

# Post-Hysterectomy Adaptation: A Review and Report of Two Follow-up Studies

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**Hysterectomy, its indications and its consequences for later health, have been prominent topics in recent psychiatric, gynaecological and lay literature. This study describes the results of two recent surveys, one of 216 women less than 45 years old who had a hysterectomy for non-malignant conditions at a major Sydney hospital. These women were interviewed on the seventh to tenth postoperative day. One hundred and ninety-four were then followed up by questionnaire 13 months later. In a later study carried out at a hospital on the outskirts of Sydney, 100 out of 146 women responded to a follow-up questionnaire approximately one year after their operations. These studies and their relevance to recent similar studies are discussed in terms of post-hysterectomy adaptation and prognostic factors associated with poor psychiatric outcome.**

A number of workers have commented on possible psychiatric morbidity associated with the operation of hysterectomy. Earlier reports were chiefly impressionistic (Lindemann, 1941; Drellich and Bieber, 1958; Menzer *et al.*, 1957) but, more recently, authors have attempted to detail and quantify any possible impairment such as depression (Melody, 1962; Barker, 1958; Richards, 1973) or sexual difficulty (Dennerstein *et al.*, 1977).

Several key aspects emerge from a consideration of these papers and two valuable reviews by Polivy (1974) and Ananth (1978). Many workers, using various measures and methodologies, have found a high prevalence of psychiatric morbidity following this operation. Estimates vary widely, ranging up to 70%. It is unlikely that any excess in morbidity is merely a consequence of surgery as such patients have been compared with surgical control groups, most usually cholecystectomy patients.

The possible sources of such increased morbidity are outlined below.

a) Women who seek and/or obtain hysterectomy may have an inherent higher level of psychiatric impairment and there may be no postoperative increase, but simply a continuance of existing levels.

b) Predisposed women (i.e., women predisposed to psychiatric impairment) may seek hysterectomy which may then act as a precipitant of psychiatric morbidity.

c) Hysterectomy may cause psychiatric impairment through mechanisms as yet uncertain. The possible explanations of how hysterectomy may lead to an increased morbidity could include the following:  
hysterectomy leads to a crisis which is then poorly resolved;  
hysterectomy leads to a traumatic stress syndrome;  
hysterectomy predisposes to depression in the same way as any loss;  
hysterectomy as a stressor leads to general (i.e., non-specific) psychiatric impairment;  
hysterectomy as a stressor is followed by increased health-seeking behaviour;  
hysterectomy leads to a specific psychiatric syndrome — the 'post-hysterectomy' syndrome.

This paper will now go on to address these aspects from data available in the literature and studies conducted with women who underwent hysterectomy.

## Psychiatric Morbidity

Polivy (1974) and Ananth (1978), in careful

reviews, showed how clearly a wide range of studies point to an increased incidence of psychiatric morbidity after hysterectomy. Descriptive studies such as those of Lindemann (1941) noted restlessness, sleeplessness and preoccupation with depressive thoughts. Similarly, Drellich and Bieber (1958) have commented on the psychological significance of the uterus to women and highlighted the concerns associated with its removal. Menzer *et al.* (1957) noted regressive, uncommunicative and unco-operative behaviours in some of the subjects in their study. Melody (1962) noted that 4% of his sample (n 267) were depressed after hysterectomy, although all of these 11 women had at least one depressive episode pre-operatively. Steiner and Aleksandrowicz (1970) found a high percentage of psychopathological symptoms such as depression, anxiety, loss of libido or actual physical symptoms. In their study, 48.8% of hysterectomy patients compared with 16.2% of cholecystectomy patients showed psychiatric sequelae. This is very similar to Barker's (1968) finding of a referral rate for psychiatric care following hysterectomy approximately three times that for the general population and two and a half times that for cholecystectomy. Richards (1973), in the United Kingdom, found that 36.5% of 200 women were treated for post-operative depression by their general practitioners after hysterectomy.

Opit and Gadiel's (1982) sample, which analysed data from 826 women out of 2258 NSW women covered by one health fund, who received a hysterectomy in 1976/78 and returned a questionnaire some unspecified period after the operation, showed at least three-quarters of the women complained of at least one symptom at follow-up. These could be classed into five main groups: fatigue and tiredness; psychological symptoms; menopause-related symptoms; sexual disturbance; and bladder symptoms. The number of symptoms complained of was greatest in the younger age group and least in the oldest.

On the other hand, studies such as those of Meikle *et al.* (1977) where mood change was looked at in fine detail, both pre- and post-operatively, found no changes suggestive of a higher prevalence of post-surgery mood disturbances, in patients who had a hysterectomy, compared with those who had a cholecystectomy. Coppen *et al.* (1981), in a prospective study, found little to suggest depression or sexual difficulties in post-hysterectomy patients and even noted an overall improvement in mood and vigour in many subjects. Richards (1978) noted in the USA that, of his 274 subjects completing a survey, 90.9% were pleased they had had the operation, experiencing more energy and less inconvenience while 38% reported a better sex life. Patterson and Craig (1963) had earlier found low levels of

morbidity post-operatively.

Patterns of morbidity described vary, as can be seen from the above studies, ranging from general distress and health-seeking behaviour to specific psychiatric syndromes, particularly depression, or the more specific 'post-hysterectomy syndrome' described by Richards (1973). Depressions described are usually of the endogenous kind, often with agitation, whereas the 'post-hysterectomy syndrome' shows depression, fatigue and psychosomatic features. It may be that the patterns of general psychological distress, including the sense of impaired femininity and diffuse complaints, may represent more specific diagnostic categories, such as Briquet's syndrome, but this has not, on the whole, been defined.

Only a few studies have either investigated or commented specifically on sexual outcome. Dennerstein *et al.* (1977) noted 37% of her subjects' sexual relations deteriorated, 34% improved and 29% remained the same. Her subjects covered a fairly wide age range. On the other hand, Coppen *et al.* (1981) noted no such deterioration.

From a review of these studies, it appears that some women do perceive themselves as suffering from psychological impairment after the operation of hysterectomy, and at least in some studies this is evidenced by an increased rate of psychiatric referrals.

### **Factors Correlating with Post-hysterectomy Morbidity**

From the various studies that have been carried out looking at the psychiatric and psychological outcomes associated with hysterectomy, the following variables have been suggested as being important in predicting outcome.

#### *i) Demographic variables*

A number of studies highlight factors found more frequently in those who subsequently show impairment.

a) Age. Richards (1973), Wolf (1970) and others suggest women under forty to be more at risk, and Martin *et al.* (1980) reinforce the view that the younger group are more likely to be psychiatrically impaired, as does Polivy (1974) in her review. Ananth (1978) also noted better emotional outcome of the older groups.

Opit and Gadiel reported that women under 30 years, unmarried, without children, who had previous operations, were a group particularly at risk for a bad outcome.

b) Social class. It has been suggested that those with lower education and lower socioeconomic status have worse outcomes (Turpin and Heath, 1979).

c) Marital status. Marital disruption or failure has been associated with greater risk of impairment in several studies (Barker, 1968; Patterson and

Craig, 1963). Polivy (1974), in her review, emphasises the special vulnerability of the younger patient with marital disruption or divorce. Others suggest marital status may not be so significant (Steiner and Aleksandrowicz, 1970).

d) Parity. It has been suggested that women with high parity do better after the operation than women with low parity.

ii) *Pre-operative psychiatric disorder or impairment*

General studies such as those of Munro (1969) and Sainsbury (1960) have highlighted the level of psychiatric morbidity in gynaecological outpatients. Likewise, Rogers (1950) suggested that half the women who present themselves for gynaecological treatment had no gross disorder of that kind, but are rather a 'psychic conflict sailing under a gynaecological flag'.

More specifically in terms of hysterectomy a number of papers have now shown the relatively high levels of psychological disorder in some groups of women who come to hysterectomy. Thus Martin *et al.* (1980), in their study of women presenting for non-cancer hysterectomy, found that 57% of 49 randomly selected women were psychiatrically ill when assessed pre-operatively, 27% of these suffering from hysteria and 18% from primary depression. These subjects were most carefully assessed and diagnosed, using Feighner's research diagnostic criteria. The morbidity rates were much higher than rates derived from other comparable assessments of female populations. The rate for hysteria was particularly high, being 27% compared with the 1-2% found in non-psychiatric populations of medically ill and post partum women. The younger group (less than 40 years) appeared more likely to have psychiatric symptomatology, as well as higher rates of medical and surgical hospitalisations and were less likely to have demonstrable pelvic pathology.

Barker (1968) confirmed that 32% of subjects post-operatively had had a pre-operative (i.e., previously known) psychiatric disorder, while Richards (1973) noted 36%, Ackner (1960) 30%, and Chynoweth (1973) 28%. The correlation between pre-operative and post-operative disorder has been noted by many of these workers (Moore and Tolley, 1976; Ackner, 1960; Melody, 1962; Barker, 1968), so much so that Hunter (1974) felt it was more appropriate to talk of a 'pre-hysterectomy syndrome' than a 'post-hysterectomy syndrome'.

These studies suggest that for some women a pre-operative pattern of illness, vague complaints, multiple surgery and medical attendances may continue post-operatively and it has even been suggested by some that this pattern may have led the women to hysterectomy. The operation itself

may be but one further surgical procedure and may not be directly related to the negative psychological outcomes found post-operatively. Some women may have a pre-operative history of depression, specific and unipolar, and an episode of this may be precipitated by the operation, often within the first six months, or up to two years thereafter. Others may show a poor response to the operation itself, it being a crisis which is poorly resolved leading to general impairment, specific impairment or even the stress-response syndrome (Kaltreider *et al.*, 1979).

The two studies noted earlier that have found no association between hysterectomy and later mood deterioration (Meikle *et al.*, 1977; Coppen *et al.*, 1981) both, in fact, suggested an improvement after hysterectomy in the mood states measured. It is possible that any disturbance measured in their pre-operative assessments may have simply reflected a response to gynaecological complaints leading to the operation or distress about the operation itself. Certainly in the Meikle study, the hysterectomy group did not acknowledge an increased level of pre-operative psychiatric disorder or referral. Selection biases may have been operating to lead to these conflicting results.

In a recently reported study, Gath and his colleagues (1982a, 1982b) have advanced our understanding of this issue by their prospective study conducted in Oxford. The researchers (1982) interviewed 156 women with menorrhagia of benign origin. They interviewed them before hysterectomy, six months later, and again at 18 months post-operatively. Levels of psychiatric morbidity diagnosed by the Present State Examination revealed 58% to be so affected pre-operatively as against 29% at 18 months follow-up. Psychiatric outcome at 18 months was strongly associated with pre-operative mental state, neuroticism, previous psychiatric history and family psychiatric history. No association was found with demographic variables or variables related to the operation or pathology results.

iii) *Factors related to the pathology and surgical procedure*

It has been suggested that women in whom organic pathology is found in the uterus do better than those who have no clear-cut pathology (Foster, 1976) and similarly that the method of operation (vaginal vs abdominal) and whether sterilisation occurs or not might be important variables for outcome.

iv) *Expectations of symptom relief by hysterectomy*

It has been suggested that women who have high unrealistic and/or magical expectations of the results of the operation on their health are likely to do worse.

In order further to assess the adaptation of women to hysterectomy both in the immediate post-operative period and one year later, two separate studies were conducted as described below.

### **Method: Study A**

Women under the age of 45 years and living in a stable marital relationship, who were admitted as public, intermediate and private patients to a large metropolitan teaching hospital over the course of one year for elective hysterectomy for a non-malignant indication, were approached by a research worker on the seventh to tenth post-operative day and asked if they would be willing to be interviewed about their operations, and have information gleaned from their charts. If consent was obtained (as it was in approximately 85% of those approached), a semi-structured interview lasting approximately one and a half hours ensued: the Hysterectomy Interview Schedule. This interview covered the following material:

- a) Demographic factors: age, address, socio-economic status, religion, number of children.
- b) Information about illness: symptom pattern prior to operation, including duration and resulting incapacity, as well as prior history of physical or psychiatric illness.
- c) Social support network: the perceived helpfulness or unhelpfulness prior to the crisis of surgery of important figures in the women's environment, e.g. husband, mother, as well as the women's feelings about how well their emotional needs were met. The perceived helpfulness of doctors and nurses subsequent to surgery was also rated.
- d) Medical knowledge: the women were asked to draw on a diagram the position of the uterus and ovaries and their understanding of the function of these organs was assessed.
- e) Expectations of surgery: the women's expectations of their future sexual function, general health and 'nervous' or psychiatric symptoms as a result of surgery were assessed.

At the end of the interview, each woman's cooperation in agreeing to fill out the 13-month follow-up questionnaire was enlisted.

Information was then gleaned from the medical record as regards the following points: vaginal vs abdominal surgery, oophorectomy or not, immediate post-operation complications in the first week and pathology report.

Thirteen months later, each woman received the follow-up questionnaire. This covered the following information:

- a) General Health Score (H.Q.) which is based on a combination of physical and psychiatric complaints and symptoms experienced in the past year.

(This questionnaire was devised by Maddison and

Viola (1968) and has been used in several studies of bereavement. It covers responses to 57 items which review health over the preceding 13 months. It is designed so that the only scoring items are those which record complaints or symptoms which are either new or substantially more troublesome during this period. Individual items are given weighted scores ranging from 1 to 4 according to the seriousness of the complaint, e.g. sleeplessness received 1, asthma 4. A further weighting of 2 is given for any symptoms which required medical attention and an additional score of 2 if the subject has required hospitalisation. Convention has dictated that scores > 16 represent bad outcomes, scores of < 4 mean no health deterioration, whereas the mid-range represents moderate deterioration; 21.32% of widows in the year following bereavement show marked health deterioration (i.e. H.Q. > 16), whereas only 2-7% of controls show such deterioration.)

b) Specific depressive symptoms in the immediate past six months.

c) Drug and alcohol use in the past year.

d) Sexual relationships in the past year.

e) Continuing gynaecological symptoms.

In the detailing of results, this will be referred to as Study A.

### **Method: Study B**

Study A was complemented by another done two years later in an outer Sydney suburban hospital (Study B). All the women having hysterectomies during a one-year period were sent follow-up questionnaires only (i.e., they did not have the immediate post-operative interview) at approximately one year after operation, in order to see if the findings of the metropolitan hospital selected sample could be generalised to a broader, less selected sample. This modified study will be reported as Study B. Only 7 of the women in this sample had the procedure for cancer.

### **Characteristics of the Sample at Post-operative Interview**

#### *Results: Study A*

Demographic. Two hundred and sixteen subjects were interviewed 7-10 days post-operatively, of whom 194 finally returned the follow-up questionnaire at 13 months, a response rate of 90% (Sample A). Their mean age was 38.1 years ( $\pm 5.8$ ), with an age range of 22-45 years. Approximately half of them were in social classes 5 and 6 (based on Congalton's Social Scales 1-7 for Australian populations), with the others scattered equally in the other classes. One-third of the sample was Catholic and two-thirds non-Catholic. The mean number of children in each family was 2.5 ( $\pm 1.3$ ), with a range from 0-8. Fifty-seven per cent of the women would have preferred more children, the remainder being satisfied with the

number they had.

Information about illness. The main symptom by far leading to the operation was bleeding (70%), then pain (17%), followed by non-specific and mixed complaints (10%), with only 2% having the operation for sterilisation reasons. These symptoms were claimed to be incapacitating in half the cases, by which was meant that they interfered 'considerably' with everyday life. Approximately 20% of the sample had had symptoms for each of the following durations: < 6 months; 6 months → 1 year; 1 year → 2 years; 2 years → 4 years; and > 4 years. Thirty-six per cent of the women on self-report had evidence of previous psychiatric symptoms of sufficient intensity to have consulted their general practitioners, whereas 64% denied this.

Information from medical records. Two-thirds of the women had their hysterectomy by the abdominal route. A majority (88%) had at least one ovary preserved and the majority (83%) suffered no post-operative complications. At histological examination, macroscopic and/or microscopic pathology was found in 52% of the uteri.

Social support network. In general, women perceived themselves as experiencing many more helpful (12.1 ± 4.8) than unhelpful (2.4 ± 2.8) interventions from their environment. The most helpful individual in the environment was the husband (found so by 83%), whereas the most unhelpful were friends (33%). The medical staff (doctors and nurses) were rated as helpful by about 90% of the sample and unhelpful by only 5% (5% rating them neither). Mothers were rated as helpful by 50%, unhelpful by 8% and neither by 42%.

Medical knowledge. On seven questions of knowledge of the functions of the uterus and ovaries, the mean number of errors was two (range 0-7). Common errors were that the uterus was connected with sexual feelings and ignorance of the function of the ovaries.

Expectations as a result of surgery. The expectations of women in regard to their sexual (E sex), general health (E health) and psychological (E psy) function following surgery are recorded in the following table. As can be seen, expectations were generally not high.

#### Results: Study B

In Study B, 140 women were mailed the follow-up

questionnaire at one year, with a response rate of 70%. One hundred questionnaires were therefore available for analysis. The mean age of this group was four years older (42 ± 5 years) than that of Sample A. There was a more marked predominance of the lower social classes, with 77% in social classes 5-7 reflecting the population characteristics of the suburb in which the hospital was situated. The median number of children in each family was somewhat higher than for Sample A families, being three (mean 3.1 ± 1.0), perhaps explaining why only 14% of women wanted more. The main complaints were again excessive bleeding and pain and had been present a mean of 3.5 years. Bilateral oophorectomy was only performed in 16%. A history of psychiatric symptoms of sufficient severity to require treatment by a doctor was present in 20%. In general, this less selected sample is significantly different to Sample A. (See Table 3.)

#### Results of follow-up — Study A

One hundred and ninety-four subjects returned the follow-up questionnaire. On the general health questionnaire (HQ), the mean score was 7.4 (±9.6), with the range from 0-61. Forty-five per cent scored < 3 (a good health outcome), whereas 15% scored > 16 (a poor outcome). The remaining 40% had intermediate scores.

The majority of women (87%) did not notice any change in their moods since the operation, whereas 12% complained of increased depression. Similarly, the majority of women (82%) noted no increase in their use of psychotropic drugs and/or alcohol, whereas 18% did so.

The results of the women's perception of sexual function are detailed in Table 2 where it is shown that 48% felt improved, whereas 17% felt they were worse.

TABLE 2 Perception of sexual function (Study A)

Result	Number	%
Much better	50	30
A little better	36	18
Unchanged	66	34
A little worse	27	14
Much worse	6	3

Gynaecological symptoms were still present in one-quarter of the sample at follow-up. As might be expected, there was a high degree of concordance between all the poor outcome

TABLE 1 Expectations of surgery (Study A)

Expectations	E Sex	%	E Health	%	E Psy	%
No change	142	68	148	70	116	55
Better	26	12	53	25	63	30
Worse	4	2	2	1	20	9
Don't know	36	17	10	4	14	6

measures.

#### *Results of follow-up — Study B*

In Study B, the questioning about health outcome was not as detailed as in Study A. In response to a question about what their general health had been like since the operation, 81% said they were better, 11% said they were the same and 8% worse. As far as their sexual relationships were concerned, 40% felt they were the same, 40% said they were better and 20% claimed to be worse. gynaecological symptoms had been relieved completely in 65%, but remained to varying degrees in 35%. As in Sample A, the majority of women noted no increase in depression (81%), nor increased use of psychotropic drugs or alcohol (85%). In many respects therefore, despite the different characteristics of the two samples, as well as the increased possibility of drop-out bias in Sample B (response rate 70% at one year compared with 90% in Sample A), comparable post-operative statuses at one-year follow-up have been demonstrated.

#### **Factors Relating to Poor Psychiatric Outcome**

The previous literature has suggested three groups of factors which are related to a poor outcome: demography, past psychiatric history, and certain factors related to the operative procedure. These variables were examined as predictors in Sample A. Data were analysed by chi square tests on contingency tables in which three levels of health outcome (good outcome < 3, intermediate 3-16, poor outcome > 16) were compared with two or three levels of other variables (as stated below).

#### *Demographic variable*

1. Age. The hypothesis that younger patients (i.e. < 35 years vs > 35 years) would have a worse health outcome on the health questionnaire was not confirmed, nor did they experience more depression or drug or alcohol abuse than the older subjects.
2. Socio-economic status (SES). The hypothesis that low SES would be associated with poor health outcome was not confirmed (3 levels — classes 1, 2; classes 3, 4; classes 5, 6, 7).
3. Religion. The hypothesis that Catholic religious backgrounds (Vs Protestant) would be associated with poorer outcomes was not confirmed.
4. Neither parity nor wish for more children was related to the outcome.

#### *Hospital chart*

The type of surgery, whether oophorectomy was performed, the occurrence of post-operative complications and the presence or absence of pathology in the removed uterus were not related

to the outcome.

#### *Illness information*

There was no relationship between the predominant type of symptom which led to surgery, nor the incapacity it produced and the outcome measures. There was, however, an association between previous psychiatric history (present vs not present) and a poorer health outcome ( $\chi^2=9.9$  df 2,  $p=.007$ ) and between previous psychiatric history with increased drug and alcohol use (present vs not present) posthysterectomy ( $\chi^2=3.9$  df 1,  $p<.05$ ). These individuals did not, however, have a higher incidence of depression, nor report worse sexual outcomes than those with no psychiatric history.

#### *Social support network*

Those reporting more than two unhelpful interventions tended to have a poorer health outcome than those reporting less than two unhelpful interventions ( $\chi^2=7.3$  df 2,  $p=.02$ ). Similarly, those reporting more than ten helpful interventions tended to have a better health outcome ( $\chi^2=5.7$  df 2,  $p=.05$ ) than those reporting less than 10 helpful interventions.

#### *Knowledge*

Those with more than two errors in their knowledge of organ function had a poorer health outcome ( $\chi^2=5.1$ , df 2,  $p=.06$ ) than those who made less than two errors.

#### *Expectations*

Those with high expectations about their future health (vs moderate expectations vs low expectations) as a result of the operation were more likely to have poor health at follow-up ( $\chi^2=10.5$ , df 4,  $p=.03$ ).

So, to summarise, a poor health outcome on the health questionnaire at 13 months was associated with previous psychiatric illness, many unhelpful interventions and high expectations at interview one week post-operatively. It is of interest that these three variables themselves are highly intercorrelated in that there are associations between past psychiatric symptomatology and many unhelpful interventions ( $\chi^2=6.3$ , df 1,  $p=.01$ ) and high health expectations and many unhelpful interventions ( $\chi^2=20$ , df 1,  $p=.0001$ ).

In study B, a closer analysis of the eight out of 100 women (8%) who were worse as a result of the operation revealed that six were under 40 years of age, all had more than three children and that six of them had a past history of depression requiring treatment by a doctor.

#### **Discussion**

This paper reports the result of two follow-up studies on a total of 294 women who had

TABLE 3 Comparison of two follow-up studies at thirteen months

	Study A	Study B
Sample size	216	140
One-year response rate	194 (90%)	100 (70%)
Pre-hysterectomy		
Mean age (years)	35 ± 5.8	42 ± 5
% of sample of social classes V-VII	55%	77%
Mean number of children	2.5 ± 1.3	3.1 ± 1
Main symptom — excessive bleeding and pain	70%	75%
History of psychiatric symptoms (self-report)	36%	20%
Outcome at one year		
Overall self-assessment of outcome) Better	85%	81%
) Same or worse	15%	19%
Sexual function outcome) Better	48%	40%
) Same	35%	40%
) Worse	17%	20%
Complete relief of gynaecological symptoms	75%	65%
Increase in depression	12%	19%
Increase in drugs and alcohol	18%	15%
Factors associated with poor outcome	Previous psychiatric illness; many unhelpful interventions; high health expectations (one week post-operatively)	Previous psychiatric illness; age < 40 years

hysterectomies. They were conducted several years apart by different investigators on different samples in different hospitals in inner and outlying areas of Sydney. Study A was conducted by a psychiatrist (B.R.) with a particular interest in the issue of hysterectomy as a life crisis requiring resolution on a highly selected sample of women having some social support, having the operation for non-malignant conditions, who were still in hospital at the end of the first week and who agreed to be interviewed. Study B, on the other hand, was conducted by a gynaecologist (R.G.) with a basic disbelief in the literature on the detrimental long-term psychological consequences of hysterectomy, on a non-selected sample (all women who had hysterectomies at a suburban hospital during a one-year period). Data from both studies were then analysed independently by two other workers (B.S. and P.J.) who had not participated in data gathering. Both studies had a problem of drop-out bias at one year follow-up: in Study A 10%, in Study B 30%. Table 3 compares data common to the two studies. In general therefore, when looking at the outcome for the two samples in terms of those who deteriorated following hysterectomy, it can be seen that approximately the same proportion did not have a good outcome in both samples (15% vs 19%).

The proportion of Sample A (36%) who had a history of past psychiatric symptoms for which they had needed to see a doctor seems high until one looks at the Gath *et al.* (1982) study, one of the few to look carefully at psychiatric illness prior to hysterectomy. Here, using the PSE and Index of Definition (ID) of 5 or more, 59% of the women, when interviewed pre-operatively, could

be diagnosed as psychiatric cases. Similarly, Martin *et al.* (1980), in their prospective psychiatric interviews of 49 randomly selected women about to receive hysterectomy for benign conditions, found that 57% could be given a diagnosis of a psychiatric disorder, using the explicit criteria of Feighner.

The Gath *et al.* (1982) study further found that by 18 months post-operatively, psychiatric morbidity had fallen from 58% pre-operatively to 29%, with the fall detectable six months after surgery. At 18 months, 84% of the patients reported feeling better in themselves than in the six months before surgery, 11% were unchanged and 5% were worse. Henderson and his co-workers (1981) have recently pointed out that their research data would lead them to suspect that the perception of social relations as inadequate could be an expression of underlying personality attributes which are activated by adversity. It is of interest that, at least in Study A, such perception of inadequate social support is also associated with high expectations of the effects of hysterectomy on general health, perhaps reflecting a wish for a magical solution to problems in the group so predisposed.

Thus, four recent studies (Studies A and B, Gath 1982, and Opit and Gadiel) of different samples in two countries, all seem to suggest that approximately 75%-85% of women undergoing hysterectomy for benign indications will perceive themselves as significantly improved following the operation. In addition, Gath *et al.* (1982) who looked specifically at predictors of poor psychiatric outcome found, as we did, that demographic factors did not predict bad post-

operative status unlike findings in earlier reports (e.g. Richards, 1973). Gath *et al.* found a strong relationship between poor psychiatric outcome and psychiatric status before operation as measured pre-operatively by the robust measures of Present State Examination (PSE), Profile of Mood (POM) and the Neuroticism (N) scale of the Eysenck Personality Inventory (EPI) and the self-report measure of history of previous psychiatric illness (which was our sole measure). Despite our weaker measure, our finding was consistent with theirs and with others in the literature, as previously mentioned (Barker, 1968; Moore and Tolley, 1976). An unexpected finding was that neither the simultaneous procedure of bilateral oophorectomy nor the presence of overt pathology in the womb were in any way related to the outcome. Our findings also suggest that those with greater knowledge of the function of the reproductive organs do better, irrespective of their socioeconomic status.

### Conclusions

The literature on the psychological consequences of hysterectomy has been large, conflicting and, at times, acrimonious. It has led to debate in the medical literature, the lay press (Sydney Morning Herald, 1982) and the Parliament (Hansard, 1981). Meikle (1977), in a comprehensive review, selected the 21 studies up to that time, from which inferences could reasonably be drawn. In terms of number, 15 of these purported to show that hysterectomy is followed by undesirable psychological reactions, whereas only six claimed to have found no such effect. All of these studies were criticised by Meikle for design deficiencies. Meikle's main criticism was that too few studies have elected to examine psychological factors or psychiatric history as independent variables and that too few studies have been prospective. In recent years, a number of studies have tried to overcome these deficiencies and the results have been surprising. They show a higher rate of pre-existing psychiatric morbidity that had previously been unrecognised. Although patients attending a gynaecology clinic had been known to have a higher level of psychiatric morbidity than the general population for many years (Barker, 1968), reports of 58% in the Gath *et al.* (1982) sample and 57% in the Martin *et al.* (1980) sample diagnosable as psychiatric cases pre-operatively by strict and valid criteria, has meant that this literature needs to be more critically evaluated. Our study, in which 36% of one sample admitted in interview to psychiatric symptomatology and 20% of another sample to physician-diagnosed nervous disorder, could well be an underestimate of the prevalence of such disorder in this group. The role of the 'adversity' created by the operation requires further work. A plausible

hypothesis based on Henderson's (1981) work may well be that women with neurotic predisposition respond poorly to the stress of gynaecological symptoms, see their environment as unhelpful and look to a solution from hysterectomy of which they have high expectations in terms of their health outcome. These women seem to be the group at risk of bad outcome, but nonetheless, if Gath *et al.*'s (1982) work is replicated, 50% of them can expect to be significantly improved by the operation.

The debate is by no means settled.

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