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## Introduction and overview

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### Objectives

Since the late 1980s, several studies have highlighted the widespread prevalence of reproductive tract infections and gynaecological morbidities within community settings. Studies have been carried out in Egypt (Younis et al., 1993; Zurayk et al., 1995), India (Bang et al., 1989; Bhatia et al., 1997; Latha et al., 1997; Oomman, 1996), Nigeria (Brabin et al., 1995), Bangladesh (Wasserheit et al., 1989; Hawkes, 2002) and Turkey (Bulut et al., 1997), among others. These findings have spurred a great deal of interest among the research and NGO (non-governmental organizations) communities on the prevalence, correlates and consequences of reproductive tract infections, and gynaecological morbidity more generally, using both self-reported as well as clinically diagnosed and laboratory detected measures of morbidity.

The experience of studies so far has also raised a variety of methodological concerns and complexities, and offers a rich source of methodological lessons for future work (Koenig et al., 1998). These lessons become especially important to document in the light of the rapidly expanding number of ongoing or planned research studies on the prevalence and correlates of reproductive tract infections or gynaecological morbidities. Substantial sums of money are likely to be invested in the coming years in knowledge, attitudes and practice (KAP) surveys of reproductive tract infections, both by large investigations such as the Demographic and Health Surveys, and by smaller in-country investigations.

The objective of this volume is to draw upon this considerable experience in order to provide a synthesis of research approaches to the study of reproductive tract infections and other gynaecological disorders. Recognizing the multidisciplinary nature of any investigation on women's reproductive morbidity, contributors to this volume come from different disciplines, with representation from the social, biomedical and statistical spheres. In synthesizing approaches, the volume focuses not only on defining reproductive tract infections and other gynaecological morbidities that are usually studied, and ways of measuring their prevalence, but also

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provides a conceptual framework for the study of behavioural determinants and consequences for women's lives, and for future explorations of the role of men; methodological approaches for the study of self-reported, clinically diagnosed and laboratory detected morbidities; and analytical approaches to the synthesis and interpretation of data from a multitude of sources (qualitative and quantitative, clinical and laboratory). Finally, the volume draws out implications arising from the emerging research agenda for programmes and interventions.

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**Priority areas covered**

This volume begins by defining the gynaecological morbidities that can be studied by the approaches discussed herein. As indicated by van de Wijgert and Elias (Chapter 2), these cover a variety of conditions such as reproductive tract infections (including those that are sexually transmitted, endogenous and iatrogenic). It also includes gynaecological cancers, endocrinal disorders, genital prolapse, infertility, sexual dysfunction and menopausal symptoms. Their chapter defines each of these, including the symptoms that most often characterize them for those conditions that are not asymptomatic.

Several critical methodological issues are raised that must be addressed in any future studies.

**Social and contextual influences: building a framework for analysis**

The primary objective of studies thus far has been to estimate the prevalence of gynaecological morbidity within the communities studied. Comparatively less emphasis has been placed on understanding the social, behavioural and biomedical antecedents of such morbidity. In particular, the roles of potentially key but difficult-to-research determinants, such as sexual behaviour and practice, and iatrogenic factors, such as unsafe abortion and delivery practices, in influencing women's vulnerability to gynaecological morbidity, remain largely unexplored.

Jejeebhoy and Koenig (Chapter 3) provide, on the basis of an extensive review of the available literature, a conceptual framework describing immediate and background determinants of morbidity and health seeking. They also shed light on what is known about the consequences and implications of gynaecological morbidity for women's daily lives. Their review addresses how such morbidity impacts women's ability to fulfil a diverse and wide range of expected domestic and familial roles – economic productivity, domestic responsibilities, marital and sexual relationships – as well as on their own mental health and psychological well-being.

Also highlighted by Hawkes and Hart (Chapter 4) is the role of male partners, in terms of their own sexual and reproductive health, their importance as a source of transmission of sexually transmitted infection to other partners and their role in

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assisting or impeding women's ability to address and resolve reproductive health problems.

#### **Study approaches: community-based studies and alternatives**

Several approaches can be considered for studying reproductive tract infections and other gynaecological morbidities. Community-based studies, discussed by Zurayk (Chapter 5), have most commonly been used. Zurayk explains that these studies generally involve simultaneous consideration of self-reported experiences, as well as findings from clinical and laboratory examinations, and are preferred, clearly, for their representative samples. However, as Zurayk cautions, conducting such studies is generally complex and expensive. Community-based studies, for instance, generally require a multitude of data collection methods – qualitative and quantitative assessments of symptoms, correlates and consequences, along with clinical and laboratory investigations. Significant sample loss and self-selection because of women's refusal or reluctance to undergo clinical examination represent serious methodological problems in community-based studies of gynaecological morbidity. The significant sample loss experienced in many studies for the clinical component occurs for a number of reasons, including negative community attitudes, especially among husbands, and cultural sensitivity regarding gynaecological examination. By far the most significant reason for non-compliance, however, is that women who have no apparent symptoms of reproductive morbidity are unwilling to consent to a clinical examination. These results suggest that the overall prevalence of gynaecological morbidity may be biased upward as a result of sample selectivity, with the bias most pronounced in studies with higher rates of sample loss.

Given the frequently formidable challenges faced by community-based studies of reproductive tract infections, as outlined by Koenig and Shepherd (Chapter 6), alternative study designs may frequently need to be considered. The authors review studies that have used various facility based samples – women seeking sterilization services, women attending family planning clinics or those attending facilities for other non-gynaecological reasons – and discuss the relative advantages and disadvantages of studies using these designs.

#### **Fostering close interaction with the community**

As contributions from Khattab, Bang and Bang, and Serwadda and Wawer (Chapter 7) underscore, a high level of community rapport and interaction is essential for studies of this nature. One way of achieving this is by conducting the studies in co-ordination with voluntary organizations with a long-standing record of service to the communities. Even so, careful and exhaustive preparatory efforts and engagement with communities are nonetheless required in order for researchers to gain community cooperation and active support. Given the asymmetric

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nature of gender relations in many settings, convincing male community and family members of the rationale and need for such studies assumes paramount importance in successfully enlisting the participation of women.

In a number of settings, it will be necessary to include appropriate medical treatment or referral to respondents as a component of the study, since for many women this may represent the only opportunity to address their reproductive health problems. The inclusion of medical treatment as a component of the study of women's reproductive health problems may be a prerequisite in settings where few poor women have access to high-quality gynaecological care. This is important not only from an ethical perspective, but also to enlist women's cooperation and participation in studies of this nature. It is unlikely that many women would willingly acknowledge sensitive problems or agree to submit to what for many constitutes an invasive and embarrassing examination, if effective treatment was not provided.

**Methodologies for clinical and laboratory components of studies**

An additional source of variability, which may have contributed to widely divergent estimates of clinically diagnosed morbidity, is the lack of consistency across studies in clinicians' diagnoses of gynaecological morbidity. Elias, Low and Hawkes (Chapter 8) discuss the limitations of defining and observing reproductive tract morbidity in community-based research, and make recommendations for future practice. Their chapter illustrates the problems of inter-observer variation and variation in diagnostic criteria across studies. It also underscores the importance of using standardized definitions of clinically diagnosed morbidity, and proposes a core set of terms and definitions that are both well-supported by evidence from the literature and readily applied in clinical practice. Moreover, given the lack of consistent correlation between clinically diagnosed morbidity and the presence of laboratory diagnosed reproductive tract infections, it is important that laboratory testing is included for a core group of reproductive tract pathogens, and that it be considered an essential component of all community-based studies of gynaecological morbidity.

Laboratory testing has faced a variety of difficulties, including difficulties of diagnosis, women's reluctance to undergo pelvic examinations, the consequent selectivity of the populations studied and the requirement of sophisticated laboratory facilities which is unrealistic in most resource-poor settings. Kuypers and WHO Regional Office for the Western Pacific (Chapter 9) summarize feasible laboratory methods that are useful for the detection of 11 reproductive tract infections using sophisticated molecular biology techniques. Their chapter highlights that not all organisms can be detected using all types of assays, nor can all laboratories perform all types of assays. For each organism discussed, a table is provided that describes the sensitivity and specificity, the advantages and disadvantages, and

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the appropriate level of use of each method. The chapter provides a technical overview of the kinds of tests that can be performed in existing laboratory facilities in resource-poor settings. A major disadvantage is that the biological samples required can only be obtained through genital and/or pelvic examination.

The recent development of new diagnostic technologies has enabled researchers to bypass the requirement of pelvic examination and has greatly enhanced the feasibility of conducting field studies of sexually transmitted infections, reproductive tract infections and other selected reproductive conditions. Meehan, Wawer, Serwadda, Gray and Quinn (Chapter 10) describe these new technologies. A major advantage is that many of these methods avoid provider-dependent specimen collection (urine, self-administered vaginal swabs) permitting application in diverse settings, including the home. While these tests have been successfully administered in selected research studies, notably by the authors, their wider use is currently constrained by the need for sophisticated laboratory facilities and by cost. The authors note, however, that costs are likely to decline over time, as is the complexity of some assay techniques.

### Approaches for exploring women's perceptions and experiences

Cleland and Harlow (Chapter 11) and Oomman and Gittlesohn (Chapter 12) discuss quantitative and qualitative approaches for exploring women's perceptions and experiences of gynaecological morbidity, respectively. As Oomman and Gittlesohn indicate, in-depth qualitative research is critical for several reasons. It enables a better understanding of women's perceptions of morbidity, and local terms and expressions used to describe gynaecological complaints; such an understanding enables investigators to pick up the subtle and more indirect ways in which women describe some gynaecological problems. In-depth research also allows the investigator to explore women's attitudes to discussing or revealing certain kinds of morbidities, and provides an idea of morbidities that are likely to be underreported by a single question in conventional surveys; as well as beliefs regarding the causes of morbidity, the types of treatment considered appropriate for different reproductive health problems, treatment-seeking decision-making and behaviour, and their consequences for women's lives. And, finally, it offers the opportunity to corroborate the findings obtained from standard survey techniques on the magnitude of various gynaecological morbidities. The chapter also highlights the importance of triangulation (the use of different techniques to collect information on the same topic), iteration (a sequence of activities in which each informs the next), flexibility and contextualization (detailed analysis of the social setting in which the study takes place), and outlines a methodologically rigorous and systematic use of qualitative methods to investigate specific dimensions of gynaecological morbidity.

Cleland and Harlow focus on appropriate designs for survey research, and the need for framing questions that are specific. They include detailed probing and address issues of severity. Such a focus can address many of the significant response biases, which may lead women to underreport or overreport actual morbidity. For example, underreporting of gynaecological morbidity can result from the widespread perception among many women that such conditions are normal, and therefore merit neither acknowledgement nor complaint. In the light of this, special efforts are required to elicit such information from women. Questions need to be specific, and they need to probe beyond respondents' initial responses in ascertaining the true extent of gynaecological morbidity among women. At the same time, poorly framed questions can lead to the possibility of overreporting of some gynaecological morbidities. One reason for this is the effect of omitting questions on severity when querying about morbidity. A more general and problematic issue is that questions have often tended to be vague and open to subjective interpretation – for example, 'scanty' periods or 'excessive/abnormal' vaginal discharge. A serious concern in many studies is the omission of direct questions on severity, on the level of discomfort or pain, and on the extent to which reported morbidity interfered with women's daily routines and responsibilities. The authors present specific case studies on the application of survey research methods to the study of vaginal discharge and menstrual problems.

### **Integrating findings from multiple sources of information**

The various approaches described for the study of reproductive tract infections and other gynaecological morbidities is likely to generate a vast amount of data drawn from a variety of sources. Two chapters in this volume address the ways in which these data can be analysed and interpreted. Pelto and Cleland (Chapter 13) examine the ways in which qualitative and quantitative methods have been used together in reproductive health research. A variety of approaches to integrating qualitative and quantitative data are outlined, ranging from qualitative and quantitative approaches used in a single instrument to designs that field a qualitative component preceding and following a survey. The chapter outlines the ways in which data from these different approaches have been analysed and the ways in which the triangulation of different types of data can be effectively presented and interpreted.

Marshall, Filippi, Meheus and Bulut (Chapter 14) explore the ways in which morbidity drawn from different sources – self-reports, clinical examination and laboratory testing – can be interpreted. This chapter points out that findings from these three sources of data are often inconsistent. They highlight that only in exceptional circumstances is there likely to be a good fit between self-reported and medically diagnosed morbidities, and that sensitivity and specificity are generally low. Their

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chapter concludes that illness and disease – as reflected in self-reported and medically diagnosed conditions – should always be considered as logically separate. The measurement of each should be separately considered, and the findings, collectively, interpreted as complementary approaches to understanding reproductive health.

### Drawing the links from research to action

The final chapter, by Dixon-Mueller (Chapter 15), highlights the relevance of studies measuring gynaecological morbidity and its causes and consequences, for informing programmes and policies and turning research into action. She reiterates six basic needs that can be satisfied by the research arising from this volume. They can: assist in prioritizing prevention and control of reproductive tract infections in public health agendas; direct programmes on the need to integrate information, screening and services into ongoing programmes already serving women, and highlight mechanisms of doing so; point out lacunae in provider skills and argue for increasing investments in training, supervision and basic supplies; argue for increased attention to partner notification and services in sexually transmitted infection programmes; enhance understanding of behavioural factors promoting infection and devise cost-effective and culturally acceptable interventions; and suggest modifications in multiple sectors to enable women and men to protect their sexual and reproductive health. Dixon-Mueller argues that while researchers need not play the role of activists, it is their responsibility to disseminate their findings in ways that can act as tools for action, that are accessible to the broader community of health care providers, educational institutions, the media and policy makers and programme administrators, and that make succinct and practical suggestions for action.

Findings can be turned into action in a variety of ways. They can feed into training materials for providers at various levels – materials can extend, if appropriate, to guidelines for diagnosis and testing, for taking medical histories and assessing risk behaviours, counselling and so on – ideally including both technical and social aspects of service delivery. Secondly, findings can be translated into locally relevant information materials for outreach workers and community members – research findings can inform the development of these materials, for example, by identifying locally relevant terminology and ways of discussing sensitive topics, as well as by suggesting how best to impart information (on symptom recognition, signs or consequences of infection) and identifying and dispelling common misperceptions or fears of treatment. Thirdly, the media are another effective way of transmitting research findings, whether it is the print media that can expose educated and urban populations to the topic, or local entertainment mechanisms for harder to reach groups. Fourthly, findings can feed sexuality education and group counselling forums in schools, workplaces and other settings in which women and men gather.

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Finally, findings must reach governments in order that a positive policy and programme environment for addressing women's reproductive tract infections and gynaecological morbidity can be created. In short, well-conducted research must be well-disseminated, and its messages tailored to meet the needs of the diverse actors that are required in the prevention and treatment of reproductive tract infections and other gynaecological morbidity.

**Lessons learned**

The chapters in this volume offer a number of insights for researchers. Above all, they reiterate the complexity involved in conducting community-based studies of reproductive tract infections and other gynaecological morbidity, and suggest that such studies be conducted infrequently, using multidisciplinary research teams, and only when financial and infrastructural resources are in place. Other lessons emerging from this volume include:

- It is imperative that studies go beyond documenting morbidity prevalence and focus equally on proximate and background factors placing women at risk of acquiring such morbidity; treatment seeking behaviours adopted by women and the constraints they face in acquiring appropriate and timely care; and if possible, the consequences for women's lives.
- The association between self-reported, clinically diagnosed and laboratory tested morbidity remains poor, and studies limited to self-reported morbidity need to recognize the limitations of their findings. Such studies need to focus on potential risk factors, behaviours exposing women to risk of morbidity and health seeking behaviours of women experiencing a morbidity.
- Careful planning is required for the effective conduct of such studies, and it is inadvisable to consider a community-based study if the percentage of sample women expected to comply with clinical and laboratory examinations is below 75.
- Where community-based studies are not feasible, alternative study designs need to be explored – notably those drawing their samples from among women attending health facilities for family planning or other health services.
- Study designs need to be imaginative. Qualitative designs continue to provide depth on women's perceptions and experiences of morbidity and health seeking, but ideally they must be pursued using such methods as triangulation, contextualization and iteration. Survey methods, on the other hand, are central in providing estimates of the prevalence of women's perceived illness, and probing the kinds of symptoms experienced, treatments sought and obstacles faced.
- Finally, the volume points to the ethical imperative of involving communities in studies of reproductive tract infections and other gynaecological morbidity. Since

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poor women the world over have few opportunities to undergo gynaecological investigations in their lives, participation in a research project on the topic should provide women, as far as possible, with opportunities for treatment or referral, and for information on behaviours facilitating prevention.

Studies of reproductive tract infections and other gynaecological morbidities thus far have yielded widely varying prevalence rates. The different methodologies employed and the varying quality of approaches used has led many to question the magnitude of the problem suggested in several studies. This volume seeks to contribute to a more uniform and rigorous approach to the study of reproductive tract infections and other gynaecological morbidities, and lay out the kinds of limitations and complexities implied in research on this topic. More precise and detailed information on cause-specific gynaecological morbidity would go a long way in convincing governments of the need to integrate services relating to gynaecological morbidity into primary health care agendas, shaping programmes that enable women to overcome barriers in accessing care, and outlining misperceptions that need to be dispelled and appropriate and acceptable messages that raise awareness of prevention and promotion among women and communities more generally. The contribution of this volume is in providing research approaches to the study of reproductive tract infections and other gynaecological disorders that are robust enough to enable meaningful programmatic and policy responses.

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Wasserheit JN, Harris JR, Chakraborty J et al. (1989) Reproductive tract infections in a family planning population in rural Bangladesh. *Studies in family planning*, 20(2): 69–80.

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