

## Symptom Magnification Syndrome Structured Interview: Rationale and Procedure

Leonard Matheson<sup>1,2</sup>

---

*The identification of Symptom Magnification Syndrome is based in part on data collected during a clinical interview. The Symptom Magnification Syndrome Structured Interview (SMSSI) has been developed to provide structure to this data collection procedure. The SMSSI provides a standardized platform on which quantification of subjective reports can be based. The SMSSI addresses 14 issues that have previously been identified as related to the presence of symptom magnification syndrome.*

---

**KEY WORDS:** symptom magnification syndrome; interview; abnormal illness behavior.

### INTRODUCTION

Symptom magnification syndrome (SMS) is defined as "a self-destructive, socially reinforced behavioral response pattern consisting of reports or displays of symptoms which function to control the life of circumstances of the sufferer" (1, 2).

Symptom magnification syndrome has its roots in the "sick role" first proposed by Talcott Parsons (3). Parsons reported that the sick role is conferred on the individual who is ill and is actively involved in treatment. The patient in the sick role is allowed to temporarily escape from other role responsibilities. The symptom magnification syndrome concept also owes a debt to David Mechanic (4) who introduced the concept of "illness behavior" as an idiosyncratic response to symptoms given and individuals' unique make-up and personality. Illness behavior does not connote full assignment to the sick role, but does identify a category of behaviors which are found by individuals in the sick role. The purpose of illness behavior was later presented by Mechanic (5) as "part of the (patient's) coping repertoire...to make an unstable and challenging situation more manageable...".

More recently, the symptom magnification syndrome has been influenced by the thinking of Issy Pilowsky. Dr. Pilowsky (6) introduced the concept of "abnormal

<sup>1</sup>Employment and Rehabilitation Institute of California, Santa Ana, California.

<sup>2</sup>Correspondence should be directed to Leonard Matheson, Ph.D., Employment and Rehabilitation Institute of California, Suite 101, 600 South Grand Avenue, Santa Ana, California 92705.

illness behavior" to address the problem presented by the patient with physical complaints for which no organic cause could be found. Pilowsky defined abnormal illness behavior (7) and refined this definition (8) as:

the persistence of an inappropriate or maladaptive mode of experiencing, evaluating and responding to one's own health status, despite the fact that a doctor (or other recognized social agent, e.g. ethnic healer) has provided an accurate and reasonably lucid explanation of the individual's health status in a readily comprehensible form, having taken sociocultural factors into consideration and allowed sufficient opportunities for the patient to negotiate and seek clarification.

Gil *et al.* (9) studied social support and pain behavior and found that individuals who reported high satisfaction in social support exhibited higher levels of pain behavior. This group offers the interpretation that individuals whose social support is satisfactory may be satisfied because the reinforcement that they receive from the exhibition of pain behaviors leads to adequate social reinforcement. They report "when supportive responses are provided contingent upon pain behavior, an increase in pain behavior may occur. However, if social support can be provided contingent upon well behaviors...a different outcome might be expected."

The familial antecedents of abnormal illness behavior were elucidated by Moss (10) who studied 180 college students in terms of the effect of early learning history and the effect of parental behavior observed by the students with children on current reinforcement for illness behavior. The best predictors of positive reinforcement for illness behavior were a history of similar reinforcement as a child and the subject's mother's history of attention for illness behavior when the subject was a child. Similarly Rickarby *et al.* (11), in a study of adolescents who were referred to a medical program, were able to identify abnormal illness behavior "as a special family role."

Symptom magnification syndrome is a pervasive phenomenon that has tremendous impact on the ability of our health care system to deliver services and poses a drain on our society's financial resources. Waddell *et al.* (12) studied 380 patients with back pain of at least 3 months duration. These researchers found a strong positive relationship between inappropriate illness behavior and the amount of treatment that these patients received.

Waddell *et al.* (13) studied 185 patients who had undergone various types of surgery for low back disorders. These researchers found that surgical outcome was highly correlated with physical findings relating to accurate diagnosis of a treatable lesion. However, they point out that indications for surgery sometimes are based on the severity of the symptoms and that this juxtaposition against the factors relating to surgical outcome produces potential conflicts. As they report, "psychologic factors can affect the outcome of surgery indirectly when inappropriate illness behavior leads to inappropriate surgery." They also reported that the psychological disturbances appeared to be secondary to the physical disorder and improved or worsened as a consequence of the success or failure of treatment.

Waddell *et al.* (14) present a model of disability in which physical impairment accounts for approximately 40% of disability, while 23% of the disability was able to be explained by psychological distress factors. An additional 8% of the variance was attributable to "magnified illness behavior." Measures of personality were not

related to disability, and there was no evidence of psychopathology identified either through testing or a structured interview.

A comprehensive review of the research on the personality, environmental, intellectual, social, behavioral, and neurologic correlates of chronic pain by Feuerstein *et al.* (15) identified a multi-factorial basis for development of a low back pain disorder. However, they found that individuals who suffer from chronic low back pain "are too heterogeneous to consistently support a specific personality profile." They point out that one of the difficulties with research on the relationship between predisposing personality traits and subsequent development of a chronic low back pain disorder is that this research is generally retrospective.

A "bio-psychosocial model" for treatment of low back disability which differentiates true impairment from the patient's perception of functional limitation has been proposed by Waddell (16). Waddell recommends an active rehabilitation program for low back pain to restore function, reduce distress, promote return to work, reduce pain, and remediate abnormal illness behavior. Waddell believes that disability based on restriction of activities of daily living is based largely on a patient's attitudes and beliefs and is learned. Past experience of the pain and the meaning of the pain as well as previous learning in terms of how to cope with the pain, in this model, differentiate individuals with pain who become disabled from those who do not. As Waddell reports, "Failed treatment may both reinforce and aggravate pain, distress, disability, and illness behavior." Structured interview techniques can assist the practitioner to identify and work with these biopsychosocial factors. They can be utilized by any professional in almost any setting, and apply to a wide variety of diagnoses and impairment categories. Before the structured interview is presented, a review of the symptom magnification syndrome is in order.

## DESCRIPTION OF THE SYNDROME

Symptom magnification syndrome is a self-destructive pattern of behavior which is learned and maintained through social reinforcement. This pattern of behavior is composed of reports and/or displays of symptoms, the effect of which is to control the life circumstances of the sufferer.

Symptom magnification syndrome does not constitute a psychiatric diagnosis although each of the three symptom magnification syndrome types has an analog in the psychiatric literature. The symptom magnification syndrome Type I is the *Refugee*, the Type II is the *Game Player*, and the Type III is the *Identified Patient*.

The Type I Refugee finds that the symptom behavior provides an escape from an apparently unresolvable conflict or life situation. The Refugee is metaphorically looking back over his or her shoulder while attempting to escape from a difficult life situation. As a consequence, this person has little future orientation. Goals are very difficult for this person to develop or embrace. The Refugee perceives the availability of effective role backup as non-existent. This person's psychosocial history includes involvement in a family or community network that he/she perceives as being integral and irreplaceable. The Refugee is often a working mother who

is attempting to balance maternal role responsibilities against her responsibilities as a worker and wife. After a painful injury, she finds that the family and her husband assist her to adjust her role responsibilities on a temporary basis. After a few weeks, unless the injury is visible, she is expected to resume her previous role responsibilities. While her family may actually be willing to continue to support some modification of her roles, her perception is that they expect full role resumption. Even if she perceives herself as not ready to do so, she will make an attempt. If the attempt is unsuccessful, she will passively accept a disabled role without negotiating a partial resumption of role activities. The Refugee will "grit her teeth" to endure a stressful situation passively because this appears (to him or her) to be unable to be resolved. The Refugee acts as a martyr in relation to his/her symptoms and the effect of these symptoms. This person will say, "The pain is terrible, but I will make it through somehow." The Refugee will often involve professional caregivers in "Yes...but" interchanges. This style of interaction will negate or blunt the professional's attempts to provide assistance to the sufferer. To the Refugee, the symptoms themselves provide an escape from the unresolvable conflict. As a consequence, motivation to follow through with treatment is limited.

The Type II "Gameplayer" is the person whose symptoms provide an opportunity for positive gain. The Gameplayer is an opportunist who appears to be in the daydreaming stage of career development. He has a long history of poor goal attainment in spite of having had strong goal orientation. He has goals which are few in number and have high visibility. However, they are not well thought out. While the Gameplayer may present these goals with conviction, they have not been well developed and may be more properly considered as daydreams rather than as actual goals. This type of person might have a goal such as, "to own a dump truck and go into the construction business," or "to become a drug counselor." However, the Gameplayer's avowed goals are not backed up with any investigation, planning, or sustained action. This person also tends to be irresponsible while appearing to be responsible. When things go wrong, he or she will report, "It's not my fault. I told her that she should not have done that." The Gameplayer has few true friends or significant others whom he can trust and who will rely on him. Conversely, he often has a large number of acquaintances and a wide social circle.

The Type III "Identified Patient" is the person whose symptoms insure survival and maintenance of the patient role. For the Identified Patient, the patient role eclipses and contains all other possible roles. Roles of father, husband, brother, uncle, friend, neighbor, and others are frequently seen to have been lost by the Identified Patient. While this person may continue to have the title, he or she is not treated in the customary manner associated with the role. Behaviorally, the Identified Patient can be known in terms of three factors. First, this person has a few goals, all of which focus on psychological or physical survival. "To get through the week" or "to make it to my next disability check" are frequently stated as goals. The frank absence of goals found with the Refugee is not present in this case. Similarly, the grand scheme of the Gameplayer is not found. Second, the Identified Patient acts as if life is to be survival rather than to be enjoyed. Third, the Identified Patient acts impulsively in what is called "accidental disregard" of his or her impairment. As the Identified Patient progresses through a rehabilitation program he

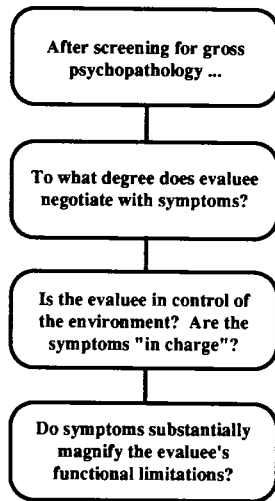


Fig. 1. Symptom magnification decision tree.

or she will be “inadvertently” injured near the end of the program, perhaps in active therapy or perhaps at home.

Confirmation of the presence of the symptom magnification syndrome is based on the application of an evaluative process that can be depicted as a decision tree that addresses three related issues. This decision tree is presented as Fig. 1.

### ASSESSMENT PROCESS

Prior to beginning the process of identification of the presence of symptom magnification syndrome, it is necessary to screen for gross signs of psychopathology. The principal problems to screen for are depression and antisocial personality disorder, with the former being much more prevalent in this population than the latter.

In general, identification of the presence of the symptom magnification syndrome requires that the evaluator confirm:

1. Absence of an effective strategy for “negotiating with symptoms” or balancing symptoms against activities. This is indicated by:

- (a) Absence of specific information concerning the relationship between activities in which the person is involved and the symptomatic consequences of the activities.

- (b) A lack of consistent application of this knowledge in negotiating between activities and symptoms. Modification of tools, the job, automobile, or home are all examples of methods of application of this knowledge to the relationship between activities and symptoms.
- (c) Absence of careful and discriminating use of palliative measures including medication and palliative therapeutic services.

2. Absence of volitional control over the immediate environment and future goals with abdication of control to symptoms. That is, the evaluatee acts as if control over the current or future circumstances has been given over to symptoms. For many, the symptoms exist as an unassailable entity, often vested with anthropomorphic characteristics. This is indicated by:

- (a) Reported loss of a vitally important role or activity that is no longer possible to regain, with attribution of this loss to symptoms.
- (b) Reports of diminishment of control over role activities with attribution of control to symptoms. A statement such as, "My back won't let me ..." in response to a challenge for the cause of the diminished control is indicative of this factor.
- (c) Diminished future orientation with attribution of this diminished future orientation to symptoms. In response to an inquiry about the evaluatee's goals, the evaluatee will report an absence of goals or a goal that is so poorly developed as to be a "pipe dream."

3. Magnification of functional limitations beyond those that are reasonable given the impairment, with attribution of these magnified functional limitations to symptoms. This is indicated by:

- (a) A self-perception of functional limitations that are generalized and nonspecific with no internal consistency. This may be a pattern that becomes apparent in an interview or may be measured in an activity sort procedure.
- (b) Work function themes that are not based on recent experience or are not consistent with recent experience. The unconscious rules that the evaluatee utilizes to guide participation in physical activities are based on outdated experience and have not been updated because the evaluatee is inactive or is unable (or unwilling) to acknowledge more recent information about the effect of involvement in these activities on his or her symptom response.
- (c) Less than full effort on maximum performance tasks. This can be seen in terms of increased variability on an intra-task basis in maximum voluntary effort testing or in terms of an absence of expected inter-task consistency when comparing two tasks that are related on a biomechanical basis.
- (d) Demonstration or report of non-organic signs and symptoms. This can be seen as an overreaction to loading during a physical examination. With individuals who experience low back disorders, Waddell *et al.* (24) have identified specific "nonorganic" physical signs that have been demonstrated to be related to abnormal low back disability.

The process of identification of the symptom magnification syndrome is integrated within a multifactorial collection of data from a structured personal interview, performance testing, and behavioral observation. Because symptom magnification syndrome is considered in terms of a behavior pattern rather than in terms of a psychiatric syndrome, identification of the presence of the behavior pattern can be undertaken by occupational therapists, physical therapists, and other clinicians who do not have training in the diagnosis of psychopathology. In order to facilitate this process, the Symptom Magnification Syndrome Structured Interview (SMSSI) was developed. Feuerstein and Dopkin (17) have presented a similar "structured pain interview" that is used in context with other measures of self-report, direct observation, psychophysiological responses, and "indirect measures of pain" as part of a biobehavioral assessment of chronic pain.

### DEVELOPMENT OF THE STRUCTURED INTERVIEW

The original interview on which the SMSSI is based was developed for use by a vocational evaluator with a general population of chronically disabled adults in a vocational rehabilitation program at Rancho Los Amigos Hospital (1). The interview was further developed at the Employment and Rehabilitation Institute of California (ERIC) for use with a population of chronically disabled adults in a workers' compensation rehabilitation program. The SMSS interviewer need not be a psychologist. At ERIC, the interview is often conducted by an occupational therapist or by a rehabilitation nurse. The interview addresses 14 items and requires approximately 30 minutes to complete. It was designed to fit within the context of a rehabilitation program accredited by the Commission on Accreditation of Rehabilitation Facilities (CARF) and meets the CARF accreditation requirements for client involvement and documentation (18).

### PROCEDURE

The SMSSI is conducted in a quiet, private office on a one-to-one basis after the *Cornell Medical Index* (19), *Beck Depression Inventory* (20), or other measure of general health and/or psychological distress has been completed by the patient. An activity sort such as the *PACT Spinal Function Sort* (21) may be administered before the interview or it may be integrated into its later stages. Family members are excluded from the interview. If a collateral professional (for instance, the referring rehabilitation nurse) wishes to observe the interview, that is permitted. However, the collateral professional is asked to refrain from participating actively in the interview. After establishing rapport with the interviewee, the interviewer proceeds through the 14 items in the SMSSI in listed order, attempting to collect sufficient information to judge each item as a positive, negative, or ambiguous indicator of the presence of the symptom magnification syndrome.

## INTERVIEW PROCESS: CASE STUDY

These are excerpts from an interview with an individual who was subsequently identified as suffering from the symptom magnification syndrome. "Angela Jones" is the pseudonym for a 43-year-old mother of four children who was working as an electronics assembler for an aerospace manufacturing company in Southern California when she was injured in an overexertion injury while lifting her tool box at work. She has been married for 26 years. She has four adolescent and young adult children. Her husband works in the construction trades as a carpenter. She did not graduate from high school, leaving high school in the 11th grade to be married. The interviewer's questions are italicized.

1. Diagnosis. Does the interviewee have a clear understanding of the diagnosis and the dynamics of his or her impairment? What should be avoided because it may be dangerous or be likely to exacerbate the impairment? What guidelines have been provided to the interviewee by his/her physician?

*What is your diagnosis?*

I have a bad back.

*What's wrong with your back?*

I strained it at work and my doctor tells me I shouldn't do any lifting or bending.

*Exactly what did your doctor tell you about what to avoid?*

He said I just shouldn't do any lifting or bending. He wants me to take it easy.

2. Occupational Identification. What occupational status does the interviewee currently report? Was the interviewee satisfied with his or her job? Is there a job available to which the interviewee can return? What is preventing the interviewee from resuming the previous occupational role? Does the interviewee's work history reflect stability and success?

*What kind of work do you do?*

I used to be an electronics assembler for ABC Aerospace.

*Is that job still available?*

No. I'm not sure, but I don't think so.

*Do you think your employer would be willing to allow you to come back if you were able to do the job?*

I can't do the job because my back won't let me.

*How long had you been at this job?*

This is really the only job I have ever had aside from working at a restaurant on and off since I was first married, a few months here and there. After my last child, we really needed me to work full time so I had a friend who got me on at ABC Aerospace. They had a training program there for assemblers and I got a certificate. But that's all I really know how to do.

*Is it a good job?*

Well, it was O.K. I mean, it was good money and I liked the other girls there. I had a good health insurance and retirement program. At least it was steady work.

*Would you want your children to go into the same line of work?*

No. I really want them to stay in school so they don't have to do what I've done.

*Have you talked to your supervisor at work in the last several months or do you still see some of your friends at work?*

No, not anymore. I used to keep up with them, but now we don't have much in common anymore so it's just kind of gone on by.

3. Description of the Injury. How much responsibility for the injury does the interviewee accept? Is there substantial anger, fear, or sadness still associated



with the injury? Are there unusual problems with avoidance that appear to be a consequence of the injury?

*How did you get injured?*

I was lifting my tool box from the rack at work to carry it over to my bench. I felt a kind of pull and then pretty soon it started to hurt.

*Whose fault was it?*

Well, I guess it was mine because I lifted the tool box, but really they shouldn't put it at that level and they shouldn't have ladies having to lift heavy tool boxes. My tool box weighed at least 50 pounds. A lot of other ladies were complaining about that, but they just don't seem to want to do anything about it. I told them, too, but they just wouldn't listen. Now my back won't let me lift at all.

4. Previous Medical History. Has the interviewee experienced previous injuries or other significant medical problems? Did the interviewee adjust well to those previous medical problems? Was there any secondary benefit from these previous medical problems?

*Prior to this injury, have you had any other serious injuries or medical problems?*

No. Since I've been married I've been real healthy.

*Did you have any health problems before you were married?*

Well, I missed a lot of school just for colds and stuff. I didn't have any real problem, but I did miss a lot of school.

5. Stated Goals. What are the interviewee's goals? Given the interviewer's expectation that the interviewee should have goals, how does the interviewee respond? Is there a goal to reestablish some aspect of lost functional capacity? Is the goal description explicit and precise or is it vague and ambiguous? Is there a specific time frame for the goal? What are the interviewee's goals for involvement in the program? Is the interviewee continuing to "look for a cure"?

*What are your goals? What do you want to get out of life?*

I don't know. I never thought about them. I guess it's to get back to work, but I just don't know. Maybe you can tell me.

*What do you want to get out of this program?*

Well, I'd like to be able to get rid of this pain. I'd like to find someone who knows what they are doing so that they can help me get rid of this pain.

6. Symptom Experience. This part of the interview is facilitated through the use of a standard pain drawing which is subsequently reviewed actively by the interviewer with the interviewee. Are the symptoms generalized beyond specific musculoskeletal or neurologic structures?

*Please show me where you hurt. Draw right on here the types of symptoms that you have. This symptom here (indicating), what makes it worse?*

I don't know. It's always as bad as it can be. It just comes and goes. I have never noticed what makes it worse except when I overdo it.

*You've never noticed what makes the symptoms get worse?*

No. It's really unpredictable. Sometimes it's worse than other times, but I can't predict it.

7. Symptom Control. Are medications used effectively? If medications are ineffective, do they continue to be used? Is any difference noted between dosage levels and symptomatic responses? Are there important side effects that are of concern to the interviewee? Are there combinations of medication and other modalities that are utilized (ice, heat, etc.) that are effective? Is there any use of non-prescribed medications? Is there any use of alcohol to replace or assist medication effect?

*How do you control your symptoms?*

I just take it easy. If I overdo it, the symptoms get pretty bad.

*Do medications help?*

No, not really. I take them because my doctor told me to, but they really don't help.

*Have you tried anything else to help control the symptoms?*

Well, I find if I just take it easy and lay down with a heating pad, that does help.

8. Interpersonal Consequences of Symptom Behavior. How does the interviewee respond to family members when he or she is "in pain"? How do family members respond to the interviewee when he or she is in pain? What is the reinforcement structure for the symptom behavior? Is the interviewee embarrassed about his or her symptoms?

*How do you get along with your family when you are in pain?*

Oh, I have a real short fuse and they get out of my way. They know that I get real grouchy because of my pain and they just kind of back off.

9. Social Consequences of Symptom Behavior. Does the interviewee retain responsibility for previous role tasks and request assistance from others to meet that responsibility or has the responsibility been abdicated? Do the symptoms serve a useful purpose or solve an important problem? Is the symptom behavior necessary in order to maintain an important relationship?

*Do your symptoms affect your home life?*

Why sure. There's all kinds of things I can't do anymore. Aside from not being able to work, I can't take care of the house anymore. I used to get real upset about it, but we've just adjusted to that.

*How does your family respond when you have pain?*

They just tell me to take it easy and watch it. They don't want me to overdo it.

*What was the most difficult thing that you had to do before the injury that you don't do now?*

Well, there were lots of things that I don't do now that were difficult, but I would just...the most important was taking care of my husband's mother. She was living with us when I got hurt, and she was kind of an invalid and I would basically take care of her. And after I got hurt, we had to move her to a nursing home.

10. Life Style Consequences of Symptom Behavior. What adjustments of life style have been made? What is the interviewee unable to do that he or she misses? Is there a goal that has been developed by the interviewee and/or his spouse and/or family to reestablish involvement in this activity?

*What do you not do now that you used to be able to do that you miss?*

Well, I used to be on the bowling team at work and I can't do that anymore. I also used to like to make quilts and I was a member of a quilting club, but I can't do that anymore.

*Do you think that you will be able to do either of these again in the future?*

I don't know. I doubt it. No, I don't think so. I don't really see how I can. My back just won't let me.

*What sorts of things does the family not do now that it used to do that they seem to miss?*

Well, we used to go water skiing during the summer, and we can't do that anymore. We had to sell the boat because we couldn't afford it after I stopped working. We tried going with some of our friends who have boats. They've invited us. It just didn't work out because my back acted up. So we just don't go anymore.

*Does the family still talk about wanting to get back into water skiing?*

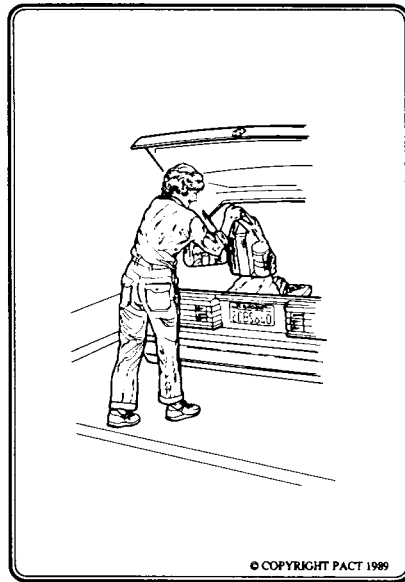
No. I think we've just given up on that.

11. Family's Expectations. What is the interviewee's perception of the expectations that his family has for him? Does his family expect him to go back to work soon? What sorts of adjustments in the family structure have been made? Is there familial acceptance or rejection of the interviewee's sick role?

*What does your family hope that you will accomplish?*

Well, I don't know, I guess they just want me to get back to work, but I know I can't.

*Does your family expect you to be able to go back to work?*



15. Unload two 10-pound grocery bags from the trunk of an automobile.

Fig. 2. Item from *PACT Spinal Function Sort*.

I don't know. Maybe, not really. I'm not sure. You'd have to ask them. I know I can't. I know they'd like me to, but I know I can't.

12. Greatest Perceived Loss. What is the greatest perceived loss due to the injury? Is this loss amenable to change? Is this loss organic or is it functional? Is the loss global or is it specific? Has the loss been adjusted to so that it no longer produces tension as an unfulfilled desire?

*What is the most important thing you've lost due to the injury?*

Well, we've lost our financial security and I don't know what's going to happen with my retirement. We don't have health insurance because that was through my work.

*Is this able to be changed?*

I don't know. I just don't see how. My back won't let me.

*What is the hardest thing to accept about the injury?*

Financial security and my retirement. That's it. We were really counting on it.

13. Perceived Functional Limitations. This may be assisted by the use of an activity sort procedure such as the WEST Tool Sort (22), Loma Linda Activity Sort (23), or the PACT Spinal Function Sort (21). What are the interviewee's functional limitations?<sup>3</sup> Are they explicit and precise? Is there an awareness of the relationship between specific task demands and symptomatic responses? Are they consistent with the functional limitations that are usually seen for this impairment at this stage of rehabilitation? Are the functional limitations "stuck" at or near the level initially experienced by the interviewee soon after onset?

<sup>3</sup>The evaluatee is asked to rate his/her ability to perform the task along a 5-point scale. A Rating of Perceived Capacity score which ranges from 0 to 200 is obtained and compared against normative data. A score which is below the tenth percentile indicates that further exploration is necessary.

*How long can you sit? What's the longest you've sat recently? Does the type of chair you sit in make a difference?*

Well, 30 minutes, sometimes 15 minutes, maybe as long as an hour.

*What seems to make the difference?*

Well, I don't know, it just is different.

*What's the longest you've sat recently?*

Well, I don't know. Probably 30 minutes.

*Does the type of chair you sit in make a difference?*

No, I haven't really noticed except that I have a recliner that if I lay back in it that seems to help.

*How about standing, does the type of surface you are standing on seem to make a difference?*

No, I haven't noticed.

*How about the types of shoes you wear, do they make a difference?*

No, I don't think so.

*Has your ability to sit or stand (or lift, walk, carry, etc.) changed much since right after your injury?*

No, no really. It's been pretty constant since then.

14. Task Modifications. Has the interviewee modified the environment in order to work around some of the more troubling functional limitations? Are there modifications of the home, auto, or worksite that the interviewee has considered and has not attempted? Why not?

*Have you changed anything at home or in your car to help to deal with the symptoms?*

No, not really.

*Have you thought about changing things around in the kitchen or in your bedroom or bathroom so that it would be easier for you to handle them?*

No, I hadn't really considered that.

## SCORING PROCEDURE

Pursue all ambiguous responses with further questions to try to resolve as many as possible. More than three of the 14 items must be positive before symptom magnification syndrome is entertained as a possibility. Six or more positive items indicates that symptom magnification syndrome is likely and must be confirmed by maximum performance testing and behavioral observation.

Generally, interviews with symptom magnification syndrome sufferers will result in clusters of positive items while non-symptom magnification syndrome interviewees will rarely present more than two positive items. This is consistent with Waddell *et al.* (24), who studied 350 North American and British patients reporting low back pain in terms of nonorganic signs and symptoms. There was a clear bi-phasic distribution in the number of nonorganic signs with patients showing either one or no signs, or 3–5 signs.

At the conclusion of the interview, positive items are utilized on an immediate feedback basis for interviewees who are involved in a work capacity evaluation or work-hardening program. For example, if "Angela Jones" were involved in the interview as part of an intake process for a work-hardening program, the interviewer might say, "I'm concerned about your lack of knowledge about what your body can do. I really want you to pay attention to what your body's telling you. After the first few days of the program, I'm going to ask you to tell me what you can and cannot do, and I want you to be very specific about, for example, how much you can lift, over what distance, how often, and for how long. I'm also concerned about

you not having any real clear goals. I want you to think about your goals and talk it over with your husband. In a few days, I want you to be able to give me five very specific goals for your future." Other positive items would be similarly utilized for constructive feedback. In other circumstances, e.g., a medicolegal evaluation or a research project, it may be advisable to not provide feedback until maximum performance testing and behavioral observations have been concluded. In this way, results from the additional SMS identification procedures are not contaminated by the interviewer's intervention.

## DISCUSSION

A previous version of the SMSSI was used in a study of 377 consecutive cases of chronically disabled individuals referred for industrial rehabilitation average 2.1 years post injury (2). This study found that 91 (24%) patients suffered from the syndrome. Additionally, there was a strong positive relationship between prevalence of the syndrome and time since the disabling injury. In subsequent treatment which addressed these patients on a bio-psychosocial-vocational basis, 85% of the clients who completed a work-hardening program were able to become feasible for competitive employment. Mayer and his colleagues (25, 26) and Hazard and his colleagues (27) have reported excellent results with multidisciplinary programs which integrate psychological and physical treatment. A key aspect of these programs is that they combine physical challenges to the patient with psychological support for new behaviors to respond appropriately to the physical challenges. It has become clear that this "engineering" of the psychological and physical domains produces benefits that are synergistic. Furthermore, physical therapists, occupational therapists, and physicians can utilize biopsychosocial evaluation and treatment techniques with good effect if they can identify those patients who have needs beyond the physical domain. The SMSSI can be of use in these situations.

This version of the SMSSI has been in use by the author for 1 year with more than 130 patients. It is a more concise and thorough method to collect patient-report subjective data than previous interview methods. It also appears to be a worthwhile approach to the standardization of the clinical interview so that the likelihood of inter-rater reliability is improved. Additionally, it appears that certain items may be more closely related to the presence of the symptom magnification syndrome than others and cluster with sufficient regularity to warrant consolidation and item weighting.

No other structured interviews have been developed to address this issue. The SMSSI is a preliminary step in the development of an assessment technique for identification of the symptom magnification syndrome that is analogous to the structured interview developed to identify the Type A Coronary-Prone Behavior Pattern by Friedman and Rosenman (28). Further study, including the development of a scoring system, factor analysis, and formal validation of the SMSII is underway by the author. Collaboration on research regarding the use of the interview to further define the symptom magnification syndrome, identify prognostic indicators, and develop effective treatment strategies is invited by the author.

## REFERENCES

1. Matheson LN. *Work capacity evaluation: Systematic approach to industrial rehabilitation*. Anaheim, California: Employment and Rehabilitation Institute of California, 1986.
2. Matheson LN. *Symptom magnification casebook*. Employment and Rehabilitation Institute of California, 1987.
3. Parsons T. *The social system* (Chap. X). New York: Free Press of Glencoe, 1951.
4. Mechanic D. The concept of illness behavior. *J Chron Dis* 1982; 15: 189-194.
5. Mechanic D. Response factors in illness: The study of illness behavior 1975. *Soc Psychiat*; 1: 11-20.
6. Pilowsky I. Abnormal illness behavior. *Brit J Med Psychiat* 1969; 42: 347-351.
7. Pilowsky I. A general classification of abnormal illness behavior. *Brit J Med Psychiat* 1978; 51: 131-137.
8. Pilowsky I. Abnormal illness behavior. *Psychiat Med* 1987; 5(2): 85-91.
9. Gil KM, Keefe FJ, Crisson JE, Van Dalfsen PJ. Social support and pain behavior. *Pain* 1987; 29(2): 209-217.
10. Moss RA. The role of learning history in current sick-role behavior and assertion. *Behav Res Ther* 1986; 24(6): 681-683.
11. Rickarby G, Blyth D, Bennett DL. Abnormal illness behavior as a required family role. *Psychiat Med* 1987; 5(2): 115-122.
12. Waddell G, Bircher M, Finlayson D, Main CJ. Symptoms and signs: Physical disease or illness behavior? *Brit Med J* 1984; 289: 739-741.
13. Waddell G, Morris EW, Di Paola M, Bircher M, Finlayson D. A concept of illness tested as an improved basis for surgical decisions in low-back disorders. *Spine* 1986; 11(7): 712-719.
14. Waddell G, Main CJ, Morris EW, Di Paola M, Gray ICM. Chronic low-back pain, psychologic distress, and illness behavior. *Spine* 1984; 9(2): 209-213.
15. Feuerstein M, Papciak AS, Hoon PE. Biobehavioral mechanisms of chronic low back pain. *Clin Psych Rev* 1987; 4: 423-273.
16. Waddell G. A new clinical model for the treatment of low-back pain. *Spine* 1987; 12(7): 632-644.
17. Feuerstein M, Dopkin PL. Biobehavioral assessment of chronic pain. *Pain Management* July/August 1988; 152-168.
18. Commission on Accreditation of Rehabilitation Facilities. *Guidelines for work hardening programs*. Tucson, Arizona: CARF, 1988.
19. *Cornell Medical Index*. New York: Cornell University Medical Center, 1986.
20. Beck A. *Beck depression inventory*. Philadelphia, PA: Center for Cognitive Therapy, 1978.
21. Matheson L, Matheson M. *PACT spin function sort*. Trabuco Canyon, California: Performance Assessment and Capacity Testing, 1990.
22. Matheson L. *WEST tool sort*. Long Beach, California: Work Evaluation Systems Technology, 1982.
23. Anzai D. *Loma Linda activities sort*. Long Beach, California: Work Evaluation Systems Technology, 1985.
24. Waddell G, McCulloch JA, Kummel E, Venner RM. Nonorganic physical signs in low-back pain. *Spine* 1980; 5(2): 117-125.
25. Mayer TG, Gatchel RJ, Kishino N, Keeley J, Capra P, Mayer H, Barnett J, Mooney V. Objective assessment of spine function following industrial injury: A prospective study with comparison group and one-year follow-up. *Spine* 1985; 10(6): 482-493.
26. Mayer TG, Gatchel RJ, Mayer H, Kishino ND, Keeley J, Mooney V. A prospective two-year study of functional restoration in industrial low back injury: An objective assessment procedure. *JAMA* Oct 2: 1987; 258(13): 1763-1767.
27. Hazard RG, Fenwick JW, Kalisch SM, Redmond J, Reeves V, Reid S, Frymoyer JW. Functional restoration with behavioral support. *Spine* 1989; 14(2): 157-161.
28. Friedman M, Rosenman R. Association of specific overt behavior pattern with blood and cardiovascular findings. 1959; 169: 1286-1296.