# Defining and Measuring Fatigue

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*In response to a long history of problems with defining and measuring fatigue, the University of Kansas School of Nursing established a Center for Biobehavioral Studies of Fatigue Management to facilitate the study of fatigue in diverse populations. The purpose of this article is to review past efforts to define and measure fatigue and the conceptual problems relevant to currently used measures of fatigue. Several distinct characteristics and corresponding measures of fatigue are identified and a definition and framework for the study of fatigue are discussed. Future research on fatigue must attend to the conceptual distinctions among various measures and the measures of fatigue most appropriate to the goals of a study.*

IMAGE: JOURNAL OF NURSING SCHOLARSHIP, 1999; 31:1, 45-50. 

*[Key words: fatigue; measurement; health concepts]*

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Fatigue is a universal symptom not only associated with most acute and chronic illnesses, but also with normal, healthy functioning and everyday life. It is one of the most common complaints of people seen in primary health care. Fatigue is prevalent and distressing to those with rheumatoid arthritis, diabetes, multiple sclerosis, AIDS, and those undergoing radiation or chemotherapy, to name a few. It also is the primary disturbance in those with chronic fatigue syndrome, a poorly understood condition characterized by unremitting and debilitating fatigue. Indeed, the ubiquitous nature of fatigue has made understanding it fully all the more challenging for researchers and clinicians.

In 1992, we established the Center for Biobehavioral Studies of Fatigue Management at the University of Kansas School of Nursing to systematically study fatigue in diverse populations. It was, and is, our hope that multiple studies of fatigue under different circumstances and among people with different clinical conditions will help shed more light on this perplexing and distressing problem. The purpose of this article is to review what we found as we embarked on this endeavor to define and measure fatigue to study it, understand it, and ultimately develop interventions to prevent and relieve fatigue.

## Defining Fatigue

Not surprisingly, defining fatigue—given the complex interaction of the biological processes, psychosocial phenomena, and behavioral manifestations involved—has challenged scientists for many years. While some distinguish normal fatigue from pathological and psychological fatigue, others simply view normal fatigue as acute and pathological fatigue as chronic.

From a purely physiological perspective, fatigue is defined as functional organ failure (Berger, McCutcheon, Soust, Walker, & Wilkinson, 1991). Such organ failure generally is attributed to excessive energy consumption and can be characterized by the depletion of hormones, neurotransmitters or essential substrates of physiological function. Physiological fatigue has been associated with fever, infection, anemia, sleep disturbances, and pregnancy. Some investigators also distinguish between central and peripheral models of fatigue (Gibson & Edwards, 1985). Central models involve malfunction of the central nervous system (CNS), such as impaired transmission between the CNS and the peripheral nervous system or dysfunction of selected areas of the CNS such as the hypothalamic region. Peripheral models involve

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Accepted for publication December 3, 1997.

dysfunction of the peripheral nervous system, such as impaired neuromuscular transmission at the motor-end-plate. Others, however, have used the term peripheral to refer to a physical etiology of fatigue while using central to refer to a psychological etiology (O'Dell, Meighen, & Riggs, 1996). Some nurses also dichotomize physical and mental fatigue (e.g., Milligan, Lenz, Parks, Pugh, & Kitzman, 1996). Nonetheless, most research on fatigue from a physiological perspective has been with muscles and muscle fatigue. This work differentiates fatigue—a state in which function can be restored with rest and support for the mechanisms of restoration—from exhaustion, a condition in which recovery of function does not occur (MacLaren, Gibson, Parry-Billings, & Edwards, 1989).

Stuifbergen and Rogers (1997) suggest the fatigue of multiple sclerosis is different from tiredness because it is abnormal and unrelated to exertion or activity. Still others seek to distinguish among exertional fatigue (such as that experienced with Parkinson's disease), pain-related fatigue (such as with arthritis), and fatigue caused by weakness from illness or treatment (such as in terminal cancer) (Barofsky & Legro, 1991). Distinguishing fatigue in these ways introduces psychosocial phenomena into the experience of fatigue.

From a psychological perspective, fatigue has been defined as a state of weariness related to reduced motivation (Lee, Hicks, & Nino-Murcia, 1991). Stone and colleagues (1997) recently conceptualized fatigue as one of 13 mood states. Psychological fatigue has been associated with stress and other intense emotional experiences and may accompany depression and anxiety. As with physiological fatigue, fatigue within a psychological framework can be viewed as a response to internal or external demands exceeding available resources.

Nurses have attempted to integrate the psychological and physiological aspects of fatigue. The North American Nursing Diagnosis Association definition of fatigue is: "The self-recognized state in which an individual experiences an overwhelming sustained sense of exhaustion and decreased capacity for physical and mental work that is not relieved by rest" (Carpenito, 1995, p. 379). Following an analysis of the concept of fatigue, Ream and Richardson (1997) defined fatigue as: "A subjective, unpleasant symptom which incorporates total body feelings ranging from tiredness to exhaustion creating an unrelenting overall condition which interferes with individuals' ability to function to their normal capacity" (p. 45). Kellum (1985) proposed that nurses categorize fatigue as normal, pathologic, situational, or psychological depending on assumptions about the origins of the fatigue. More recently, Carpenito (1995) categorized factors that caused fatigue as pathophysiologic, treatment-related, situational, or maturational. However, the origin of fatigue is often unclear.

Piper (1989) proposed that the most useful classification distinguishes acute and chronic fatigue. According to Piper, acute fatigue is characterized as protective, is identifiably linked to a single cause, generally occurs in healthy individuals, is perceived as normal, has a rapid onset and short duration, is usually alleviated by rest, diet, exercise, and stress management, and has minor or minimal effect on activities of daily living and quality of life. Chronic fatigue, on the other hand, is characterized as having an unknown function or purpose, as primarily affecting ill clinical populations, as having multiple, additive, or unknown causes, and is often experienced with no relation to activity or exertion. Chronic fatigue also is perceived as abnormal, unusual, or excessive, has an insidious onset, persists over time, is not generally relieved by usual restorative techniques, and has a major effect on the individual's activities of daily living and quality of life. This dual approach, however, does not capture all the complexities of the fatigue experience.

Because we were concerned that a definition or conceptual framework for studying fatigue be clearly biobehavioral to recognize the contributions of physiological and psychological functioning as well as social and cultural factors on the experience of fatigue, none of these definitions was wholly satisfactory. After considerable discussion, we now view fatigue as: "The awareness of a decreased capacity for physical and/or mental activity due to an imbalance in the availability, utilization, and/or restoration of resources needed to perform activity." This definition is consistent with a self-monitoring and self-regulation framework and captures the critical elements needed to study fatigue in our center's studies. The inherently subjective nature of any symptom requires awareness of the phenomenon. Moreover, resources can range from biochemical properties and other physiological capacities to social and cultural factors that also may affect how one interprets, or reacts to, the experience of fatigue. Thus, within this conceptualization, utilization and restoration are processes whereby resources are continually employed and replenished to support all activity. Fatigue occurs when this system is out of balance—that is, when there are insufficient resources either because the demand or need is too great or because mechanisms of utilization and restoration are disturbed.

## Measuring Fatigue

Defining fatigue or identifying a framework within which to study fatigue is a start but it is not enough. Valid and reliable measures also are need. However, given the general lack of consensus in the literature on a definition of fatigue, it is not surprising that measuring (and, therefore, studying) fatigue has challenged scientists for decades. Often a measure of fatigue is tailored to the situation in which fatigue is studied, further limiting generalization of findings. Measuring fatigue has been hindered not only by its ubiquitous nature but also because fatigue is a symptom and, as such, its subjectivity presents additional measurement difficulties.

Thus, definitional difficulties and an absence of a gold standard measure of fatigue have seriously limited efforts to synthesize common knowledge about fatigue. In fact, Muscio (1921) was so convinced of the futility of ever measuring fatigue adequately that he recommended abandoning its study. Nearly 60 years later, Eidelman (1979) stated, "The absence of an overall definition of fatigue preempts any scientific basis for measuring the condition, because logically, that which cannot be defined cannot be measured, and is not understood" (p. 340).

Despite these concerns, however, several efforts to measure fatigue have appeared in the literature. Early work focused on fatigue in the work place and was conducted by industrial psychologists, hygienists, and military researchers. These studies,

and the measures of fatigue developed for these studies, generally focused on healthy populations and fatigue at the specific time of measurement. Yoshitake's (1971) Fatigue Scale and Pearson and Byars' (1956, 1957) Fatigue Feeling Tone Checklist are two of the more popular and widely cited examples of these efforts. Both were rigorously developed using the best available principles of instrument development at the time. However, they are less useful and less satisfactory for general use with clinical populations and are further compromised by outdated language of the items.

Recently, concern about the debilitating and distressing health effects of fatigue among clinical populations has revitalized efforts to measure fatigue. While some populations and conditions are well-suited to contemporaneous measures (e.g., fatigue before and after sleep in patients with sleep disorders), other clinical populations require more comprehensive, general measures of what Piper calls chronic fatigue (e.g., fatigue in patients with multiple sclerosis, rheumatoid arthritis, those undergoing chemotherapy or radiation therapy).

Among more recent measures are: McCorkle and Young's (1978) Symptom Distress Scale, Rhoten's (1982) Fatigue Scale and Fatigue Observation Checklist, Piper's Fatigue Self-Report Scale (Piper et al., 1989), Lee's Visual Analog Scale for Fatigue (Lee et al., 1991), Krupp, LaRocca, Muir-Nash, and Steinberg's (1989) Fatigue Severity Scale, the Multidimensional Assessment of Fatigue (Tack, 1991), and Pugh's work (1993). These instruments address different aspects of fatigue; some address more than one aspect. Thus, descriptions or characterizations of fatigue, subjective feelings of distress associated with fatigue, presumed causes of fatigue, and consequences attributed to fatigue, all appear in one or more of these instruments. With the exception of Rhoten's Observation Checklist, all of these measures require self-assessment and self-reports. Piper's measure assesses more than one aspect of fatigue through the identification of subscales and is exceptionally lengthy. Another scale actually combines, and perhaps confuses, descriptions (e.g., I am easily fatigued), causes (e.g., exercise brings on fatigue), and effects (e.g., fatigue interferes with my physical functioning) of fatigue in a single nine-item scale (Krupp et al., 1989).

Each of these measures has advantages and disadvantages—largely tied to the purpose for which it was developed. Unfortunately, those who use these scales and sometimes scale developers as well do not always carefully identify what it is about fatigue they wish to measure: Its character? Its precursors and causes? The effects of fatigue? Each can be addressed from a physiological, psychosocial, cultural, or behavioral perspective. Doing so in isolation, however, is both limiting and incomplete. Proposing to study one aspect of fatigue, but using a measure that taps a different aspect of fatigue, is even more problematic.

Thus, in view of the concerns about defining and measuring fatigue, our center's group discussions led us to identify salient characteristics to assess when measuring fatigue. These are: (a) subjective quantification of fatigue, (b) subjective distress because of fatigue, (c) subjective assessment of the impact of fatigue on activities of daily living, (d) certain widely recognized correlates of fatigue, and (e) key biological parameters. No single measure of fatigue adequately captures the complexity of the phenomenon. Rather, investigators interested in including a measurement of fatigue in their studies must consider what it is about fatigue that is relevant to each study when selecting a specific measure. Given that our center was interested in studying all aspects of fatigue, we identified a measurement for each of these important characteristics. By determining the conceptual distinctions among various measures of fatigue and by selecting multiple measures to address each distinct aspect, we hoped to better identify possible causes and consequences of fatigue, free of artifact.

We believe that the challenge in studying fatigue is to integrate its various aspects in order to advance knowledge about the biobehavioral interface of fatigue. Doing so requires a broad conception of fatigue such as we have proposed, separate measures of the different aspects of fatigue, and clarity about what each actually measures. Moreover, by using the same set of different measures of fatigue across multiple studies, possible discrepant findings among studies attributable to the use of different measures is reduced. This is how we approach studying and measuring fatigue in our Center for Biobehavioral Studies of Fatigue Management.

## Characteristics and Corresponding Measures of Fatigue

*Subjective quantification* of fatigue can be determined with the Lee and colleagues (1991) Visual Analog Scale for Fatigue (VAS–F). The VAS-F is an 18-item scale (5 items measure an energy subscale and 13 items measure a fatigue subscale) that anchors the measure of fatigue to the current measurement time. It has multiple items to characterize fatigue as it is presently being experienced—for example, sleepy, fatigued, worn out, energetic, lively, etc. Six of the 13 fatigue subscale items address behavioral manifestations of fatigue—e.g., moving my body is no effort at all versus a tremendous chore. Lee reports Cronbach alphas for the VAS-F ranged from .91-.96 in samples of 75 healthy subjects and 57 sleep disorder individuals measured both before and after a night's sleep. The fatigue and energy subscales correlated -.54 among the normal sample and -.73 among the sleep disorder sample. Concurrent validity was demonstrated by high correlations between the VAS-F subscales and the Stanford Sleepiness Scale and the fatigue and vigor subscales of the POMS. The absolute values for most of these ranged from approximately .6 to just over .8. All correlations carried the appropriate, expected sign. Paired *t*-tests also suggested good sensitivity of this measure to discriminate within subject changes (Lee et al., 1991). Others also have found this measure to discriminate within subject changes (Elek, Hudson, & Fleck, 1997). Lee reported plans to convert the visual analog format to a numeric rating scale (K. A. Lee, personal communication, 1992) and this modification was used in our studies. Numeric rating scales are less influenced by eye-hand coordination problems and hand deformities, require less time to complete, are easier to score for computer analyses, and generally yield similar information to visual analog scales—that is, quantified, increasing, monotonic function.

Subjective quantification of fatigue also can be measured with the two-item subscale of the Multidimensional Assessment of Fatigue (MAF) (Tack, 1991). These items ask for a rating of the degree to which a person has experienced fatigue in the past week and how severe that fatigue was. Both questions address the notion of quantifying fatigue from a global subjective perspective.

The MAF is brief and clearly distinguishes the characteristics of subjective quantification, distress, and effect. It is a revision of the longer and more detailed Piper Fatigue Scale. In addition to the two items that measure severity or subjective quantification, one item measures distress, 11 items measure interference with activities of daily living, and two focus on the timing of fatigue. Cronbach's alpha was .93 when this measure was tested on a group of 133 individuals with rheumatoid arthritis (Belza, Henke, Yelin, Epstein, & Gilliss, 1993). Unfortunately, this reliability assessment appears to have been calculated using all 16 items, rather than assessing each conceptually distinct subscale separately. This approach gives undue weight to the subscale with the most items and fails to acknowledge the importance of the conceptual distinctions among the subscales. We recommend that investigators either use the subscales, rather than individual items, in calculating an overall reliability of this measure; or calculate reliablilities of the subscales separately.

Belza and colleagues (1993) report correlations of the MAF with the fatigue subscale of the Profile of Mood States (POMS) that established convergent validity, and with the POMS vigor subscale that established divergent validity. The MAF uses a 1-week time referent for its ratings. This allows for a period long enough to capture the respondent's usual and persistent level of fatigue, yet is short enough to not be overly compromised by recall problems. Belza (formerly Tack) reported plans to convert the visual analog scales of the MAF to 10-point numeric rating scales (B. Belza, personal communication, 1992) and this modification was adopted for our studies.

The single distress item of the MAF may be used to measure *subjective distress*, the second characteristic of fatigue. This item simply asks the rater to report to what degree fatigue has caused distress. Youngblut and Casper (1993) offer compelling arguments for the validity of single-item measures of phenomena such as symptom intensity or distress.

Subjective distress because of fatigue also may be measured with the Symptom Distress Scale (SDS) (McCorkle & Young, 1978). The SDS consists of 13 items about symptoms (e.g., pain, nausea, tiredness) that are rated on a five point scale reflecting degrees of distress ranging from the symptom being absent to the symptom being at its worst. It has been used with many different clinical populations and in various settings. Reliability coefficient alphas are reported between .79 and .89 (McCorkle, 1987). Convergent validity of the SDS has been demonstrated by a high correlation (.90) with Ware's Health Perception Questionnaire. The SDS has discriminated between patients and controls and demonstrated sensitivity to changes in patients (McCorkle, 1987). Kukull, McCorkle, and Driever (1986) also found the SDS discriminates among types of patients and demonstrates stability in patients whose conditions remain stable. The high correlations between fatigue and several of the other symptoms (mood, appetite, insomnia), and the potential for confounding fatigue with other symptoms experienced by different clinical populations, made this a desirable tool to use with all participants in our center's studies.

The *effect of fatigue* on activities of daily living is the third important characteristic that investigators may be interested in measuring. As described above, the MAF has an 11-item subscale that specifically asks to what degree fatigue has interfered with the respondent's ability to engage in a number of routine activities. Indeed, a report of activity interference may be a more sensitive measure for assessing changes in fatigue, or evaluating the success of an intervention, than the more abstract concept of numerically assigning a "degree" of fatigue.

*Correlates of fatigue*, such as sleep and depression, constitute the fourth identified characteristic to assess when measuring fatigue. Obtaining a measure of sleep proximate to the time that fatigue measures are taken is important for factoring in, or controlling, the effect of sleep disturbance and quality on measures of fatigue. Assessment of the previous night's sleep may be measured with the Verran/Snyder-Halpern (VSH) Sleep Scale (Snyder-Halpern & Verran, 1987; Verran & Snyder-Halpern, 1988). It is a 15-item instrument, originally designed in a visual analog format. A 16th item is created by summing two other items. The scale specifically refers to the previous night's sleep and contains three separate scales measuring sleep disturbance (seven items), effectiveness (five items) and supplementation (four items). According to the scales' authors, empirical testing does not support using a single total score. The VSH Sleep Scale has been tested in several populations including healthy adults, adults with insomnia, and hospitalized patients in the United States and Taiwan. Theta coefficients across samples indicate adequate reliability of the disturbance scale (.82-.86), moderate reliability for the effectiveness scale (.72-.81), and some inconsistency for the supplementation scale (.68-.84 for the ill adult samples, .45 for the healthy adult sample). We obtained permission to convert the VSH Sleep Scale to a numeric rating scale consistent with our other measures and for the other advantages of numeric rating scales identified above.

Depression is the other critically important correlate requiring some assessment in any study of fatigue. Because fatigue is a well-recognized symptom of depression (American Psychiatric Association, 1994), it is important that studies have a standard measure of mood disturbance in order to factor in, or control, the effect of depression on measures of fatigue. The Profile of Mood States (POMS) is a well-established measure of mood disturbance consisting of six subscales: depression, tension, anger, confusion, fatigue, and vigor. The Short Form of the Profile of Mood States (POMS-SF) (McNair, Lorr & Droppleman, 1992) consists of 30 of the 65 items in the original POMS—five items for each of the six subscales. The authors report alpha reliablities for the POMS-SF subscales from three samples (reported separately for men and women) are as follows: Depression (.81-.91), Tension (.73-.93), Anger (.84-.91), Confusion (.67-.83), Fatigue (.86-.95), and Vigor (.87-.93), (McNair, Lorr, & Droppleman, 1992). The reduced time needed to complete the POMS-SF, and the comparably high measures of internal consistency were the primary reasons we selected this version over the original 65 item POMS for our studies.

Another important consideration for our center in selecting the POMS-SF over other measures of depression or mood disturbance is that the fatigue and vigor subscales of the POMS are the standards that most developers of new measures of fatigue use to establish criterion or concurrent validity of their scales. Because it seemed important to obtain the one measure of fatigue used to validate other measures, selecting the POMS-SF provided

dual advantage. However, this subsequently raised an interesting issue. Because the POMS is primarily a measure of mood disturbance, it is likely that the fatigue and vigor subscales may more closely approximate mood disturbance, or depression, aspects of fatigue than the other salient characteristics discussed here. Given our arguments about the distinct salient characteristics of fatigue, the POMS fatigue and vigor subscales, as part of a clear measure of mood disturbance, may not be the best choices for criterion or concurrent validity of other measures of fatigue. Moreover, when designing specific studies, investigators should consider the extent to which fatigue is confounded in the measure of depression, or the extent to which depression is confounded in measures of fatigue.

The fifth and last characteristic necessary for assessing and measuring fatigue is comprised of *key biological parameters.* Because no clear biological markers for fatigue have been identified, we chose to obtain common blood tests in our studies. At the very least, these tests could serve a 'rule out' function, helping to identify suspected pathological states associated with fatigue such as hypothyroidism, renal failure, or anemia. A blood chemistry profile provides information about fluid and electrolyte status, renal function, liver function, and metabolic status. Hemoglobin and hematocrit values, as part of a complete blood count, reflect the adequacy of oxygen-carrying capacity. Because fatigue has been associated with activation of the immune system in infections as well as in chronic fatigue syndrome, white cell counts with differential are additional useful data to obtain. Normal thyroid function is essential for normal metabolic functioning and because thyroid pathology is associated with fatigue, obtaining measures of thyroid function also should be considered. Specific clinical populations under study may dictate measurement of other specific biological parameters. For example, interleukin 6 and C-reactive protein may be obtained in a study of people with rheumatoid arthritis, and glycosylated hemoglobin and fibrinogen might be obtained in a study of people with diabetes.

We anticipate that obtaining data on possible biological correlates of fatigue will contribute to a better understanding and diagnosis of fatigue by providing empirical measures that may vary with the severity and etiology of fatigue across clinical populations. Also, if biological correlates of fatigue can be identified, they would be useful in monitoring the effectiveness of interventions to relieve or attenuate fatigue.

## Implications of Fatigue Characteristics

Because the various measures of fatigue actually tap into different aspects or characteristics of fatigue, studies using different measures of fatigue may not reach the same conclusions and yet may all be valid. For example, an intervention may have positive effects on reducing the interference of fatigue with activities of daily living but not have any effect on the subjective quantification of fatigue. Such findings within a single study would be an interesting point for discussion and validation of the distinctions among different aspects of fatigue. However, if such findings came from different studies, each of which used a different measure as an indicator of fatigue, the findings would appear contradictory and ultimately would not contribute to furthering knowledge about fatigue. This presents important considerations for the study of fatigue.

Distinctions about fatigue and its various measures are all the more important given the subjective nature of fatigue. As with any subjective phenomenon, individual differences on such things as response biases and expectations about how one does feel, versus how one should feel, may significantly influence reports of fatigue. Further, little has been done to investigate the role that potential discrepancies in expectations—between how one does feel and how one thinks one should feel—play in self-reports of fatigue. It may be that examining expectation discrepancies will be more fruitful than pursuing absolute measures of fatigue.

Conceptualizing fatigue as we have—as an awareness of a decreased capacity for physical or mental activity because of an imbalance in the availability, utilization, or restoration of resources needed to perform activity in the context of a self-monitoring, self-regulating framework—supports a focus on such expectation discrepancies. Not only would expectations affect the awareness of a decreased capacity for activity, but expectations also would affect the perception of a resource imbalance. For example, with increased age or in chronic health conditions, people may alter their expectations about how they should feel or may adapt and adjust to different expectations. From the perspective of our framework, these people may learn how to better monitor and regulate the use and restoration of their resources such that they do not perceive as much imbalance and consequently may report less fatigue than younger or otherwise healthier persons.

The historical uncertainties with defining and measuring fatigue may be, in part, because of inattention to the differing characteristics or aspects of fatigue. Future studies of fatigue must be more sensitive to how fatigue is defined and measured. Our researchers in the Center for Biobehavioral Studies of Fatigue Management have begun an exploration of fatigue in several populations using common instrumentation and multiple measures of fatigue—both self-report and biological measures—to investigate more fully the different characteristics of fatigue. The development of such a data base is particularly important for the study of fatigue and to characterize and understand fatigue as a truly biobehavioral human experience. More studies using this strategy are needed to advance knowledge about fatigue and, ultimately, its management. ΣΘΤ

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## Clinical Sidebar by Frances Crighton

Implementation of interventions to alleviate fatigue in patients with various diseases is compounded by the difficulty in quantifying fatigue. As pointed out in "Defining and Measuring Fatigue," fatigue is difficult to define. Differing opinions exist as to what comprises acute and chronic fatigue, and differences in fatigue identified in ill and healthy populations.

Furthermore, other symptoms such as pain, depression, and anxiety frequently precipitate distress and fatigue and need to be factored out to assess and plan interventions to relieve fatigue. In addition, not only is the problem of measuring fatigue frustrating and obscure for scientists, but fatigue frequently is not assessed by clinicians because of inadequate assessment guidelines, quantification measures, and lack of interventions to relieve fatigue.

Moreover, patients have difficulty understanding the term "fatigue," and are reluctant to admit they are fatigued for fear of being considered unmotivated or weak. Likewise, the subjective nature of fatigue and patients' adjustment to limited energy resources over time influence how they report symptoms to clinicians. The article confirms the difficulty scientists as well as clinicians have in measuring fatigue and sets forth a framework clinicians can adopt concerning assessment and intervention for patients suffering with fatigue.

Clinicians need assessment tools specific to the five salient characteristics of fatigue: Subjective quantification of fatigue, subjective distress because of fatigue, subjective assessment of the effect of fatigue on activities of daily living, correlates of fatigue, and biologic parameters. These five characteristics are appropriate in assessing fatigue in a variety of patient groups. Clinicians want to know not only how much fatigue a patient is experiencing, but also the distress it is causing and how it is interfering with activities of daily living. For example, does fatigue interfere with bathing, dressing, meal preparation, shopping, work, entertainment, and sexual relations. Clinicians might ask the patient to maintain a daily log concerning their fatigue with the time of day and activity during which fatigue is the most bothersome to them. Likewise, the correlates of fatigue should be assessed in order to provide direction for developing interventions to relieve patients' fatigue. Fatigue correlates include the amount of stress the disease or other life problems are causing the patient—all issues of concern to clinicians. The final characteristic to assess as suggested in the article is the biologic aspects of fatigue. These are probably the easiest for clinicians to assess, because the numeric values of hemoglobin, hematocrit, and thyroid tests, for example, are recognized as signs that lead to symptoms of fatigue. Blood transfusions or other treatments are available to restore the needed resources for patients to maintain a homeostatic balance and relieve fatigue. However, it is important for clinicians to know that fatigue may be present at distressing intensity even in the absence of such abnormal laboratory values.

Nursing diagnoses are important for guiding interventions. Using the five characteristics of fatigue identified in this article for assessing and diagnosing fatigue should help clinicians intervene appropriately. For instance, if patients are having difficulty doing the family shopping because of fatigue, the nursing diagnosis will involve alternative structuring of activities of daily living. The clinician might ask patients to list their activities of daily living, prioritize the listed activities, and identify those activities that might be performed by other family members or friends. Clinicians can assist patients in scheduling rest periods so they have the required resources to carry out desired activities, such as visiting with friends and family. Outcomes of the effectiveness of interventions similarly can be assessed describing the different characteristics of fatigue.

Although, the exact cost of fatigue in terms of work loss, complications, and self medication is unknown, patients report that fatigue can be costly. Moreover, there are psychological costs such as decreased quality of life, frustrations with the chronicity of fatigue, feelings of decreased self-worth, and loss of control. Clinicians can assist patients in the management of fatigue through carefully assessing, planning, and implementing specific interventions. Greater clarity in defining and measuring fatigue will help not only researchers, but also clinicians.


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