CHAPTER II

HISTORICAL RESUME

Female Sterilization is currently the most commonly used as well as legally, morally and ethically accepted method of family planning all over the world. However, continuing concern has been expressed in medical and general literature about the incidence of later complications particularly about some disruption in sexual, psychological and menstrual functioning in the operated females. For at least, two decades the long term complications of sterilization have been debated. Surveys have revealed a wide range of symptoms, such as abnormal menstrual bleeding, abdominal and pelvic pain, various gynaecological complaints even weight gain and benign breast disease in 15% of women after sterilization. (Droegemullier, Grear & Davis, 1983; Lu.T. & Chun, 1967; Malick & Alkin, 1982; Neil et al., 1975; Vorherr, Messer Reid 1983).
These complaints have been termed "post-tubal syndromes" by some researcher while others consider them to be a "medical myth" (Corson, 1983; Peterson, Lubell, Destefano & Ory, 1983; Rulin, Turner, Dunworoth & Thomson, 1985).

The high incidence of complications calls for a thorough review of the literature on the psychological response also. In fact, Pohlman (1969) had stated, "Psychological objections constitute a major reason why sterilization operation is not becoming more common." It has generally been observed that these complications have no organic base. Thus it becomes all the more important to study the psychological impact of sterilization.

The review of the literature on the psychological aspects of female sterilization highlights many interesting observations in other countries but there is an extreme dearth of systematic research in India. Here the psychological aspect of sterilization presents a hazy and blurred picture. Besides this, aftereffects of sterilization are also influenced by several socio-cultural and demographic variable such as cultural background age literacy socio-economic status, work participation and number and sex of living children. Holstain (1952) had suggested that before the tubectomy operation is undertaken consideration should be given to the age, psychological make up of the patient and their
circumstances to avoid emotional upsets. Though specific studies related to these socio-cultural variables have not been undertaken, a few of these factors have been considered in some of the studies.

MENSTRUAL AND PSYCHOLOGICAL EFFECTS

Various surveys have reported change in menstrual pattern including irregular menstrual bleeding or spotting, oligomenorrhoea, dysmenorrhoea, leucorrhoea, heavy bleeding and pelvic pain after tubal legation. Jones and Merrill (1951) were the first to report menstrual disturbance following tubal sterilization. In their study, 16.5% of the women had significantly abnormal bleeding after tubal legation which is higher than would be expected in a comparable number of normal women.

Prystowsky and Eastman (1955) in a study of 1830 sterilized women obtained a follow up of a 1,002 cases (55% by questionnaire). Only 47 women (4.6%) had abnormal menstrual bleeding, while 10 women (.9%) had psychiatric symptoms and only three women had both psychiatric and menstrual complaints.

Many investigators have reported that menstrual disturbance following tubectomy are related to the kind of oral contraception used pre-operatively and its withdrawal or discontinuation rather than the sterilization procedure itself. Chamberlain and Foulkes
(1975) investigated the relationship between post-laparoscopic sterilization and previous contraceptive used. They found that 30% of the women had more days of heavy menses while 20% had a shorter cycle or less days of heavy menstrual period. Patients taking oral contraceptive prior to the operation, had both larger menstrual periods and more days of heavy bleeding and also increased incidence of dysmenorrhea than those who were not using oral contraceptives. Similarly Bhiwandiwala, Mumford and Fieldblum, (1983), Coooper et al. (1981), and Kwak, Ori, Gardner and Lauf (1980) also reported a similar relationship between discontinuation of oral contraceptive and menstrual disturbances. Bledin et al. (1984) also supported the view that menstrual changes following sterilization appear to be related in part to previous contraceptive used.

It has further been reported that pre-operative menstrual status is also responsible for post operative menstrual problems. Destefano et al., (1983) in a US Collaborative review of Sterilization (CREST) reported that pre-operative menstrual status is responsible for menstrual problems after tubectomy operation. Cole, Fortney and Kenedy (1984), supported the view of Destefano.
Destetano et al. (1983), further reported that adverse menstrual changes are related to tissue destruction caused by sterilization which may lead to later menstrual pain in same women. He further suggested that a control group must be included to study the effect of aging on menstrual functioning. Besides change in menstrual pattern after operation may benefit some women. He reported that 15% women had irregular cycle before operation as compared to 7.8% two years later. Over all improvement was showed by 50% women two years after operation. Similar results were reported Fortney, Cole and Kenedy (1983) in a study sponsored by Family Health International (F.H.I.) Patients reported shift towards less pain, more regular cycles and less bleeding. The fact that sterilization improved menstrual problems is supported by some earlier studies also. Thompson and Baird (1968) in their follow up study of 186 women reported that sterilization was unrelated to a majority of post-operative gynaecological complaints. Most women (90%) who had post partum sterilization were satisfied. Only 8 women regretted being sterilized and they had gynaecological complaints but these were not severe enough to require medical advice. They further emphasised that every aspect of the women's health, marriage and family life needs to be considered before sterilization is performed, since the
individual's circumstances, attitude and motivation are diverse. In their study, improvement in women was usually attributed to freedom from fear of conception and greater ability to relax. The women no longer tried to avoid intercourse. Besides there was less quarrelling and the marital relationship was happier. Indeed, several women thought that sterilization had saved their marriage.

Campanella, Wolff and Faccog (1974) interviewed 94 patients two years after sterilization. There were no serious problems, medical or psychogenic and all but 3 patients were pleased and satisfied at the end of the two years. Psychosomatic symptoms did develop but they were more prominent and persisted longer in younger patients. Although none of the patient sought gynaecological care because of menstrual symptoms, a good many noted the difference after the operation. As the time progressed more number of younger women had noted menstrual irregularities i.e. 40% at 6 months, 60% at one year and 65% at two years. Similar results had been earlier reported by Moor (1968). He had emphasised that younger patients are more prone to post operative psychogenic problems.
Similar positive results of sterilization have also been reported by some other investigators. Kapit and Berne (1977) initially studied 187 women, but, only 139 women could be contacted at follow up. They found that 85.6% were satisfied with the decision and reported improved mental and physical health and sexual activity while 54.7 would have liked to had been operated earlier. Whitelaw (1979) interviewed 485 women and found that most of the women reported improvement in sex life, mental health and social relationships. Similarly Smith (1979) approached 192 women and followed them two months and one year after operation. Twenty five percent of the sample was identified as psychiatric cases at the time of referral. The psychiatric status of these women who had a high score at initial assessment improved after sterilization and after one year, only seven of them still had high scores. Further, psychiatric status before or after one year of sterilization was unrelated to age.

Still another study by Cooper, Gath, Rose and Fieldsend (1982) yielded similar results. They followed up 190 out of 201 women, 6 month after the operation. Prevalence of psychiatric morbidity was 10.4%, but after surgery psychiatric morbidity was significantly lower (4.7%). Psychosexual disturbances were rare and social adjustment improved significantly. Bourgeois (1982)
also reported an increase in sexual activity and increased enjoyment, although some patients felt that same thing vital has been lost.

However, in a later study Cooper et al. (1984) reported mixed results. They selected a sample of women and carried a prospective controlled study of psychological effects of elective interval and post-partum tubal legation in which subjects were interviewed preoperatively (N=138) and one year post-operatively (N=116). No difference was observed between the sterilized and controlled group after one year in the prevalence of psychiatric morbidity and this morbidity was no higher than would be expected in a general population. Forty percent of the women reported a beneficial effect on their marital relationship and other psycho-social variables. Adverse effects such as deterioration in marital-relationship were rare but more likely to occur in postpartum subjects. Adverse psychiatric and psychological outcome at one year follow up was commonly associated with higher pre-operative psychological and psychiatric disturbances.

Similarly, Baker and Quinkert (1983) studied 47 women. Reaction to both tubal-legation and hysterectomy were similar and positive. Thirteen out of 47 women underwent tubal-legation. Thirty percent reported being depressed and 13% felt frustrated.
In 12% of the cases, problems dominated their life, 40% felt guilty, 74% felt left alone, 40% felt that they did not care, 7% blamed themselves while 2% said that they hated themselves. These result were similar to previous findings of Campanella (1974), Eschen and Huyek (1976), Hollender (1968), Mathis (1969).

In 1973, Schwyhart and Kunter reviewed 22 studies which had been conducted on women who underwent tubal-legation. They found that a greater percent of the women regretted the sterilization operation. Results were obtained from patients who agreed to follow-up interview or who voluntarily returned the mailed questionnaires. Unfavourable psychological results were based on the patient's report in four area: regret and dissatisfaction with the operation, less sexual desire or enjoyment, menstrual and marital problems and a poorer family life since sterilization than before. Menstrual problems included dysmenorrhea, hypomenorrhea, amenorrhea and increased blood loss. Previous researches indicate that such problem may be psychogenic. (Freed & Kroger, 1950; Manninger, 1941; Osofskey, 1967). Psychological measurement of the females reaction to sterilization had been largely limited to self report. Regret or dissatisfaction, ranged from 10% to 18%, lower libido or reduction of sexual enjoyment ranging from 2% to 25% and menstrual problems from 7% to 45%.
The studies reviewed were similar in terms of patient’s age and
parity, indications, measures and results. However, notable
differences in sampling and design were present. Psychological
problems were found in 36% of the women studied (Rakshit, 1966)
and worsening of psychological well being in 28% (Lu.T. & Chun,
1967). Psychological improvement was reported by Berthelson
(1957). On the other hand, Barglow and Eisner (1966) concluded
that adjustment to loss of reproductive functions involved
restitutive mechanism which produced symptoms of pseudocyesis
especially for women who were not psychologically healthy before
the operation.

Similarly, In India, Wig (1979) reviewed nearly 40 Indian
studies in which sequelae of the tubal-legation operation had
been assessed. However, only half of these studies assessed the
psycho-social effects of the tubectomy. Most of the studies were
retrospective in nature and cases were followed up for one or
two years. Only two studies took the sample of puerperal tubectomy
cases (Down, Samanta & Roddar 1968, Ghatikar & Bhopatikar, 1966)
while in the rest of the studies a heterogeneous sample was taken.
Two studies (Khurana & Vyas, 1975; Wig & Gupta, 1975) had a
prospective longitudinal design while in other two studies a
control groups were taken (Down, 1966; Down, et al., 1968).
Although various studies have reported all sorts of symptoms, menorrhagia was the most commonly reported symptom that occurred in nearly 20% of the cases (Gun, 1971-27.4% ; Rakshit, 1966-20.4% ; Verma & Bopa Rai, 1974-18.5%). A wide disparity was seen in the prevalence rates for loss of libido (Bishney, Aoya, Sethi Purandare 1967,5% ; Down, 1966-28.5% ; Rakshit, 1968, 22.1% ; Verma & Bopa-Rai, 1974,5.3%). The reason for this disparity may be the diverse criteria used by different authors in assessing subjectively reported decline in sexual desire. Further, the most commonly reported psychological disturbances following tubectomy operation were depression, anxiety, memory impairment, apprehension and psycho-neurosis which occurred nearly in 5% to 20% of the cases (Gun, 1971,4%; Sikand et al. 1968,21%; Verma & Bhoparai, 1974,5% ; Wagh, 1966,22%).

Down, Samant and Poddar, (1968) in a study with a control group observed post-tubectomy psychoneurosis in 30.9% cases as compared to 20% in a control group, and psychosis in 2.9% as compared to 20% in the control group. Khurana and Vyas, (1975) found psychiatric disturbances in 83% of the women, but the symptoms were mostly mild. However, there was a significant increase in mean score of psychiatric symptoms based on clinical ratings from 0.38 at pre-operative stage to 4.35 at follow up.
Wig et al. (1975) followed up 249 women at 6-12 weeks, 6 to 12 months, and 18 to 24 months after initial assessment prior to operation. Pre-operative prevalence of multiple-somatic and psychological symptoms was 26.7% and on subsequent follow ups the combined prevalence rate for menstrual, sexual and psychological symptoms were 24%, 11.7%, and 19.6%. At the final follow up after 18-24 month of the operation, pre-dominantly mild symptoms were observed in 13.73% of the women while moderate and severe symptoms were seen only in 3.36% and 2.52% of the women, respectively. Psychological symptoms like multiple somatics (hypochondriasis), anxiety and depression were seen only in 42 (11.8%) cases.

From the analysis of these Indian studies on tubal legation Wig et al. (1979) concluded that women did complain of physical, sexual, menstrual or psychological symptoms which they attributed to the operation. He further found clear disparity between the incidence of psycho-sexual symptoms following the operation in India and western countries. In India there was a high incidence of these symptoms while in U.K. and U.S.A. their number was negligible (Ali, Dag, Sardar & Sorcar, 1978). Regret for operation was generally found in less than 50% of the women (Adam, 1964; Bernne & Zuspan, 1958). Psychiatric disturbances were rarely
reported while decreased libido was seen in 12 to 22% of the patients (Jenson & Lestor, 1957, 12.1%; Enoch & Jones, 1975, 22.4% Woodside, 1949, 18%). Ekbald (1961) and Paniagua, Tayback, Janer and Valquer (1964) reported that 13% of the couple complained that frequency of coitus activity had reduced. Adam (1964) found less sexual enjoyment in 3% and Sack and Lacroix (1962) observed less satisfactory coitus in 20% of the couple. Further psychological symptoms of neurotic nature were more frequently reported by Indian women. So there is a clear disparity between the incidence of psycho-sexual symptoms between India and Western countries.

One of the reason for complaints by Indian women might be that in a large number of cases it had not been the individual's own decision to undergo the operation. That is why regret, ambivalence and periodic depression were more in those patients who had been advised to undergo sterilization by the doctor. If it was performed with an abortion the situation was generally further complicated. The women felt guilty about being pregnant in unfavourable circumstances that prompted them to have abortion and sterilization may be chosen as a form of punishment for
getting pregnant. However, the discrepancy between prevalence rates of psychosexual disturbances in the east and west may also be due to the difference in the socio-cultural background.

These facts receive further support from a number of earlier studies. Berne and Zuspan (1958) reported that the patient who had undergone operation themselves were better satisfied than the patient to whom the procedure was suggested by the doctor. Sikand et al. (1968) reported that psychiatric disturbances were more in persuaded group than in the group who opted for sterilization. They reviewed 301 patients after a period of 2 and 6 years and found that 12.2% of the patients had psychiatric disturbances after two years while 8.9% after 6 years. Besides there was decreased libido in 12.5% of the opted cases and 19.6% in the persuaded cases. Menstrual disturbances were observed in 28.9% of the opted cases, 7.4% of which belong to older age group.

Similarly, Bhagwanani et al. (1968) reported that psychiatric disturbances were one and half time more and were more severe in nature in the persuaded group as compared to the patients who opted for sterilization. This has further been confirmed by Cox and Crozier (1973), who studied 220 women after twenty to thirty months of sterilization. They found that 5.9% regretted the surgery. They reported worsening of sex life in 5% women, weight
gain in 11.7% and nervous trouble in two women. Of thirteen women who had regretted sterilization, 6 had strong medical indication for sterilization. They further reported that regret was not due to the operation but due to circumstances that lead to the operation.

Whitelaw (1979) also surveyed patients who underwent sterilization at an obstetric and gynaecological unit in Dunfaisntime from 1965-74 to determine the nature of post-operative complications. Altogether 547 women were sterilized, 485 (88.76%) were interviewed and examined. Most of the women were pleased to have been sterilized. Only 24 regretted it and regret was more in women who were sterilized because of medical reasons and also among those whose marriage had ended in divorce. Poma (1980) interviewed 163 sterilized women and reported that 19% regretted the operation even before leaving hospital. Most of them were under 30 years and had two children. In a consequently recent study, similar results have been reported by Brodbent (1984). Out of 218 women (average age 33.7 years) forty percent had undergone operation at the advice of the doctor. Follow up was done after 3 months, 1 year and 6 years. Seventy percent women had complaints attributable to the operation, 18% experienced regret, ambivalence and periodic depression because of
sterilization. More regret was observed in the group who had opted for the operation at the doctor’s advice, along with abortion application. Regret was also seen more often in women where little post-operative support was provided by spouse.

Still another study by Serine, Gupta and Sinha (1986) attempted to compare the complication, failure and cost-effectiveness of mini-laparotomy and laparoscopic voluntary sterilization. One thousand and sixty cases were followed up for one year. There was no serious morbidity in either 'A' (who opted for laparoscopic sterilization) or 'B' groups (who opted for mini laparotomy). But the complication rate was higher for the patients of both groups who underwent sterilization along with MTP (Medical termination of pregnancy).

From the above discussion, we can conclude that change in menstrual pattern after sterilization is due to the discontinuation of oral contraceptives or inter uterine devices. Further women with menstrual problems before sterilization are more likely to experience psychiatric problems after surgery. Besides if women undergo tubal-legation at their own initiative then they would develop less complications after operation.
SOCIO-CULTURAL VARIABLE AND AFTER-EFFECTS OF TUBAL-LEGATION

It has further been observed by some researcher that age, education socio-economic status of the women, her work participation and urban-rural background also determine the complications developed after tubectomy operation. A number of investigators have reported that younger the age of women at the time of sterilization more is the risk of ambivalence and regret. Sexana (1963) studied forty cases of average age 30.32 years in order to see whether tubal-legation had any psycho-sexual effect on the behaviour of the women. Follow up was done after two months and two years. Psychological changes varying from absent mindedness to the development of hysterical fits were observed in 32.5% of the subjects, 22.5% developed irritability, 50% loss of interest in their surrounding, 50% liability of mood, 2.5% dyspepsia, 2.5% insomnia, and 2.5% had hysterical fits, while only 5% women wanted the operation to be undone. Most of these changes were observed in patients coming from the lower socio-economic strata. Patients with irritable temperament were more susceptible to these changes than normal women. He further observed that patient's with unhappy married life were more prone to emotional changes, while patient with weak psychological disposition were also more prone to these symptoms. Further,
patients who were sterilized at younger age belonging to lower strata of society, uneducated with unhappy family environment fell easy prey to these changes. Besides this, the patients who were sterilized against their wishes, were anxious, orthodox, religious, with strong maternal feeling and liable and irritable temperament easily developed these symptoms. Adam (1964) found similar results on the basis of his study of 173 tubectomised women. He observed that 30% women who were having regret after sterilization were of younger age and had fewer number of children. Similarly Aditia and Aditia (1966) also found that the negative effect of tubal legation was more in younger age-group. In their ten year survey of 1,156 cases they found menstrual disturbance in 80 patients. Out of which 34 patients (varying between age-group of 25 years to 35 years) had menorrhagia, 19 had polymenorrhoea, 6 had dysmenorrhoea and 18 had a combination of these irregularities. Two cases showed depression and needed psychiatric attention. Similarly, Down (1966) also reported that the younger patients had more menstrual disturbances after tubectomy operation. He studied 142 women who had undergone tubal legation 5-7 years earlier. All of them belonged to low middle class and underwent the operation due to socio-economic reason. Sixty four percent of these women showed more emotional upsets while 4%
women who were sterilized before the age of 25 years developed various symptoms of anxiety neurosis, viz poor sleep, palpitation, sudden back-outs, giddiness, fainting attack and pelvic pain. However, these symptoms were without any clinical signs. Further, four women were found to be suffering from a secondary disease as a result of the operation, eleven (28.5%) complained of loss of libido while in the control group the figure was 2.5%. Moor (1968) reemphasised and agreed with Down that younger patients were more apt to have post-operative psychogenic problems.

Their findings were further confirmed by Companella et al. (1974) who reported that as the time progressed more of the younger patients noted menstrual irregularities i.e. 40% at six month, 60% at one year and 65% at two years. Bernstein (1979) reported that to avoid psychiatric complication after sterilization patient should be over 30 years. If under 30 years it is best if the patient has atleast two children. Hasija (1985) found similar relationship between age and complications after tubal-legation. He reported that menstrual disturbances were more in younger age group i.e. 20 to 24 years.

On the other hand, results of some studies indicate that women of older age are more prone to develop menstrual and psychiatric symptoms after tubal legation. Ghatikar and Bhopatikar
in their retrospective follow up for 8 years of 520 women reported that 3.8\% had psychological disturbances. They further emphasized that menstrual disturbances were more in older age group i.e. 31 to 35 years.

Chakravorty (1966) also reported similar results. In contradiction, Smith (1979) found age of the women unrelated to disturbances after the operation. He carried out a follow up study on 192 women in Scotland. Out of which 25\% were identified as psychiatric cases at the time of referral (a standardized self administered questionnaire was used as a screening device and a psychiatric interview for validation). One year later the rate of psychological morbidity was estimated to be 15\%. But psychiatric disturbances before or after one year were unrelated to age. Another recent study by Cooper et al. (1985) also contradicts these results. They reported that age was not related with later regrets. But as we have seen the earlier studies indicate absolutely contradictory findings.

Besides age of the women, socio-economic status also influences the after effect of tubal legation. Das Gupta, Jain, Prasad and Bhushan (1970) studied 124 cases who opted for tubal legation, out of which 83.87\% belonged to lower middle class. Out of them 70.70\% developed one or more mental symptoms. Sawhney,
Mathawat and Sethi (1970) also confirmed that economic responsibility was a significant factor in the development of psychiatric symptom after tubal legation.

On the other hand it has been observed in a number of studies that education of women and her work-participation in economic activity have a significant depressing effect on average number of children ever born (Dutta & Chaudhary, 1972; Goyal, 1972; Pressier, 1970). It had also been reported in a number of studies that most of the women who opted for sterilization were illiterate (Dutta & Chaudhry, 1972; Goyal, 1972). However contradictory results i.e. the women who opted for sterilization were better educated than those using non-permanent contraceptive methods, have also been reported (Lippitt, et al. 1969; Rao & Sadashiv, 1969). Though there may be a controversy regarding the role of education in choosing contraceptive methods or in deciding number of children, but education of women definitely has an effect on the complications after tubal-legation.

Saxena (1963) emphasized that uneducated women were more prone to develop psychiatric symptoms after the operation. In a WHO collaborative prospective study (1985) it was found that low educational status of women was significantly related to emotional disorder in both index and control group subjects. The report
described a follow-up study of 1,850 women, which included re-examination at 6 week, 6 month and 12 month after initial assessment. The study was unique in the sense that it involved a multi-centered collaboration, with research settings located in widely different cultures. The practical conclusion drawn from the study was that tubal legation did not entail any serious mental health risk if it is carried out in conditions similar to those in the study. This is the first controlled prospective study of the mental health aspect of female sterilization. It reported that no psychiatric morbidity could be attributed to sterilization itself. Symptoms shown in present state examination (PSE) in all follow ups were irritability, restlessness, worry, tiredness, exhaustion, subjective feeling of nervous tension, hypersensitivity to noise, free-floating anxiety, depressed mood and muscular tension. It was found that previous psychosomatic dysfunction (e.g. pre-menstrual tension) family history of mental disorders, social stress and low educational status were significantly related to antecedent and current emotional disorders in both index and control group subjects. This study was the first to employ both standardised method of assessment and diagnosis and a case-control design.
From the above discussion it is clear that socio-cultural and socio demographic variable also determine the complications after tubal legation operation. No psychological morbidity can be attributed to sterilization itself.

ROLE OF PERSONALITY IN MANIFESTATION OF PSYCHOSOMATIC DISORDERS AFTER TUBECTOMY

Upon carefully reviewing the research on after-effects of tubectomv operation one can detect a perceptable emphasises on the underlying personality e.g. schizoid personality made a significant contribution towards causation of psychosomatic and psychiatric manifestation after tubal legation operation.

Woodside (1949) studied 480 women of average age of 32 years with average number of four living children. He found that 16% suffered from lowered libido. He further reported that the few women who reported adverse effect on sexual relation presented a symptom of neurotic personality. Later, these findings were confirmed by Ekabald (1961). In his follow up study of 225 women he reported that 18% women regretted the operation. 12.13% had lower libido. He further found that 52% of his sample had an abnormal personality prior to the operation.
In another study Sawhney et al. (1970) reported similar results. In their longitudinal study on 150 women they reported that 21.3% subjects manifested psychiatric symptoms. Of the 150 subjects, there were 20 cases of anxiety, 7 depression and 5 psycho-physical reactions. They found schizoid personality to be a significant determinant for subsequent development of psychiatric illness after tubal-legation. They further emphasized that joint families also contributed towards the depressive psycho-pathology.

Amal (1983) on the other hand studied the effect of postpartum sterilization on personality dimension of extroversion / introversion and neuroticism / stability using Eysenck's personality inventory. The experimental group constituted of 280 women who voluntarily agreed to undergo the operation. Another random sample of 160 women who came for delivery constituted the control group. It was found that there was significant increase in the degree of neuroticism and extroversion dimension of personality in experimental group after a period of three months as compared to the control group. The investigator suggested that increased extroverted tendency may have resulted from decreased sexual fear.
From these studies we come to the conclusion that personality is a significant contributory factor in the development of psychological disturbances after tubal legation operation and in turn personality is also effected by sterilization.

Similarly, the fact that there is increase in anxiety in the women after tubal legation receives support from a number of studies. Wig et al. (1975) observed anxiety and depression in women after tubectomy operation. Specially, women who were sterilized before the age of 25 years developed various symptoms of anxiety. Other researchers have also supported this fact (Down, 1966; Gupta, et al. 1970; Sawhney, et al. 1970, and Wagh, 1966).

Amal (1983) also studied manifest anxiety in women before and after tubal legation. She reported that experimental group showed an increase in the degree of manifest anxiety after a period of three month, whereas control group showed a decrease in manifest anxiety. She had done this study on the same sample on which she had studied the effect of tubal legation on personality dimensions. But this fact does not receive support from a recent study by Ganeshan, Vedagiri and Palaniswami (1986). They investigated the direct and indirect effect of tubectomy operation.
on anxiety and reported that tubectomised subjects did not experience a significant increase in state or trait anxiety levels following tubectomy.

Similarly James, Kohlar, Goldenberg and Jackson (1990) recently investigated the psychological impact of tubal ligation on 323 Alabama women. The design was prospective as it included a comparison group of 318 women who used other contraceptive methods and called for 6 to 12 month follow up. Sterilization produced a small increase in menstrual distress but did not effect sexual satisfaction or mental health. It did not increase regrets about contraceptive choice over other methods.

On the basis of the analysis of different studies we can say that it is difficult to determine the extent to which these psychological, psychosomatic and sexual disturbances are due to sterilization or because of other subsequent changes in women's life. So we need not necessarily attribute these complications only to sterilization as shown in various surveys. They might be due to the adverse circumstances faced by the women and sterilization might act as the precipitating factor in the development of psychological, psychosomatic or somatic
complications. Another important factor is the woman's reaction to cessation of fertility and this is influenced by the prevailing culture of the society in which she lives.

Thus it appears that an examination of the women's psycho-social situation is necessary before attributing post tubal legation complications to the operation itself.

The review of literature indicate that though a large number of studies have been conducted in Western Countries, very few controlled studies are available in Indian context, about the development of psycho-somatic and psychological disorders after tubectomy operation. Therefore need for scientific investigation of tubal legation in India, specifically in the development of psychosomatic symptoms seems to be strong.

We may now pass on to the next chapter dealing with problem and hypothesis of the present investigation.