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# Symptoms Before, During, and 14 Months After the Beginning of Treatment as Perceived by Patients With Lymphoma

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**L**ymphoma is one of the malignant diseases in which more effective treatments are leading to steady progress in improving survival rates, therefore increasing the number of patients living with active disease or in remission. Lymphomas are a heterogeneous group of malignancies that originate from the lymphoid system with frequent bone marrow involvement (Diehl & Fuchs, 2007; Evans & Hancock, 2003), making the disease trajectory more uncertain than is usual in patients with solid tumors (Elphee, 2008). The most common forms of lymphoma include two types of non-Hodgkin lymphoma (NHL), large B-cell and follicular lymphomas and Hodgkin disease. To date, no effective methods are available for lymphoma screening. Instead, patients are identified only after they develop lymphadenopathy or other disease-related symptoms. Depending on the specific histology and morphology, disease progression can vary from being relatively slow to quite aggressive. In addition, survival time and cure rates vary among lymphomas (Diehl & Fuchs, 2007; Evans & Hancock, 2003). Because of this heterogeneity, a variety of active treatment alternatives as well as “wait and watch” strategies are used. However, when patients require treatment, therapy often is intensive, generally with major systemic effects.

Although signs and symptoms of lymphoma, such as lymphadenopathy and systemic B-symptoms (i.e., fever, night sweats, and weight loss) are well recognized in the diagnostic process, surprisingly little empirical research is available on the symptom experience of patients with lymphoma undergoing treatment. Since 2000, numerous researchers have begun to elucidate theories of symptom experience (Armstrong, 2003), although a lack of consensus in definitions still exists. For example, in their now classic definition, Rhodes and Watson (1987) described symptoms as “subjective phenomena regarded

**Purpose/Objectives:** To explore occurrence of symptoms and relationships between them as perceived by patients with lymphoma before, during, and 14 months after the beginning of treatment.

**Research Approach:** Qualitative and longitudinal.

**Setting:** A major oncology center in the United Kingdom.

**Participants:** 10 adult patients with lymphoma (3 women and 7 men) were recruited at treatment initiation.

**Methodologic Approach:** Semistructured audiotaped interviews were conducted with participants in median 15 days, 4 months, and 14 months after diagnosis. Analysis of the verbatim transcripts was inspired by interpretive description, which is a grounded approach articulating patterns emerging in relation to clinical phenomena.

**Main Research Variables:** Symptoms.

**Findings:** Symptoms commonly reported by patients in this sample were lack of energy, lymphadenopathy, weight loss, itching, pain, sadness, night sweats, sleeping difficulties, and hair loss. Co-occurring prediagnosis symptoms seem to have led patients to seek medical attention; co-occurring symptoms during treatment seem to have a cumulatively distressing effect. Several of the symptoms were described as interrelated, with one symptom leading to one or more other symptoms.

**Conclusions:** The data confirm a complex symptomatology in patients with lymphoma. In addition, the findings support that co-occurring symptoms may have a synergistic effect on patients' health outcomes and add new knowledge about relationships between symptoms from patients' perspectives.

**Interpretation:** Illustrating symptoms and interrelationships between symptoms using diagrams may be useful to support communication as well as in identifying targets for symptom management.

by individuals as an indication of a condition departing from normal functions, sensation, or appearance” (p. 242). The broad concept of symptom experience often is described as multidimensional, with Rhodes and

Watson (1987) proposing that it consists of two linked dimensions: symptom occurrence, including frequency, duration, and severity of symptoms; and symptom distress, including the degree or amount of physical or mental upset, anguish, or suffering experienced from a specific symptom. Armstrong (2003) suggested that symptom experience also includes a symptom's ability to affect patients' situational or existential meaning, which may influence the perception of a symptom, regardless of the frequency with which it occurs or the distress associated with it. The response to symptoms may differ from patient to patient, based on past experiences and expectations of the future, as may the strategies used to cope with symptom experience (Armstrong, 2003).

Despite the occurrence of multiple, simultaneous symptoms, research has traditionally focused on single symptoms. More recently, interrelationships between different symptoms, in what has been called symptom clusters (Kim, McGuire, Tulman, & Barsevick, 2005), has been the focus of empirical and theoretical study. Dodd,

Miaskowski, and Paul (2001) suggested that symptoms within clusters have a synergistic effect on patients' health outcomes. To date, a number of factors limit the conclusions that can be drawn from the symptom cluster literature, including a lack of consistency in data collection instruments and analysis approaches, variability in samples used with regard to disease stage, time points for data collection and participant characteristics, and a lack of consensus in how symptom clusters are defined (Henoch, Ploner, & Tishelman, 2009). One also should recognize that the symptom cluster research to date has been based on statistical relationships between symptoms rather than clinical experience or patients' explanatory models (Henoch et al., 2009).

Although the body of literature about symptoms in patients with cancer is growing rapidly, studies with specific focus on symptoms in patients with lymphoma are lacking. Several studies have explored health-related quality of life (HRQOL) in this patient population. A strong and well-recognized relationship exists between HRQOL and symptom experience, such that HRQOL almost invariably deteriorates if symptoms worsen (Hollen, Gralla, Kris, & Potanovich, 1993). For example, two studies of patients with aggressive NHL show that the impaired HRQOL patients experienced as a result of disease-related symptoms prior to treatment improved with therapy (Doorduijn et al., 2005; Jerkeman, Kaasa, Hjermstad, Kvaloy, & Cavallin-Stahl, 2001; Merli et al., 2004). In older adult patients with less aggressive NHL, HRQOL was found to be better at diagnosis than when undergoing treatment with its side effects, although HRQOL later returned to pretreatment levels (Doorduijn et al., 2005). Similarly, patients with early stage Hodgkin disease were found to experience poor HRQOL as a result of treatment (Ganz et al., 2003). Patients with disease progression from aggressive lymphoma have been reported to have particularly poor HRQOL (Doorduijn et al., 2005).

To advance knowledge on symptom experience in this patient group, the authors carried out a qualitative study to explore symptom occurrence with particular focus on relationships between symptoms as described by patients with lymphoma before, during, and 14 months after the beginning of treatment.

## Materials and Methods

The data are derived from a larger longitudinal study, the objective of which was to explore symptom experience in adult patients with heterogeneous forms of cancer. The qualitative analysis reported here is based on a subset of 10 adult patients with lymphoma. Patients were recruited at treatment initiation at a major oncology center in the United Kingdom from October 2005–August 2006. Inclusion criteria were new cancer diagnosis with planned chemotherapy and/or radiotherapy. Patients with cognitive impairment, central

**Table 1. Patient Characteristics**

Characteristic	Median	Range
Age (years)	45	18–64
Characteristic	n	
<b>Gender</b>		
Male	7	
Female	3	
<b>Marital status</b>		
Single	2	
Married	8	
<b>Occupation</b>		
Modern professional	1	
Technical craft	5	
Clerical	1	
Retired	1	
Unemployed	1	
Unable to work	1	
<b>Education level</b>		
Secondary school	3	
College diploma	3	
University degree	1	
Postgraduate degree	2	
Unknown	1	
<b>Diagnosis</b>		
Diffuse large B-cell lymphoma	5	
Hodgkin disease	4	
Marginal zone lymphoma	1	
<b>First-line treatment</b>		
Chemotherapy	5	
Chemotherapy and radiotherapy	3	
Radiotherapy	2	
<b>Treatment response at one year<sup>a</sup></b>		
No evidence of disease	7	
Ongoing regression	1	
Stable residual disease	1	

N = 10

<sup>a</sup>One patient was lost to follow-up.

### Quotation 1, Patient C

"Just completely out of breath and I actually said to my wife, 'There is something wrong with me, I haven't got a clue what it is but it's not right, I am not feeling how I did before.' My body was not the same and I was also experiencing aching joints. It was like there was something changing in my body, my functions, the way I was behaving; I thought it was like a jigsaw puzzle and I was trying to understand what was going on and piece it all together. By the time the lump appeared, I was actually saying there's something wrong with me and I don't know what it is. There's something different about the whole way my body was and the way I was before, there were all these little things that were all adding up into something which I thought was different."

### Quotation 2, Patient F

"I suddenly noticed for no real reason that I was struggling in training. I developed a rash on my legs from my knees downwards which at first I thought because I've been running in some of the fields . . . and also started really heavily sweating at night. . . . So I went to the doctors and said I've got three things: I'm sweating heavily at night, I'm feeling rundown, and I've got these rashes on my leg and I don't know whether they're connected."

### Quotation 3, Patient F

"Before I was on the chemo[therapy], I would have about three really heavy sweats during the night. I'd wake up about on three occasions, absolutely drenched. I'd have to almost get a towel and dry myself down and sleep on one half of the bed then the other and then on top of it. Since the chemo[therapy] started, I'm still sweating at night, but it's more of a consistent sweat through the night. I had to go and sleep in the spare room because it wasn't fair on the wife because I kept waking up in the middle of the night soaking wet."

"It was frustrating because I didn't get a proper night's sleep. You sort of wake up, every morning you've got a stack of washing to do, and it's worse to handle. You have to rewash the bedding every day, sweating on towels . . . it's pretty horrible waking up and you are sort of completely wet."

"The night sweats are contributing to the tiredness. Yes, you are tired but just the sweating was the most irritating thing. If it wasn't for the fact of waking up in a soaking wet bed, I would probably have stayed in bed all day. I mean it literally."

### Quotation 4, Patient D

"It started off very mild itching in my legs and then slowly got worse and I started itching more over my arms and my chest. I was getting the itching all over by then. What had been happening is

slowly getting worse and the scratching has been getting more intense. The most upsetting really is the itching. . . . The reason that I'm not wearing trousers, I'm wearing shorts, is to get some air to my legs because if I have trousers on and you move your leg like that the trousers actually rub."

"It's not nice at all when you're in people's company. So that's bothered me more than anything else. I mean I just can't help [scratching]. The other day we went around to some friends and they had a barbecue and we sat there and talking and I'm like this itching all over . . . constantly, that's not nice when you're with friends."

"Twenty-four hours a day I've been irritated, I've been scratching . . . I'm like a monkey . . . I say irritation; it's hard to explain really."

"For months and months and months and months, I've not been sleeping at night. I've just been sort of cat napping. . . . I can spend all night sat on the edge of the bed just scratching. . . . That's obviously why I'm so tired during the day."

"That gets me down."

### Quotation 5, Patient A

"The issues are not the illness, the issues are with the side effects of the treatment. But, in terms of my actual health, I am far better now than certainly before I started the treatment. So, if you try and separate all the side effects of the chemo[therapy] out, I am much, much better."

**Interviewer:** "When you say 'your health,' how are you separating it?"

"Well, my health, I do it to the way I felt before I started the treatment when I was fatigued and drained and tired and so on, which is obviously the effect of the cancer where the sort of being sick and the hair falling out and all that sort of stuff, that was the treatment. So I try and separate the two, but overall, even from whichever way you look at it, I am much better."

### Quotation 6, Patient D

"Not just aching but throbbing. Discomfort with the Hickman line and you feel it absolutely burning away like mad. I have gone through a couple of days when I feel a bit . . . my stomach is off . . . like imagine having a tummy bug. No, imagine having the really worse dose of flu that you've ever had in your life, if you can imagine that, well that's what it's like on a bad day. When all your body is aching, even your fingers. All your body is just aching and I get a bit of a runny nose and I get the blisters on the side of my tongue. My shoulder is killing me, I've got pains with my Hickman line, my feet are killing me and it's just that they all come together and it might last two or three days."

## Figure 1. Quotations Illustrating Patients' Reasoning About Relationships Among Symptoms

nervous system involvement, or life expectancy of fewer than three months were excluded. Heterogeneous sampling with regard to different types of lymphoma was used to obtain a broad spectrum of the lymphoma experience as well as to generate general and situation-specific hypotheses for additional research. Informed consent from patients was obtained before inclusion. Permission to carry out the study was received by the local research and ethics committee and the Research Ethics Committee at the University of Manchester in the United Kingdom.

Individual, semistructured, tape-recorded interviews were conducted at three time points: T1 at 15 days (median) (range = 10–42 days), T2 at 112 days (median) (range = 85–182 days), and T3 at 413 days (median) (range = 365–451 days) after the beginning of treatment,

respectively. Two of the 12 recruited patients withdrew prior to the first interview because of ill health, with an additional patient lost to follow-up at T3. Patient and treatment characteristics are presented in Table 1. The study-specific interview guide included questions about the symptom experience (i.e., perception and response to symptom occurrence and symptom distress). The first interview began with an open invitation to describe health changes leading to diagnosis. All interviews focused on descriptions of the symptom experiences up until the time of interview.

## Data Analysis

The 30–90 minute interviews were transcribed verbatim. Analysis was inspired by interpretive description (Thorne, Kirkham, & MacDonald-Emes, 1997; Thorne,

**Table 2. Symptom Occurrence Before, During, and 14 Months After the Beginning of Treatment as Perceived by Patients With Lymphoma**

Symptom	Before Treatment (N = 10)	During Treatment (N = 10)	14 Months After Treatment (N = 9)	Total Reporting Symptoms
<b>Lump or swelling<sup>a</sup></b>	6	—	1	7
<b>Distension of leg<sup>a</sup></b>	1	—	—	1
<b>Congestion in the stomach<sup>a</sup></b>	1	1	—	1
<b>Sleep and energy</b>				
Not getting much sleep, couldn't sleep, or sleep at night is affected. <sup>a</sup>	5	4	1	5
Tired or fatigued <sup>a</sup>	5	7	6	9
Feeling generally weak <sup>a</sup>	1	2	1	2
Do not want to do things or difficulty starting things	1	2	—	2
Involved in doing more	—	1	—	1
<b>Cognitive</b>				
Groggy	—	1	—	1
Not able to concentrate/no concentration <sup>a</sup>	2	3	—	3
<b>Skin and hair</b>				
Itch or rash <sup>a</sup>	5	5	2	6
Dry skin	—	1	1	2
Skin irritation	—	1	—	1
Different skin tone	1	—	—	1
Pigmentation	—	1	—	1
Fingers went white.	1	—	—	1
Hair loss, hair comes out, or hair fell out. <sup>a</sup>	—	5	—	5
Hair has changed or is growing back.	—	—	3	3
<b>Eyes</b>				
Streaming eyes	—	1	—	1
Yellow eyes	1	—	—	1
Blurred vision	—	—	1	1
<b>Digestive and gastrointestinal</b>				
Cannot eat or no eating <sup>a</sup>	—	2	—	2
Desire to eat all the time	2	—	2	2
Weight loss, low weight, or weight stayed off. <sup>a</sup>	2	4	3	6
Put weight on	—	1	1	2
Changed taste	—	—	1	1
Indigestion or heartburn	—	1	—	1
High blood sugar <sup>a</sup>	—	1	—	1
Throwing up	—	2	—	2
Nauseous, being sick, or sick <sup>a</sup>	—	3	—	3
Queasy	—	1	—	1
Miserable	—	1	—	1
Constipated or bugged up <sup>a</sup>	1	4	—	4
Diarrhea, stomach bug, or stomach is off.	—	4	1	4
Soreness in mouth or blisters in mouth	—	2	—	2
Teeth problem	—	1	—	1
<b>Breath, circulation, and cytopenia</b>				
Breathlessness or out of breath	3	3	1	3
Night sweats, drenching sweats, or sweating <sup>a</sup>	5	3	1	5
Swelling of arms and legs <sup>a</sup>	—	2	—	2
Puffy eyes and cheeks	—	1	—	1
Dehydrated	—	1	—	1
Feeling cold	—	1	—	1
Having a cold, sore throat, or infection <sup>a</sup>	2	3	1	4
Rectal bleeding	—	1	—	1
<b>Peripheral neuropathy</b>				
Pins and needles or tingling in the fingers	—	2	1	2
Numb fingers, numbness, or no feeling <sup>a</sup>	1	2	1	4
Burning in toes and fingers	—	1	—	1
Affected voice	—	1	—	1
<b>Pain</b>				
Pains, aches, or hurting <sup>a</sup>	4	4	3	6

(Continued on next page)

<sup>a</sup> Described by one or more patients as being related to one or more other symptoms

Note. Symptoms are verbatim transcriptions of wording used by patients to describe symptoms.



**Table 2. Symptom Occurrence Before, During, and 14 Months After the Beginning of Treatment as Perceived by Patients With Lymphoma (Continued)**

Symptom	Before Treatment (N = 10)	During Treatment (N = 10)	14 Months After Treatment (N = 9)	Total Reporting Symptoms
<b>Pain (continued)</b>				
Tender or very delicate to touch	—	1	—	1
<b>Emotional reactions</b>				
Worry, anxiety, or put on a tender hook <sup>a</sup>	4	3	3	5
Feel scared, fear, petrified, or nerve racking	3	—	2	4
Weepy, sad, crying, moaning, or not so happy	—	3	—	3
Depressed, feeling low, or feeling down	2	5	1	6
Vulnerable or fragile	—	2	—	2
Upset	1	—	1	1
Irritated	2	1	—	2
Insane	1	—	—	1
Dependent or feeling trapped	—	2	—	2
Sensitive	—	—	1	1
Uncertain	—	—	1	1

<sup>a</sup> Described by one or more patients as being related to one or more other symptoms

Note. Symptoms are verbatim transcriptions of wording used by patients to describe symptoms.

Thorne, Kirkham, & O'Flynn-Magee, 2004), an approach to articulating patterns and themes emerging in relation to complex phenomena to generate clinically relevant results. The analysis process comprised of comprehending data, synthesizing meanings, theorizing relationships, and recontextualizing data with the aim of generating clinically relevant findings.

Rhodes and Watson's (1987) symptom definition provided a conceptual guide for symptom identification. The analysis procedure began with the first author repeatedly reading and annotating transcripts to document reflections on symptom descriptions in each interview. Differences and similarities among and between interviews were then discussed with the second author.

Thereafter, text portions containing descriptions of symptoms were grouped by common content. Although the first author carried out the analysis, consistency in coding was maintained through discussion with the second author. Relevant interview data were then analyzed with regard to patients' descriptions of symptom occurrence and relationships between symptoms. Analysis strategies and validity of interpretation were determined through regular discussions with the entire research group.

Quotations from patients indicate their reasoning about interrelationships among symptoms (see Figure 1). This illustrates the analytic points presented in the text (Sandelowski, 1994). When possible, the authors use references to night sweats and itching, as these symptoms particularly characterize both lymphoma and this data set but often are neglected in empirical studies of symptomatology in patients with cancer. Each patient is represented with a letter to maintain confidentiality but still allow the reader to link the same person throughout the tables and figures.

## Results

### Symptom Occurrence

A wide variety of symptoms were described as present at different time points. Table 2 presents this range of symptoms using patients' own terminology with headings representing researcher-derived categorization. Patients reported a median of 5.5 (range = 2–11), 6 (range = 4–13), and 4 (range = 3–7) different symptoms as present before, during, and 14 months after the beginning of treatment, respectively. Ninety percent of all patients reported a lack of energy at one or more time points, 70% reported lymphadenopathy, and 60% reported weight loss, itching, pain, or feelings of sadness.

### Relationships Between Symptoms

Although single symptoms prior to diagnosis could be described as not having stimulated the patient to react, experiencing several symptoms simultaneously often led to recognition that something out of the ordinary was occurring. In most patients, symptoms had developed over a period of several months. As symptoms became more numerous and pronounced, patients described being affected through a diffuse sense that their body was deteriorating (see quotation 1 in Figure 1). This led to a process through which patients tried to understand the connections between these symptoms (see quotation 2 in Figure 1). Patients were faced with multiple symptoms for which explanations were sought. When several symptoms occurred prior to diagnosis, some patients said they initially attributed them to other causes, whereas others interpreted them as indicative of

cancer. The combination of multiple symptoms and uncertainty as to the cause seemed to catalyze the patient to seek contact with healthcare services.

Prior to treatment, interrelationships between symptoms were explicitly described among the patients (see Figure 2). One symptom commonly described as leading to other symptoms was night sweats (see Figures 2 and 3). Sweating was said to occur when the body was perceived as “shut down” at night time. The night sweats could be mild or heavy, the latter leading to drenched sheets and frequent awakenings, which was said to disturb the sleep of both patients and family members. Patients felt forced out of their wet bed despite great tiredness (see quotation 3 in Figure 1).

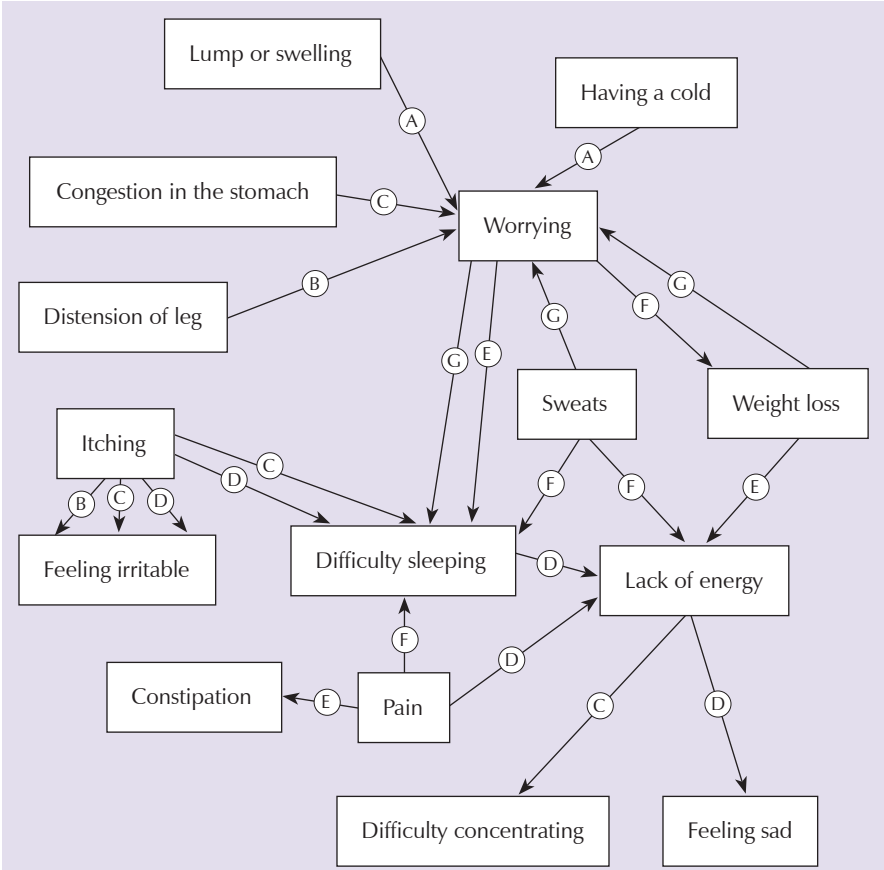
Itching was another salient symptom described as interrelated with other symptoms (see Figures 2, 3, and 4) and as having social consequences. Itching, initially mild and progressively more intense, was said to produce a constant uncomfortable feeling that caused sleeping issues. The itching increased in stressful situations and was said to lead to irritability. Itching was described as one of the most upsetting experiences by the respondents who used phrases such as “the itching was driving me insane” to describe the feeling. Practical issues occurred because of the intense scratching (e.g., with blood constantly on bed linen and clothes). To be seen scratching was perceived by patients as socially stigmatizing and a little dehumanizing (e.g., “like a monkey” from quotation 4 in Figure 1).

During treatment, patients also described symptoms as co-occurring; however, a more complex symptomatology, with combination of disease- and treatment-related symptoms occurring simultaneously, was described. This seemed to have a cumulatively distressing effect, impairing physical and emotional functioning. Although a considerable level of symptom distress was described, patients felt an improvement in their perceived overall health; a contradiction that may, in part, be explained by their view that most symptoms were temporary and not an indication of disease progression (see quotation 5 in Figure 1). In general, simultaneously occurring symptoms during treatment were described as more intense in nature than those described as occurring during the prediagnostic phase (see quotation 6 in Figure 1).

During the treatment period, more complex relationships among symptoms were described. Some relationships were explained as mediated by medication to alleviate an already existing symptom. For example, constipation was explained as resulting from pain medication. When exploring interrelated symptoms, other negative consequences also were described, such as impairments in physical activities that hindered social and working life and stigmatization leading to isolation from family, friends, and the larger community.

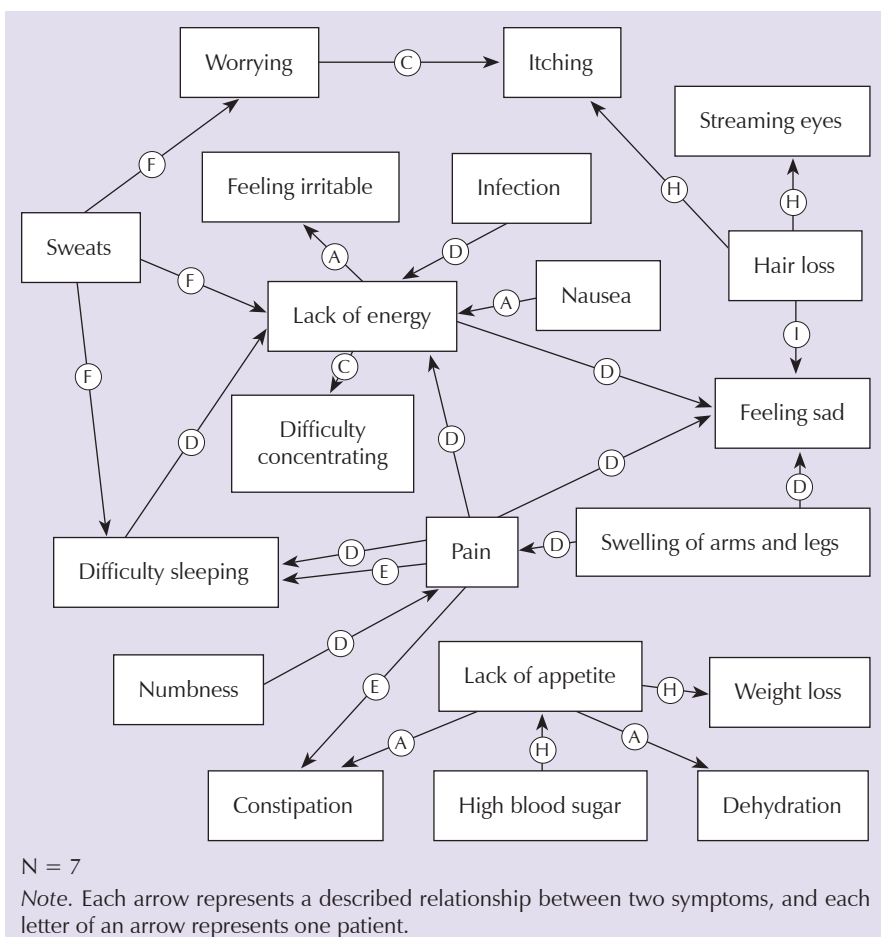
Fewer symptoms were reported as present one year after treatment, with few interrelations between symptoms described at this time point. Six of nine patients still described a lack of energy, which one person said caused sadness.

Patients also reported heightened vigilance and said they experienced anxiety when they detected bodily changes. Such changes were commonly attributed to disease activity rather than to benign causes. For example, one patient expressed fear that the lymphoma was recurring after discovering a new lump on her neck almost a year after treatment initiation. The lump was later found to be caused by an infection.



N = 7  
 Note. Each arrow represents a described relationship between two symptoms, and each letter of an arrow represents one patient.

**Figure 2. Relationships Among Symptoms Before Treatment Initiation as Described by Patients With Lymphoma**



**Figure 3. Relationships Among Symptoms During Treatment as Described by Patients With Lymphoma**

## Discussion

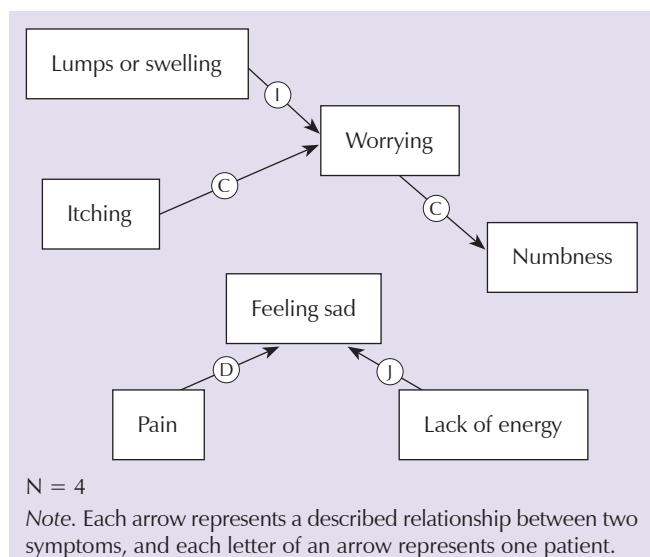
To the authors' knowledge, this is the first study focusing on exploring symptoms in patients with lymphoma along the disease trajectory. The authors found that patients with lymphoma reported experiencing a broad and complex symptomatology before diagnosis and during treatment. Importantly, the qualitative design was essential in yielding new and unique knowledge on symptom clusters from the perspective of individual patients. This is an important complement to the extant data in this young research field, which has hitherto been based on quantitative data. Interestingly, the authors could identify patterns or relationships between two or more symptoms that appeared to vary considerably by individual and time point. Symptoms commonly reported by patients in this sample were lack of energy, lymphadenopathy, weight loss, itching, pain, sadness, night sweats, sleeping difficulties, and hair loss. Many symptoms perceived prior to diagnosis remained during treatment as newly occurring symptoms were added to the experienced burden. These findings are confirmed in part by prior HRQOL studies in lymphoma showing that fatigue, night sweats, and sleeping difficulties are common (Doorduijn et al., 2005; Ganz

et al., 2003). A few symptoms reported here as having negative repercussions on daily life, such as itching, weight gain, and increased appetite, have previously been neglected in the lymphoma literature. Also notable is that, in contrast to the palliative care literature (Wooldridge, Anderson, & Perry, 2001), symptoms that are well-known side effects of corticosteroid therapy, a common component of many treatment regimes for patients with lymphoma (i.e., weight gain and increased appetite) (Diehl & Fuchs, 2007; Evans & Hancock, 2003), were described by the patients as distressing.

Many patients described negative psychological responses (i.e., worrying and sadness at one or more time points). Mood changes in patients with cancer, including those with hematologic malignancies, are common and essential reactions to recognize, assess, evaluate, and monitor (Holland et al., 2007). If emotional issues are severe and are left untreated, they may result not only in personal suffering but also in increased mortality (Massie, 2004). The prevalence of major depression varies from 0%–38% in cancer populations (Massie, 2004). In prior

studies of patients with lymphoma, more than 50% self-reported moderate or excessive levels of anxiety or depression (Devlen, Maguire, Phillips, & Crowther, 1987; Montgomery, Pocock, Titley, & Lloyd, 2003). The often long and variable illness trajectory may confront patients with lymphoma with repeated threats to life, leading to negative psychological responses, including feelings of uncertainty (Elphee, 2008). Several patients also reported negative emotions linked with somatic issues or symptoms. Irritability was described with words in line with "distress," as described by the National Comprehensive Cancer Network (NCCN) (Holland et al., 2007) and "symptom distress" defined by Rhodes and Watson (1987). Psychosocial distress was described not only as resulting from somatic symptoms but that somatic symptomatology also could be said to result from psychosocial symptoms. Such descriptions by patients may give cause to re-examine the unilateral causality in NCCN's concept of distress (Holland et al., 2007).

Systematic assessment of the multidimensional nature of possible symptoms in patients with lymphoma is challenging. Several general cancer symptom measurement scales are available (Kirkova et al., 2006), such as the Memorial Symptom Assessment Scale (Portenoy et al.,



**Figure 4. Relationships Among Symptoms 14 Months After Treatment Initiation as Described by Patients With Lymphoma**

1994) and the M.D. Anderson Symptom Inventory (Cleeland et al., 2000). However, only a minority of symptoms specifically described by the patients with lymphoma correspond with the listed symptoms in these instruments. This also was found to be the case in the Tishelman, Lövgren, Broberger, and Sprangers (2009) study of distress with lung cancer. In addition, although the authors could identify such great variety of symptoms, all possible symptoms related to lymphoma may not have been captured in this exploratory study. Additional studies on symptoms in patients with lymphoma, as well as development of lymphoma-specific symptom assessment instruments, are needed urgently.

The results suggest that co-occurring symptoms may have a synergistic effect on patients' perceived health (Dodd et al., 2001). The authors found that the prediagnostic co-occurrence of symptoms, rather than the occurrence of single symptoms alone, led patients to seek medical attention. The data suggest that co-occurring symptoms had a synergistic rather than additive effect in increasing distress, with this most pronounced after diagnosis. It has been proposed that the symptom cluster research must extend beyond co-occurrence, also searching for causal relationships among symptoms (Lacasse & Beck, 2007). Although the authors did not specifically ask about relationships between symptoms during interviews, this analysis reflects patients' spontaneous explanations of causality. However, these findings must be interpreted with caution because this research design does not allow for analysis of direction or strength of associations. The literature defines symptom clusters as dynamic constructs which change over time (Bruner et al., 2007; Kirkova & Walsh, 2007). With few exceptions, this may be supported by the fact that type, number, and causality between

symptoms in the "chain reactions" described by these patients differed among individuals and time points. One relationship described in this sample at T1 and T2 was among difficulty sleeping, lack of energy, and sadness. Empirical studies have yielded consistent evidence of relatively strong associations between common symptoms in patients with cancer, indicating that they cluster together and that effective treatment for symptoms should be sought (Donovan & Jacobsen, 2007). In the current study, the trigger for this cluster was described as itching and/or pain. Given that one symptom leads to others, the modality used to treat the initiating symptom could well be effective in treating the resulting symptoms.

Of note, a variety of different words were used to describe symptoms. Although this may appear self-evident, the authors' own clinical experiences and discussions with clinical colleagues, as well as the literature (Feldman-Stewart, Brundage, Tishelman, & the SCRIN Team, 2005) suggest that such differences in formulation are still not adequately recognized in terms of their implications for patient and professional communication. Through linguistic mapping, Rotegard, Slaughter, and Ruland (2006) found a lack of congruence between patients' expressions of symptoms and the less precise terms used by nurses, leading to a lack of clarity. These findings call for attention to possible miscommunication around symptoms in the clinical setting. Illustrating symptoms, including interrelationships, using simple diagrams as shown in Figures 2, 3, and 4 may be useful to support communication as well as in identifying targets for symptom management. This may contribute to improving the care of patients with lymphoma.

## Conclusion

This explorative study provides important findings concerning a multitude of single symptoms reported before diagnosis and during treatment in patients with lymphoma. In addition, patients' descriptions of concurrent symptoms and explanatory models of relationships among symptoms are illustrated by using a simple technique that may well be clinically applicable. The authors' findings demonstrate the need for additional exploration of relationships between symptoms in individual patients and chain reactions of interrelated symptoms.

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