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## Chronic Musculoskeletal Pain and Marital Adjustment Effects on the Spouse

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CHRONIC MUSCULOSKELETAL PAIN  
AND MARITAL ADJUSTMENT:  
EFFECTS ON THE SPOUSE

by

Marilyn Matson Jones

A project submitted in partial fulfillment  
of the requirements for the degree of  
Master of Science in Psychology  
( Plan B )

Utah State University

Logan, Utah

1991

Approved

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### Abstract

Chronic musculoskeletal pain can fundamentally alter a marital relationship and have significant effects on marital satisfaction for both the chronic pain patient and spouse. This paper is a critical review of literature on chronic musculoskeletal pain and marital adjustment. Nineteen empirical studies are evaluated and serve as the data base for conclusions and recommendations. Variables which may effect marital satisfaction such as sexual function, spouse solicitousness, effects on the psychological and physical health of the spouse and gender differences are identified. The impact of these variables on marriage and the spouse in particular, is discussed. Implications for further research in this area are considered.

CHRONIC MUSCULOSKELETAL PAIN and MARITAL ADJUSTMENT:  
EFFECTS ON the SPOUSE

Pain is a private sense of hurt, a subjective phenomenon known only to the affected person; however, it has been observed that symptoms of pain also seem to serve a communicative role between chronic pain patients and people around them. Family reactions, interactions, and behaviors have the potential to either diminish a pain problem or to exacerbate it and nurture it into chronicity.

Development of a chronic pain problem usually has significant effects on the emotional, behavioral, and physical well-being of the patient. Less recognized is the fact that chronic pain problems in a marital partner may have deleterious effects on the emotional, behavioral, and physical well-being of the spouse. Chronic pain in one of the partners may fundamentally alter the nature of the marital relationship and significantly alter marital adjustment and satisfaction of both the chronic pain patient and his or her spouse.

Table 1 (page 66 and 67) summarizes the variables which the studies reviewed suggest may have a direct effect on the spouse.

#### DEFINITIONS

Chronic pain is generally defined as pain that persists longer than six months and does not respond to traditional medical and/or surgical treatment (Payne & Norfleet, 1986). The primary approach to persistent pain has been to seek physiological causes and cures within the physical body of the afflicted individual; however, a purely physiological approach has been inadequate in accounting for the chronic pain patients' subjective experience of suffering and their lack of responsiveness to conventional medical modes of treatment. Because of these factors, psychological issues must be considered in evaluation and treatment of chronic pain.

Chronic musculoskeletal pain is generally manifested by headache; cervical, shoulder, thoracic, or lumbar back pain; or other kinds of muscle pain. By the time these patients are referred to a chronic pain clinic, they have exhausted a number of doctors,



diagnostic tests, and treatment approaches. The pain has become long term and has many behavioral aspects.

Marital satisfaction and adjustment is difficult and elusive to define and measure. It refers to the quality rather than mere duration of the relationship, and also includes the individual satisfaction of each partner. It has been assumed by some authors in this study that marital satisfaction is mutual. This is evidenced by their listing patient and spouse marital satisfaction as combined couple scores. Marital maladjustment may be measured by: (a) decreased communicative intimacy, (b) decreased sexual intimacy, and (c) increased emotional or physical distress which may include either or both marital partners (Roy, 1985 Winter)

#### PURPOSE

A number of reviews on chronic pain have addressed the effects of the family on the etiology, precipitation, and perpetuation of chronic pain. Although a number of primary studies included measures of marital satisfaction or adjustment as one of the

variables investigated, no single study or review primarily addressed the effects of chronic pain on marital adjustment and, more specifically, its effects upon the spouse.

The purpose of this review is to determine if marriages of patients with chronic pain are indeed more frequently rated as dysfunctional; to explore a number of variables which may contribute to overall marital satisfaction and adjustment of the chronic pain patient, and his or her spouse. These variables include such factors as age, duration of pain, and length of marriage. Other variables which may influence marital satisfaction could be sexual function and satisfaction, spouse solicitousness, psychological and physical health of the spouse, and gender differences in dealing with a spouse who suffers from chronic pain. The studies which explored these variables and their effects on the spouse are listed in Table 1 (page 66 and 67).

## LITERATURE REVIEW

Numerous authors have implicated family variables in the etiology, precipitation, and perpetuation of chronic pain (Lewis, 1986; Rowat, 1985; Roy, 1985; Swanson & Maruta, 1980; Violon, 1985; & Young, 1983). A person with persistent pain cannot help but communicate his or her distress to others, especially to family members and their spouse. Most behavior associated with chronic pain has social and psychological meanings that are determined by the duration of pain and its interference with daily activities.

### Family Systems Perspectives

Minuchin, Rosman, and Baker (1978) demonstrated the clinical significance of complex family dynamics and environment which appear conducive to the development of chronic pain in a family member. Minuchin et al. (1978) and other researchers have found that families of chronic pain patients demonstrate a

high level of enmeshment, rigidity, overprotectiveness, and poor problem-solving abilities. Descriptions of the interpersonal characteristics of these families have generated hypotheses to explain how the families' interactions may contribute to maintenance of a pain problem. There are several possibilities found in the literature: (a) the family behaves as a homeostatic system with certain characteristics, and the individual's pain is an expression of the dysfunction in that system; (b) the family acts as a reinforcer for pain related behavior and, consequently, perpetuates such behavior; (c) the symptom of pain is used to control family members and is maintained when it is successful as a controlling device; and (d) the family is a social context which has physiological effects upon individual family members (Payne & Norfleet, 1986).

In general family systems approaches can be grouped into two clusters: those which focus on how the needs of the individual affect family interaction, and those which focus on the psyche of the family as the unit of analysis (Turk, Flor & Rudy, 1987). Each of these family systems perspectives suggest that an acute pain problem may be reinforced and maintained because

it is adaptive and stabilizes family members' emotional systems.

Chronic illness is very likely to alter traditional family roles, cause financial difficulties, decrease social activity, and change sexual functioning in one or both spouses. It often creates distress for family members in addition to the problems created for the identified patient. All of these factors may influence marital satisfaction. When marital satisfaction is low there may be little to hold marriages together. Chronic illness can create difficulties in the family system, and the families of many of these patients break down; however, some families may be able to establish a new equilibrium. Waring (1980) suggests that marital maladjustment often exists prior to onset of the chronic pain syndrome and the sick role provides stability to a previously unstable relationship. The married couple may use one or two major methods of controlling the intensity of conflict within the family: Marital conflict and/or dysfunction of one of the spouses, either psychologically or physically, is the usual pattern found in families of adults with psychosomatic pain problems.

Payne and Norfleet (1986) also observed that pain can serve several psychological functions within the family; they suggest pain may be a way of maintaining homeostasis in a dysfunctional family system. The characteristics of chronic pain couples which they identified were: (a) interdependence between the couple, (b) difficulty coping with life changes, (c) unclear communication patterns, (d) family reinforcement of pain related behaviors, (e) unrealistically high expectations, and (f) sexual problems.

#### Behavioral Perspective

Fordyce and Steger (1976) made significant contributions to understanding the function of the spouse and family in maintaining and perpetuating chronic pain through use of reinforcers. In describing chronic pain, they noted that when a patient's pain problem becomes persistent the impact of chronic pain can be global. Thus the patient's job, marital situation, relationship to his or her children, and social functioning may be compromised to one degree or

another. The symptom of pain seems to serve a communicative role between chronic pain patients and the people around them (Swanson & Maruta, 1980). This communication takes the form of pain behaviors which according to Fordyce and Steger (1976) require others to respond. These responses then act as positive or negative reinforcers of pain behavior. The solicitous spouse usually plays a significant role by directly or indirectly reinforcing these pain behaviors (Roy, 1982).

Marital function and marital satisfaction may be affected directly by the problem of chronic pain in one of the partners. Consequently, sexual function and satisfaction may also be affected by chronic pain for one or both partners. It has been documented that chronic pain can affect the physical and psychological health of the patient, but little has been said about the effects of chronic pain, stress, and a dysfunctional marriage on the spouse.

Roy (1985) identified several marital difficulties which may develop when a spouse has chronic pain. For example, the spouse may change roles in ways that not only reinforce illness behavior but also lead to shifts in power and self concept. Communicative behaviors

often become indirect, reflecting the frustration, despair, and hostile feelings of both partners. Decreased communicative intimacy coexists with decreased sexual intimacy and increased emotional distress. As the cycle continues, frustration and guilt experienced by both partners further widens the emotional distance between them.

Attribution of meaning to pain by the patient and spouse is likely to be extremely varied. Some questions may be raised once pain behaviors have begun such as: (a) What critical functions do they serve in the marital system? and (b) How invested are the patient and spouse in developing, maintaining or perpetuating the pain behaviors as opposed to reducing them? The essential question is: Who is perpetuating the pain behaviors and for what reasons?

Roy (1984) and Ahern and Follick (1985) agree that pain may be used by the couple to communicate a number of feelings. Pain behaviors may be used to communicate anger, powerlessness, martyrdom, suffering, and atonement, as well as the wish to punish or to be punished. Pain may also be used to seek or to avoid intimacy. Waring (1977) suggests pain is used by couples to give and receive succorance, as these



couples often demonstrate a life-long history of a lack of intimacy. It is perhaps through pain and suffering that reciprocal caring behavior may emerge and be maintained in the marital relationship.

### Marital Satisfaction and Adjustment

The health of the marriage has emerged as a critical factor in the chronic pain problem. In their study in 1987, Flor, Turk and Rudy found that a spouses' marital satisfaction was not directly related to the patient's pain, but was best predicted by the patient's marital satisfaction as well as the spouse's own mood. This would suggest that marital satisfaction in spouses is not affected by the presence of chronic pain per se, but rather is related to the overall quality of the marital relationship and the emotional status of the spouse.

## Method

Although there were no specific studies whose primary goal was to determine the effect of chronic musculoskeletal pain on marital satisfaction or marital adjustment, 19 primary studies were located which met the criteria established for selection in this review. These criteria included: (a) duration of chronic pain was longer than six months, (b) the study dealt primarily with musculoskeletal pain (i.e., chronic headache, cervical, shoulder, thoracic, and lumbar back pain etc.), (c) the study used a marital adjustment scale as one of its variables, and (d) the study evaluated couples. All of the studies which met the established criteria, will be reviewed in this paper.

Of the 19 studies selected, ten of these studies used the Locke Wallace Marital Adjustment Scale (LWMAS) as one of their assessment measures. Six studies used various other marital adjustment scales, some of which were constructed by their authors. The remaining three studies did not report specific results on measures of marital adjustment.

The Marital Adjustment section of this review will focus primarily on studies which used the LWMAS. Locke

Wallace Marital Adjustment Scale scores were interpreted consistently across all studies utilizing this measure, with a score of 75 or below indicating a severely conflicted marriage and a score of 135 or above a very satisfactory marriage. A cut-off score of 100 or below was established as indicative of marital dysfunction. Ten of the studies utilized the LWMAS to assess overall marital adjustment as a couple reporting their findings in mean couple scores. Only six of these studies measured the chronic pain patients' and spouses' responses independently.

### Results

A total of 743 couples were included in the review of the ten studies using the LWMAS as one of its variables. Table 2 and Table 3 (page 68 and 69) illustrate the multifaceted relationship between variables affecting chronic pain and marital adjustment according to the LWMAS. Table 2 focuses on these variables and their effect on the couple as a unit; while Table 3 focuses on differences between chronic pain variables and individual patient and spouse

adjustment. The couples' mean ages ranged from 41.4 years to 52.1 years with an overall mean age of 47.9 years. All of the couples studied evidenced long-term duration of pain, with Block and Boyer (1984) showing the shortest mean duration of pain (4.9 years), and Moore and Chaney (1985) showing the longest mean duration of pain (16.5 years). The overall mean duration of chronic pain across all of the studies was 10.7 years.

Duration of chronic pain marriages in these studies was also lengthy, with a range of 17.0 years to 24.9 years. The overall mean duration of marriage across all of the studies discussed was 20.8 years. The sample population investigated in all the studies, came from chronic pain clinic settings.

The 10 LWMAS studies which reviewed couple marital adjustment showed a range of 93.6 to 112.1, and were summarized to produce an overall mean couple adjustment score of 102.2. Although these scores were not clearly dysfunctional, they hover in the dysfunctional range of 100. Furthermore, over one-third of the scores reported were in the severely conflicted range of 75 or below.

Block and Boyer (1984) showed the highest LWMAS

couple marital adjustment mean of 112.1; however, they also showed the shortest duration of marriage (17.0 years) and lowest duration of pain (4.9 years). Kerns and Turk (1984) showed the lowest LWMAS marital adjustment mean couple scores of 93.6. They also showed the longest duration of marriage (24.9 years), and their average duration of pain (10.9 years) was close to the overall mean of 10.7 years for all of the studies summarized in this review.

There seemed to be a correlation between duration of marriage and marital satisfaction scores. Marital satisfaction decreased with increased duration of marriage. The mean couple marital adjustment score for a marriage of 17 years was 112.1, it gradually decreased to a mean couple score of 93.6 for a marriage of 24.9 years. Figure 1 (page 72) illustrates the relationship between duration of marriage and patient and spouse satisfaction. There appears to be a relationship between decreasing marital satisfaction and duration of marriage. Chronic pain patients were consistently more satisfied with their marriage than their spouse.

Flor, Kerns & Turk (1987) also found patients view the marital relationship as more favorable than their

spouses. The LWMAS overall mean marital adjustment score for patients in this review was 104.6 while the overall mean score for spouses was 99.0. While this may not represent a significant difference, the trend was consistent across all of the studies reviewed.

The correlation between duration of pain and marital satisfaction is not as clearly represented. Figure 2 illustrates the relationship between marital satisfaction and years of pain chronicity. There appears to be the same general downward trend with the exception of the results from the study done by Moore and Chaney in 1985. This outlying score may be a result of the small study sample (43 couples), or the population studied (42 male patients, 1 female patient). The relationship between marital satisfaction and duration of pain is not as clearly illustrated in this review of studies.

One paradox in the literature is the fact that pain patients are more likely to be married than the people in selected control groups, and their marriages also seem to endure longer, despite reported marital and sexual difficulties.

In summary, studies on marital relationships of chronic pain patients consistently indicate higher

rates of marital maladjustment even in relationships which persist over time.

### Limitations of the Research

One major limitation of the studies reviewed is that most of the LWMAS scores were only given as couple scores, rather than breaking them down into individual patient and spouse scores. Mean couple LWMAS scores assume marital satisfaction is mutual and do not give information concerning potentially important differences between individual patient and spouse scores. The studies which did show individual ratings indicated patients tended to perceive their marriage as more satisfactory than did their spouse.

The LWMAS is a standardized and reliable measure which has been in use since 1959. Although it has been well validated, the age of the test may be a limitation. There have been many changes in cultural marital expectations and marital roles in the last 30 years.

Another major limitation of these studies is the question of how representative the families studied are

of the population upon which current theories of chronic pain and marital adjustment are based? The patients in these studies were accessed through pain control clinics and hospitals which tend to deal with the most long-term and treatment-resistant cases. The duration of pain, mean age, and length of marriage all indicate the long term characteristic of this particular population. One wonders what differences might be seen in studies of chronic pain and marital adjustment based on patients who are selected earlier in the process, i.e. from a more general population of pain patients identified earlier in the diagnostic or treatment phases. Although the criteria for inclusion in this study was pain persisting for six months or longer, the shortest mean duration of pain in any of the studies reviewed was 4.9 years.

Several authors of the studies discussed in this review developed or used different marital adjustment measures. While these measures may be more appropriate or accurate in measuring marital dynamics as related to chronic illness, they need to be standardized and validated for large scale use.



### Sexual Function and Satisfaction

The sexual aspect of a medical illness involves both the patient and the spouse; and often does not receive sufficient attention with regard to diagnosis and treatment measures. The effect of chronic pain in a marriage has been shown to cause significant deterioration in the frequency and quality of sexual activity and a concurrent decrease in marital satisfaction. (Flor, Turk, & Scholz, 1987; Kames, Naliboff, Heinrich & Schag, 1984; Maruta, Osborn, Swanson & Holling, 1981).

In an early study, Maruta and Osborn (1978) evaluated sexual adjustment in marriage, frequency of sexual activity and sexual satisfaction. Each category showed a consistent trend toward deterioration of sexual function after onset of the present pain complaint. More men than women reported the frequency of sexual activity was reduced after onset of the pain problem. This study showed a high incidence of sexual problems in both men and women with chronic pain. More than half of the patients in each group experienced deterioration in sexual adjustment, with a reported

decrease in frequency and quality of sexual activity.

In a more recent study Maruta et al. (1981) reported similar findings. They found the frequency of sexual activity before the chronic pain problem began was an average of two to three times a week, and the average frequency after onset of chronic pain was one to three times a month. There was a tendency for the chronic pain patient group to maximize the frequency of sexual activity before the pain problem began, and minimize reduction in frequency after the pain became established. Before the onset of pain, 80% of chronic pain patients and spouses reported satisfaction with their sexual adjustment; after the onset of pain, 50% of patients and spouses expressed dissatisfaction with their sexual adjustment. After the onset of pain, significantly higher numbers of spouses rated their marriage below average while the majority of patients rated their marriage average or above.

Flor et al. (1987) in their latest study found that 66% of pain patients indicated their marital relationship had been negatively affected by the chronic pain problem with a significant reduction in marital satisfaction. A greater percentage, 51% of spouses, indicated marital dissatisfaction and their

average satisfaction scores were significantly lower than those of the chronic pain patient. A change in sexual frequency was noted by 77% of pain patients. The conclusions of Flor et al. (1987) were similar to those of Maruta et al. in (1981). One interesting finding was 42% of patients reported complete elimination of sexual activity although only 33% indicated they suffered from sexual dysfunction (Flor et al. 1987).

Patients who indicated low marital satisfaction also had spouses who were dissatisfied with their marriage. According to Flor et al. (1987) lower marital satisfaction in the chronic pain patient was related to less pain, more depressed mood and decreased spouse support. Lower sexual satisfaction was related to higher levels of pain, and greater spouse support.

While some authors treat sexual maladjustment as one more sign of intrinsic psychiatric illness in this particular population, others indicate sexual maladjustment may be caused by the pain problem itself. Alternatively, pain complaints may become a mechanism for avoiding sexual activity which was somehow threatening or unsatisfactory prior to the onset of pain. The issue of cause and effect has not been

clearly addressed in studies of sexual functioning and chronic pain

The chronic pain syndrome may develop as an accompaniment to chronic marital discord, which results in sexual maladjustment as a consequence. Withdrawal from the sexual liaison may be a way of demonstrating the authenticity of the pain. Mureta et al. (1981) found two-thirds of chronic pain patients in their study reported increased pain after sexual activity. The majority of the spouses of these patients reported recognition of their partners pain during sexual activity.

In the case of patients with chronic pain, spouses are placed in an ambiguous situation, and they may struggle with how much they believe patients' dysfunction is actually due to physical pain. In spite of repeated negative medical workups and treatment failures, the patient may continue to complain, take massive amounts of analgesics or cause financial hardship by not working. With the spouse's need to care for the "medically ill" person, these conditions often bring the couple to a superficial harmony or sick role homeostasis, with conflicts accumulating beneath the surface. In reviewing available data, it is

difficult to sort out what are the primary, or secondary causes of sexual dysfunction. Reduction of sexual activity could be due to the pain, but it could also be due to the response of the spouse to the patients pain behaviors, or a combination of both factors. Withdrawing from the sexual union may be an indirect way by either partner to express anger toward their spouse.

Although it is clear chronic pain has a direct effect on sexual adjustment and marital satisfaction of the couple, relatively little work has been done in exploring this aspect of chronic pain on a marriage. Only 3 out of 19 studies dealt with this very important variable.

All three studies did contain control groups of obese, diabetic patients or patients with respiratory ailments. In all three studies reviewed, chronic pain patients showed more marital maladjustment and sexual dysfunction than the medically ill patient controls. The finding of sexual maladjustment and decrease in marital satisfaction for chronic pain patients and their spouses was consistent across all three studies.

Discrepancy in ratings between patients and spouses regarding overall marital adjustment after the

onset of pain in a study by Maruta et al. (1981) is significant. In contrast to a rather consistent agreement on marital and sexual adjustment before the onset of pain, and on sexual adjustment after the onset of pain, a significantly higher percentage of spouses than patients claimed dissatisfaction with the marriage after the onset of pain. This differing declaration by the spouse of deterioration in marital adjustment deserves careful attention. Between the tendency of the patient to minimize and deny conflicts in the marriage and reluctance of the spouse to bring up anything "irrelevant" "unimportant" or "too personal"; clinical information obtained from only the patient may give a skewed view of the actual marital environment.

#### Limitations of the Research

A major limitation of these studies is the lack of information regarding marital and sexual adjustment prior to the onset of the pain complaint. There may be a tendency for patients and their spouses to deny conflicts in their marriage before the onset of pain. There may also be a tendency to exaggerate their sexual

performance and satisfaction before the illness began. Since all of the information in these studies came from self-report measures, allowance should be made for distortion. Allowance should also be made for increasing age and duration of marriage having an effect on sexual frequency and marital satisfaction.

There may be some reluctance on the part of clinicians to inquire about the effects of an illness upon sexual adjustment. To provide comprehensive care for the chronic pain couple, it is important to consider the sexual aspects of their relationship as well as medical and psychological issues.

#### The Solicitous Spouse

The Behavioral theory of the perpetuation of chronic pain was pioneered by Fordyce in 1976. This perspective maintains chronic pain is a constellation of learned behaviors which can be reinforced by family members; likewise, well behaviors can be encouraged or discouraged by the response of family members. Operant conditioning methods emphasize the important role of

contingent reinforcement in development of a chronic pain problem. The family plays a major role as an agent of positive or negative reinforcement. Turk et al. (1987) noted a common assumption that pain behaviors such as moaning, limping, sighing etc., may solicit attention from the environment and can be strengthened or extinguished depending upon environmental response. There is a tendency of family members to console and comfort each other when they observe behavior indicative of pain and suffering. Patients may be excused from work and household duties as other family members assume the patients responsibilities.

Block and Boyer (1984) found spousal solicitousness was likely to be associated with increasing pain chronicity in the patient. Both factors were correlated with marital adjustment and satisfaction. As pain complaints linger on, some marriages break up, therefore the marriages most likely to endure are ones in which the spouse perceives extreme functional limitations in the patient and provides positive reinforcement for their pain behaviors.

In 1980, Block, Kremer and Gaylor found the



solicitous spouse group had a significantly greater duration of pain complaints (15.5 years) than did the nonsolicitous group (4.5 years). They also found both the mean age and mean duration of pain complaints were greater for the solicitous spouse group, than for the nonsolicitous spouse group.

Two explanations were offered: (a) patients may be more likely to develop chronic pain problems when the spouse provides a high level of reinforcement for pain, (b) spousal response to pain behaviors is subjective to a selection process over time, that is over time the spouse may adapt or leave the marriage. These conclusions were verified in the review of studies by this author. By the time these couples accessed pain clinic treatment, the overall mean duration of pain was 10.7 years and the overall mean duration of marriage was 20.8 years.

The spouse may serve as a primary reinforcing agent. An early study by Block, et al. (1980) presented evidence to support the role of the spouse as a discriminative stimuli for patient behaviors. They demonstrated pain patients reacted differently when they were told their spouses, in contrast to ward clerks, were observing them from behind a one-way

mirror. Pain patients whose spouses were identified as nonsollicitous, reported higher pain levels when observed by ward clerks and lower levels of pain when observed by their spouse. Conversely, pain patients with attentive spouses rated their pain as greater when their spouses, in contrast to a neutral observer were present.

Flox et al. (1987) noticed that both pain intensity and activity levels could be predicated by the patient's perception of spousal response. Patients having a sollicitous spouse reported greater pain and reduced physical activity. Reports of the patient's pain were best predicted by the sollicitousness of the spouse. Patients whose spouses ignored their pain or responded negatively to it were shown to be more physically active. These results are compatible with Fordyce's operant conditioning model, as patient's appraisals of pain severity were highly related to external reinforcement. Positive attention by the spouse to pain behaviors exhibited by the patient were directly associated with reduction in the patients activity.

A large body of literature demonstrates that observers respond to displays of pain or emotion by a

performer. Such responses have been assessed by exposing observers to a performer, as the latter experiences some pain inducing stimulus such as electric shock. Under such conditions, observers have been found to show increases in skin conductance, electromyographic activity, and decreases in heart rate in response to grimacing and other pain displays by the performer.

An interesting study by Block (1981) showed the magnitude of empathetic response to a patient's pain display was associated with the spouse's expressed level of marital satisfaction. Satisfied spouses evidenced greater skin conduction increases and heart rate decreases, than did unsatisfied spouses to painful behavioral displays by the patient. Block (1981) also found the spouses of chronic pain patients who expressed a high level of marital satisfaction were observed by therapists in the family sessions to behave in a more solicitous manner than the nonsolicitous spouses.

Flor et al. (1987) also concluded maritally dissatisfied spouses may be less attentive to and less aroused by their partners' pain behaviors, and respond in a less solicitous fashion. It is also possible

patients who were satisfied with their marital relationship perceived their spouses to be more solicitous irrespective of their actual behavior. Flor, Turk and Rudy (1989) found those patients who rated their relationship as unhappy, showed lower association between spouse response to total pain impact scores.

In 1987, Flor, Kerns and Turk hypothesized that the amount of spouse reinforcement might be positively related to the marital satisfaction of the spouse. That is, spouses who are maritally satisfied, might be more supportive and provide greater amounts of positive reinforcement for pain behaviors. Correlation between spouse reinforcement as noted in the spouse's diary was not significantly correlated with spouse's level of marital satisfaction, but was positively correlated with the patient's marital satisfaction. Therefore the most satisfied spouses were not necessarily the most positively reinforcing spouses: Rather patients with more solicitous spouses were more satisfied with their marital relationships.

All of the seven studies which measured spouse solicitousness and chronic pain behaviors of the patient concluded there was a positive correlation

between a solicitous spouse and the marital satisfaction of the patient.

#### Limitations of the Research

The majority of studies which included the chronic pain patient and marital satisfaction as variables were concerned with the function of the solicitous spouse in the precipitation and perpetuation of chronic pain behaviors. One would think this might be because operant conditioning theory lends itself best to objective, behavioral observation, measurement, and analysis; however, only three of the studies in this review involved direct behavioral observation.

All of the studies on spouse solicitousness used standardized assessment measurements, one of which was the Locke Wallace Marital Assessment Scale. Four of the studies in this area included self-report measures and patient, and/or spouse pain diaries. In two of the studies the patient's report of pain was compared with the spouse's assessment of their partners pain. One limitation to this aspect of the studies is that self-report measures may be subject to distortion. On the

other hand self-report data provides information on the subjective experience and reinforcement of behavior which is not accessible solely by behavioral observation. Ideally in a study of spouse solicitousness and perpetuation of pain behaviors, behavioral observation and self-report measures should be combined in order to draw more objective conclusions about the relationship between chronic pain and spouse reinforcement.

Another limitation of the studies reviewed was that all seven of them utilized patients who were currently enrolled in chronic pain treatment clinics. These clinics are most often used as a "last resort" after other treatment options have failed or been exhausted. Pain clinics specialize in treating the most problematic cases and may not be representative of the whole population of chronic pain patients. This factor may partially explain the high age, duration of pain and duration of marriage noted in these studies.

The evidence presented in the studies reviewed strongly suggests family members in general and spouses in particular seem to play a significant role in contributing to perpetuation of pain. The evidence is particularly strong in regards to how a spouse's

response pattern to a patient's pain behavior reinforces further pain behavior. The solicitous spouse may encourage a sick-role homeostasis in the marriage and the marriage may then stabilize in a more dysfunctional way.

The paradox is of course, while marital satisfaction for the pain patient is increased when the spouse is solicitous, so is the patient's resistance to treatment.

#### Effects on the Health of the Spouse

Chronic pain may have a detrimental effect on the emotional and physical health of both the pain patient and their spouse. Some form of health disturbance was reported by 83% of spouses, which they attributed directly to the stress of chronic pain on their marriage. Spouses perceived family life, and their own health in particular, to have been affected by the pain experience of the chronic pain patient. Rowat and Knafl (1985) reported 69% of spouses were affected with emotional distress and 23% were affected with physical

health problems.

For purposes of analysis, distress was defined in terms of the number of areas in their life spouses claimed had been altered as a result of the patients pain; and on evidence of physical and emotional symptoms in the spouse judged to be indicative of distress.

#### Psychological Distress

The spouses of chronic pain patients reported greater frequency of psychological problems than spouses of patients from other chronic illness groups. Depression was the most prevalent problem reported by both chronic pain patients and their spouses (Ahern et al. 1985; Kames et al., 1984; Mohamed Weisz & Waring, 1978).

Rowat and Knafl (1985) confirmed this conclusion in their, study finding 69% of the spouses perceived coping with the pain experienced by their spouse had affected their own emotional health. They dealt with their own emotional pain of depression, anxiety,



irritability and fear. Most problematic for the spouses was a sense of helplessness. Less than 50% of the spouses reported making any attempt to influence their mates pain through direct physical intervention or action. They expressed the uncertainty of what to do and fear of causing further harm.

An early key study was done by Shanfield, Helman, Cope and Jones (1979). In their study they found a significant correlation of psychological distress between chronic pain patients and their spouses, when patient symptom levels were relatively high. Self-report measures of psychological distress by the patient tended to be associated with elevated psychological distress scores in their spouse.

Ahern et al. (1985) found that spouse's emotional distress levels were positively but weakly related to patients emotional distress levels, consistent with Shanfield's (1977) findings. Block et al. (1980) also corroborated Shanfield's earlier findings, when they demonstrated Global Symptom Inventory scores were positively correlated with spouse's perception of the patient's psychological difficulties. Emotional distress along with poor marital adjustment was perceived by both spouse and patient.

### Physical Distress

An early study by Mohamed et al. in 1978, paired depressed chronic pain patients and their spouses, with a control group of depressed patients and their spouses. They found depressed chronic pain patients (DP), their spouses, patients families, and spouses families, all had a significantly greater prevalence of physical pain problems than corresponding sets of people from the matched depressed group, (D). The (DP) group showed more similarity of pain location between families of patients and their spouses; in comparison to the (D) group patients and their families. It is possible depression could lead to a greater recollection of pain symptoms in oneself and others, but this would not account for the increased similarity of location of pain in the depressed chronic pain patient's spouse and spouse's families.

According to Payne and Norfleet (1986) the amount of physical distress the spouse perceived feeling as a direct result of their mates pain has been judged to be another indicator of the impact of chronic pain on the

family. Spouses of pain patients have shown a higher prevalence of physical pain problems than spouses of controls. Rowat & Knafl (1985) found 23% of spouse complaints in their study were physical in nature. These complaints included: (a) sleep and appetite disturbance, (b) increased blood pressure, (c) headaches, (d) gastro-intestinal distress, and (e) back pain.

There were significantly more physical pain problems in families of spouses, as well as a consistency in location of physical pain between patient's and spouse's family members. Studies suggest familial dynamics and early influence of familial pain models may play an important role in predisposing individuals to report higher frequencies of pain (Edwards, Zeichner, Kuczniarczyh, & Broczowski, 1985). Bruhn (1977) felt chronic illness in one family member could create new, or revive former symptoms in other family members, especially as roles change or family stress is increased.

Assessment instruments are needed which are psychometrically sound and specifically developed for use with families of chronic pain patients. Though many assumptions have been made about how family

interactions may actually cause physical symptoms, few attempts have been made to specify the interface between psychosocial variables and physiological changes; that is, how familial problems are translated into physical symptoms.

#### Theories of Effects on the Spouses' Health

One explanation for high levels of distress in both partners, is that individuals with similar character styles, including high distress levels may gravitate toward each other and marry. Mohamed et al. (1978) were the first to suggest there is a tendency for chronic pain patients to select spouses with similar personality dynamics and problems. Roy (1982) discussed studies which indicated a strong relationship between chronic pain and psychopathology of the spouse. He noted a higher rate of depression in spouses of pain patients and a higher score on the Hypochondria and Hysteria scales in the Minnesota Multiphasic Personality Inventory (MMPI) than for spouses of successfully treated patients. Turk, Rudy and Flor (1985) also noted the incidence of dysphoric mood among

spouses of chronic pain patients. Their data seemed to support the presence of a somewhat higher incidence of depression in chronic pain patient spouses, as compared to community samples.

#### Limitations of the Research

A number of studies on chronic pain have implemented the MMPI as a measure of psychopathology in the chronic pain patient. In fact, the MMPI is being used as a major diagnostic tool in most chronic pain clinics. Few reports however, have been made of its use in exploring and explaining marital dynamics and the psychopathology of the spouse.

The extent of the problem is evidenced by a consistency of reports of negative emotional and physical affects on the spouse's health using a wide variety of assessment measures. Standard assessment measures such as the MMPI, Beck Depression Inventory, Zung Depression Scale, and Symptom Check List (SLC-90) as well as other questionnaires and self-report measures, indicate spouses perceived family life and

their own health in particular, to have been affected by the chronic pain experience. This suggests the family as a whole is affected when one member is ill, with the spouse being particularly vulnerable. The magnitude of this problem is reflected by the fact that out of 19 recent studies on chronic pain, 15 studies direct attention to mental distress of the spouse, and 3 studies mention direct physical effects of the pain experience on the spouse. Although at this point we cannot explain the psychophysiological mechanisms which may cause this distress, it is clear chronic pain in the patient can have a direct influence on the psychological and physical health of the spouse.

#### Gender Differences

Some gender difference in marital satisfaction scores was noted by Flor, Kerns & Turk (1987). They found in their study, female spouse marital satisfaction scores (LWMAS) were lower than male spouse scores. Women seemed to be more distraught about their husband's chronic illness than men were about their

wives condition.

A recent study by Romano, Turner and Clancy (1989), found even though the majority of female spouses did not fall within the clinically depressed range, they appeared more distressed and significantly less satisfied with their marriage when compared with their pain patient husbands. An opposite pattern was found in female patient couples: Male spouses were significantly less depressed than their patient wives and more satisfied with their marriage. Exposure to behavior denoting dysfunction, distress or pain may have a strong negative effect on the female spouse. One explanation may be females are considered to be more accurate observers of nonverbal behaviors than are males. Another explanation may be sex role expectations, i.e. displays of distress by males and females are likely to be met with differential social response. Depressed or distressed behavior in male spouses may be seen as less role-appropriate than for females.

Rowat & Knaf1 (1985) found significant differences between spouses reporting high levels of distress and spouses reporting low levels of distress. High distress spouses felt stressed in physical, emotional

and social dimensions of their lives. They complained of disturbances of sleep and appetite, feelings of tension, anxiety, fear, and sadness, and a sense of isolation and loss of freedom. The more general descriptions of life given by high distress spouses were "pure hell", "devastating", "just existing", and "in limbo". Similar themes were noted in comments of the mates (patients) of this highly stressed group. There was a striking similarity of phrases and expressions used by both the patient and the spouse in describing the effect of chronic pain on their lives.

The life style assumed by the distressed spouse was that of protector-advocate. This role involved keeping stress levels down within the home, protecting the patient from undue stress, and taking over certain responsibilities or tasks which the spouse deemed as potentially harmful, i.e. increasing the patient's pain. Over 50% of spouses in the high distress group rated their mates pain higher than the patient themselves rated it. There was a significant correlation between high stress spouses and mates, and their ratings of hopelessness. The majority of highly distressed spouses in Rowat's study were female (10 females 2 males).



Low distress spouses in the same study denied any major disturbance within their personal or family life. Their descriptions of life were much less emotional with fewer negative statements. The low distress spouse group perceived their mates' pain to be much less than the pain patients rated it: There was a marked discrepancy between the spouse's rating of pain and their mate's rating of pain. Low distress spouses also reported more avoidant and ignoring behaviors towards their spouse's pain.

It is significant to note that the amount of care required by the patient, did not vary between groups, nor did the patient's rating of their own pain. Two characteristics of mates of low distress spouses differentiated this group from those married to high distress spouses, i.e. duration of pain and unemployment due to pain. The mean length of patient's pain duration for the low distress spouse was 6.8 years, as compared to 12.5 years for the high distress group. Only three patients in the low distress group were unable to be employed, as contrasted with seven patients in the high distress group who were not employed. The majority of spouses in the low distress group were male (5 females, 8 males).

### Limitations of the Research

Rowat's study raises some interesting questions regarding spouse distress. It is not clear whether the findings can be attributed to gender differences, or differences in attitude. Rowat & Knafl (1985) felt one explanation for the preponderance of women in the high distress group may be that female respondents are more willing to reveal feelings of distress than male respondents. One limitation of this interesting study was the small sample size of only 40 couples. This study should be replicated with a larger sample size to enhance understanding of the dynamics which contribute to spouse distress.

One major limitation of the studies in this review, was the disproportionate number of female spouses as compared to male spouses. The total number of male patients in all 19 studies was 628, with 441 female patients. Five of the studies, containing 304 couples, did not even specify the gender of the chronic pain patient. This data, illustrated in Table 4 (page 70 and 71), indicates in the majority of couples

studied, the patient was male and the spouse was female. In a general population, males may tend to rate marital satisfaction higher than females. This might partially account for the finding chronic pain patients were more satisfied than their spouses.

Another explanation for these findings may be the effect of role-reversal, when a disproportionate amount of responsibility and stress is placed upon the female spouse. It is generally considered when wives work outside of the home they still assume the majority of responsibility for household chores and care of the children. In chronic pain marriages, in addition to providing financial support, the wife must also care for the family, home and an ill husband.

Another variable related to gender was the report that more males reported a decrease in sexual activity than did females. Again the majority of patients rated their marriage as average or above while spouses rated their marriages average or below.

It would be interesting to determine in a large study equally composed of male and female patients, if the gender of the patient made a difference in marital satisfaction, i.e. if patients were still more satisfied with their marriage than their spouses.

### Summary

The empirical studies in this review indicated most of the chronic pain marriages fell within the mildly dysfunctional range, however one-third of all of the scores were in the severely conflicted range. There was a correlation between the length of marriage and marital satisfaction. Marital adjustment and satisfaction decreased with increased length of marriage. It is interesting to note, that the relationship between duration of pain and marital satisfaction scores, was not as clearly illustrated. Chronic pain patients rated their marital satisfaction as more favorable than did their spouses. While there may not be a significant statistical difference in the LWMAS scores, this of patients being more satisfied than their spouses finding was consistent across all of the primary studies included in this review. The paradox is that pain patients are more likely to be married than people in control groups, and these marriages seem to endure longer despite reported

marital and sexual problems.

The effect of chronic pain in a marriage has been shown to cause significant deterioration of sexual activity and quality, and a concurrent decrease in marital satisfaction. Reduction of sexual activity may be due to many factors: (a) the pain, (b) the patients desire to avoid unwanted sex, (c) the response of the spouse to the pain behaviors, or (d) it may be a way for either of them to express indirect anger. A combination of factors probably accounts for these findings. There were consistent findings of sexual maladjustment and decreased marital satisfaction in the primary studies reviewed. There was also a discrepancy in ratings between patient and spouse regarding overall marital adjustment. Again, chronic pain patients claimed more sexual satisfaction and better marital adjustment than their spouses.

Family members in general, and spouses in particular seem to play a significant role in the perpetuation of chronic pain. It appears that the solicitous spouse may encourage a sick role homeostasis in the marriage and the marriage then stabilizes in a more dysfunctional way. Spouse reinforcement of pain behaviors was not correlated with the spouse's level of

marital satisfaction; but was positively correlated with the patient's marital satisfaction. The price of homeostasis seems to be greater marital satisfaction for the chronic pain patient than the spouse. The dilemma is of course, while marital satisfaction for the chronic pain patient is increased when the spouse is solicitous, so is the patient's resistance to treatment and regaining health.

Living with the chronic pain patient appears to have a detrimental affect on the psychological and physical health of the spouse. More than 75% of the spouses reported some health disturbance as a direct result of living with the chronic pain patient. The majority described psychological problems such as depression or anxiety, however one-fourth of the spouses reported actual physical symptoms. It is not clear whether the negative affects on the spouses' health are due to increased stress, related family dynamics such as modeling, or whether individuals with similar character styles gravitate towards each other and marry. There is some evidence that each of these variables may be a factor.

Two major theoretical perspectives seek to explain the dynamics of chronic pain and marital dysfunction.

The Behavioral perspective maintains solicitous behavior of the spouse encourages pain behavior in the patient and contributes to a dysfunctional marriage. The Family Systems perspective however, maintains chronic pain is the means of obtaining homeostasis in an already dysfunctional marriage. The primary studies in this review represented both theoretical approaches; however, there did not seem to be any major differences in basic findings. It appears that the chronic pain marital adjustment problem is more complex than a single theory perspective can explain; and may be due to a number of interacting variables.

Of particular interest is the gender variable of the chronic pain patient and spouse. Only one small study addressed this important factor. It found male chronic pain patients seemed more satisfied and their female spouses seemed more distressed, than female patients with male spouses. It appears this may be a major variable in light of the preponderance of male patients and female spouses contained in the population studied. It is not clear whether this variable was influenced by selection of the population from pain clinic settings which deal with longer term, more treatment-resistant patients, or whether there are more

male chronic pain patients than female patients. It may also be possible that female spouses are affected more negatively than male spouses. The meaning of this pattern is not clear and certainly indicates further research.

### Discussion

Although various Family Systems and Behavioral studies offer interesting insight into the familial pathogenesis of pain maintenance and impact on family functioning, no direct empirical evidence to exclusively support any one theory is available.

It is difficult to test Family Systems theory via conventional research methods because it adheres to a model of circular-causality with pain effecting the family and family effecting the pain. Research examining the role of family dynamics in the etiology of chronic pain is weak. Most of these studies relied upon anecdotal cases or clinical observations and were unsystematic and/or uncontrolled studies which did not permit a determination of cause and effect.



To date the Behavioral perspective is limited in scope, in terms of analyzing the function and effects of chronic pain. This is because it underestimates the complexities introduced into a marital relationship when one person is affected by chronic pain syndrome. Although the Behavioral perspective lends itself to empirical, direct observational techniques, few studies actually employed this method. Most of the studies relied on validated testing measurements or self-report measures from the pain patient or spouse, such as questionnaires or diaries.

No single study focused exclusively on marital function or satisfaction, and the effects of chronic pain on both the patient and spouse. More studies are indicated which would focus on marital adjustment and satisfaction and its correlation with the many variables unique to chronic pain couples which contribute to marital satisfaction.

All studies reviewed for this paper which contained the variables of chronic musculoskeletal pain and marital adjustment were cross sectional, involving couples who were taken from chronic pain clinic settings. These settings were biased towards very chronic, treatment-resistant pain patients, with long

term marital relationships. These studies were also strongly biased toward male patients with female spouses, perhaps because some of the clinical settings included Veterans Administration Hospitals. Very few of the studies related to chronic musculoskeletal pain and marital adjustment, included control subjects.

It is interesting to note, that there have been positive reports of healthy, coping families living with a chronic illness. Although some spouses seem to be severely distressed by the impact of chronic pain on their marriage, others do not appear to be adversely affected. At the present time there is no indication of what factors determine good or poor adjustment to a chronic pain problem in a marriage, for the patient or the spouse.

One question which might be addressed, is how representative are the families upon which current theories of chronic pain and family function are based? There is a need to learn more about the good-adjustors and healthy families dealing with chronic illness in addition to expanding knowledge about families showing maladjustment.

One way to accomplish this would be to use as controls, families dealing with other chronic

illnesses. This was done in the three studies on sexual dysfunction. Choosing families earlier in the chronic pain syndrome diagnosis and treatment process might also provide insight into how maladjustment develops.

The question of gender differences seems to be an important variable which has largely been overlooked. Research on chronic pain and marital function should identify the gender of both spouse and patient, and contain approximately equal numbers of male and female patients. Gender variables may be important to the dynamics of the marriage and to patient and spouse satisfaction.

Although it is clear from this review that chronic pain marriages may be rated mildly to severely dysfunctional, and patients are more satisfied in all areas than their spouses; these findings might be based on a biased population. It is difficult to determine at this point which variables have the most impact on the marriage and particularly the spouse. The results of this review indicate sexual adjustment, the solicitous spouse, psychological and physical effects on the health of the spouse, and gender differences may all affect marital adjustment and satisfaction. It appears

the relationship between chronic musculoskeletal pain and its effect on the spouse is complicated and will require more specific studies to determine the dynamics of cause and effect.

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Table 1

Variables in Studies on Chronic Pain:Effects on the Spouse

Author	Sollicitous Spouse	Marital Adjustment	Sexual Adjustment	Mental Distress	Physical Distress
Ahern, Adams & Follick (1985)		X		X	
Ahern & Follick (1985)		X		X	
Block (1981)	X	X			
Block & Boyer (1984)	X	X		X	
Block, Kremer & Gaylor (1980)	X			X	
Feurstein, Sult & Houle (1985)	X	X		X	
Flor, Kerns & Turk (1987)	X	X		X	
Flor, Turk & Rudy (1987)	X	X			
Flor, Turk & Scholz (1987)	X	X	X	X	
Kames, Naliboff, Heinrich & Schag (1984)		X	X		X

continued ....

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Variables in Studies on Chronic Pain:

Effects on the Spouse

Author	Sollicitous Spouse	Marital Adjustment	Sexual Adjustment	Mental Distress	Physical Distress
Kerns, Finn Haythornwaite (1988)		X		X	
Kerns & Turk (1984)		X		X	
Klein, Dean & Bogdonoff (1967)		X		X	X
Maruta, Osborne, Swanson & Holling (1981)		X	X		
Mohamed, Weisz & Waring (1978)		X		X	
Moore & Chaney (1985)		X		X	
Romano, Turner & Clancy (1989)		X		X	
Rowat & Knafl (1985)		X		X	X
Shanfield, Heiman Cope & Jones (1979)				X	

Table 2

Couple Marital Satisfaction

Author	No Couples	Mean Age	Pain Duration	Marital Duration	Mean Couple Adjustment
Ahern, Adams & Follick (1985)	117	41.5			101.1
Ahern & Follick (1985)	117				98
Block & Boyer (1984)	51	41.6	4.9 years	17.0 years	112.1
Flor, Kerns & Turk (1987)	32	49.0	10.1 years	19.4 years	106.7
Flor, Turk & Rudy (1987)	185	51.5	10.9 years	21.9 years	103.4
Flor, Turk & Scholz (1989)	58	51.6	11.5 years		103.9
Kerns, Finn & Haythornwaite (1988)	97	50.7			103.7
Kerns & Turk (1984)	30	52.1	10.6 years	24.9 years	93.6
Mohamed Weiz & Waring (1978)	13	44.6			98.2
Moore & Chaney (1985)	43	49.3	16.5 years		101.8
Total	743				
Overall Mean	Couples	47.9	10.7	20.8	102.2

Locke-Wallace Marital Adjustment Scale (LWMAS)

Table 3

Spouse Marital Satisfaction

Author	No Couples	Mean Age	Pain Duration	Marital Duration	Patient Mean	Spouse Adjustment
Ahern, Adams & Follick (1985)	117	41.4			102.5	97.6
Ahern & Follick (1985)	117				97.0	99.0
Block & Boyer (1984)	51	41.6	4.9 years	17.0 years	118.2	106.0
Flor, Turk & Rudy (1989)	185	51.5	10.9 years	21.9 years	106.6	100.2
Flor Turk & Scholz (1987)	58	51.6	11.5 years		107.9	99.9
Kerns & Turk (1984)	30	52.1	10.6 years	24.9 years	95.3	91.9
Total	558					
Overall Mean Couples		47.6	9.5	21.3	104.6	99.0

Locke Wallace Marital Assessment Scale (LWMAS)

Table 4

Gender of Patient

Author	Male	Female	Not Specified
Ahern, Adams & Follick (1985)	83	34	0
Ahern & Follick (1985)	0	0	117
Block (1981)	0	0	16
Block & Boyer (1984)	0	0	51
Block, Kremer & Gaylor (1980)	0	0	20
Brown, Rawlinson & Hardin (1982)	49	2	0
Feuenstein, Sult & Houle (1985)	17	16	0
Flor, Kerns & Turk (1987)	25	7	0
Flor, Turk & Rudy (1989)	84	101	0
Flor, Turk & Scholz (1987)	58	58	0
Kames, Naliboff Heinrich & Schag (1984)	27	68	0

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Gender of Patient

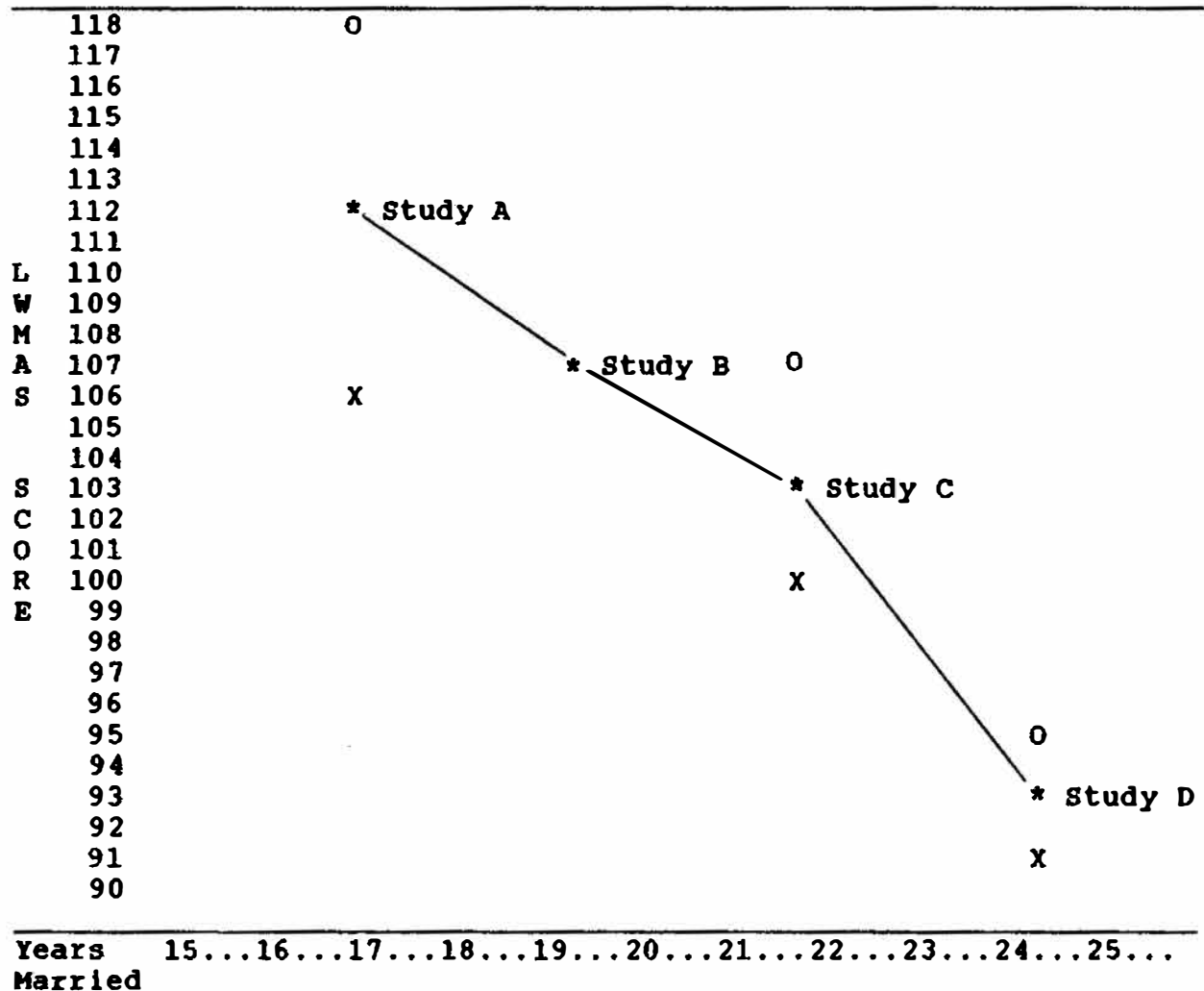
Author	Male	Female	Not Specified
Kerns, Finn & Haythornwaite (1988)	80	17	0
Kerns & Turk (1984)	30	0	0
Maruta, Osborn Swanson & Holling (1981)	25	25	0
Mohamed Weiz & Waring (1978)	4	9	0
Moore & Chaney (1985)	42	1	0
Romano, Turner & Clancy (1989)	41	42	0
Rowat & Knafl (1985)	21	19	0
Shanfield, Heiman Cope & Jones (1979)	26	18	0
Swanson & Maruta (1980)	0	0	100
Violon, Giurgea (1983)	16	24	0
<b>Total</b>	<b>Male</b>	<b>Female</b>	<b>Not Specified</b>
	628	441	304



Figure 1

Relationship Between Duration of Marriage  
Patient and Spouse Satisfaction

Duration of Marriage



Locke Wallace Marital Adjustment Scale (LWMAS)

Mean Score       \*  
 Patient Score     O  
 Spouse Score     X

Study A - Block & Boyer (1984)

Study B - Flor, Kerns & Turk (1987) Note patient score  
 and spouse score not available

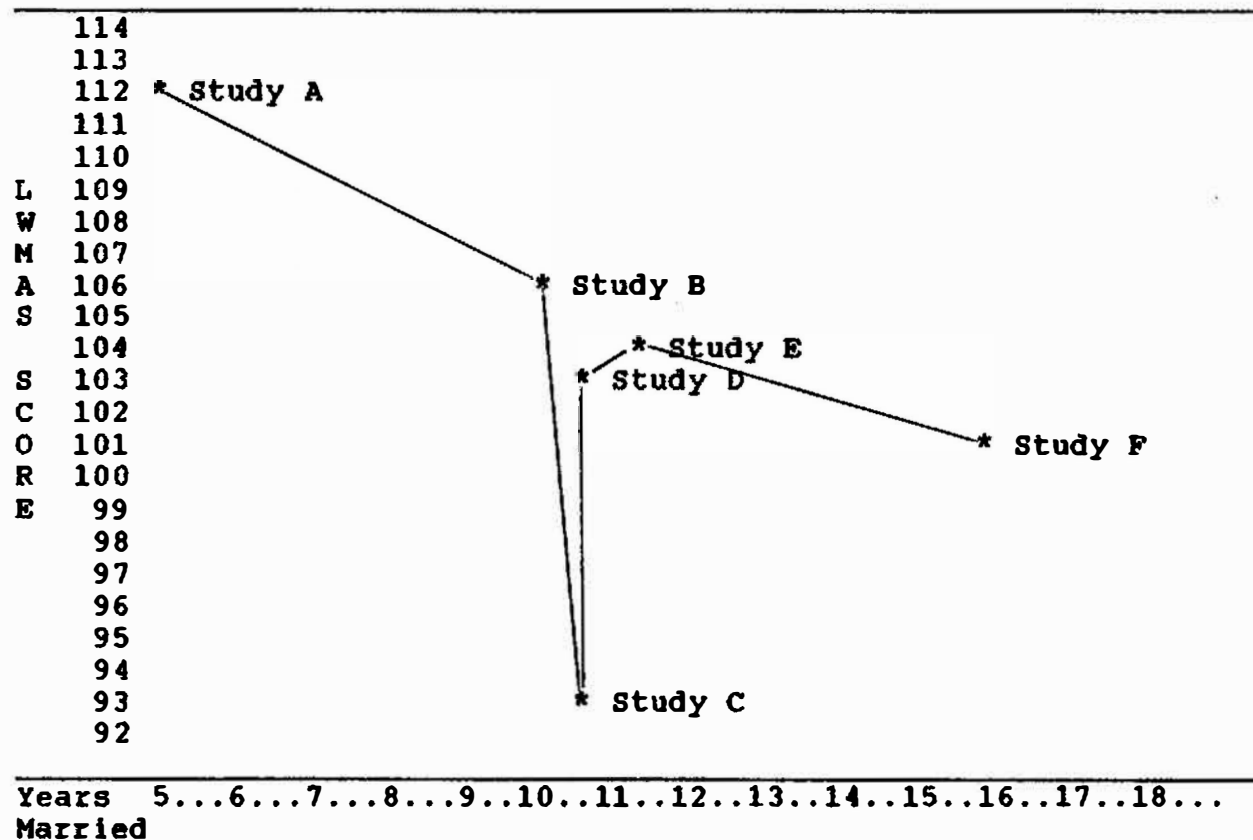
Study C - Flor, Turk & Rudy (1989)

Study D - Kerns & Turk (1984)

Figure 2

Relationship Between Marital Satisfaction  
and Duration of Pain

Duration of Pain



Locke Wallace Marital Adjustment Scale (LWMAS)

Mean Score \*

- Study A - Block & Boyer (1984)  
 Study B - Flor, Kerns & Turk (1987)  
 Study C - Moore & Chaney (1985)  
 Study D - Flor, Turk & Rudy (1989)  
 Study E - Kerns & Turk (1984)  
 Study F - Flor, Turk & Scholz (1987)