage, sepsis, genital and intra-abdominal injury, pelvic inflammatory disease, toxic reaction, pain, infertility and death (Ba-Thike, 1997; Huntington, Nawar & Abdel-Hady, 1997; Langer et al., 1997; Boonthai & Warakamin, 2001; Whittaker, 2002). Women may also face adverse legal, social and psychological consequences including poverty, shame, social exclusion and imprisonment, and may even be driven to commit suicide (Casas-Becerra, 1997; Herrera & Zivy, 2002).

In Chile, where an estimated 160 000 to 300 000 illegal abortions are performed annually, Casas-Becerra (1997) reported on 40 women prosecuted for performing abortions, 12 prosecuted as accomplices, and 80 prosecuted for having an abortion. Of this last group, eight had sought abortion following rape, many were subsequently imprisoned, all were poor and all underwent high-risk procedures involving the insertion of instruments such as knitting needles and rubber catheters. The majority of women were reported to the authorities by the public hospital where they had sought treatment for abortion-related complications. Casas-Becerra noted that upper- and middle-class women could afford a private, confidential procedure performed by trained doctors. In nineteen other Latin American countries, an estimated 3.4 million abortions are performed annually, the majority of which are clandestine and unsafe. In Mexico, 136 women who went to a public hospital emergency room with post-abortion complications reported punitive, unsympathetic treatment from medical staff, breaches of their privacy and confidentiality, and the withholding of pain relief (Langer et al., 1997).



Several countries, including Ethiopia (Gebreselassie & Feters, 2002) and Kenya (Onyango, Mitchell & Nyaga, 2003) have sought to reduce complications following unsafe abortion by improving the medical response post abortion. Women's health advocates have generally sought reform of restrictive abortion laws (Hessini, 2005).

Maternal mortality and morbidity rates have improved in developing countries that have legalized abortion (Hardy et al., 1997); an associated improvement in mental health may also be expected. Nevertheless, studies in India (Duggal, 2004; Gupte, Bandewar & Pisal, 1997;

Ramachandar & Peltó, 2002), Puerto Rico (Azize-Vargas & Aviles, 1998), Mozambique (Hardy et al., 1997) and elsewhere suggest that “legalisation is an imperfect indicator of the availability of services providing safe abortion” (Hardy et al., 1997:108). Puerto Rico has one of the world’s most liberal abortion laws, but a low documented incidence of abortion. In explaining this, Azize-Vargas & Aviles (1998) point to high rates of contraceptive use and sterilization, limited official support, information or services for abortion, and no government subsidy for the cost of abortion. Most women surveyed believed that abortion was illegal. Since abortion was legalized in India in 1972, government-run mobile hospital camps and the private sector provide abortions, but many clandestine abortions continue to be performed annually by unqualified practitioners. Women have complained that the hospital camps lack privacy (initial registration and waiting areas may be in the open air and publicly visible), and women have been verbally abused, coerced into surgical sterilization, or denied abortion on spurious grounds (Ramachander & Peltó, 2002).

In countries with comprehensive health systems and liberal abortion laws, women can attend an accredited medical facility for a medical abortion, or for the ten-minute surgical abortion procedure under general or local anaesthetic. The cost of the abortion may be subsidized by the government. Women can receive emotional support from staff, family and friends, and do not face a threat of death, serious illness or prosecution. An estimated 180 000 pregnancy terminations are performed annually in Great Britain. The Royal College of Obstetricians and Gynaecologists (2000), with support from the National Health Service, regularly updates its evidence-based guidelines on best practice in medical and psychological care of women seeking an elective abortion. In Australia, an estimated 85 000 women terminate a pregnancy each year, although the national data do not distinguish between procedures following missed abortion and elective abortion (Chan & Sage, 2005). Most of the population supports safe, legal abortion services (Kelly & Evans, 2003) and the government subsidizes the cost. However, there is some variation between Australian states in abortion laws, with most requiring demonstration that continuation of the pregnancy is a threat to the woman’s mental or physical health. These laws have been criticised for their lack of

clarity and the risks run by both women and abortion providers in terms of potential prosecution and restricted abortion access (de Crespigny & Savulescu, 2004; National Health and Medical Research Council, 1996).

Worldwide, abortion providers and women seeking abortion are under threat from anti-abortion groups (Cavenar, Maltbie & Sullivan, 1978; Woodhouse, 1982; Rizzardo et al., 1991). When accessing abortion providing health clinics, women can face verbal abuse, intimidation and violence from people protesting their opposition to abortion outside abortion-providing clinics (Clapman, 2003; Dean & Allanson, 2004). Approximately one and half million abortions are performed annually in the United States of America. The activities of anti-abortion groups, who believe once a woman is pregnant she must continue the pregnancy no matter what her circumstances, have led to a significant reduction in abortion services, denial of public funding, increased legal restrictions and a well-funded network of Crisis Pregnancy Centres which use a variety of strategies to delay and dissuade women from terminating a problem pregnancy. (Castle & Fisher, 1997; Dean, 2006; Medoff, 2003). United States women who have abortions have been portrayed by anti-abortion groups as “selfish, sexually irresponsible, unfeeling and morally blind individuals who kill their own children for convenience” (Fried, 1997: 41). In this milieu, Fried (1997) has observed American women turning to unsafe abortion practices, including ingestion of poison and violence, either self-inflicted or inflicted by others. In Thailand, anti-abortion rhetoric has labelled women who have an abortion as “morally corrupt” and exemplifying “unrestrained hedonism, vice and temptation” (Whittaker, 2001). During parliamentary debates on abortion in Sri Lanka, women were “variously assumed to be promiscuous and conniving, or vulnerable and needing protection” (Abeyesekera, 1997).

Use of certain words and definitions within the scientific community may also serve to restrict or expand women’s reproductive options, and indirectly impact on women’s physical and mental health. Definitions and semantics can implicitly and explicitly reflect value judgements. Medical and social assumptions of maternity are embedded in definitions of maternal mortality in relation to abortion (WHO, 2001b). Reflecting on the large number of deaths from unsafe abor-

tions in Bolivia being described as “maternal deaths”, Rance (1997) concludes that this “is the price women are expected to pay for having transgressed by refusing maternity”, and that “reproductive mortality” (Beral, 1979) or “pregnancy-related deaths” might be a more suitable term. A woman's attitude towards the pregnancy may also be quite distinct from being pregnant (Condon, 1985). To refer to a pregnancy as “unwanted” may suggest fickleness on the part of the woman, while “unplanned” may imply women's contraceptive incompetence or impulsive sexuality. “Problem pregnancy” (Baker, 1985) or “unintended pregnancy” might be preferred where a woman is pregnant in circumstances unfavourable to pregnancy continuation.

Because of the stigma associated with abortion, research in both developing and developed countries has been limited. In developing countries, abortion research on large samples is scarce and primarily focused on the demographic characteristics and contraceptive history of women seeking abortion (Adewole et al., 2002; Angulo & Guendelman, 2002; Perera, de Silva & Gange, 2004). Mental health studies are mostly anecdotal, qualitative and retrospective. Where abortion is illegal, research samples commonly comprise women presenting to public hospitals with serious complications following unsafe abortion. Such research obviously has little to say about women who do not access health facilities, those who do not experience complications requiring medical attention, or those who are wealthy enough to pay for a safe abortion. Accessing abortion research samples can pose dangers to both participants and researchers (Herrera & Zivy, 2002). Research into women's physical health after unsafe abortion has overshadowed research into their mental health. “In trying to understand the traumatic experience they had just survived, their concerns about physical recovery were the most salient, with emotional reactions perhaps being held in suspension” (Huntington, Nawar & Abdel-Hady, 1997).

More is known about women's emotional health in developed countries. However, methodological problems have included ideologically motivated research seeking to demonstrate that abortion is either harmful or benign, and a relative scarcity of rigorously designed studies (Adler, 1992; Dagg, 1991; Major, 2003; Matlin, 2003; McGrath et al., 1990; Stotland, 2004; Turell, Armsworth & Gaa, 1990). Pre-abortion baseline

assessments have been taken from a few hours to two weeks before the procedure, while post-operative assessments have occurred from one hour to two years after the abortion.

Abortion and mental health

The discussion below reflects research on the experiences of women having an unsafe abortion and research from developed countries with relatively liberal abortion laws. Generalizability of the evidence to other abortion milieus is unclear. Where there are gaps in the recent evidence, earlier research is included.

Torres & Forrest (1988) asked 1900 women in American abortion facilities about their reasons for terminating a pregnancy. The most frequent and most important reasons (between 31% and 76% endorsement) were: a concern about life changes if the woman had a baby, inability to afford a baby, relationship problems or a wish to avoid single parenthood, and lack of readiness for the responsibility. Altogether, 31% of respondents mentioned their own immaturity, with 11% indicating this was the most important reason. Only 1% said that the pregnancy was the result of rape or incest, and only 7% gave a health problem as a reason. Studies have not included a specific mental illness category, and such women may or may not fit within the general health category. Despite significant social differences, similar reasons have been found in more recent studies across a variety of cultural contexts, including in developing countries (Tornbom et al., 1994; Adelson, Frommer & Weisberg, 1995; Larsson et al., 2002; Geelhoed et al., 2004; Perera, de Silva & Gange, 2004).

In a study of 386 American women, Cozzarelli et al. (2000) found that depression scores were significantly lower, and self-esteem scores significantly higher, at two hours, one month and two years after abortion, compared with some hours before the abortion. One month after abortion, mean scores indicated that women felt more re-

“A pregnancy may have been planned and intended yet, for a number of reasons, may become unwanted; on the other hand an unplanned pregnancy may become wanted. The term ‘unwanted’ does not convey the ambivalence felt by many women in categorising a pregnancy in this way” (Royal College of Obstetricians and Gynaecologists, 1991:10).

lief than positive or negative emotions, and overall more positive emotions than negative emotions. However, 10.8% reported that they felt dissatisfied and had made the wrong decision. At two-year follow-up, the number of women reporting dissatisfaction had increased to 16.3%, and 19% said that the abortion was the wrong decision. Eisen & Zellman (1984) reported similar findings: 80% of 148 adolescents who had an abortion reported satisfaction with the decision six months later.

Major et al. (2000) reported on 418 American women two-years after an early elective pregnancy termination: 20% reported an episode of clinical depression, a rate equal to the national rate of depression; 1% met clinical criteria for post-traumatic stress disorder, which is less than the national rate. This compared with 26% of women reporting clinical depression at some stage prior to the pregnancy. No other psychiatric data were reported. The possibility of mental ill-health being a reason for the abortion, and women's views on whether subsequent mental illness was related to the abortion, were not reported. A pre-pregnancy history of depression was predictive of poorer mental health and more negative abortion-related emotions and evaluations at one hour, one month and two years after the abortion. Though these relationships were statistically significant, the outcome variance explained was quite small (generally less than 10%); most of the variability in women's post-abortion adjustment was unexplained.

Previous psychiatric treatment was not related to scores on a scale measuring the psychological impact of adverse life events, in this case a problem pregnancy and its early termination, three months after the procedure for 96 women in Australia (Allanson, 1999): 31% had sought treatment for emotional problems in the past, with 5% being admitted to hospital. Overall, high psychological distress scores in the days prior to the abortion returned to within normal limits at three months follow-up. The abortion had a very low psychological impact for two-thirds of the sample, while 27% reported some persisting stress symptoms related to the abortion.

Greer et al. (1976) found that, of 216 women who had undergone an early pregnancy termination in London, England, 29% (63) had a history of inpatient or outpatient psychiatric treatment,

and 19% (42) had received psychiatric treatment during the two years following the abortion. Of these 42 women, two-thirds had a pre-abortion psychiatric history, over half (59.5%) reported that the symptoms were unrelated to the abortion, 4 (1.9% of the total sample) reported that their symptoms were related to the abortion, and 13 were unsure. Three months after the abortion, highly significant improvements were observed in measures of depression and guilt (13% reported considerable or moderate guilt compared with 37% before the abortion) and satisfactory sexual adjustment (74% compared with 59%). Satisfaction with the marital relationship did not change from before to after the abortion, but 87% reported improvement in other relationships, while 13% reported deterioration. Some 96% reported resuming normal work activities shortly after the abortion.

In summary, past or current psychiatric illness is apparently rare as a stated reason for elective abortion, and has not been a strong predictor of adjustment to abortion. The stress of facing an unintended pregnancy or unsafe abortion might be expected to increase the risk of onset, or recurrence, of serious mental ill-health, while elective, safe abortion might protect vulnerable women from the long-term stress of pregnancy and parenthood. However, this group of women has attracted negligible research attention. The mental health consequences of unsafe abortion are not known, although qualitative data suggest that unsafe abortion can be traumatic before, during and after the abortion, and is likely to cause psychological harm. Typically, women (including adolescents) experience heightened distress facing a problem pregnancy and prior to safe elective abortion, but show significant improvement on mental health indices afterwards (Mueller & Major, 1989; Cozzarelli, 1993; Major et al., 1997, 2000; Adler, 2000; Barnow et al., 2001; Pope, Adler & Tschann, 2001). Psychiatric sequelae to safe abortion appear to be rare. Approximately 10% of women experience some degree of dissatisfaction with their abortion decision or other psychologically distressing symptoms about their decision to have an abortion, and this can increase to up to 20% within two years after abortion. While unpleasant, such feelings do not necessarily signify clinically significant mental health problems (Major et al., 2000). Evidence-based reviews have consistently concluded that safe, elective, early abortion does not pose a substantial mental health

risk and has fewer adverse psychiatric sequelae than childbirth (Adler, 1990; Adler, 1992; Dagg, 1991; Major, 2003; Stotland, 2001; Turell, 1990). Although adverse mental health impacts of safe elective abortion affect a relatively small minority and the number of women experiencing serious adverse impacts appear to be quite small, it appears that the continuing complex biopsychosocial environment of abortion and a desire to optimise women's mental health following safe elective abortion has prompted limited research into risk and protective factors.

Risk and protective factors for mental health after abortion

Pre-abortion optimism about post-abortion adjustment appears to be protective (Cozzarelli, 1993; Cozzarelli, Sumer & Major, 1998). Cozzarelli (1993) investigated 291 American women who had had an abortion, and found that self-efficacy – defined as pre-abortion optimism, perceived personal control and high self-esteem – was strongly associated with better post-abortion adjustment both immediately and three weeks after the procedure. Self-efficacy predicted up to half the variability in post-abortion psychological adjustment. Mueller & Major (1989) randomly assigned 232 women to receive one of three brief verbal presentations before their abortion: (i) to raise expectations of personal coping capacity; (ii) to alter the attributions for unwanted pregnancy; or (iii) a control presentation on a therapeutically neutral topic. Women exposed to one of the experimental interventions had fewer emotional and physical complaints immediately following the termination. The longer-term benefits of the intervention are not known.

Women often involve other people in their decision regarding abortion, but their social networks are not always supportive. Investigations of social support have indicated considerable complexity and contradictions, apparently resulting from subtle differences in the definition of support, the quality of relationships, and the characteristics of study samples (Mueller & Major, 1989; Major et al., 1990; Linn, 1991; Major & Cozzarelli, 1992; Cozzarelli, Sumer & Major, 1998). Major et al. (1997) investigated 617 women's perceptions of support and conflict within three salient relationships: with their partner, mother and friends. Preoperatively,

85% of women had told their partner about the pregnancy and abortion, 69% had told a friend, 25% had told their mother and 17% had told all three. Generally, women viewed all these people as sources of support and reported little conflict, and positive well-being one month after abortion was predicted by support. In identifying factors contributing to less positive adjustment one month post abortion, Major et al noted that women who perceived their mothers and friends as a source of a high level of support as well as conflict were more distressed than if they were just perceived as a source of support. Conflict with the partner, irrespective of his support for her abortion, was related to distress one month after abortion. In a survey of 818 American women presenting for elective abortion, Woo, Fine & Goetzl (2005) found that 17% chose not to disclose the abortion to the partner in the pregnancy. Of these, 45% did not disclose because the relationship had no future, 21% because the partner would oppose the abortion, and 8% because they believed that disclosure would result in their partner physically harming them.

Major & Gramzow (2001) reported on 442 American women followed for two years after abortion. Women who felt that they could not disclose the abortion suppressed more thoughts about it and experienced more intrusive thoughts about it than those in environments in which disclosure was more acceptable. Both suppression and intrusive thoughts were associated with increased psychological distress over time; in contrast, disclosure about the abortion was related to decreased distress.

In-depth interviews with 31 women hospitalized in Egypt with post-abortion complications (Huntington, Nawar & Abdel-Hady, 1997) indicated that practical and emotional support were not forthcoming. The authors surmised that women's predicament was made more difficult by this because women are usually better able to cope with illness and more likely to seek health care when socially supported. The most troubling issues for the women were the need to return immediately to physically demanding work and child care responsibilities, the possibility of people gossiping about them, and criticism, blame and lack of understanding from their husband and his family.

Langer et al. (1997) discuss the apparently compounding, rather than comforting, impact of post-abortion medical attention at a public hospital in Mexico. Almost half the women arrived at the hospital in a highly anxious state and reported fears of dying, infertility and isolation, and constant worry about their children at home. The women found the medical staff rushed and insensitive, and 59% reported more anxiety after the initial examination than before it. In India, women may need to lie about their pregnancy in order to meet legal eligibility requirements for abortion, which include pregnancy resulting from rape for single women, and failed contraception for married women (Gupte, Bandewar & Pisal, 1997).

Women's interpersonal networks can be protective, but social milieus that do not provide support for women's decision about pregnancy may have an adverse impact. "Expressions of disapproval, including attacks on abortion clinics and harassment of women seeking abortions, would be expected to produce negative effects" (McGrath et al., 1999). Empirical research is scarce, but institutionalized "blaming of victims" and withdrawal of social support are likely to have adverse effects on self-regard (Waites, 1993; Cozarelli & Major, 1994; Cozarelli et al., 2000). Taboo and punitive attitudes surrounding abortion prevent women talking about their experiences and may worsen outcomes. The very low abortion rate in the Netherlands (4.0–6.5 per 1000 women aged 15–44 years in 1996, compared with 25.9 per 1000 in the USA) has been linked to the promotion of reproductive options and open discussion and acceptance of sex, contraception and abortion (Henshaw, Singh & Haas, 1999).

Recent research suggests that victimization may play an important role in some women's decision to seek an abortion, and in their abortion-related mental health. It is difficult to draw firm conclusions, however, because of differing definitions of violence, barriers to women's disclosure of violence, and a shortage of research that goes beyond measuring prevalence. A household survey of 2525 women in the USA found that women who reported having an abortion were more likely to report depressive symptoms and lower life satisfaction than those who reported that they had not had an abortion (Russo & Denious, 2001). However, when history of abuse, partner characteristics and background variables were

controlled for, abortion was unrelated to poor mental health. In this study, 31% of women who had had an abortion reported violence (including physical or sexual assault during childhood or adulthood and intimate partner violence) compared with 14% of those who reported no abortion.

Prevalence studies in various countries have documented a high incidence of violence against women among those seeking an abortion. In the United States, Glander et al. (1998) found that 40% of 486 women seeking pregnancy termination reported a history of sexual or physical abuse. A United Kingdom survey (Keeling, Birch & Green, 2004) found that 35% of women seeking an abortion reported intimate partner abuse, while a survey of 1127 women attending a hospital abortion service in London (Fisher et al., 2005) found that 20% reported intimate partner physical abuse and 27% reported a history of sexual abuse. Women having a repeat abortion were more likely than first-time abortion seekers to have suffered violence at some time in their life. Leung et al. (2002) found a lifetime prevalence of domestic violence among women seeking abortion in Hong Kong, China, of 27%, compared with 8% for other gynaecology patients and 18% for pregnant women attending antenatal clinics in the same locality. The women seeking abortion had suffered more recent and more serious violence. The authors note, however, that cultural influences probably inhibited the women's reporting of abuse to health professionals. An epidemiological study in Australia (Taft, Watson & Lee, 2004) found that women with previous or recent partner violence were significantly more likely to become pregnant and to report having had an abortion than women without such a history. In a large-sample study in Colombia, Pallitto & O'Campo (2004) documented a moderate relationship between unintended pregnancy and intimate partner violence towards the woman in her current or most recent relationship. The authors estimated that unintended pregnancies in Colombia would decrease by 5% (32 000–45 000 abortions) annually if intimate partner violence were eliminated. A study of women in Uganda reported that 39% of 70 women presenting to a gynaecological emergency ward with complications of induced abortion gave domestic violence as the main reason for inducing the abortion (Kaye, 2001). In a study of 818 American women (Woo et al., 2005), physical abuse, sexual abuse

or both within the previous year was twice as common among those who did not disclose their abortion to the partner than among those who did disclose the abortion.



Arguably, violence may interfere with contraceptive use, aggravate relationship instability and undermine a woman's confidence in proceeding with a pregnancy, abortion disclosure, support and women's abortion related mental health. However, research linking abortion, mental health and violence is limited (Bruyn, 2001; Leung, Kung, Lam, Leung and Ho, 2002). Evidence suggests that pregnant women suffering past or current physical and/or sexual violence have worse mental and physical health (Krug, Dahlberg et al., 2002), and among 96 Australian women attending for an early abortion (Allanson and Astbury, 2001), small but statistically significant links were found between these women's experience of violence (40% reported being physically assaulted, 17% sexually assaulted, 9% reported both, and 10% reported violence from the partner in the pregnancy) and poorer mental health outcomes three months post-abortion (Allanson, 1999). Sexual assault history may increase anxiety around childbirth (Jackson, 1997), gynaecological examination (Carlson, 2002) and surgical abortion, with consequent pregnancy ambivalence.

Cultural and social factors that place coercion on women's reproductive health, for example social pressures to have only one child or cultural preferences for sons, may influence mental health after an abortion (Mandal, 2001; Miller, 2001). Based on interviews with 67 women from six villages in India, Gupte et al. (1997) reported that women "who had an abortion after a sex determination test were traumatised compared to those who had an abortion for other reasons". Rothstein (1977a, 1977b) suggests that both subtle and blatant coercion either to continue or terminate a pregnancy is linked to a woman's ambivalence about whether or not to have an abortion. Although ambivalence appears to be a risk factor for post-abortion distress, there has been little clarity in its definition or measurement (Adler et al, 1990; Dagg, 1991; Turrell, Arnmsworth & Gaa, 1990; Allanson & Astbury, 1995). Ambivalence in an abortion decision often has been taken as reflecting a woman's emotional attachment to her pregnancy, leading to grief and a sense of loss if the pregnancy is terminated. Yet, there has been only limited investigation of a woman's relationship with a pregnancy she is considering terminating (Hunter, 1979; Pines, 1990; Allanson & Astbury, 1995), and the discussion above suggests that decision ambivalence may reflect many other facets of a problem pregnancy and abortion. Ambivalence may be a normal part of the psychological process of resolving decisions about abortion, or may be an expression of low self-efficacy. In addition, the relationships between elective abortion and other adverse reproductive experiences, including miscarriage, assisted conception, previous pregnancy complications, and caesarean section have not been investigated, but may influence emotional attachment to a pregnancy or anxieties about pregnancy continuation or termination.

In summary, evidence is emerging about risk and protective factors that are predictive of mental health following an abortion. Post-abortion mental health appears to be enhanced where there is no history of violence, when there is no conflict about the abortion within usually supportive relationships or with the partner, when the abortion is not kept secret from others, and when the woman has high self-efficacy. Research is needed into other possible risk /protective factors, such as history of reproductive trauma, maternal attachment to the pregnancy, and the accessibility of safe reproductive and family plan-

ning options. A society's legal, religious, medical and social expectations and infrastructure are likely have an important bearing on all these factors.

Summary

Future research

1. Further participatory research is required to establish accurately needs for contraception.
2. Examination of the disparity between contraceptive intentions and contraceptive use should look beyond women's "failure" to adhere to their intentions.
3. Investigations are needed of the level of coercion and pressure women experience from family planning programmes regarding child-spacing, uptake of contraceptive methods, including sterilization and abortion.
4. With respect to mental health associated with both safe and unsafe abortion, there is a need for methodologically rigorous qualitative and quantitative investigations into women's experiences, needs, biopsychosocial risk and protective factors, and health enhancing interventions.
5. The biopsychosocial aspects of sex-selective abortion are at present unknown and need to be systematically investigated.
6. Research needs to explore the counselling, medical and support needs of women facing an unintended pregnancy and abortion, who may have particular vulnerabilities such as mental illness, violence, reproductive trauma.

Implications for policy

1. Strategies to increase the involvement of men in family planning programmes are essential if the goal of gender equality is to be realized and women's safety protected.
2. Family planning programmes need to give attention to sexual enjoyment as well as fertility control.
3. Strategies to increase women's self-efficacy regarding reproductive options.

Services

1. Women's freedom to make decisions about participation in family planning programmes and fertility control needs to be sensitively ascertained, rather than simply assumed.
2. Sexual violence and coercion, as risk factors for unwanted pregnancy, termination of pregnancy and contraceptive failure, as well as for depression, anxiety and symptoms of traumatic stress, should be ascertained in routine care.
3. Given the high incidence of both safe and unsafe abortion, health professionals need specific training in medical and psychosocial aspects of abortion care.

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Chapter 4

Spontaneous pregnancy loss

Heather Rowe

It is estimated that 20% of conceptions end spontaneously in miscarriage, most within the first three months of gestation. The actual rate, including those that are not clinically or personally obvious, is estimated to be much higher (Mishell, 1993). In some countries, particularly where legal, safe abortion is unavailable, it is not always possible to make a clear clinical distinction between miscarriage and induced abortion (Vazquez, 2002).

Mental health and spontaneous pregnancy loss

The psychosocial repercussions of miscarriage for individual women are likely to be influenced by culturally specific beliefs and practices surrounding conception, inheritance and ideas of family identity, individual responsibility and attribution of cause. There has been little cross-cultural research on ethnomedical beliefs about pregnancy complications (Asowa-Omorodion, 1997). However, in the available studies the attribution of blame for pregnancy loss to the woman is a common theme. For example, in some societies pregnancy loss is still grounds on which a man may divorce his wife (Vazquez, 2002). This is especially the case where having many children is desirable for social and economic reasons, and where high social status is accorded to fertile and fecund women. Focus groups conducted with Esan women from Edo state in central southern Nigeria revealed that the women believed that attempts to control their fertility would result in pregnancy illness and loss, and that bleeding in pregnancy was a punishment for wrongdoing by the woman. Only if the crime could be established and forgiveness received

from the offended party would the bleeding stop (Asowa-Omorodion, 1997).

In developed countries, contemporary discourse emphasizes the desirability of women's autonomy and control of their bodies during pregnancy and childbirth. It is implicit in this that individuals can personally ensure a happy, healthy pregnancy outcome; this can result in self-blame when pregnancy loss does occur (Layne, 2003). Societies differ in the degree to which they permit, or even encourage, discussion of adverse pregnancy events. In contrast to Western social conventions, it is reported that women in some settings, for example Yucatan (Mexico) and Nepal, are able to speak candidly about all kinds of pregnancy loss, which, it is argued, is beneficial (Jordan, 1993; March, 2001). Rice (1999) conducted in-depth interviews and participant observations with Hmong women living in Australia. Her findings revealed that, for these women, miscarriage creates considerable anxiety at both the family and the social level. This is because of a belief that miscarriage may portend the failure of the family to extend its lineage, and because it is seen as a threat to the existence of the clan itself. Religious concerns are focused on the loss of a place within the family for the rebirth of a soul. The reactions of this group of women to miscarriage reflect anxiety about disruption to the harmony between the social and supernatural worlds, which is essential for health.

Responses to miscarriage are shaped by the patterns of socially sanctioned support and mourning behaviour, as well as the time at which pregnancy is publicly acknowledged and the fetus accorded status as a human (Slade, 1994).

Miscarriage is experienced by many women as a significant life crisis (Slade, 1994). Elevated rates of psychological morbidity, in particular depression and anxiety disorders and increased use of psychotropic medication, have been reported after pregnancy loss (Neugebauer, Kline & O'Connor, 1992; Prettyman, Cordle & Cook, 1993; Stirtzinger et al., 1999; Geller, 2001; Garel et al., 1994). Paradoxically, there is also evidence that both health professionals and the lay community tend to minimize the degree of distress, and to assume that women will make a rapid and spontaneous recovery (Layne, 1990; Stirtzinger et al., 1999). It has been argued (Layne, 2003) that, in developed countries, where adverse pregnancy and birth outcomes are rare and the discussion of adverse events is discouraged, women may suffer alone without acknowledgement or support from others. Lack of social acknowledgement of distress about spontaneous pregnancy loss may lead women to experience an invisible bereavement and disenfranchised grief (Cecil & Leslie, 1993). In developing countries, where pregnancy loss of all kinds is more common, it is arguable that miscarriage may be felt as more profound, especially if it represents to the woman the loss of her role as a mother, in a society where alternative roles are limited or nonexistent.

Studies in developed countries have identified a range of emotional reactions to miscarriage, including guilt, sadness, helplessness and anger (Frost & Condon, 1996). The miscarriage itself may be a frightening experience (Prettyman, Cordle & Cook, 1993; Layne, 1997). Nevertheless, not all women in every setting will experience miscarriage as a profound loss, and there appears to be a diversity of reactions, from those requiring psychiatric care at one end of the spectrum, to expressions of ambivalence, relative indifference or relief at the other. This variety is likely to be associated with differences in personal circumstances, as well as familial, social and cultural meanings (Madden, 1994). Women's own descriptions of miscarriages have been interpreted as a process involving the stages of turmoil, adjustment and resolution rather than psychological morbidity (Maker & Ogden, 2003).

Despite a lack of explicit theoretical frameworks in much research on psychological reactions to miscarriage, there is generally an implicit assumption that the bereavement or loss model

is appropriate (Slade, 1994). Psychoanalytical conceptualizations emphasize the normal psychological changes in pregnancy, which include pregnancy as a maturational challenge, when unresolved early conflicts may be re-aroused and an intense narcissistic state may develop. Cognitive modifications may accompany these changes, which are characterized by alterations in primary process thinking. Finally, whether the pregnancy is wanted or not, most women experience some ambivalence towards the fetus, in which the urge to nurture and protect coexists with feelings of being overwhelmed by the irrevocable course of the pregnancy. This conceptualization explains grief reactions to pregnancy loss in terms of an intense

narcissistic injury, characterized by feelings of emptiness, shame, helplessness and low self-esteem, which are exacerbated by the absence of an object for which to mourn (Frost & Condon, 1996). Slade (1994) suggests an alternative conceptual framework, which characterizes the experience of pregnancy loss as a stressor, to which individuals will respond according to their individual coping style. However, as yet there has been no empirical investigation of this theoretical position.

Moulder (1994) described two models on which professional care for women having a miscarriage is based. The "medical" model assumes that the miscarriage is a minor mishap, which can be treated, while the "gestational" model recognizes the loss involved, but describes the magnitude of loss in terms of the stage of pregnancy at which it occurred: the later the miscarriage, the greater the loss. Moulder argues that neither of these models accurately explains the diversity of women's responses to pregnancy loss. She proposes a model with greater potential explanatory power, which is based on an understanding of maternal-fetal emotional attachment, loss, and the degree of individual investment in the pregnancy (Moulder, 1994). There has been relatively little research on maternal-fetal emotional attachment in early pregnancy, but the process

Not all women in every setting will experience miscarriage as a profound loss, and there appears to be a diversity of reactions, from those requiring psychiatric care at one end of the spectrum, to expressions of ambivalence, relative indifference or relief at the other.

appears to begin before fetal movements are detected. In addition, a high level of attachment to the fetus can coexist with disenchantment about the pregnancy state itself (Lumley, 1980). The attachment construct is useful in understanding the intensity of emotional reactions to pregnancy loss, but has received little theoretical or empirical attention in the research literature (Condon, 1993).



As with other human loss, an understanding of the relationship between grief and depression is essential to understanding the psychological implications of miscarriage (Stirtzinger et al., 1999; Ritsher & Neugebauer, 2002). However, the literature has generally not distinguished between the symptoms of these reactions (Brier, 1999). Grief has been conceptualized as a normal adaptive response to loss, characterized by feelings of sadness, emptiness, angry protest and yearning, which will normally resolve without intervention over time. A pathological grief reaction occurs when symptoms remain intense for a prolonged period, indicating progression to major depression (Beutel et al., 1995). In an attempt to demonstrate empirically the differentiation of grief from depression, Beutel et al. (1995) hypothesized that two kinds of reactions to miscarriage can be distinguished. Grief reactions are preceded by joyful anticipation of motherhood and are of relatively short duration, while depressive reactions are more likely to occur in women with a previous history of depression and elevated distress in pregnancy, and with difficult personal relationships and poor social circumstances. In his study of 125 German women who had recently experienced a miscarriage, those who were categorized on the basis of standard measures to the “depressive reaction” group were twice as likely ($P \leq 0.001$) to have a prior history of depression than those in the “grief only” group, and to have significantly

fewer educational and social resources, more life stressors and greater ambivalence towards the fetus (Beutel et al., 1995).

Despite a lack of consensus regarding the nature and etiology of psychological reactions to miscarriage, there is a body of research describing the incidence and course of psychological symptomatology. Interpretation of these data is hampered by the variety of methodologies employed and of measures used to assess symptoms, but more recent work has generally used standard psychometric measures. In addition, a number of methodological limitations restrict the conclusions that may be drawn from the studies. For example, differences between study and control groups may confound results, and there is variation in the extent to which the study methodology itself may act as a therapeutic intervention. Further, the timing of psychological assessment after miscarriage varies. Meaningful comparisons between these studies are therefore limited (Slade, 1994; Neugebauer, 2003). There is also the question of the potential confounding effect, on the measurement of psychological sequelae of miscarriage, of the provision of psychological care, such as counselling, during or after treatment. It is therefore surprising that very few studies have reported details of any such care that may have been offered to study participants, or whether participants sought or received assistance from professional or lay support groups prior to psychological assessment.

A number of recent, methodologically rigorous studies, using both standardized psychometric measures and comparison groups, have consistently found significantly elevated rates of depressive symptoms in women following miscarriage, in comparison with women with uncomplicated pregnancy, or with women in the community who are not pregnant. Anxiety appears to be less well described than depression (Brier, 1999). Arguably the relevant comparison group is women with uncomplicated pregnancy rather than non-pregnant women; however, similar rates of depressive symptoms have been found in pregnant women and community samples of women of a similar age who are not pregnant (Llewellyn, Stowe & Nemeroff, 1997).

Significantly higher anxiety and depression scores were found in a group of women within 24 hours of surgical treatment for miscarriage compared with a control group of pregnant women;

the difference persisted for six weeks (Thapar & Thapar, 1992). However, the mean gestational age was higher in the pregnant group. Higher levels of psychological symptoms were associated with experience of previous miscarriage, childlessness and an unplanned pregnancy (Thapar & Thapar, 1992; Prettyman, Cordle & Cook, 1993). Symptoms of depression, but not anxiety, persisted for 12 months in a group of women who miscarried (Beutel et al., 1995). In a study conducted in the United States, minor depressive disorder, as assessed by the Diagnostic Interview Schedule (DIS) (Robins et al., 1981), was found in 5.2%, and major depressive disorder in 10.9%, of 229 women, 6 months after miscarriage. Onset of symptoms was within the first month after the loss in 72% of cases. This compared with rates of major and minor depressive disorder of 4.3% and 1%, respectively, in the community cohort (Neugebauer, 1997; Klier, Geller & Neugebauer, 2000). Major depressive disorder, assessed by the Structured Clinical Interview for DSM-III-R (Spitzer et al., 1992) was found in 12% of a group of 150 Chinese women in Hong Kong, China, six weeks after miscarriage (Lee et al., 1997a). Anecdotal reports suggest that a few women will experience miscarriage as a traumatizing event; some of these will meet the criteria for acute stress disorder or post-traumatic stress disorder (PTSD). A different model of care may be warranted for these women (Lee, 1996; Bowles et al., 2000).

A prospective longitudinal study, using a symptom self-reporting scale with 113 women in the Netherlands, found 25% prevalence of PTSD symptoms one month after miscarriage, declining to 7% at four months. In this sample, PTSD symptoms were associated with depression ($P < 0.001$) (Engelhard et al., 2001).

Follow-up investigations after pregnancy loss have concluded that symptoms of anxiety and depression resolve spontaneously over time in most women; there is some evidence that anxiety symptoms are more variable and persistent (Prettyman, Cordle & Cook, 1993; Cecil & Leslie, 1993; Janssen et al., 1996). Some women have reported that continuing distress influences the decision to conceive again (Cordle & Prettyman, 1994), and that anxiety recurs in subsequent pregnancies (Statham & Green, 1994).

There is no consistent evidence of a relationship between sociodemographic factors including age, occupation and marital status, pregnancy factors such as gestation and whether the pregnancy was planned or wanted or reproductive history including prior abortion, miscarriage or infertility and the risk of post-miscarriage psychological distress (Lee & Slade, 1996). It has been argued that sociodemographic factors contribute little to the understanding of the meaning of miscarriage to an individual woman (Slade, 1994), and that a more fruitful approach may be to investigate the role of thoughts and cognitions, in particular understanding of the medical explanations of the cause of the miscarriage (Tunaley, Slade & Duncan, 1993). It has also been suggested that individual differences in attributional style – a construct measuring an individual's propensity to locate the cause of an adverse event either internally or with external factors over which he or she has less control – may be salient. Studies that have attempted to investigate the role of cognition in psychological adaptation to miscarriage have produced inconsistent findings (Tunaley, Slade & Duncan, 1993; Robinson et al., 1994). Nevertheless, post-treatment interventions aimed at reducing feelings of self-blame and enhancing self-esteem appear to show promise for improving psychological adaptation to miscarriage (Nikcevic, Kuczmierczyk & Nicolaides, 1998).

More recently, the impact of previous adverse life events on emotional adaptation to pregnancy loss has been investigated. A meticulously conducted study (Neugebauer et al., 1997) of 229 miscarrying women assessed the risk of a first or recurrent episode of major depressive disorder in the six months following loss, and compared it with the risk in a population-based cohort of 230 women drawn from the community. Major depressive disorder was assessed by the Diagnostic Interview Schedule (Robins et al., 1981). The six-month total incidence rates for the miscarrying and the community women were 10.9% and 4.3%, respectively (relative risk, 2.5; 95% confidence interval (CI), 1.2–5.1). The relative risk for depressive disorder in both groups did not differ between women with prior reproductive loss, between younger and older women, by marital status, educational level, or history of elective abortion (Neugebauer, Kline & O'Connor, 1992; Thapar & Thapar, 1992; Prettyman, Cordle & Cook, 1993). In the group of women who had miscarried, neither time of

gestation, nor attitude towards the pregnancy, nor length of prior warning of the miscarriage influenced the risk of major depressive disorder. Among women in both groups, the risk of an episode of major depressive disorder was substantially higher among those with a history of major depressive disorder. This finding concurs with those from studies investigating mood disorders at other phases of reproductive life. In particular, in the postpartum period, a personal history of mood disorder or psychiatric diagnosis has been consistently associated with post-pregnancy depression (O'Hara & Swain, 1996; Scottish Intercollegiate Guidelines Network, 2002).

There has been limited discussion in the literature of the factors that contribute to variations in psychological vulnerability among women following miscarriage or perinatal death. However, in a large data-linkage study in the United States (Seng et al., 2001), women who had an ICD-9 code for post-traumatic stress disorder had an odds ratio of 1.9 (95% CI 1.3–2.9) for previous miscarriage, and an odds ratio of 7.4 (95% CI 2.7–20.2) for having been a victim of violence, compared with women without such a diagnosis. This raises the possibility of the causal misattribution of psychopathology to the miscarriage experience itself, when it might more accurately be described in some women as a re-arousal of prior trauma. The interaction between previous adverse life experiences, such as abuse and violence, and the experience of miscarriage warrants specific investigation.

Medical treatment of spontaneous pregnancy loss

Miscarriage, especially late miscarriage, may lead to haemorrhage and infection if pregnancy-related tissue is retained. Appropriate and timely treatment is necessary to effect complete removal of this tissue from the uterus in cases of incomplete miscarriage. Historically, surgical curettage – evacuation of the uterus under general anaesthetic – has been the treatment of choice for miscarriage. The procedure itself carries risks, including cervical trauma and subsequent cervical incompetence, uterine perforation, haemorrhage and intrauterine adhesions (Nanda et al., 2003). There is an international consensus that professional care is needed following miscarriage, but current treatments for miscarriage are not based on randomized controlled studies. The sequelae

of both unsafe induced abortions and surgical treatment of miscarriage consume substantial emergency gynaecological services, especially in developing countries (Hemminki, 1998).

Ultrasound examinations indicate that only a proportion of miscarriages are incomplete, and it is therefore probable that many women have undergone surgical treatment, with its attendant risks, unnecessarily. There is continuing debate about the necessity of routine surgical management (Ballagh, Harris & Demasio, 1998) and practice guidelines now urge conservative attitudes (Lagro-Janssen, 2005). The use of ultrasound could allow active treatment to be restricted to women with an incomplete miscarriage (Vazquez, Hickey & Neilson, 2002). A systematic review of the evidence on the effectiveness and safety of expectant management versus surgical treatment for early pregnancy loss is in preparation (Nanda et al., 2003). Medical treatments for incomplete miscarriage have been developed, and pharmacotherapies are now used with the aim of minimizing morbidity, mortality, and unnecessary surgical intervention (Ashok et al., 1998; Nielsen, Hahlin & Platz-Christensen, 1999; Chung et al., 1999).

The miscarriage experience and its aftermath are almost universally experienced in the context of clinical care (Hemminki, 1998), and the quality of this care may influence women's emotional recovery. Relevant factors include whether the treatment is medical, surgical or expectant, the attitudes of health care staff, and the availability of counselling, support and other follow-up services. There is debate about the relative efficacy and efficiency of medical and surgical treatments for early miscarriage, and about whether active treatment is needed at all (Henshaw, 1993; Smith, 1993; Nanda et al., 2003). Medical management using a prostaglandin (misoprostol) to promote expulsion of the products of pregnancy is gaining acceptance (Lee et al., 2001). Any evaluation of different treatment regimens would need to investigate the psychological ramifications, which are likely to differ.

There are potential advantages to conservative or expectant management of miscarriage, not the

The miscarriage experience including its aftermath are almost universally experienced in the context of clinical care (Hemminki, 1998).

least of which, for women with uncomplicated miscarriage, is the avoidance of hospital admission and separation from family (Smith, 1993). A randomized controlled trial, comparing expectant with medical management for first-trimester miscarriage, found that 76% of 62 women had a complete miscarriage without intervention, compared with 82% of 60 who were given a combination of antiprogesterone and prostaglandin E. Those receiving pharmacological treatment had a longer convalescence time, but there were no differences between the groups in level of pain, bleeding, post-miscarriage complications or satisfaction. Satisfaction was measured on a single, visual, analogue scale, but the fact that it was administered in the treatment setting 14 days after treatment may have limited critical or dissatisfied responses (Nielsen, Hahlin & Platz-Christensen, 1999). It has been argued that the psychological impact of medical management of miscarriage should not be underestimated. Pharmacological treatment may shorten the time to complete miscarriage, but women and health care staff may see the discharged pregnancy-related tissue and find the experience traumatic. Surgical intervention under general anaesthesia, although it carries its own risks, may therefore be the preferred treatment option for some women (Sharma, 1993).

A randomized controlled comparison of medical (misoprostol) versus surgical treatment for early miscarriage, conducted in Hong Kong, China, paid particular attention to psychological and culturally appropriate outcomes for women (Lee et al., 2001). There were no significant differences between the groups in psychological or social functioning, measured two weeks and six months after the procedure. However measures of client satisfaction, made with due care to limit under-reporting of dissatisfaction, showed that the 40% of women who required surgical treatment because of failure of medical treatment were, on several measures, less satisfied than both the surgical treatment group and the group for whom medical treatment was successful. Interestingly, this study investigated the ethno-medical dimension of the treatments for the participants. On measures of the degree to which treatments were seen as having devitalized and damaged the body, women's reports clearly favoured medical treatment. The authors argue that this finding has widespread application, because concern for devitalization of the body is shared by many other cultures. In addition,

misoprostol may prove especially useful in developing countries because it is cheap, stable at room temperature, and has few systemic effects (Vazquez, Hickey & Neilson, 2002). However, its efficacy will need to be improved if its apparent psychological benefits are not to be attenuated by its relatively high failure rate (Lee et al., 2001).

Research into the psychological consequences of miscarriage has been hampered by the problem of potential misattribution of adverse psychological and physical outcomes to the experience of miscarriage itself, rather than to the sequelae of surgical management. Research into the use of medical therapies in miscarriage may help to address this potential flaw.

There is evidence from Australia, the Netherlands, the United Kingdom and the United States that aspects of the primary and hospital care that women receive after miscarriage are consistently regarded by them as unhelpful in their recovery (Cuisinier et al., 1993; Cecil, 1994; Moohan, Ashe & Cecil, 1994; Speraw, 1994; Paton et al., 1999; Harvey, Moyle & Creedy, 2001), and may limit the capacity of primary health care providers to identify psychological morbidity (Wong et al., 2003). Brier (2005) recommends that practitioners should routinely screen for anxiety and depression after miscarriage. Women report insufficient recognition by staff of the magnitude of the experience, insufficient information about why their pregnancy miscarried and the implications for future pregnancies, and deficiencies in psychological or medical follow-up. It has been suggested that unhelpful and insensitive attitudes among staff may reflect their own emotional responses to pregnancy loss (Brier, 1999). When surveyed, 90% of care providers recognized that women were likely to experience emotional distress after miscarriage, which might be ameliorated by discussion of their feelings, but only 20% felt confident that they could do this for women in their care (Prettyman, Cordle & Cook, 1992). It would appear, therefore, that education and training of staff to provide psychologically informed care are needed.

In general, follow-up professional care after miscarriage is not provided, even though women commonly report a desire for it, attend when it is available, and report that it is helpful (Prettyman, Cordle & Cook, 1992; Lee & Slade, 1996; Turner, Flannelly & Wingfield, 1991; Nikcevic, Kuczmierczyk & Nicolaides, 1998). There have

been few evaluations of post-treatment interventions, and little description of the form that such follow-up services might take. Given the theoretical conceptualization of miscarriage as significant loss, grief counselling may be appropriate. However, a randomized controlled test of a counselling intervention by nurses found no significant differences in overall mood disturbance one year after miscarriage (Swanson, 1999). The specific features of miscarriage suggest that a broader conceptualization of therapeutic approach is needed. In particular, a combination of explanation of the medical reasons for miscarriage and psychological support may ameliorate the guilt reactions commonly experienced after miscarriage (Nikcevic et al., 1999; Nikcevic, 2003). It is interesting to note, in this context, that two recent prospective longitudinal studies have found no association between miscarriage and psychosocial stress, depression, optimism, spouse abuse (measured by validated psychometric instruments) or biochemical markers of stress and anxiety (Milad et al., 1998; Nelson et al., 2003a; 2003b).

Lee & Slade (1996) proposed a form of post-miscarriage care that acknowledges that miscarriage can potentially precipitate trauma reactions, and that gives attention to post-miscarriage anxiety symptoms. Their proposed model of treatment includes psychological debriefing, a form of crisis intervention used with survivors of trauma (Lee, Slade & Lygo, 1996). This was tested in a small, controlled trial, in which 39 women were randomly assigned to either an hour-long psychological debriefing by a female psychologist in their own home approximately two weeks after the miscarriage, or routine care (no follow-up). The intervention was generally regarded as helpful, but assessments of all trial participants four months after miscarriage revealed no significant differences between the groups in standardized measures of psychological morbidity (Lee, Slade & Lygo, 1996). This is consistent with findings of other trials of psychological debriefing in the context of reproductive loss or trauma (Small et al., 2000; Priest et al., 2003). With the exception of anxiety, which remained above the norm, psychological distress diminished significantly in both groups over time (Lee, Slade & Lygo, 1996). The psychologist who conducted the debriefing in this trial was unable to provide medical information about the possible causes of the miscarriage or about the implications for future reproductive decision-making. It may also be

that the completion of questionnaires as part of the study may itself have had a therapeutic effect, even for women in the control group (Athey & Spielvogel, 2000). The authors suggest that possible adverse effects in some women may have cancelled out beneficial effects, but do not present data to support or refute this interpretation. They further suggest screening using the 30-item General Health Questionnaire, to detect individuals who may benefit from additional psychological assistance (Lee, 1997b). However, such screening does not distinguish women for whom psychological debriefing may be helpful from those for whom it is not, or for whom it could be harmful.

Women's responses to miscarriage are likely to be mediated by the reactions of others, including family members and the broader society in which they live. The extent to which the psychological reactions of the partners of women experiencing miscarriage may limit their capacity to provide emotional support remains under-explored. Men appear to grieve the loss of a pregnancy (Conway & Russell, 2000), but their grief may be less intense and of shorter duration than that of women (Stinson et al., 1992). A small qualitative study revealed that men may experience confusion about how to behave socially, or how to provide appropriate emotional support to their partners, in the presence of their own feelings of loss after miscarriage (Puddifoot & Johnson, 1997). Women who were still depressed six months after spontaneous pregnancy loss were significantly more likely than those who were not depressed to have partners who avoided talking about the loss and who were less supportive (Beutel et al., 1996). In common with other forms of bereavement, support from broader social networks, including local health services, may assist in the adaptation to pregnancy loss (Rajan & Oakley, 1993; Rajan, 1994). In practice, it is unlikely that a single approach to the psychological care of women after spontaneous pregnancy loss will be effective in all settings and for all cultural groups.

There is general agreement in the literature that many women experience miscarriage as highly distressing, and that rates of subsequent psychopathology, including depression and anxiety, are elevated in comparison with community samples. Medical services are routinely involved in preventing the potential complications of miscarriage through active treatment, but are not

perceived to provide psychological support at the time of treatment or at follow-up. The particular factors that predispose some women to more intense psychological reactions have not yet been clearly identified, but vulnerability generated by earlier adverse events appears salient and warrants additional investigation. Although psychological reactions to miscarriage resolve spontaneously in most women, there appears to be a role for psychological intervention, immediately after treatment or in the long term. It is not clear whether some or all women would benefit from this type of intervention, or what form it should take, and there has been no evaluation of existing services. However, it is acknowledged that women who use health services after losing a pregnancy may benefit from a more psychologically informed model of care than currently exists in most settings.

Summary

Future research

1. There is a need for research on the impact of prior adverse life experiences, such as abuse and violence, on a woman's predisposition to psychological morbidity after miscarriage, as well as on the form of care that is appropriate for this group.
2. More attention needs to be given to the psychological component of medical care after miscarriage; there is little agreement in the literature about the form that psychological interventions should take, or which would be of most benefit to women.

Policy

Even though it is common, miscarriage should not be regarded as a routine event in women's lives; policies for the assessment and short- and long-term psychological care of women who have experienced miscarriage should be developed.

Services

Health services should ensure that staff are attuned to women's psychological needs following miscarriage, and are trained to respond with empathy and sensitivity.

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