The contribution of reproductive ill-health to the overall burden of perceived illness among women in southern India

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Objective To investigate women's perceptions of the overall burden of illness among a sample of women in southern India.

Methods A community-based sample of 421 young married women in a subdistrict about 70 kilometres from Bangalore, Karnataka State, India, were interviewed monthly for one year. At each visit, information on the symptoms of all forms of illness they had experienced was elicited with the aid of a checklist. Details were obtained on the durations of episodes of illness and on health-seeking behaviour and costs. The symptoms were subsequently coded in accordance with the International Classification of Diseases (ICD-10).

Findings Reproductive ill-health accounted for half of all illness-days and for 31% of total curative health expenditure. The 1990 Global Burden of Disease study estimated that 27.4% of disability-adjusted life years (DALYs) lost in Indian women aged 15–44 years were attributable to reproductive ill-health.

Conclusions Our study indicates that this dimension of morbidity, when measured in terms of women's subjective experiences, makes a larger contribution to the burden of illness than that suggested by the DALY approach. This lends justification to the high priority attached to reproductive ill-health in India.

Keywords Maternal welfare; Reproductive medicine; Pregnancy complications/diagnosis; Genital diseases, Female/diagnosis; Perception; Health expenditures; Cost of illness; Cross-sectional studies; India (*source: MeSH*).

Mots clés Protection maternelle; Médecine reproduction; Grossesse compliquée/diagnostic; Gynécologique, Maladie; Perception/diagnostic; Dépenses de santé; Coût maladie; Etude section efficace; Inde (*source: INSERM*).

Palabras clave Bienestar materno; Medicina reproductiva; Complicaciones del embarazo/diagnóstico; Enfermedades de los genitales femeninos/diagnóstico; Percepción; Gastos en salud; Costo de la enfermedad; Estudios transversales; India (*fuente: BIREME*).

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Introduction

During the 1980s there was a growing perception that women's health was being neglected in developing countries. Maternal and child health care programmes were criticized for paying inadequate attention to the needs of women, in contrast to those of their children (*1*); and family planning programmes were attacked for their tendency to regard women as pawns in the battle to reduce birth rates (*2*). One initiative aimed at overcoming the apparent neglect of women's health involved renewed emphasis on obstetric mortality and morbidity, as was demonstrated at the Safe Motherhood Conference held in Nairobi in 1986. This initiative quickly evolved into a broader concern with women's reproductive health, culminating in 1994 in the International Conference on Population and Development, at which an ambitious programme of action was devised in order to make reproductive health services more widely available in developing countries. The improvement of reproductive health subsequently became a major international priority, partly as a consequence of the human immunodeficiency virus (HIV) pandemic.

Simultaneously, there have been attempts to estimate the burden of reproductive ill-health in certain regions and large countries. In 1990 the Global Burden of Disease study, using a narrow subset of possible reproductive morbidities, estimated that 21.9% of the disability-adjusted life years (DALYs) lost by women aged 15–44 years were attributable to reproductive ill-health (*3*). The range was from 39.7% in sub-Saharan Africa to 8.6% in

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Established Market Economies; the value for India was 27.4%. Subsequent studies on the burden of reproductive ill-health have used six alternative definitions of reproductive health and a correspondingly wide range of estimates was obtained (*4*).

An obvious weakness of the DALY approach to reproductive health is the difficulty of incorporating the adverse consequences of unwanted pregnancy into the measures of premature death and disability. Many other problems have been identified, including an excessive reliance on expert judgement for disability weights and a corresponding neglect of people's own perceptions of the seriousness of different conditions (*5*–*7*). The latter concern is examined in this paper, in which we attempt to gauge the contribution of perceived or self-reported reproductive ill-health to the overall burden of illness in a population-based sample of young women in south central India.

Data and methods

The data used in this analysis were derived from the findings of a larger research project that was designed to investigate the pathways through which mothers' education influences their children's survival. This project included ethnographic studies, investigations in primary schools in three Indian states, a cross-sectional survey of young mothers, a smaller prospective study in which a subsample of mothers was interviewed monthly for one year, and a final phase of clinical and laboratory assessment. Details of the methodology have been reported elsewhere (*8*, *9*). The cross-sectional survey was based on a sample of 3600 married women aged under 35 years who lived in a subdistrict about 70 km from Bangalore, Karnataka State. The women were asked about symptoms of obstetric and gynaecological morbidity and about a range of other topics. Some months later, a smaller prospective study was started on a subsample comprising 440 women with children aged 6–12 months. A quarter of the subsample lived in a small town and the rest came from 48 villages; 88% were Hindus; 56% had never attended school; 16.8 % had severe anaemia (haemoglobin <10g/dl); and 12.2% had chronic energy deficiency grade III (body mass index (BMI) <16). In these and other ways the sample was representative of young married women in Karnataka State.

The women were interviewed at monthly intervals for a year by specially trained female lay interviewers. Information was gathered on a variety of health topics related to both mothers and children. We confine our attention to morbidity reports made by the mothers. At each visit the women were asked whether they had experienced any illness in the preceding four weeks. Recall was aided by displaying a list of 17 symptom categories. For each episode of illness the following information was gathered: start date, end date if applicable, perceived severity, and action taken. If a medical practitioner had been consulted additional details were obtained, including information about the type of practitioner and the direct and indirect costs of each visit. An analysis of these costs has been reported elsewhere (*10*).

The definition of illness depended primarily on the perceptions and statements of the subjects. For the purposes of the study an episode of illness was defined as a period of uninterrupted illness, irrespective of the number of symptoms or conditions reported simultaneously. An interval of at least 24 hours of complete well-being had to occur before a new episode could be considered to have begun. The respondents were asked to describe the symptoms of illness in their own words. Verbatim responses were recorded in the local language and then translated into English. They were subsequently coded by an experienced physician in accordance with the International Classification of Diseases (ICD-10). The results are presented in terms of ICD's 12 broad categories.

Of the 440 women recruited into the prospective study, 19 were lost to follow-up over the 12-month period, leaving an effective sample of 421. A total of 1219 episodes of illness were reported, of which 911 had ended before the final visit. These completed episodes generated 936 visits to medical practitioners.

Results

Over the observation period of 12 months, 10% of the women reported no episodes of illness, 18% reported one, 22% reported two, and 50% reported three or more. On average the women reported 2.89 episodes. Table 1 shows that over half the 1219 episodes were accounted for by three major diagnostic categories: circulatory/respiratory, genitourinary and infective/parasitic. The subjects were asked to rate episodes as mild, moderate, severe or very severe, and 30% of the illnesses experienced were regarded as severe or very severe. Episodes relating to pregnancy or family planning were least likely to be considered severe or very severe (10%), while the small number of skin complaints were most likely to be regarded as severe or very severe (60%). Among the three most common diagnostic categories, variations in perceived severity were less marked: circulatory/respiratory, 28% of episodes; genitourinary, 30% of episodes; and infective/parasitic, 38% of episodes.

An alternative, though by no means satisfactory, indicator of perceived severity was whether a medical practitioner had been consulted. A consultation took place in connection with 58% of the 911 competed episodes. Symptoms classified as infective/parasitic were more likely to lead to a consultation (71%) than genitourinary complaints (54%) or circulatory/respiratory problems (53%).

Life-table techniques were applied in order to estimate the durations of episodes. The median and mean durations of all episodes were 12.4 days and

36.4 days, respectively. Pronounced differences between diagnostic categories were apparent. The median duration of genitourinary problems was 46.7 days, with 38% of these episodes lasting more than 60 days. Symptoms associated with connective tissues and the digestive system also tended to continue for relatively long periods (median duration, 20 days and 16 days, respectively). Episodes for most other categories had median durations of less than 10 days.

Table 2 summarizes the burden of self-reported illness over the 12-month observation period. On average, women reported 100 days of illness. However, the mean duration fell to 31.7 days if episodes regarded as mild or moderate were omitted. Nearly half the illness-days involved genitourinary problems, a proportion that remained the same when only severe episodes were taken into account. In terms of the contribution to more severe illness, complaints relating to nervous/sensory systems and circulatory/respiratory problems ranked second and third, respectively.

Detailed information was obtained on curative health expenditure, including the cost of home remedies and travel costs incurred in visiting practitioners, in addition to consultation fees and expenditure on drugs. It was estimated that the average annual curative health expenditure was 172.3 rupees (approximately US$ 5.5). Of this, 63% was accounted for by the genitourinary, infective/parasitic and circulatory/respiratory diagnostic categories (43, 35 and 31 rupees, respectively).

Table 1. **Number of episodes of illness reported by the study women and indicators of severity by diagnostic category**

Diagnostic category (ICD-10)	% women reporting one or more episodes	No. of episodes reported	% episodes considered severe/very severe	% completed episodes in which practitioner consulted
Circulatory/respiratory	50	325	28	53
Genitourinary	44	250	30	54
Infective/parasitic	32	180	38	71
Digestive	16	77	34	61
Nervous/sense organs	13	73	38	43
Connective tissues	15	70	21	46
Pregnancy/family planning	10	69	10	85
Nutritional	11	49	22	48
Skin	6	32	60	60
Injury/poisoning	2	8	50	57
Ill-defined	16	86	27	54
All episodes	**90**	**1219**	**30**	**58**

Table 2. **Mean number of days of illness and mean annual health expenditure reported by study women, by diagnostic category**

Diagnostic category (ICD-10)	Mean number of days (all illness)	Mean number of days (severe illness)	Mean total expenditure (rupees)
Circulatory/respiratory	9.59	2.97	30.8
Genitourinary	46.10	15.03	42.9
Infective/parasitic	3.85	1.72	34.9
Digestive	5.46	1.68	13.2
Nervous/sense organs	5.95	2.98	9.6
Connective tissues	6.33	0.85	8.4
Pregnancy/family planning	2.81	0.27	10.5
Nutritional	6.77	1.78	5.3
Skin	3.05	1.79	3.9
Injury/poisoning	0.31	0.14	0.7
Ill-defined	10.30	2.51	12.1
All episodes	**100.52**	**31.71**	**172.3**

Discussion

The relationship between self-reported illness and biomedically diagnosed disease or disability is weak (*11*). This is particularly true in respect of gynaecological and obstetric morbidity (*12*, *13*). Nevertheless, health planners cannot ignore the subjective dimension. Perceptions of pain, discomfort, abnormality and inconvenience are important in their own right. Moreover, they are key determinants of the demand for services.

The aim of this paper was to assess the perceived importance of reproductive ill-health in young women relative to other forms of illness and thus to contribute to the debate on the setting of priorities. The restriction of the study population to married women under the age of 35 years with an infant or young child, living in a subdistrict of Karnataka State, made it difficult to come to general conclusions on the basis of the results. However, we have no evidence that the sample involved serious selection bias in so far as the key outcomes were concerned.

Of the 1219 episodes of illness reported during the study period, 250 (ca 20%) were classified as genitourinary, the vast majority of which involved vaginal discharge, lower abdominal pain, menstrual problems or some combination of these. A further 69 reported episodes related to obstetric problems or side-effects of contraception. Thus 319 episodes (26%) fell into the broad category of reproductive ill-health. Genitourinary problems lasted much longer than other types of episode, with the consequence that they accounted for about half the days of illness.

It might be argued that most of these days of reproductive ill-health represented minor, even trivial, complaints. However there was no evidence that this was so. Genitourinary problems and other health problems were equally likely to be described as severe or very severe, although most obstetric and contraceptive-related complaints were regarded less seriously. When attention was restricted to severe or very severe days of illness, reproductive ill-health still comprised 48% of the overall burden of illness. Furthermore, women were almost as likely to seek treatment from a medical practitioner for genitour-

inary complaints (54% of completed episodes) as for all episodes (58%).

How would these subjective estimates of the burden of reproductive ill-health compare with a DALY approach? Fertility in Karnataka State is rather low (*14*) and risks of maternal causes of death or disability are correspondingly low. The HIV epidemic is at a very early stage, and laboratory tests performed at the end of the prospective study indicated a relatively low prevalence of classic sexually transmitted diseases, although endogenous infections of the reproductive tract, particularly bacterial vaginosis, were more common (*8*). Clearly, a DALY-based estimate of reproductive ill-health would be much lower than the self-reported estimates obtained in this study.

Our findings indicate that young married women spend about 43 rupees per annum on treatment of genitourinary problems, i.e. 31% of their total curative health expenditure. This proportion is much larger than the share of the health budget in Karnataka State allocated to reproductive and child health, which receives 300.62 million rupees annually (2.8% of the total health budget) (*15*). Bearing in mind that the reproductive and child health programme is designed to meet the health needs of adult women and of children aged up to 6 years, these sums correspond approximately to per capita expenditures of 204 rupees for general health and 15 rupees for reproductive and child health. Thus there appear to be grounds for substantially increasing the allocation of funds to the latter activity.

Our principal conclusion is that problems connected with the reproductive system account for about half of the overall burden of perceived illness in this population of young women. Many of the reported symptoms undoubtedly have no discernible biomedical cause. Nevertheless, the high concern shown by the study women for vaginal discharge, lower abdominal pain and menstrual dysfunction necessitate a response. The findings lend justification to the high priority attached to reproductive health in low-income countries. Finally, our investigation illustrates the potential role of longitudinal studies in demonstrating the significance of reproductive ill-health in the overall burden of illness. It thus underpins recommendations for an international programme of such studies (*6*). ■

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Conflicts of interest: none declared.

Résumé

Contribution des problèmes de santé génésique à la charge totale de morbidité telle qu'elle est perçue chez les femmes en Inde du Sud

Objectif Etudier la perception de la charge totale de morbidité parmi un échantillon de femmes en Inde du Sud.

Méthodes Un échantillon de 421 jeunes femmes mariées a été sélectionné parmi la communauté d'un sous-district situé à environ 70 km de Bangalore dans l'Etat de Karnataka (Inde) et interrogé une fois par mois pendant un an. A chaque visite, des informations sur les symptômes de toutes maladies quelles qu'elles soient ont été recueillies à l'aide d'une liste de contrôle, ainsi que des détails sur la durée des épisodes, le comportement de recours aux soins et les coûts. Les symptômes ont été ultérieurement codés selon la Classification internationale des maladies.

Résultats Les problèmes de santé génésique représentaient la moitié des jours de maladie et 31 % du total des coûts de traitement. L'étude de 1990 sur la charge de morbidité dans le monde avait estimé que 27,4 % des années de vie ajustées sur l'incapacité (DALY) perdues chez les femmes indiennes de 15-44 ans étaient imputables à des problèmes de santé génésique.

Conclusion D'après notre étude, cette dimension de la morbidité, mesurée par l'expérience subjective des femmes interrogées, contribue davantage à la charge de morbidité que ne l'indique l'approche selon les DALY, et justifie la priorité accordée à la santé génésique en Inde.

Resumen

Contribución de la mala salud reproductiva a la carga global de morbilidad percibida por las mujeres en el sur de la India

Objetivo Investigar la apreciación femenina de la carga global de morbilidad entre una muestra de mujeres del sur de la India.

Métodos Se encuestó mensualmente a lo largo de un año a una muestra comunitaria de 421 mujeres jóvenes casadas de un subdistrito situado a unos 70 km de Bangalore, en el estado indio de Karnataka. Con ayuda de una lista de comprobación, en cada visita se obtenía información sobre los síntomas de todas las dolencias que hubiesen sufrido. Las mujeres daban detalles sobre la duración de los episodios morbosos, su actitud de búsqueda de tratamiento y los gastos asociados. Los síntomas descritos se codificaban a continuación mediante la Clasificación Internacional de Enfermedades.

Resultados La mala salud reproductiva fue la causa de la mitad de todos los días de enfermedad y del 31% de los gastos totales en atención curativa. En el estudio sobre la Carga Mundial de Morbilidad de

1990 se estimaba que el 27,4% de los AVAD (años de vida ajustados en función de la discapacidad) perdidos por las mujeres indias de 15 a 44 años eran atribuibles a la mala salud reproductiva.

Conclusión Nuestro estudio indica que, cuando se cuantifican en función de la experiencia subjetiva de la mujer, este tipo de enfermedades contribuyen a la carga de morbilidad más de lo que se deduce al emplear los AVAD. Ello justifica que se otorgue alta prioridad a la mala salud reproductiva en la India.

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