

Prevalence and risk factors of genital prolapse

A multicenter study

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ABSTRACT

Objectives: The objective of this paper is to describe the prevalence of genital prolapse and its risk factors in semi urban and rural communities. We ultimately hope to heighten the attention of providers of care and program managers to the high prevalence of genital prolapse despite the presumed improved access to care, availability of well-trained staff and high rates of hospital deliveries.

Methods: This study was carried out in Giza, Egypt and Ein El-Basha, Jordan in 1997. Presence or absence of genital prolapse was assessed using well-trained physicians who performed full clinical assessment including vaginal examination.

Results: The study results showed that the prevalence in Egypt was 56.3% and in Jordan 34.1%; that age and parity

remain the most predictive factors for the prevalence of prolapse despite controlling other factors; and that women suffer from accompanying symptoms including feeling of bulge, backaches, vaginal discharge, post coital discomfort and bleeding.

Conclusion: We believe that women do not have to suffer from these morbid conditions when known preventive interventions exist. Application of standards of care along with designed health education programs are expected to reduce women's suffering. Cost effectiveness studies that show the price tag of surgical intervention in comparison to preventive activities are badly needed.

Saudi Med J 2003; Vol. 24 (2): 161-165

The occurrence of prolapse and its complications have broad implications not only for women themselves and their partners, but also for those responsible for administering women's health programs, for allocation of research funds addressing women's health and geriatrics, and for training health providers to meet this rapidly escalating demand. The reported prevalence of prolapse is variable. A comprehensive hospital based review reported a prevalence of 25%.¹ Lower rates,

11.6%, have been reported.² Genital prolapse has economic implications as it increases the probability of hysterectomy.³ It has been estimated that the annual direct cost to society of pelvic organ prolapse operations in the United States of America (USA) amounted to 1012 million dollars.⁴ These costs are expected to go up due to increase in demand.⁵ In comparison to its actual prevalence, women's perception of their ill-health in relation to prevalence of uterine prolapse was 19.1%

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Received 8th July 2002. Accepted for publication in final form 26th October 2002.

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compared to other morbidity conditions such as menstrual disorders of 45.3%, pelvic inflammatory disease 12.8% and urinary tract infection 5.4%.⁶ In a study of the validity and reliability of asking questions regarding women's reproductive health in survey studies,⁷ it was shown that when 5 morbidities were studied, pelvic relaxation had the lowest sensitivity (17.3%) in comparison with anemia (58.3%), reproductive tract infection (RTI) (abnormal discharge only) (49.3%) and menstrual disorders (45.4%). It has also been shown that the incidence of hospital admission with prolapse is 2.04 per 1000 person-years of risk.⁸ It has also been shown that the risk of operation due to genital prolapse increases among nurses exposed to lifting of heavy burdens.⁹ The negative health effects of carrying and moving heavy loads on the reproductive system and maternal function of female workers were studied.¹⁰ A sample of 364 married women employed in various types of occupation involving carrying and moving different weights were recruited for the study and were divided, according to weight carried, into light load group (≤ 20 kg) and heavy load group (> 20 kg). By measuring the distances of cervix to the introitus the position of uterine cervix was found to be lower in the heavy load group. Another study¹¹ also showed that occupation was associated with urogenital prolapse. In comparison with professional/managerial women, housewives had odds ratios (OR) of urogenital prolapse of 3.1. It has been shown that pregnancy (> 20 weeks), regardless of the mode of delivery, greatly increased the prevalence of major pelvic floor dysfunction, defined as any type of incontinence, symptoms of prolapse or previous pelvic floor surgery.¹²

The bulk of the reviewed literature showed that, age,^{8,13,14} parity,^{11,14,15} body weight,² and mode of delivery¹² are well known predisposing factors. It has also been shown that menopause, grandmultiparity, abortus (2 or more), home deliveries, history of macrosomic infant (4500 gm or more); deliveries without episiotomy and laceration of uterine cervix were found to be risk factors for pelvic relaxation.¹⁶ Compared with nulliparae, parous women tended to have a higher risk of genital prolapse (OR=2.6). In comparison with women reporting no vaginal delivery, the ORs were 3.0 for women reporting one vaginal delivery and 4.5 for women with 2 or more vaginal deliveries. The study results also suggest the presence of familial predisposition where urogenital prolapse was higher in women with mother or sisters reporting the condition (OR=3.2) in comparison with women whose mother or sisters reported no prolapse (OR=2.4).¹¹

Despite the prevalence and significance of the condition, most of the studies have been carried out in developed countries. The reproductive health profile of women in developing countries differ. Yet, the literature on both the magnitude of genital prolapse and the characteristics of women who have it in developing countries and particularly in our region is scarce. Moreover, most of the conducted research is facility

based and does not represent the actual prevalence in the community. This paper discusses the findings of 2 studies that were carried out in Egypt and Jordan as part of a larger reproductive health intervention project implemented by members of the regional Reproductive Health Working Group in these 2 countries.

Methods. A community-based study conducted to assess the health status of sampled Jordanian and Egyptian women, and to investigate possible interventions in reproductive health services required to meet their needs. The study was undertaken in 1997 in a rural community in Giza, Egypt, and a suburban community, Ein El-Basha, Jordan. The Jordanian study is based on an examination of certain reproductive health morbidities in a sample of 300 reproductive aged women (18-49 years old) and 200 peri-menopausal women (> 50 years) who were randomly selected from the residential blocks surrounding the main health facility in the area. The data collection was carried-out in 2 phases. The first phase involved a face-to-face structured interview conducted by female field workers trained in the social sciences or public health, and was carried out with each consenting participant in the familiar setting of her home. During this time women were also asked to verbally consent to the 2nd phase of the study, which included medical examination including a pelvic examination, in addition to a set of laboratory investigations. Two medical teams, composed of a trained female physician, a nurse/midwife and a laboratory technician, performed the physical examination, took the necessary laboratory samples, and performed the microscopic examination of cervical samples. In Egypt, a random sample of households was selected based on geographical mapping of the 2 villages in Giza. Households were visited sequentially in selected blocks and ever-married, non-pregnant women were invited to join the study. A total sample of 509 women was achieved. Each woman was interviewed at home, and then accompanied to the village health center for the gynecological examination, which was undertaken at each of the 2 health centers by the female physician in charge of the medical services.

Results. The study results showed that the sampled study population in Jordan had a mean age of 42 years, the youngest was 17-years-old and the oldest was 70-years-old. More than 60% were below the age of 50 years. One third were illiterate while 47% completed their basic education (10 years of schooling). The vast majority of women were housewives, 77% were multiparous, and more than half had a history of one or more abortions. The majority (90%) were married at the time of the study, **Table 1.** Women in the Egyptian community were mostly uneducated, with illiteracy reaching 82% for women and 69% for their husbands. The ages of women were distributed evenly in the categories of less than 25, 25-34, and 35 years and older

Table 1 - Distribution of selected demographic characteristics of community studies by country.

| Characteristics | Egypt n (%) | Jordan n (%) |
|-------------------------|----------------|-----------------|
| Age | | |
| <20 | 79 (15.6) | 8 (2.2) |
| 20-29 | 178 (35) | 64 (17.2) |
| 30-39 | 151 (29.7) | 93 (25) |
| 40-49 | 80 (15.7) | 65 (17.4) |
| ≥50 | 20 (3.9) | 142 (38.2) |
| Education | | |
| Illiterate | 419 (82.3) | 125 (33.8) |
| Basic education or less | 69 (13.6) | 204 (55.1) |
| Higher education | 21 (4.1) | 41 (11.1) |
| Employment | | |
| Employed | 106 (21) | 17 (4.6) |
| Unemployed | 403 (79) | 355 (95.4) |
| Parity | | |
| Nulliparous | 54 (11) | 3 (0.8) |
| 1-4 | 297 (58) | 82 (22.5) |
| ≥5 | 157 (31) | 280 (76.7) |
| N of abortions | | |
| No abortions | 346 (68) | 158 (43.9) |
| ≥ 1 | 163 (32) | 202 (56.1) |
| Marital status | | |
| Married | 469 (92) | 331 (89.7) |
| Divorced/widowed | 40 (8) | 38 (10.3) |

Table 2 - Prevalence of prolapse by country.

| Prolapse | Egypt n (%) | Jordan n (%) |
|-------------|----------------|-----------------|
| No prolapse | 222 (43.7) | 245 (65.9) |
| Prolapse | 286 (56.3) | 127 (34.1) |

Table 3 - Prevalence of prolapse by age categories and by country.

| Age categories | Prolapse | |
|----------------|------------------|------------------|
| | Egypt n (%) | Jordan n (%) |
| <20 | 19 (6.6) | - |
| 20-29 | 88 (30.8) | 10 (7.9) |
| 30-39 | 111 (38.8) | 26 (20.5) |
| 40-49 | 56 (19.6) | 31 (24.4) |
| ≥50 | 12 (4.2) | 60 (47.2) |
| Total | 286 (100) | 127 (100) |

Table 4 - Prevalence of prolapse by number of deliveries.

| Parity | Prolapse | |
|--------------|-------------------|-------------------|
| | Egypt n (%) | Jordan n (%) |
| Nulliparous | 6 (10.5) | 0 (0) |
| 1-2 | 51 (39.9) | 5 (12.8) |
| 3-4 | 109 (65.3) | 7 (17.9) |
| ≥5 | 120 (76.1) | 112 (40.4) |
| Total | 286 (56.3) | 124 (34.8) |

Table 5 - Prevalence of prolapse by RTI and by country.

| Reproductive tract infection | Country | | | |
|------------------------------|------------------|------------------|------------------|------------------|
| | Egypt* | | Jordan** | |
| | Present n (%) | Absent n (%) | Present n (%) | Absent n (%) |
| Present | 156 (61.9) | 125 (51.7) | 46 (36.2) | 93 (38) |
| Absent | 96 (38.1) | 117 (48.3) | 81 (63.8) | 152 (62) |
| Total | 252 (100) | 242 (100) | 127 (100) | 245 (100) |

* P<0.04, ** P<0.40
RTI - reproductive tract infection

Table 6 - Prevalence of symptoms by prolapse and country.

| Selected related problems | Egypt n (%) | Jordan n (%) |
|---------------------------|---------------------|-----------------|
| Heaviness | 89 (31) | 17 (18.7) |
| Urinary disturbances | 133 (46.5) | 44 (34.9) |
| Feeling of bulge | 95 (33) | 9 (7.1) |
| Discomfort during coitus | 78 (27.3) | NA NA |
| Vaginal discharge | 235 (82) | 67 (53.2) |
| Post coital bleeding | 9 (3.5) | 4 (3.4) |
| Backache | NA NA | 65 (51.2) |
| | NA - not applicable | |

Table 7 - Logistic regression of prolapse risk factors by country.

| Variable | Country | B | SE | OR | LL | UL |
|--------------|---------|--------|-------|------|------|------|
| Age | Egypt* | 0.07 | 0.02 | 1.07 | 1.02 | 1.12 |
| | Jordan | 0.04 | 0.04 | 1.03 | 0.96 | 1.12 |
| Parity | Egypt* | 0.88 | 0.14 | 2.40 | 1.82 | 3.17 |
| | Jordan | 0.67 | 0.36 | 1.95 | 0.97 | 3.92 |
| Age x parity | Egypt* | -0.02 | 0.00 | 0.98 | 0.98 | 0.99 |
| | Jordan | -0.007 | 0.009 | 0.99 | 0.98 | 1.01 |

* P<0.01, B - beta coefficient, OR - odds ratio, LL - lower limit, UL - upper limit, Age x parity - interaction between age and parity

with a maximum age of 60 years. Most of the women married at a very young age. Approximately 8% were not currently married, being widowed or divorced, and 7% had husbands who were working abroad at the time of the study. The number of deliveries ranged from zero to 13, with 45% of women being grand-multiparas. Approximately 52% of women had a pregnancy that ended within the last 2 years. At the time of the study, the majority of women (92%) were married, **Table 1**. The prevalence of genital prolapse in the studied Jordanian community was 34.1%, **Table 2**, and in 15% of cases more than one type of prolapse was detected. The prevalence of prolapse among the studied Egyptian community was 56.3%, **Table 2**. The distribution of types of prolapse showed that the majority had either anterior or posterior vaginal prolapse while uterine prolapse was the lowest being 4.2% in Jordan and 7.9% in Egypt. Examination of the prevalence of genital prolapse by age showed that there was a positive upward trend in prevalence of prolapse with aging, **Table 3**. Jordanian women who were below the age of 20 years did not have any cases of prolapse compared to 24% of Egyptian women. The highest peak of prolapse (47.7%) in Jordan was in the 40-49 years age groups while it was much higher (73.5%) in a younger age group (30-39%) in Egypt, **Table 3**. The other important risk factor for prolapse, parity, also showed a positive upward trend. Jordanian women who had between one and 2 children had genital prolapse prevalence of 12.8% and it increases with parity until it reaches 40.4% for women with more than 5 deliveries. Women in the Egyptian study population had a similar pattern but with higher rates starting at 10.5% for nulli-parous women, and increasing dramatically and reaching 76.1% for women with more than 5 deliveries, **Table 4**. The study findings also showed that in the Jordanian study population, the prevalence of reproductive tract infections did not show wide variations. Women with prolapse had a prevalence of RTI of 36.2% compared to 38.1% in women who did not have genital prolapse, and the differences were not statistically significant, **Table 5**. Among the Egyptian study group, women with prolapse had a high prevalence

of RTI (61.9%) compared to 51.7% for women without prolapse ($P<0.04$).

The prevalence of related symptoms was also studied. Among the studied Jordanian population, close to one in 5 (18.7%) reported feeling of heaviness and one third had urinary problems. Only 7.1% reported feeling of a bulge. Approximately one half had vaginal discharge beyond their usual experience. In addition, half had backache and a small minority (3.4%) reported experiencing post coital bleeding, **Table 6**. The prevalence of reported symptoms among the Egyptian study population was even higher where one third reported a feeling of heaviness or feeling of a bulge. The vast majority (82%) were suffering from abnormal vaginal discharge in addition to 27.3% of women who reported discomfort during coitus, **Table 6**. Multiple logistic analyses for the main risk factors, age and parity, were carried out for each study group. The study results showed that even though age played a role and it interacts with parity, the effect of parity alone supercedes other variables in terms of its impact on the development of prolapse. In Egypt, the risk of prolapse more than doubles ($OR=2.4$) with every additional delivery, and in Jordan, it almost reaches 2 folds increase in risk ($OR=1.95$), **Table 7**.

DISCUSSION. The prevalence of prolapse is high, 56% in the Giza study, Egypt, and 34% in the Ein El-Basha study, Jordan. The Giza study findings represent low or middle socioeconomic rural women who are of high parity. Those women mostly delivered their babies at home with the assistance of Dayas who practice bearing down for a long time before full cervical dilation and squeeze the abdomen to get the baby out. In most of the cases they would not repair the perineum, if it has been torn. In addition, lack of adequate post-natal exercise that might help protect against prolapse may put women in a more vulnerable position in future pregnancies. Instead, women usually return soon to their regular daily effort with the burden of heavy workload inside and outside the home helping their husbands. As has been shown by Bao,¹⁰ work load contributes negatively to the development of prolapse. The Ein El-Basha, Jordan study group represents a semi urban population with access to health services delivery who still have high parity, and few of them work outside the home, yet the prevalence of prolapse is high when compared to figures reported by Brieger et al¹ and Marchionni et al.² Examination of association between prolapse and known risk factors showed that prolapse increased with increasing parity. The risk in the Egyptian study group increases by almost 2.5 times with every additional delivery. The risk for Jordanian women is also high, almost doubles, with every additional delivery. Given the high fertility in Jordan and even higher in Egypt, one expects that women who reach their fertility goals with no prolapse will be the exception rather than the rule. Age by itself played a

role, 7% increase with each additional year for Egypt compared to 4% for Jordan, yet its impact is overshadowed by parity. These findings are shared by those of Chiaffarino et al,¹¹ Strohbehm et al,¹³ and Harris et al.¹⁵ The risk of RTI for women with prolapse is clear and statistically significant in the Egyptian study. This risk probably becomes more apparent with uterine and posterior vaginal prolapse due to the potential exposure of the genital organs to the external environment that, may not be clean.

As the analysis of these 2 studies has shown, prolapse has a negative impact on women beyond the medical complications of RTIs and urinary tract infections. Women endure with vaginal discharge, back pain, constant feeling of a bulge, and pain during coitus. Prolapse is common not only in rural communities as shown in the Egyptian community, but also in semi urban settings as shown in the Jordanian study. It is directly related to the process of delivery and aging. Therefore, professionals attending deliveries and traditional Dayas who are common in rural areas, have to be trained in good delivery practice techniques. Health education programs should promote the importance and know how of good pelvic floor exercise before delivery and afterwards. Health policy makers should consider costs of pelvic floor repairs as more women become more aware of the condition and begin to demand medical intervention. More studies are needed to assess the health care seeking patterns of these women in order to assess future demands.

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