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A Qualitative Metasynthesis of the Experience of Fatigue Across Five Chronic Conditions

Rosario B. Jaime-Lara, PhD, FNP, RN, **Brittany C. Koons, PhD, RN**, **Lea Ann Matura, PhD, RN, FAAN**, **Nancy A. Hodgson, PhD, RN, FAAN**, **Barbara Riegel, PhD, RN, FAAN**
National Institute of Nursing Research (R.B.J.-L.), NIH, Bethesda, Maryland; and School of Nursing (B.C.K., L.A.M., N.A.H., B.R.), University of Pennsylvania, Philadelphia, Pennsylvania, USA

Abstract

Context.—Fatigue is a symptom reported by patients with a variety of chronic conditions. However, it is unclear whether fatigue is similar across conditions. Better understanding its nature could provide important clues regarding the mechanisms underlying fatigue and aid in developing more effective therapeutic interventions to decrease fatigue and improve quality of life.

Objectives.—To better understand the nature of fatigue, we performed a qualitative metasynthesis exploring patients' experiences of fatigue across five chronic noninfectious conditions: heart failure, multiple sclerosis, rheumatoid arthritis, chronic kidney disease, and chronic obstructive pulmonary disease.

Methods.—We identified 34 qualitative studies written in the last 10 years describing fatigue in patients with one of the aforementioned conditions using three databases (Embase, PubMed, and CINAHL). Studies with patient quotes describing fatigue were synthesized, integrated, and interpreted.

Results.—Across conditions, patients consistently described fatigue as persistent overwhelming tiredness, severe lack of energy, and physical weakness that worsened over time. Four common themes emerged: running out of batteries, a bad life, associated symptoms (e.g., sleep disturbance, impaired cognition, and depression), and feeling misunderstood by others, with a fear of not being believed or being perceived negatively.

Conclusion.—In adults with heart failure, multiple sclerosis, rheumatoid arthritis, chronic kidney disease, and chronic obstructive pulmonary disease, we found that fatigue was characterized by severe energy depletion, which had negative impacts on patients' lives and caused associated symptoms that exacerbated fatigue. Yet, fatigue is commonly misunderstood and inadequately acknowledged.

Address correspondence to: Rosario B. Jaime-Lara, PhD, FNP, RN, Division of Intramural Research, Sensory Science and Metabolism Unit (SenSMet), Biobehavioral Branch, NINR, NIH, DHHS, 1 Cloister Court, Building 60, Room 258, Bethesda, MD 20892, USA. rosario.jaime-lara@nih.gov.

Keywords

Fatigue; chronic kidney disease; chronic obstructive pulmonary disease; heart failure; multiple sclerosis; rheumatoid arthritis

Introduction

Fatigue is a commonly reported symptom across chronic conditions that may occur with diagnosis or as a prodrome months or years before diagnosis.[1] A common definition of fatigue is an overwhelming feeling of sustained exhaustion that is debilitating and interferes with an individual's ability to function and perform activities.[2] Typically, fatigue is dichotomized into acute or chronic fatigue, where chronic fatigue persists for six months or longer.[2]

Although prior studies have investigated fatigue in specific illnesses (e.g., acute myocardial infarction, cancer, and fibromyalgia), few studies have compared fatigue across chronic conditions. Only one previous study by Whitehead et al.[3] performed in 2016 compared the experience of fatigue across chronic conditions. Just more than half of the participants in the studies included in this review were diagnosed with cancer. Our study builds on the review by Whitehead et al. by including studies published after 2016 and focusing on noncancer-related fatigue. We recently conducted a systematic review of the quantitative literature on fatigue to describe and compare biological mediators of fatigue in five noninfectious chronic illnesses: heart failure (HF), multiple sclerosis (MS),[4] rheumatoid arthritis (RA), chronic kidney disease (CKD), and chronic obstructive pulmonary disease (COPD).[5] It was clear from that review that the definition and measures of fatigue varied across studies, and it was unclear whether fatigue is experienced in the same manner across chronic illnesses. Thus, in the present metasynthesis, we explored the qualitative experience of fatigue across these same conditions.

Gaining insight into the experience of fatigue in multiple chronic conditions can contribute to better understanding of this symptom, aid in improving fatigue management, and ultimately increase quality of life (QoL) for people with various chronic conditions. The World Health Organization defines QoL as a person's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns.[6] Better understanding patients' experience of fatigue can help in successfully evaluating and managing their goals, expectations, standards, or concerns to improve the lives of people living with fatigue. With this goal in mind, the purpose of this qualitative metasynthesis was to explore the experiences of fatigue in chronically ill adults living with HF, MS, RA, CKD, or COPD to expand our understanding of fatigue, with the ultimate goal of improving the evaluation and management of fatigue.

Methods

We performed a metasynthesis of qualitative research using the qualitative metasynthesis methods proposed by Sandelowski and Barroso.[7–9] We integrated, synthesized, and interpreted qualitative descriptions of fatigue across five chronically ill patient populations

(HF, MS, RA, CKD, and COPD).[9] These five conditions were chosen as they are all chronic noninfectious conditions known to be associated with fatigue.

Search Strategy

Working with biomedical library specialists, three databases (Embase, PubMed, and CINAHL) were searched to identify qualitative studies of fatigue in each individual chronic condition. These databases were used to replicate the approach we used in the quantitative review. Both electronic and manual searching methods were used. Only articles with primary data (i.e., patient quote(s)) were considered. Inclusion criteria were qualitative or mixed-method studies of adults (19 years of age or older) written in English and published in the decade between 2008 and 2018 except for Embase, where the search function is limited to five years. We ended the review interval at 2018 to provide time for synthesis and interpretation. This period was selected because a large number of relevant studies was available for review; 2484 qualitative studies on fatigue were indexed in PubMed between 2008 and 2018 compared with 835 indexed between 1998 and 2007.

Exclusion criteria were editorials, letters, conference abstracts, and unpublished dissertations. In addition, studies that did not provide or report at least one illustrative quote describing patients' experience of fatigue were excluded. All articles meeting inclusion and exclusion eligibility criteria were reviewed for content and quality. In addition, references of each study were reviewed to identify other relevant literature. With the help of our biomedical library specialists, we refined our search strategy until all relevant articles were captured through the electronic search, and no additional articles were identified in the hand search. At an early stage, we agreed on use of a reference manager tool, created shared documents, and developed a system to track reasons for article exclusion. We decided how to manage the information and how to display the results. An example of a search statement and a summary of our inclusion exclusion criteria is shown in Table 1.

Analysis of Findings

We followed the method of Sandelowski and Barroso[10] method of integrating the analysis to facilitate identification of data patterns and deviations.[9] This method consists of six steps: conceiving the synthesis, examining the literature, appraising findings, classifying findings, synthesizing findings into metasummaries, and synthesizing findings into a metasynthesis.

Conceiving the Synthesis, Examining the Literature, and Appraising Findings (Steps 1–3).—Our goal was to better understand the nature of fatigue across five chronic noninfectious conditions. Articles were retrieved from the structured literature searches. Examining the literature involved careful review of each article, identifying methodological strengths and flaws, and locating relevant results. Each author led the review of studies focused on one of the five chronic conditions (HF, MS, RA, CKD, and COPD), independently extracted data, and scored article quality. Then, the entire team reviewed and discussed each article during routine meetings. Any uncertainty about the study relevance, findings/data, and quality was discussed by the group.

To appraise our findings, we used the Critical Appraisal Skills Program (CASP)[11] quality criteria for qualitative research to evaluate individual articles. The CASP qualitative checklist includes 10 questions and guided instructions to systematically assess each study based on multiple criteria (e.g., validity, significance, and clarity). Each of the questions received a score between zero and two; zero (cannot tell), one (no), and two (yes).[12] Total scores range from 0 to 20, with higher scores indicating better quality studies. The main purpose in quality appraisal was to explore whether the studies contributed to our study purpose and to evaluate validity of the study results. Studies were not excluded based on quality,[13] but we discussed poor quality studies to determine whether they influenced the overall results. Any uncertainty about study quality was discussed as a group. The CASP score for each individual study is reported in Table 2.

Classifying and Integrating Summaries Into Metasummaries and Metasyntheses (Steps 4–6).—We classified the findings within each condition to systematically identify shared concepts and themes. These results were then integrated into metasummaries. Each author integrated findings focused on one of the five chronic conditions (HF, MS, RA, CKD, and COPD). Then, the entire team reviewed and discussed each of the five metasummaries, noting similarities and differences across the five chronic conditions.

Our approach to synthesizing involved translating findings of the qualitative studies into first-order, second-order (Table 3), and third-order themes.[10] First-order themes examined patients' descriptions of fatigue (i.e., direct patient quotes). Second-order themes referred to themes derived by the authors of each qualitative study (i.e., authors' interpretation of patients' descriptions of fatigue). Third-order themes reflected our interpretation and synthesis of all the qualitative studies. To identify first-order themes, quotes where participants described fatigue, lethargy, or reduced activity were extracted from the articles. To identify second-order themes, the authors' paraphrases, conclusions, and observations were extracted from the results and discussion section of each study.

The third order of themes (Table 4) involved combining, synthesizing, and interpreting the first-order and second-order themes[14] within and across the five chronic conditions. At each stage of data abstraction, we discussed the studies to achieve consensus regarding the review and coding of data. Discrepancies were discussed by the team and resolved. Concepts and themes were identified and agreed on by all members of the team.

Results

The search of the three databases yielded a total of 289 articles for review (Fig. 1). After applying inclusion and exclusion criteria, we accepted eight articles for HF, seven articles for MS, seven articles for RA, seven articles for CKD, and five articles for COPD for a total of 34 studies included in the synthesis. A total of 865 participants were included across the studies (HF [$n = 306$], MS [$n = 88$], RA [$n = 148$], CKD [$n = 185$], and COPD [$n = 138$]). Some studies included numerous quotes, and some also organized the findings into broad themes.

Study Characteristics

The 34 articles included were published between 2008 and 2018. These studies were conducted in 12 different countries, including the U.S. ($n = 9$), Sweden ($n = 5$), The Netherlands ($n = 5$), Australia ($n = 3$), the U.K. ($n = 3$), Ireland ($n = 2$), Denmark ($n = 1$), Iran ($n = 1$), and Egypt ($n = 1$), Jordan ($n = 1$), New Zealand ($n = 1$), Norway ($n = 1$), Japan ($n = 1$). Most of these studies were purely qualitative studies ($n = 30$), three were mixed-method studies, and one used a pluralist methodological approach. Qualitative methodologies included exploratory, descriptive, interpretive, and phenomenological approaches. Sampling strategies were identified as purposive, convenience, and consecutive; two studies did not name the sampling strategy. Sample sizes ranged from 10 to 77 participants. Study characteristics are reported in Table 2. Data were collected through individual semistructured interviews, conversational interviews, concept elicitation interviews, hierarchical interview schemes, in-depth interviews, telephone interviews, and focus groups. The data were analyzed with thematic analysis, content analysis, iterative analysis, interpretive methods, grounded theory methods, hermeneutic analysis, Krippendorff analysis, and framework analysis. Table 2 summarizes the characteristics of the 34 included articles.

Metasummaries

The experience of fatigue was examined in each individual condition. Each reviewer synthesized the findings related to the experience of fatigue in their respective chronically ill patient population.

Heart Failure.—Eight articles met our inclusion criteria and addressed fatigue in adults with HF. Most of these articles described general symptoms, but two articles specifically addressed fatigue.[15,16] In general, fatigue was described primarily as lethargy and a reduced ability to engage in activity. Fatigue in HF was most commonly described as a severe lack of energy[15–22] (…*you just don't have the energy* … *you see that you should clean, but* …) and feebleness.[15] Sleep was not sufficient to overcome the fatigue,[15,23] and in some patients, a diurnal pattern was evident, with fatigue worse in the morning.[15] The severity of fatigue resulted in difficulties with routine tasks and daily activities[15, 17–19,21–23] (*I can't sweep, mop or run the vacuum cleaner. I get totally exhausted*).[18] Although fatigue affected multiple aspects of people living with HF, patients reported that others did not understand the extent and debilitating nature of their fatigue (*It's difficult when people of all ages look at me and laugh and they don't recognize that I have a health issue* … *it's just, I'm a fat slob. That disturbs me. So I get depressed*), often pushing them to perform at an impossible level (*The doctors want me to walk around. I just can't do it*).[20–22]

Symptoms of depression and breathlessness were closely related to fatigue.[15,17,23] As one patient de scribes, depression like fatigue deeply disrupted their daily lives, *When the blues come, I stay in bed and wait for it to pass. I don't do anything* … *the pills don't work; why take them. sometimes it doesn't pass* ….[17] In addition, fatigue in HF was closely connected to breathlessness; seemingly easy activities like hair washing caused breathlessness and fatigue (*my entire body quite simply gives out* … *and I get short of breath* … *when I bend over like this*).[15]

Multiple Sclerosis.—Seven articles met inclusion criteria and examined fatigue in patients with MS.[4,11,12,24–28] Fatigue was described as feeling very tired and lethargic[11,12,24–28] … the days are becoming a lot more lethargic, just spending more time in bed and less time up ….[12] Patients described how they felt fatigue that was similar to *running out of batteries*,[25] feeling *wiped out*, and *drained*.[26] Fatigue resulted in patients having difficulty with their daily activities, as evidenced by this patient's description: *It was not very easy for me to clean my home at once without feeling fatigue … I must divide the work and take rest intervals in between. Even with rests I feel so tired*.[24] Others described having an attack of fatigue.[28] One person's fatigue was so debilitating that they could not physically get up to go the bathroom, *When I cannot get up to go to the bathroom, I prepare diapers 2026 getting up is torture*.[25]

Participants also described feeling misunderstood, *When I went to an art museum, I got tired and became unable to walk. Because I looked so healthy, [others] didn't quite understand. I said "Could you lend me a hand?" But, it took quite a bit [of time until I was understood]. I should have said "pain" rather than "fatigue", but I wasn't understood*.[25] Another participant described, *It's just general ignorance, if they're not aware of it or they haven't heard of the fatigue involved … And they sort of say, ' Oh yes, I know, I get so tired' and I think, 'How annoying. You know, no you don't, YOU DON'T*![28] Many also expressed feeling misunderstood by their health care providers, admitting that they managed their fatigue without help from their medical team, *Even if I talk with the doctor, she/he tells me: "I wonder about that." Lately, I don't even mention [fatigue]*.[25]

The fatigue of MS is unpredictable, often is accompanied by other symptoms, and profoundly affects all aspects of the patient's life including work, home, and social interactions.[12,24–26,28] One person said, *The unpredictable fatigue, walking difficulties, and balance disturbances are affecting my life tremendously*.[24] One man said, *I was a very social man, and suddenly everything has changed. My social life has changed a lot*.[24] Others experienced cognitive issues with the fatigue: … *the cognitive [fatigue] is just the most distressing* ….[26]

Rheumatoid Arthritis.—Seven articles containing descriptions of fatigue in people with RA were included.[4,29–34] Fatigue was described as omnipresent, uncontrollable, and overwhelming.[4,31] Fatigue was depicted as severe and prioritized as one of their most distressing symptoms, often as distressing or more distressing than pain.[4,24] Descriptions of fatigue explored its profound multidimensional effects (e.g., encompassing physical severity, emotional fatigue, and cognitive fatigue). Physical fatigue was described by a patient as *I feel that my body is broken and every movement is as if I was moving a mountain*.[32] Another described how fatigue impacted their ability to socialize *Every time I'm going to go somewhere, I'd rather go to bed and sleep*.[30] Despite its severe impact, fatigue was not well understood and/or largely ignored by clinicians.[29,30,33]

People with RA also described feeling misunderstood and how this led to feelings of social isolation and depression.[29–31,33] One participant described how their family and friends did not fully grasp the profoundness of their fatigue, *They can somehow understand [fatigue] intellectually, but you still know that they have not really understood what I'm talking about.*

[35] Another described how their clinicians did not inquire about fatigue or understand how to treat it, *Nobody says "what are you doing for the fatigue?" The health professionals don't understand how to treat it either.*[29]

Pain and cognitive decline were among the most common co-occurring symptom with fatigue in RA. Pain not only co-occurred but also exacerbated fatigue, *Whenever I am in constant pain, I think that's what makes me feel tired.*[31] People with RA also associated fatigue with a loss of cognitive function, *I can't remember people's names or phone numbers. Like the password for my computer. and it's just when I'm tired, it's pure tiredness.*[29] Another symptom co-occurring with fatigue in RA was a sensory experience of heaviness, illustrated in these quotes: *My legs become very heavy and I have to sit down, just doing nothing ….*[34] *When I have fatigue, my body is wooden and I move with difficulty.*[32] *It feels like I am carrying two buckets of water all the time.*[4] *It feels like there's porridge in my veins instead of blood.*[29]

Chronic Kidney Disease.—Seven articles examining fatigue in people with CKD met our inclusion criteria.[36–42] Fatigue was identified among the most common and impactful symptoms of patients with moderate-to-severe CKD.[36–42] Fatigue was described as a prolonged tiredness or lack of energy that severely impacted QoL.[36,39] As one person described, *[fatigue] for me is having sudden moments without having any energy and without being able to do anything ….*[39] Physical manifestations included muscle weakness (*My muscles are weak. After dialysis, I feel sick and have muscle cramps, my legs become weak …*)[37] and reduced mobility (*there's dishes in the sink because I didn't have the energy to put the dishes away yet … If I'm folding laundry, I get really exhausted, so I have to stop and lay down*). People with CKD also described mental fatigue including despair, which often triggered by their physical decline and making it difficult for them to communicate and socialize with others, *It's [illness] tiredness that caused by inactivity when your brain is muddled and your legs not working properly and you've got cramps.*[42] Another patient described their reduced interest in social behaviors because of their mental fatigue, *sometimes, my friends call and I don't like to answer them. [Instead, I] ask my mother to tell them I am not around. Because I am tired, weak, and sick and I have no patience for anybody.*[37]

Another element that contributed to isolation and negative emotions was the perception that their fatigue was misunderstood by both family and friends (*I don't think they really know the inside of the fatigue … I don't think that emotionally-wise and mentally-wise they know how I feel*) and clinicians (*The nephrologist is just looking at you when you explain your fatigue. And the only thing he does, is telling you: 'It doesn't fit with your GFR: it doesn't fit'*).[39] Another patient described not only feeling misunderstood but also feeling ignored and judged, *People don't realize the impact of having this disease. They tend to ignore it and I think they see me as someone who fakes it.*[39]

Fatigue was accompanied by other symptoms, including pruritus, sleep disturbances, and cognitive impairments. People with CKD associated their fatigue with sleep disturbances induced by pruritus, *This itching … it's worse at night. You're trying to sleep with nothing else to think about, and it just takes over.*[41] Cognitive impairments, an inability to focus, forgetfulness, and decreases in attention span were also reported, *My wife tells me I have to lay down because I don't react as expected and I cannot find the appropriate words, I lose my concentration*.[42]

Chronic Obstructive Pulmonary Disease.—Five articles met inclusion criteria and explored the experience of fatigue in adults with COPD.[43–47] Fatigue was described as a severe chronic lack of energy[43–45] (… *you do not have any spark or energy to do things*) and total exhaustion.[43–45,47] Fatigue was associated with an inability to perform physical and social activities[43–47] (*you cannot do anything anymore*).[43] Overall, fatigue profoundly impacted both physical and mental aspects of daily life and contributed to a decreased QoL in patients with COPD.

People with COPD often experienced physical symptoms, including loss of appetite, sleep disturbances, and breathlessness. As one person described, *I know I'm eating less. because I'm more tired*. The ability to prepare meals was compromised (… *you have to think ahead to have food that can be prepared very quickly*).[47] People with COPD commonly associated fatigue with sleep disturbances. They coped with fatigue by lying down and resting,[44] but no matter how much they slept, the feeling of fatigue was always present (… *fatigue is controlling your life, if you are going to rest or not*).[45] People with COPD often associated breathlessness with fatigue. Many attributed their fatigue to their underlying disease, COPD, and associated worsening fatigue with breathlessness, dyspnea, and oxygen deprivation.[43,45,47]

The daily limitations caused by fatigue led to a heavy mental burden or what some participants called *mental fatigue*. Fatigue caused feelings of loneliness,[43] depression,[43,44] worry,[43,44,46] anxiety, anger, hopelessness, and a loss of joy in life and will to live (*You do not just quit your life because you are tired, but sometimes it crosses my mind. It hurts so much that you cannot do anything anymore … What* ***a bad life***).[45] Patients felt isolated because of their reduced ability to engage in social activity.

Furthermore, their feelings of social isolation and depression were exacerbated by feeling that their fatigue was misunderstood and ignored. Patients described not only feeling misunderstood but also feeling ignored by their doctor, *the pulmonologist, he says very little. He never answers when you say that you are very tired. He completely ignores it*.

Synthesis

After exploring fatigue as experienced by patients with various conditions, the findings were integrated to systematically identify shared and unique concepts and themes among the five chronically ill patient populations. One theme was *running out of batteries*. Across every condition, patients described severe lack of energy that was debilitating. Another theme was *bad life*. The intensity and magnitude of fatigue permeated all aspect of patients' lives by challenging their physical and psychological well-being and leading to conflicting perceptions of intentions (what they needed/wanted to accomplish) vs. capacity (what they were actually able to accomplish). A third theme was *associated symptoms*. Fatigue was often accompanied by a variety of other symptoms, which exacerbated the profound negative impact of fatigue. A final theme was *feeling misunderstood*. Health care professionals and loved ones failed to understand the debilitating nature of the fatigue. Patients felt that they were viewed as malingerers, which caused them to experience social isolation and depression. Table 4 summarizes the contribution of each study to these four themes.

Running Out of Batteries.—Fatigue was consistently described as a persistent overwhelming feeling of tiredness, severe lethargy, or lack of energy, physical weakness, and cognitive decline, which were often unpredictable. Many participants described feeling like they had a limited amount of energy—like a battery that runs out of energy—they described needing to plan and restructure their lives to conserve their energy. Fatigue was described as a loss of this limited energy, which severely debilitated participants living with chronic conditions.

Bad Life.—Across conditions, patients reported that fatigue restricted their ability to engage in physical and social activities. The physical experience of fatigue made it difficult to walk, complete household chores, shop, and participate in leisure and self-care activities. The discrepancy between their intent and their decline in physical ability caused many to feel a loss of independence and left them feeling discouraged and guilty for requiring assistance. The unpredictability of the severity of their fatigue further contributed to feelings of loss of control and self-governance.

In causing a loss of physical ability and independence, fatigue decreased people’s ability to participate in social activities, leading to feelings of social isolation and depression. Patients reported missing family celebrations and social gatherings with friends because of their inability to travel or predict and consequently adequately prepare for fatigue. Patients described feeling depressed about not being able to participate in social activities because of extreme fatigue.

Associated Symptoms.—Patients across all five chronic conditions reported numerous symptoms that contributed to the profound negative effects of fatigue. The physical symptoms that co-occurred with fatigue in more than one study and in most of the five conditions were low endurance, decreased mobility, and sleep disturbances. Cognitive decline, including memory problems, poor concentration, and impaired cognition were also described. The most commonly reported psychological symptom was depression or sadness. A wide variety of other symptoms were noted in the various patient populations, but these symptoms were unique to specific conditions (e.g., pruritus in CKD, early satiety in COPD, pain in RA).

Feeling Misunderstood.—Across all five conditions, people perceived that friends, family members, health care professionals, and even strangers did not understand their fatigue. This lack of understanding negatively impacted their psychosocial well-being. The dissonance between the magnitude of their experience of fatigue and the lack of visible signs led many to fear that their friends and family members would not believe them and would perceive their fatigue as an excuse or laziness. As a result, some patients tried to hide their feelings from others. Patients also spoke of the difficulty they had explaining their fatigue to health care professionals. People experiencing fatigue described that the providers could not understand their fatigue, especially if their self-report of fatigue was more severe than the objective clinical indicators of their illness. Together, the four themes (running out of batteries, bad life, associated symptoms, and feeling misunderstood) captured the intensity, magnitude, and severity of fatigue, which profoundly impacted QoL across the five conditions.

Discussion

Identifying and examining similarities and differences in fatigue experienced across multiple conditions can help in better understanding the nature of fatigue to help guide the evaluation and management of fatigue. We performed a qualitative metasynthesis to explore the experience of fatigue in five noninfectious chronic conditions; HF, MS, RA, CKD, and COPD. We found themes that were shared across these conditions, running out of batteries, a bad life, associated symptoms, and feeling misunderstood. Our metasynthesis highlighted that fatigue is a common symptom across multiple chronic conditions and has severe negative impacts on patients' QoL.

Our results are consistent with prior qualitative studies examining the experience of fatigue in individual disease processes and the only prior study we found that compared the experience of fatigue across chronic conditions. Whitehead et al.[3] described the experience of fatigue across long-term conditions in a qualitative metasynthesis. However, multiple studies (22 of 58) and many participants (576 of 1153) included in their review had cancer-related fatigue. Our results build on their findings by focusing on noncancer-related fatigue. Importantly, the themes, running out of batteries and a bad life, were consistent with the description of fatigue by Whitehead et al. as occurring with an intensity that was overwhelming. Whitehead et al. also noted that people with fatigue perceived that others failed to understand their experience.

A major difference between the study by Whitehead et al.[3] and our metasynthesis is that we found that associated symptoms accompanied and/or exacerbated fatigue. Whitehead et al.[3] commented that fatigue was not typically linked with other symptoms. As the review by Whitehead et al. focused on cancer-related fatigue and other chronic conditions not included in our study, it is possible that fatigue's association with other symptoms is unique to specific disease processes. Further research is needed to discern if fatigue is strongly associated with other symptoms and whether this phenomenon is consistent across other chronic conditions.

We found that family, friends, health care providers, and even strangers had difficulty understanding the profound impact of fatigue on psychosocial well-being. The responses of family and friends may be influenced by that of clinicians, and as Lian and Robson[48] noted health care professionals often respond to medically unexplained symptoms such as fatigue with disbelief, inappropriate psychological explanations, marginalization of experiences, disrespectful treatment, lack of physical examination, and damaging health advice. Others have noted that patients are often not even asked about fatigue by their health care professionals.[49] Failure to acknowledge fatigue undermines patients' experiences, contributes to family members/friends' misunderstanding of fatigue, and, as described by patients across these five chronic conditions, contributes to feelings of social isolation and depression.

Implications

The profound impact of fatigue is universally identified across the studies included in this review. Health care professionals need to validate the impact of fatigue on patients' QoL. Evaluating and managing fatigue must become a priority because it has significant effects on physical and mental health. Furthermore, patients and their loved ones should receive information that recognizes and legitimizes the impact of fatigue. Doing so would validate patients' experience of fatigue and empower patients and families by allowing them to prepare for and deal with potential challenges. Although the ultimate goal is identification of effective treatments that limit fatigue, it is premature to propose interventions. This metasynthesis illustrates the similarity of the descriptions across five chronic conditions, which could suggest that there are common biological mechanisms of fatigue underlying the phenomenon across these conditions. Research comparing and contrasting biological mechanisms across these conditions is needed to examine this possibility.

Future qualitative studies could contribute to our understanding of fatigue and thus aid in developing more accurate and consistent methods of evaluating and managing fatigue within and across conditions. Identifying common elements of the fatigue experience across conditions could suggest generic therapeutic intervention targets, whereas differences could reveal mechanisms unique to a disease process and help identify individualized interventions. Future studies should also test whether treating co-occurring symptoms influence fatigue and whether focused treatment of fatigue is sufficient to improve QoL.

Limitations and Strengths

Our integration and synthesis of existing studies was dependent on the authors' interpretations of their qualitative data sets. The authors' personal experiences guided their interpretation of the qualitative data, and there may be themes that were not identified by the authors. In addition, few of the qualitative studies reported details about the different stages of treatment, time since diagnosis, or comorbid conditions. Some studies failed to report the exact number of men and women or the average age of participants, so we are not able to describe the sample fully. Examining fatigue in other illness groups could capture more robust and representative depictions of fatigue. Strengths of our metasynthesis include that it is one of only two studies comparing the experience of fatigue across chronic conditions and the only one to focus on noncancer-related fatigue.

Conclusion

Fatigue is a common symptom across chronic conditions that has a profound impact on patients' QoL. The severe energy depletion described by patients, the negative and life-altering impact of fatigue, treatment of co-occurring symptoms, and validation of the experience of fatigue are important to consider when establishing a plan of care for patients with HF, MS, RA, CKD, and COPD. Addressing these challenges is an important step to improving the QoL of people experiencing fatigue while living with chronic conditions.

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Key Message

This metasynthesis explored patients’ experiences of fatigue in heart failure, multiple sclerosis, rheumatoid arthritis, chronic kidney disease, and chronic obstructive pulmonary disease. Fatigue was characterized by severe energy depletion, was associated with other symptoms, and misunderstanding of fatigue by others decreased psychosocial well-being. Evaluating and managing fatigue must become a priority as it affects physical and mental health.

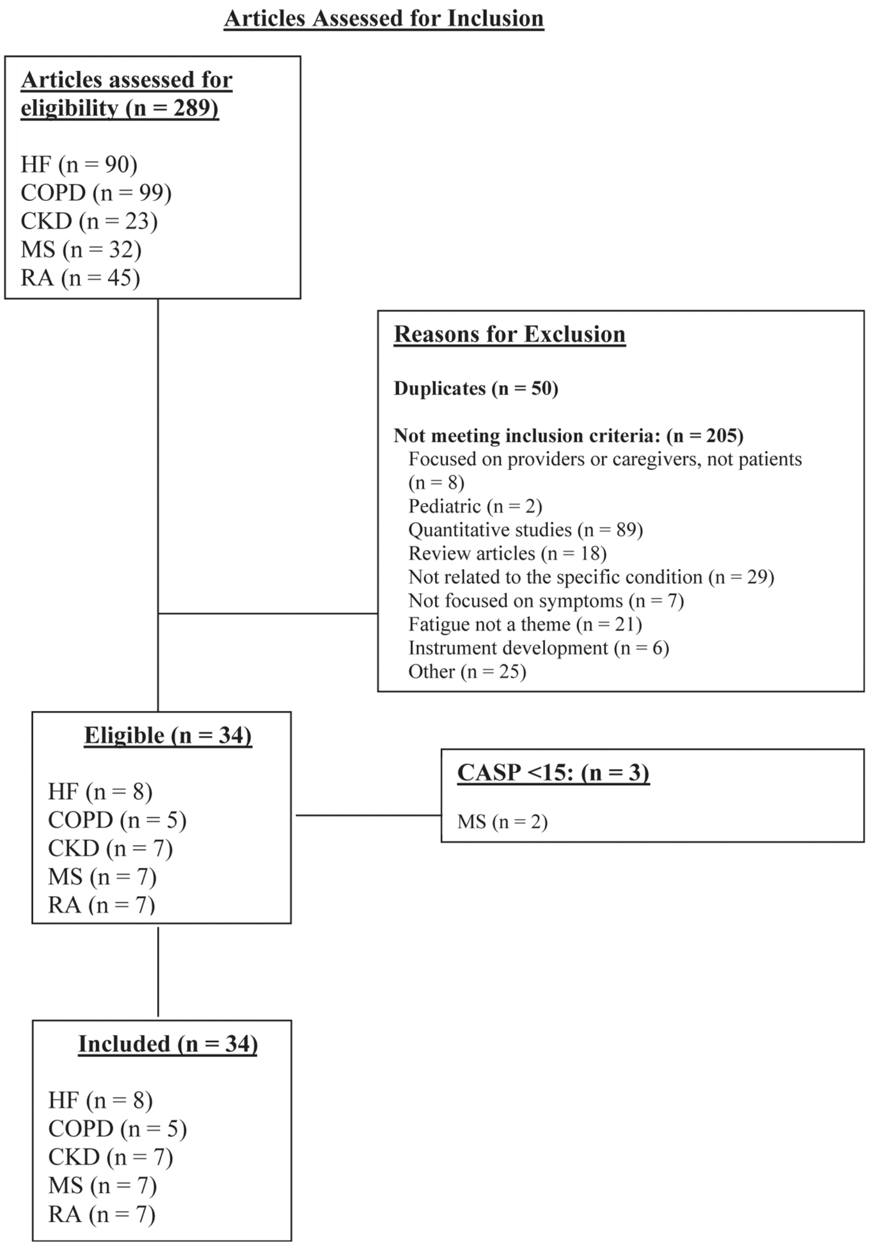

Fig. 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram of articles assessed for inclusion.

HF = heart failure; COPD = chronic obstructive pulmonary disease; CKD = chronic kidney disease; MS = multiple sclerosis; RA = rheumatoid arthritis; CASP = Critical Appraisal Skills Program.

Table 1

Search Strategy Used, With HF and PubMed Shown as an Example

Search ((narrativ* OR “Empirical Research”[Mesh] OR story OR stories OR phenomenolog* OR qualitative* OR ethnograph* OR “interview” OR “thematic” OR “interpretive”) AND (“fatigue”[Mesh] or fatigue) AND (“Heart Failure”[Mesh]OR “heart failure”[title]))
Filters: **published in the last 10 years; English; adult: 19+ yrs**
Summary of inclusion and exclusion criteria: **Inclusion criteria**–qualitative or mixed-method studies of adult populations written in English and published between 2008 and 2018; **exclusion criteria**–editorials, letters, conference abstracts, unpublished dissertations, and case studies

HF = heart failure.

Table 2

Study Characteristics

Studies by Chronic Condition	• Purpose Statement • Methods (Design; Sampling; Data Collection; Analysis; Theoretical Framework) • CASP Score	• Study Location—Setting • Sample Size (*N*) • Age
HF		
Dickson et al.[17]	• To explore the meaning of depression and how depressive symptoms affect self-care in an ethnic minority black population with HF • Mixed-method concurrent nested design; purposive homogeneous sampling; semistructured interviews; thematic content analysis; situation-specific theory of HF self-care • *CASP score*: 17	• U.S.—HF clinic and inpatient units at a large urban medical center • $N = 30$ (40% females, 60% males) • Mean age 59.63
Gwaltney et al.[18]	• To identify relevant and important concepts to patients with chronic HF and to understand broadly the language that they use to describe their experiences • Design not named; secondary analysis of interviews from three separate studies; semistructured interview; content analysis; no theoretical framework specified • *CASP score*: 10	• U.S.—setting unclear • $N = 63$ (40% females, 60% males) • Mean age 68.9, age range 38–90
Hagglund et al.[15]	• To illuminate the lived experience of fatigue among elderly women with chronic HF • Explorative and descriptive design; convenience sampling; one-hour interviews; qualitative content analysis; no theoretical framework specified • *CASP score*: 20	• Sweden—home setting • $N = 10$ (all females) • Mean age 83, age range 73–89
Holden et al.[20]	• To apply a systems model to investigate patient work performance to understand the nature and prevalence of barriers to self-care • Mixed methods; convenience sampling; semistructured interviews; iterative analysis; patient work system model • *CASP score*: 16	• U.S.—home setting (surveys), clinic setting (interviews) • $N = 30$ (43% females, 57% males) • Mean age 74, age range 65–86
Jones et al.[23]	• To explore the perceptions, experience, and meaning of fatigue as a distressing symptom of chronic HF • Interpretive study design; purposive sampling; semistructured interviews; interpretive analysis; no theoretical framework specified • *CASP score*: 15	• U.S.—outpatient cardiology and geriatric clinics • $N = 26$ (31% females, 69% males) • Median age 61, age range 50–71
Jurgens et al.[19]	• To describe contextual factors related to symptom recognition and response among elders hospitalized with decompensated HF	• U.S.—hospital setting • $N = 77$ (48% females, 52% males)

	• Mixed methods; convenience sample; open-ended questions; content analysis; self-regulation model of illness • *CASP score*: 18	• Mean age 75.9
Norberg et al.[21]	• To describe clients and occupational therapists' experiences of a home-based program focusing energy conservation strategies for clients with chronic HF • Single descriptive case study (qualitative and quantitative); consecutive sample; semistructured interviews; thematic analysis; energy conservation • *CASP score*: 19	• Sweden—home setting • *N* = 52 (40% females, 60% males) • Mean age 80, age range 56–92
Walsh et al.[22]	• To investigate the experiences of younger persons living with HF • Descriptive qualitative approach; purposive sampling; participants recruited from hospitals and HF clinics; semistructured interviews; qualitative(descriptive) thematic analysis; no theoretical framework specified • *CASP score*: 20	• U.S.—private hospital room or home setting • *N* = 18 (56% females, 44% males) • Mean age 48, age range 38–53
MS		
Al-Sharman et al.[24]	• To explore the lived experiences of Jordanian people with MS and the impact of the disease on their daily lives • Phenomenology; convenience sample; patients recruited from a research database; focus groups; content analysis; no theoretical framework specified • *CASP score*: 17	• Jordan—Jordan University of Science and Technology • *N* = 16 (50% females, 50% males) • Mean age 36, age range 29–57
Kayes et al.[12]	• To explore the barriers and facilitators to engagement in physical activity from the perspective of people with MS • Qualitative descriptive; purposive sample; Setting—face-to-face interviews in the participant's home; modified grounded theory; no theoretical framework reported • *CASP score*: 19	• New Zealand—home setting • *N* = 10 (70% females, 30% males) • Mean age 44, age range 34–53
Lohne et al.[11]	• To explore how persons suffering from MS experience whether health care personnel maintain and respect these patients' human dignity • Descriptive and exploratory design; convenience sample; semistructured interviews; hermeneutic analysis; phenomenological—hermeneutic approach • *CASP score*: 11	• Norway—two rehabilitation institutions' patient rooms • *N* = 14 (57% females, 43% males) • Age range 39–66
Moriya and Kutsumi[25]	• To obtain descriptions of the experiences of fatigue of people with MS, including experiences related to their social life and interpersonal relations • Qualitative, exploratory, descriptive, and contextual design; purposeful sampling; semistructured interviews; data analysis not stated; no theoretical framework reported • *CASP score*: 18	• Japan—setting not given/described • *N* = 9 (66% females, 34% males) • Mean age 42, age range 31–57

Newland et al.[26]	• To characterize symptoms experienced by people with relapsing-remitting MS in patients' own words • Research design not stated; convenience sample; audiotaped focus groups; Krippendorff data analysis method; no theoretical framework reported • *CASP score*: 17	• U.S.—medical center familiar to participants • $N = 16$ (75% females, 25% males) • Age range 18–70
Barlow et al.[27]	• The perceived value and experience of the chronic disease self-management course for people with MS • Qualitative study nested in a randomized controlled trial; purposive sampling; telephone interviews; framework analysis • Self-efficacy theory • *CASP score*: 10	• U.K.—telephone • $N = 10$ (70% females, 30% males) • Age range 30–60
Turpin et al.[28]	• To further our understanding of the experience of living with MS fatigue by exploring how people became aware of and understood their MS fatigue and how they accommodate it in their daily lives • Qualitative thematic analysis; purposive sampling; 13 in-depth semistructured interviews; thematic analysis • *CASP score*: 18	• Australia—setting not given/described • $N = 13$ (85% females, 15% males) • Mean age 46, age range 24–67
RA		
Connolly et al.[29]	• To explore people with rheumatic diseases' experiences of fatigue in work • A qualitative descriptive design was used with semistructured interviews; purposive sampling; constant comparative method of data analysis; no framework specified • *CASP score*: 18	• Ireland—private room university setting • $N = 18$ (67% females, 33% males) • Mean age 36, age range 31–40
Feldthusen et al.[30]	• To describe how persons with RA of working age experience fatigue • Descriptive qualitative; purposive sampling; focus group methodology using semistructured interview schedule; qualitative content analysis; no theoretical framework specified • *CASP score*: 18	• Sweden—hospital setting • $N = 25$ (76% females, 24% males) • Mean age 46, age range 20–60
Minnock et al.[31]	• To explore the patient's experiences and perceptions of fatigue after treatment with TNFi • Descriptive, qualitative; purposive sampling; semistructured interviews with open-ended questions; content analysis using qualitative inductive logic; pragmatism as theoretical lens • *CASP score*: 19	• Ireland—setting not given/described • $N = 10$ (60% females, 40% males) • Mean age 59, age range 44–75
Mortada et al.[32]	• To describe fatigue experience among Egyptian Muslim patients with rheumatic disease • Prospective, monocentric, qualitative study; purposive sampling; semistructured interviews; conventional content analysis, inductive reasoning; grounded theory	• Egypt—hospital setting • $N = 20$ (80% females, 20% males) • Mean age 40, age range 32–60

	• *CASP score*: 20	
Nikolaus et al.[33]	• To explore the experience of fatigue in persons with RA • Descriptive qualitative design using framework approach; purposive sampling; hierarchical interview scheme, analysis combined inductive and deductive elements; grounded in literature • *CASP score*: 16	• The Netherlands—hospital setting • N = 31 (74% females, 26% males) • Mean age 58, age range 32–83
Repping-Wuts et al.[34]	• To explore the experience of fatigue from the patient's perspective • Design not specified; semistructured interviews in clinic; purposive sampling; analysis in The Observer software and consensus-based review; framework based on the literature • *CASP score*: 18	• The Netherlands—telephone • N = 29 (59% females, 41% males) • Mean age 59, age range 36–80
Thomsen et al.[4]	• To describe how patients with RA describe daily sedentary behavior • Qualitative, explorative, descriptive design; purposive sampling; content analysis of semistructured interviews; hermeneutical reflection • *CASP score*: 17	• Denmark—home setting,[8] office,[5] rheumatology outpatient clinic[2] • N = 15 (67% females, 33% males) • Age range 23–73
CKD		
Cox et al.[36]	• To describe the process and preliminary qualitative development of a new symptom-based patient-reported outcome measure intended to assess hemodialysis treatment-related physical symptoms • Qualitative study design; purposeful sampling; concept elicitation interviews/semistructured interviews; method of qualitative interpretive description • *CASP score*: 17	• U.S.—five dialysis clinics • N = 50 (48% females, 52% males) • Mean age 54.6, age range 20–75
Kazemi et al.[37]	• Investigate the experiences of the social interaction of Iranian persons who are receiving hemodialysis • Descriptive exploratory study; purposive sampling; semistructured interviews; thematic analysis; no theoretical framework specified • *CASP score*: 18	• Iran–three hemodialysis centers • N = 21 (57% females, 43% males) • Mean age 42.2, age range 24–74
Monaro et al.[38]	• To describe the essence of the lived experience of patients and families in the early phase of long-term hemodialysis therapy • Heideggerian hermeneutic phenomenology approach; nonprobability purposive sampling; semistructured interviews; Halling (2008) phenomenological analysis as a three stage • *CASP score*: 17	• Australia—dialysis unit, in-center dialysis, or telephone • N = 16 (63% females, 37% males) • Mean age 40.5, age range 33–84
Picariello et al.[41]	• To explore renal patients' experience of fatigue across the full spectrum of ESRD	• Englandd17 phone interviews and eight face-to-face interviews (home or private room at the university) • N = 25 (40% females, 60% males)

	• Qualitative—pluralist methodological approach; purposive sampling; semistructured interviews; inductive thematic analysis; critical realist approach—combination of realist ontology and interpretivist epistemology • *CASP score*: 18	• Mean age 60.84, age range 33–83
Pugh-Clarke et al.[42]	• To explore the patient symptom experience in non-dialysis-dependent CKD Stages 4 and 5 as the bases for the development of a symptom assessment instrument • Qualitative; × sampling, semistructured interviews; thematic analysis; multiphasic inductive process • *CASP score*: 18	• U.K.—setting not described • *N* = 18 (50% females, 50% males) • Mean age 65.08
Schipper et al.[39]	• Describe the experiences and needs of patients with moderate-to-severe kidney damage • Qualitative study; purposeful sampling; 31 semistructured interviews followed by two focus groups; thematic analysis; no theoretical framework specified • *CASP score*: 19	• The Netherlands—setting not given/described • *N* = 41 (59% females, 41% males) • Age range 18–65
Yngman-Uhlin et al.[40]	• Examine the experience of tiredness linked to poor sleep in patients on peritoneal dialysis • Phenomenology; purposeful sample of patients on home dialysis; face-to-face interviews; thematic analysis; phenomenological research design was developed for systematic investigation in psychology by Giorgi (1985) • *CASP score*: 16	• Sweden—outpatient visit[11] or home setting[3] • *N* = 14 (57% females, 43% males) • Mean age 59, age range 36–82
COPD		
Kouijzer et al.[43]	• To explore the patient's perspective on the impact of fatigue on their daily lives and on treatment opportunities to tackle the burden of fatigue • Design not named; purposive sampling; inpatient and outpatient; in-depth, semistructured, face-to-face interviews conducted either in a private hospital room or in the participant's home; thematic analysis; no theoretical framework specified • *CASP score*: 20	• The Netherlands—private hospital room (inpatient) or home setting (outpatient) • *N* = 20 (70% females, 30% males) • Median age 72 (inpatient), 63 (outpatient)
Paap et al.[44]	• To identify which domains of HRQOL are most important from the COPD patient's perspective and why • Exploratory study; purposive sampling—recruited from two pulmonary clinics; semistructured interviews; method of data analysis not named; no theoretical framework specified • *CASP score*: 19	• The Netherlands—private hospital room • *N* = 21 (38% females, 62% males) • Age range 52–84
Stridsman et al.[45]	• To describe people's experience of fatigue in daily life when living with moderate-to-very severe COPD • Qualitative research design; purposive sampling from obstructive lung disease in Northern Sweden; semistructured interviews; qualitative content analysis; no theoretical framework specified	• Sweden—home setting or medical facility • *N* = 20 participants • Median age 73

	• *CASP score*: 19	
Wortz et al.[46]	• To address gaps in the literature on self-management support by examining patients' responses to questions about goals, needs, and expectations regarding self-management using qualitative methods • Design not named; sampling strategy—recruited from a self-care management intervention study; in-depth interviews; inductive approach using grounded theory methods; the chronic care model • CASP score: 19	• U.S.—outpatient setting • *N* = 47 (47% females, 53% males) • Mean age 62.4
Shalit et al.[47]	• To identify factors that influence dietary intake patterns in a stable COPD population attending pulmonary rehabilitation programs • Qualitative methods approach; sampling not specified—recruited from outpatient/community pulmonary rehabilitation programs; semistructured interviews; thematic analysis; no theoretical framework specified • *CASP score*: 18	• Australia—setting not given/described • *N* = 30 (50% females, 50% males) • Age range 45–87

CASP = Critical Appraisal Skills Program; HF = heart failure; MS = multiple sclerosis; RA = rheumatoid arthritis; TNFi = tumor necrosis factor inhibitor; CKD = chronic kidney disease; ESRD = end-stage renal disease; COPD = chronic = obstructive pulmonary disease; HRQOL = health-related quality of life.

Table 3

Themes Associated With Fatigue

Authors (Yr)	First-Order Themes (Participants' Quotes)	Second-Order Themes (Authors' Interpretation)
HF		
Dickson et al. (2013)[17]	When the blues come, I stay in bed and wait for it to pass. I don't do anything … the pills don't work; why take them … sometimes it doesn't pass …	Individuals described feeling overwhelmed with sadness and lacking energy that influenced their ADL
Gwaltney et al. (2012)[18]	I can't sweep, mop or run the vacuum cleaner. I get totally exhausted. I'm not able to do a lot of things that I would like to do because I'm tired a lot.	Shortness of breath and tiredness were often described as being related to physical activities
Hagglund et al. (2008)[15]	It's not like normal tiredness … everything goes numb … it numbs my brain You feel a little … well, bad at everything; you may want to do this or that, but you just don't have the energy … you see that you should clean, but … It's hard to bend over … my entire body quite simply gives out … and I get short of breath … when I bend over like this I feel like I'm living as a half person because I don't have energy for anything	Fatigue was experienced as loss of physical energy, leading to discrepancies between intention and capacity. The will to reduce dependency on others involved a daily struggle against fatigue
Holden et al. (2015)[20]	The doctors want me to walk around. I just can't do it. And occasionally lately if I am sitting in the chair and I want to get up and do something I, I just don't, just can't get out of the chair Quite honestly, just standing there getting the pills out of the bottle is hard	Fatigue was characterized by constraints on functional, physical, and cognitive-perceptual ability
Jones et al. (2012)[23]	I get tired. I get tired real fast I wake up in the morning, and I am not rested They [i.e., activities] also have to be planned out and everything. If I push the vacuum around today I can't wash dishes because I have to stand The energy level again. You kind of have to not think about it. If you think about it, it is kind of like having a time bomb in your chest There are days like you are like a match. In the morning it is just like you want to go and you just kind of fade out really quick. I get up feeling really good but then you just burn out fast	Patients with HF emphasized the physical burden of fatigue. They described the loss of strength and physical changes brought by fatigue. For many, this included the need to sleep much earlier in the day and needing to protect their time to conserve energy. Often, sleep made no difference to their level of fatigue on waking The emotional burden of fatigue manifested itself in patients with HF as irritability. They talked of putting on a front with others and thinking of themselves because having to communicate can also be exhausting. Patients with HF would purposely not talk to family or come across as being angry as a way of conserving emotional energy and getting people to leave them alone Patients characterized the symptom as if fatigue were a representation of life itself. Patients understood the symptom as an inside experience, a manifestation of their HF disease, and a real-world representation of existence and uncertain yet ultimate mortality
Jurgens et al. (2009)[19]	It had gone on for a few months where I just couldn't do some of the physical things I used to do. Like, um, walk a mile … When I got these shortness of breath attacks, I would attribute it more to	Participants did not recognize or define their physical decline as valid symptoms

Authors (Yr)	First-Order Themes (Participants' Quotes)	Second-Order Themes (Authors' Interpretation)
	anxiety than to the heart. I was slower than my usual self. My feet were swollen, too, but that's been going on for years. This time my abdomen was swollen too Fatigue is not a symptom I'm not tired, I'm just slowing down	
Norberg et al. (2017)[21]	Yes, slow down the pace, I said it's not possible to slow down anymore, then I will sit completely still! … things feel so different and varied despite the fact that you haven't done anything special, and also for relatives to understand. And how you can influence yourself, how you can do that by simple means	Participants reported mild depression, severe fatigue, and both increased and decreased independence in ADL. Participants found benefits of the program but doubted the possibility of using it in practice
Walsh et al. (2018)[22]	It's been very discouraging because I can't do some things for myself, like I have to ask for help and asking for help makes me feel like I'm useless 'Can't walk around. Wanna take them [kids] to the beach. I'm so breathless by the time I get out there. So, I have to hire people to do those activities so they don't lose their childhood. You know. And then I lose out on ….I'm sorry' It's even hard for me to walk from the car to the entrance of a restaurant, let alone walk through the restaurant to the back of it to get to our table or to get to the restroom. So I guess that's part of why I don't even try to make friends because I don't want to deal with those things and have that make my depression even worse	The emotional toll seemed to lead to fatigue and insomnia issues Fatigue led to decreased activity and social isolation
MS		
Al-Sharman et al. (2018)[24]	It was very easy for me to clean my home at once without feeling fatigue. However, with MS I must divide the work and take rest intervals in between. Even with rests I feel so tired The unpredictable fatigue, walking difficulties, and balance disturbances are affecting my life tremendously	Most participants described that the fluctuating nature of the disease and the unpredictable fatigue led to constant worrying and required planning of their daily activities
Barlow et al. (2009)[27]	Basically, I have to pace myself… um, that I don't have to overdo it, keep away from stress. I think keeping away from stress is important. It's just, obviously if I try to do something for too long, then I do lose strength because I just feel blooming awful. I tell you what has been a help, is the new attitude of the MS Society magazine where they have sections on MS fatigue which is a major problem because nobody understands it because it's an extraordinary thing that just happens	Relaxation, pacing, and goal setting were particularly valuable for managing fatigue
Kayes et al. (2011)[12]	For instance, you have a jar full of energy and that's your energy for the day and you can both waste it, or whatever, and use it up. But the problem is each day with MS that jar size varies and you can use up all that energy that's available on the day in one foul burst … and then, you know … like I've done once before … I did two or three days of a lot of things with the girls in the school holidays, so we were very busy. We did two or three days no problem and on the fourth day I was just out of it, gone, wasted. Your body just shuts you down Using the analogy of a bottle of energy just till its run out, it's just like a car… you run out of energy, that's it. End of story. But, whether you can extend… the other thing is, with exercise you can sometimes enlarge that bottle through exercise. So you have a problem there of trying to enlarge the bottle through exercise but then not wanting to use up all the energy for the day coz you might have something else on the second half of the day to use	A number of factors interact to influence the decision to engage in physical activity behavior along with emotional responses and fatigue Participants described how balancing activity and fatigue often resulted in forfeiting activity in favor of other commitments

Authors (Yr)	First-Order Themes (Participants' Quotes)	Second-Order Themes (Authors' Interpretation)
	It's overwhelming … you don't really care about anything but wanting to have a rest. You know, somebody could tell you really awful news and you just don't care cause you just wanna put your head down and that's how bad it feels sometimes … Really heavy …. I feel as though I have got concrete blocks. That is how I feel all the time Mainly, it's the worry about the fatigue, if I overdo it, I get the fatigue and you know, sort of balancing the two …. I balance my life around it, you know. We had a party Saturday night… I rested most of Saturday afternoon, so that I could enjoy the evening You do have to plan a little bit as you say because like I am at the gym and so I will have to allow enough energy to get home, to be able to drive home, get inside, get the girls into bed. You know, there has to be sort of enough energy before I crash in the corner	
Lohne et al. (2010)[11]	being inadequate, that's one's feeling with this illness … because I have no control, I am so exhausted just when I walk around my house …so I am not capable of doing it … What I can no longer do gives me continual sorrow … but I have no energy, though I understand I must accept this, because I know how many … have to do that suddenly the battery is empty. 'It just comes and disappears again … and some years ago … I slept for a long time, I slept until seven in the evening, and then I got up for an hour or so, went to bed again and slept all night … well this lasted for half a year or so … and I was exactly as tired when I woke up again …' It's all this waiting and the uncertainty, really, which drains off your energy … with MS you never know what tomorrow will bring … so every morning I have started to test if I still can move my legs … and that's really awful … I have strong family resources behind me, and I am pretty strong myself, but all this drains my strength, because I am fighting a chronic illness…	Fatigue was described as overwhelming The overall syntheses in this study were comprehended as if patients' experiences were like living in between respect, humiliation, and preservation of dignity. The patient participants—as captured prisoners who had not yet given up the fight—also appeared to be strugglers and fighters
Moriya and Kutsumi (2010)[25]	The fatigue I have now is as if it's stuck fast to my body. It's stuck to my skin and can't be peeled off. It's there all the time I [look at my work schedule and] remember that I need to do this work at this time and then [confirm that] I'll make this sort of movement. I no longer try to do anything other than that. The extent of fatigue that I feel is different compared to when I act without thinking You know, like a barrier perhaps. Like the feeling that, even by challenging yourself, the challenge ends up becoming negative and a source of fatigue. I hate the fact that I act while always worrying about it I lose the feeling of wanting to do something. Moreover, if my body is weary, I completely lose my energy Especially when I go out, I never show a tired face. [Others] ask me to travel with them, for example. But, I still have fatigue and so I refrain from going because I know the fatigue [I will feel] when I go. I wonder, 'Can I do this?' I don't show my friends the fatigue because it is too much trouble to explain in detail and, even if I tried, a healthy person wouldn't understand When I went to an art museum, I got tired and became unable to walk. Because I looked so healthy, [others] didn't quite understand. I said, 'Could you lend me a hand?' But, it took quite a bit [of time until I was understood]. I should have said 'pain' rather than 'fatigue', but I wasn't understood	Fatigue was found to affect their lifestyle. Participants devised their way of coping with fatigue. Coping measures created other dilemmas leading to isolation Participants described being frustrated because their fatigue was not visible to others. Thus, they felt others would not understand them, and they would be called lazy The participants also mentioned that such a lack of common understanding, together with fatigue, caused the level of social interaction to decrease Almost every participant was handling fatigue uniquely without receiving specialist help from health care workers, such as physicians

Authors (Yr)	First-Order Themes (Participants' Quotes)	Second-Order Themes (Authors' Interpretation)
Newland et al. (2012)[26]	When I'm tired, I can't eat because I can go all day and sleep … I get the salt-free crackers. I'll get in the bed, and I'll muster up energy to go get that, put it in the bed with me, and this is how tired I am. I'll get a cracker, put it in my mouth, I'll go to sleep, and when I wake up the cracker's still there, and I'll chew a little, go back to sleep, wake up, chew a little; the cracker's been in my mouth the whole time I'm sleeping. This is how I eat, because I'm just that tired [I] cannot separate forgetting things and fatigue	Dealing with single symptoms and co-occurring symptoms is particularly problematic for patients with MS. Participants highlighted how symptoms manifested and unexpectedly leads to disruption of their daily lives and functional ability Fatigue seemed to be related to cognitive loss, heat intolerance, and vision loss. There were new expressions of fatigue mentioned in terms such as feeling drained or wiped out The combination of fatigue and cognitive loss especially added to the frustration of the participants Health care professionals did not fully appreciate the impact of their fatigue and other symptoms
Turpin et al. (2018)[28]	I had a pretty full-blown attack … it got to the point where maybe I could stand up for two or three minutes in a shower, but that was pushing it. And that was for about six weeks where I had that fatigue. And then it gradually got better, but never completely. I've always had this, where it's affected my lifestyle since then I feel guilty lying on the bed and having a rest. I just feel guilty' cause I just-there's jobs that I should be doing I just knew that I would be pushing myself. Some weeks you can do it- and then other weeks you just can't- I'm learning. I haven't been very good at that. But I am learning. When you have a few hospital stints, you learn Probably it's just general ignorance, if they're not aware of it [fatigue] or they haven't heard of the fatigue involved. And why would they know unless they've got somebody, maybe at home, that complains of it too? And they sort of say, 'Oh yes, I know, I get so tired' and I think, "How annoying. You know, no you don't, YOU DON'T!" If they understand the fatigue, and the MS thing- I'll be like, 'I'm just having a crap day'. They're like, 'fine, no problem'. Whereas someone else will say, 'but why?' and it's like, 'I don't want to explain it again' … So, and in that case it's like, 'fine, I'll come to something for a short time' Because I think if people see me and they don't understand [the MS fatigue] and I'm being withdrawn, they will just think I'm rude or they'll think 'oh she doesn't like me' or 'she's got depression, or they'll think all the stuff about me or they'll be offended	Participants reported that, because of MS fatigue, they made more mistakes, took longer to complete tasks, and found tasks physically and/or cognitively more difficult Participants reported increased fatigue resulting from doing too much, potentially culminating in being bedbound for multiple days or being admitted to hospital Frequently, participants commented on the difficulty of helping others grasp the difference between ordinary tiredness and MS fatigue, because people generally thought in terms of their own experiences of tiredness. Participants tried to convey that its severity was quantitatively different and was not the result of their choices, such as to stay up late. Participants most commonly attributed others' lack of understanding of the invisibility of fatigue. They also discussed other people's lack of awareness and ignore regarding MS fatigue and associations made with other stigmatized conditions such as chronic fatigue Participants often worried about how they were perceived by others, especially in social situations and with those outside their immediate circle. They feared they would appear stupid or as a nuisance, be viewed as different from others or withdrawn and rude, or be seen as the person who is always canceling Some participants were reluctant to tell others MS fatigue was the cause of their behavior, because they thought they would not understand. Some feared that others would believe they were using MS fatigue as an excuse Clinicians should consider these concepts when supporting people with MS fatigue to understand the effect of fatigue in their daily lives and use fatigue management strategies to make effective lifestyle changes to accommodate it
RA		
Connolly et al. (2015)[29]	I might get up in the morning and I will not be going anywhere because physically I will not be able to walk—I'm just too tired	This study identified three themes: impact of fatigue on work demands; disclosure of disease and fatigue; work-based fatigue management strategies

Authors (Yr)	First-Order Themes (Participants' Quotes)	Second-Order Themes (Authors' Interpretation)
	I feel like there's porridge in my veins instead of blood. Everything is heavier and slower—and you're constantly dragging yourself around- so I call it porridge blood It suddenly comes upon you. I'd be sitting at my desk and literally nodding off. It just comes out of the blue I try to remain upbeat but there are days that I would be down, purely because I'm just exhausted the more mentally fatigued I get, the more mistakes I make I can't remember people's names or phone numbers. Like the password for my computer …and it's just when I'm tired, it's pure tiredness They [colleagues] don't understand the scale of the tiredness. A lot of people don't realize- nobody really gets it Nobody says 'what are you doing for the fatigue?' The health professionals don't understand how to treat it either	Fatigue impacted cognition, physical abilities, and mood. Although this has been identified in other studies, the participants in this study also discussed specific work tasks affected by fatigue Participants discussed a lack of understanding of fatigue from employers and colleagues when disclosing their fatigue Fatigue and pain affected productivity levels and absenteeism
Feldthusen et al. (2013)[30]	It is like a tired diesel engine// … //you can get up to speed but it takes a lot more time than for a spirited petrol engine There's no energy left to learn, so of course there are significant consequences if you are really, really exhausted Many times when you shall do stuff with friends, many times I have to call and cancel and say I cannot cope Is it, God forbid, maybe a reduced level of consciousness or something that causes it then. That you are a bit lowered and therefore feel tired and have difficulties to keep up, harder to commit, it's indeed scary The thing is also to … screen your … acquaintances and so, on people who take energy away from you Every time I'm going to go somewhere, I'd rather go to bed and sleep I need much more time to get engaged and I need longer time to get enthusiastic about things They can somehow understand [fatigue] intellectually, but you still know that they have not really understood what I'm talking about	The analysis resulted in one theme: an intellectual and embodied understanding that sustainable physical activity is important to handle fatigue. This included five categories describing barriers and facilitating factors for sustainable physical activity: mentally overcoming the fatigue to be active, making exercise easy, reaching for balance, receiving support to be physically active and dealing with RA disease to be physically active Participants described that physical activity was important in overcoming fatigue, but this insight needed to come from personal experience
Minnock et al. (2017)[31]	Before I got arthritis I did not suffer with fatigue You know, never mind whether I'm capable of doing it or I'm not, I know I haven't got the energy to do it I don't understand it, it … varies, it comes and goes. To me it's just waves and waves of tiredness … extreme tiredness I find it hard to complain [about fatigue] because I feel I should be able to cope Depends how long it [fatigue] lasts before I would decide what I will say … no energy, no strength, can't do nothing … can you do something to help me? There isn't much they can do about that, they give tablets for pain but you know you can't … [for] fatigue Whenever I am in constant pain, I think that's what makes me feel tired	The study identified four categories: experiencing a distinct, yet seldom discussed RA symptom; seeking an explanation for fatigue; being in an incapacitating state; and trying to manage Fatigue led to lifestyle restrictions, and patients self-managed their fatigue in the absence of professional care Doctors and the health care team were excused from attempting to help manage this challenging symptom on the basis that nothing can be prescribed for fatigue All patients associated fatigue with the presence of both acute and chronic pain, and most viewed fatigue as a feature of active disease. The reduction in disease activity and the overall

Authors (Yr)	First-Order Themes (Participants' Quotes)	Second-Order Themes (Authors' Interpretation)
	Because of the joint problems … and sometimes I would stay up all night with the pain … my sleeping pattern was mixed up, and from that I had got some fatigue	symptom relief brought about by modern biologic therapies had contributed also to a reduction in fatigue
Mortada et al. (2015)[32]	Fatigue just sticks me to the bed When I have fatigue, my body is wooden, and I move with difficulty Fatigue paralyzes me Sometimes I feel that that I lose my concentration when I have fatigue	Fatigue was described as a concept of overwhelming physical tiredness with consequences on difficulties to move Most fatigue was described as physical; however, some patients described a link with mental fatigue/loss of cognitive functions
Nikolaus et al. (2010)[33]	Around quarter to 11 I start to yawn, and want to go to bed. Right, but that's not the kind of tiredness I feel at 3 in the afternoon. (…) I don't want to go to bed. Then it's just sitting and being so tired you can't even put your cup down on the table I have weeks in which I'm really tired for 3 or 4 days. And I have weeks that are fine … But it depends of course on what you're doing, what the circumstances are; even the weather can have an effect I'm being oversensitive, becoming irritated more quickly, not being able to deal with things Well, if you're really tired, you're just angry with yourself…That you're tired again. You don't want to be, but you are Undoubtedly, because you come to rest … rest is a natural phenomenon I think, which is good for humans. So it [the fatigue] will undoubtedly have positive aspects	They (people with RA) distinguished between mental and physical fatigue, fatigue with or without a prior reason (such as poor sleep or physical activity), fatigue in combination with or without pain, with or without dizziness, and with or without the desire to go to bed and sleep People reported that fatigue was not always the same. Fatigue varied based on severity, unexpected frequency, or duration Negative emotions related to fatigue included anger, depressed mood, frustration, aggressiveness, anxiety, self-pitying, and feeling misunderstood Interviews showed interindividual and intraindividual differences in the experience and impact of fatigue
Repping-Wuts et al. (2008)[34]	To see my family I have to invite them to my home because visiting them at their home is too exhausting Frustrating, my mind is full of energy, but my body doesn't have that energy, is unwilling to react … it is just tired and nothing else, totally worn out My legs become very heavy and I have to sit down, just doing nothing My wife tells me I have to lay down because I don't react as expected and I cannot find the appropriate words, I lose my concentration? I was told to take a rest during the day with two young children I don't know how to do that!	Fatigue was described as physical, exhausting and frustrating, having consequences for roles, relationships, leisure time, with emotional aspects, requiring everyday adaptation On a list with 32 adjectives for fatigue, the words most often used were physical, temporary, frustrating, causing anger, exhausting, aggravating, and acceptable Fatigue was often recognized by close family and friends, by patients becoming pale, a change in their eyes not as bright, being less concentrated, getting irritated, and having more mobility problems Half of the participants reported that fatigue as was more bothersome than pain Participants reported fatigue as mostly unpredictable, with a sudden onset (no regular time) and varying in intensity and duration Respondents verbalized that they seldom mentioned fatigue explicitly to their professional health care providers, assuming that it cannot be treated, and that they must manage it alone
Thomsen et al. (2015)[4]	I am extremely tired. Some evenings when I return from work and sit on the couch and turn on the TV I simply pass out. It is like I use all my strength at work. All energy is gone. My movements cause me pain, so I use more efforts during the day, which you compensate for at night. That's how I see it	Fatigue was considered a limitation that interfered with patients' daily activities and would cause the body to feel heavy Fatigue was described as not being relieved by sleep

Authors (Yr)	First-Order Themes (Participants' Quotes)	Second-Order Themes (Authors' Interpretation)
	Often sit taking a break while doing household activities, for example changing the bed linen. I take the linen off the bed. Then I sit on my walker for a while before I put the sheet and pillowcase on. Then I take another break in the living room, sometimes a whole hour, before I put on the rest of the linen and finally the bed cover. It is in steps My body really, really hurts and I am so tired. It feels like I am carrying two buckets of water all the time. My arms just hang. That's how tired I am. It annoys me, because I do not want to be that tired, but you are tired I try to protect myself and hide at home, because I am so tired all the time. And I cannot motivate myself to do anything. So actually my home base is my own personal hell some days	Pain and fatigue were described as the most dominating symptoms affecting patients physically, mentally, and socially. Prevalence of pain and fatigue, and the unpredictability of the symptoms, prevented the patients from performing their usual activities and from planning ahead, which caused much frustration and increased isolation Days with high levels of pain and fatigue were particularly isolating because it made it difficult to leave home, and/or patients deliberately chose to stay at home
CKD		
Cox et al. (2017)[36]	I'm toast. I'm kind of OCD about my house. It has to be clean and organized and everything, so it's frustrating. Right now there's dishes in the sink because I didn't have the energy to put the dishes away yet. But overall, I can still do everything, just at a slower pace and I have to take breaks. If I'm folding laundry, I get really exhausted, so I have to stop and lay down. Laying down seems to solve everything for me I can't go to public grocery stores without a scooter because I can't shop otherwise. Or I'll just have my kids buy me something … So I've been thinking about transferring on to the night shift because I don't like the way I feel afterward. I've got deeds I want to get done. if it was at night, I come in at 4, get off by 8 or so, I would still have energy to stay up until about 11 or 12 and then go to sleep When I first started, I would go home really tired … most of the time they took out too much liquid … and I always told them I think my dry weight's not right. So they calibrated the weight for me, and now I feel good	There was considerable variation in participants' experience of fatigue, but it had a significant impact on QoL because it affected participants' ability to work, socialize with others, and engage in ADL
Kazemi et al. (2011)[37]	Sometimes, my friends call and I don't like to answer them. [Instead, I] ask my mother to tell them I am not around. Because I am tired, weak, and sick and I have no patience for anybody As the treatment continued, my condition became worse … my muscles are weak … my legs become weak, and I can't even stand talking to people	Fatigue was described by most of the participants as a symptom of their deteriorating health. The theme of fatigue included two subthemes: bodily fatigue and mental fatigue. Each of these subthemes is related to long-term treatment, which resulted in the participants having little motivation for activity outside the everyday activities of living
Monaro et al. (2014)[38]	[Dialysis] takes all day and then … I couldn't be bothered … I don't ring people … I just want to stay home … [but] I can't neglect my friends … they have been very supportive … When I'm on dialysis … that's when I've got the time to ring. I've got to plan when I see somebody … make sure it doesn't interfere with dialysis The dialysis drains you right out … I was worrying about my blood pressure … I can feel it, you get headaches …	Fatigue challenged people's ability to sustain social activities CKD treatment (hemodialysis) resulted in a negative perception of a changed body including a feeling of the body being depleted
Picariello et al. (2018)[41]	It's a strange kind of tiredness, quite unlike anything that I've had before. You can't really describe it … It's weird. You just sit down and, phew, your gone [fallen asleep]. It's weird, strange I'm so exhausted, I can't do anything anymore, I can't even brush my hair, I'm absolutely useless. I'm a real burden on everyone I feel so down and tired. You wouldn't believe that a small thing like your kidneys could make you feel so bad I'm exhausted I can't sleep at night. I keep on waking up … three o'clock, four o'clock	Fatigue was described as different from other forms of previously experienced fatigue Fatigue was described as exhausting—both emotionally and in its interference with independence Fatigue was related to sleep disturbance, and pruritus exacerbated declines in sleep quality

Authors (Yr)	First-Order Themes (Participants' Quotes)	Second-Order Themes (Authors' Interpretation)
	This itching … it's worse at night. You're trying to sleep with nothing else to think about, and it just takes over	Participants did not report symptoms to clinicians because of an inadequate knowledge of symptoms, fear, and guilt
Pugh-Clarke et al. (2017)[42]	I have no energy and it's a bit like having a big, heavy weight on you … I feel like I've got a big, heavy load on me and I'm just so tired When I have a long day at work or exercise or something, I know the difference because I know that I've done something to make me tired It's [illness] tiredness that caused by inactivity when your brain is muddled and your legs not working properly and you've got cramps There is fatigue that I do associate with dialysis, and that is when the machine goes on … suddenly, I'm exhausted I just know that this[fatigue] is stress-related … sometimes at work I'm very stressed so with that I automatically know I've learned to pace myself really … for example sometimes with big finish productions, they would like me to do two recording in one week … I would definitely say no to that now. I would only do it one day a week This is getting on my nerves … It's just the tiredness that I don't like … But it's just so frustrating now, 'cause the girls want to go out sometimes, and I can't do it, because I just don't have the energy to do it There was definitely an effect of fatigue … so that restrained me from doing my tasks whatever I wanted to do, so that was more depressing than anything else I don't think they really know the inside of the fatigue … I don't think that emotionally-wise and mentally-wise they know how I feel When I come home [from dialysis], nobody is going to bother me, because they know that I'm completely out of everything, my body is completely fatigued, so they don't trouble me at all If I sit here it will only get worse won't it? … They [symptoms] will get worse if you just lay around and vegetate	Negative views of fatigue included both an association with cognitive decline and physical tiredness A difference was noted between illness-related fatigue—perceived as abnormal and excessive, disproportionate, and unrelated to activity and exercise Patients' causal beliefs centered around biomedical explanations of fatigue—most attributed their fatigue to illness and dialysis Patients described fatigue would persist despite resting and thus unpredictable Other etiologies of fatigue described by participants included the role of aging, sleep disturbances, and stress Many participants described trying to maintain activity by trying to pace themselves Emotional consequences of fatigue included feelings of anger and frustration because of physical and social limitations caused by fatigue Mixed feelings were described regarding feeling understood by family and friends. Some felt that their understanding was limited, and others felt supported Overall, keeping busy and active emerged as a particularly helpful relief strategy for many participants, jerk[ing] them of fatigue
Schipper et al. (2016)[39]	I can't describe it. How to describe fatigue? For me it is having sudden moments without having any energy and without being able to do anything. My battery is full when I wake up in the morning, but my battery runs low during the day I don't tell my nephrologist my problems anymore. She will not take them seriously People don't realize the impact of having this disease. They tend to ignore it and I think they see me as someone who fakes it	Fatigue was mentioned as the most problematic complaint among patients having moderate-to-severe CKD People felt like they had to persuade others that their experience was real, not like the fatigue everyone experiences, and not faked
Yngman-Uhlin et al. (2010)[40]	… I'm not sleepy, I can be tired anyway, but I can't sleep … I feel it in my whole body, some kind of drowsiness Sometimes I say I don't want to come along because I'm so tired. I think I'm not such good company, and it wears me out It [treatment] becomes a burden for the organs, and a burden needs strength, and I don't have any appetite, so where will I get the strength from?. I've become so tired	Prolonged tiredness and the descriptions of related disabilities with their large impact on daily life, including physical and social activities Memories of their individual capacity before the illness brought unrealistic expectations, and this contributed to shortage of rest and sleep. Activities led to a feeling of being worn out, and a feeling of being lazy arose when they were resting. The

Authors (Yr)	First-Order Themes (Participants' Quotes)	Second-Order Themes (Authors' Interpretation)
	Everything is heavy in one way or another. I feel so tired, so I go to bed and sleep … well it's everything if I'm doing the dishes. I think; what … am I doing the dishes for? Ugh, I have to, then I can go to bed	experience of symptoms and pharmacological treatment gave them a mental tiredness and an increased need to rest
COPD		
Kouijzer et al. (2018)[43]	The daily chores that you cannot do properly anymore. Unable to walk anywhere decently, without having to worry whether you will be able to return … everything stops after 10 minutes because you are tired Because of the fatigue I cannot stand by myself. I have no strength or energy to stop my body from falling down. It sneaks into your life, it goes very slowly. You sit down more often because you are in pain and short of breath. You cannot do anything anymore, so you become more and more tired And yes, I feel tired right now because I went too far and continued for too long. At this moment this fatigue and shortness of breath is not getting any better I cannot wash myself. I have to recover after taking a shower … When I go to the toilet, I am totally exhausted. Then I just go back to bed. Even eating makes me dead tired When the weather is drizzly, it [the fatigue] is much worse. Also during the winter period or when it is really hot, I am much more tired. So when it is too hot, too wet or too cold, I cannot go outside anymore I do think that you slowly become isolated from your social environment. You can no longer go to the market, or visit family … I can barely go outside or meet up with people. Total isolation This has more to do with gloominess. You are not really depressed but you feel down. Then you do not have any spark or energy to do things. No motivation Initially, I need sympathy and tips on how to deal with it [fatigue] But the pulmonologist, he says very little. He never answers when you say that you are very tired. He completely ignores it	Fatigue was described as a feeling of physical and mental exhaustion and thus an extreme burden on the daily life of patients. Patients perceive the impact of fatigue on their daily lives to be a key factor in decreasing their QoL Fatigue had a large negative impact in people's lives and manifested as multiple limitations The burden of fatigue was perceived to be susceptible to change All the participants associated their fatigue with COPD and resulting dyspnea Fatigue was reported to affect socialization and lead to feelings of loneliness Participants reported that fatigue is not often mentioned by their pulmonologist and that when they try to talk about their fatigue, they feel ignored. Other clinicians such as physiotherapists, psychologists, and nurses did invest time to discuss fatigue and how to cope with fatigue
Paap et al. (2014)[44]	Yes, you get tired more quickly. I'm always tired When I'm at home and I'm tired, I really can't be bothered with anything, the whole world may be turned upside down for all I care, all I want is to lie down I'm always tired anyway, if I didn't have to go to work I would be tired all the same, you actually get tired because of the medicines you have to take during the day. One medicine has to widen the blood vessels, the other has to narrow them again … it's a combination of (the aforementioned) And fatigue, sometimes I 'm exhausted and I feel depressed and I think heck, why can 't I do that, but there are also moments when I like it and don't at all resent it. It's so difficult	Patients described fatigue as highly bothersome in various ways; a chronic lack of energy, feeling already totally exhausted when waking up, or experiencing feelings of weariness, and so on. The most frequently mentioned way to cope with fatigue was to lie down and rest. Patients were not always very clear on determinants of fatigue: it could occur without any reason or result from physical activity or use of medications
Stridsman et al. (2014)[45]	In principle, you can say that fatigue is controlling your life, if you are going to rest or not. It's not me myself. You are a slave to fatigue You can say that when you have trouble with the breathing you lose your energy levels and after that you are being tired too it's like you don't get any oxygen you lose your arms and you get fatigued it's that simple	Fatigue seems to be an always-present feeling that involves the whole human being, and when experienced with dyspnea, fatigue increases and becomes more difficult to manage Regardless of exacerbation, there was a constant desire to sleep, and when they allowed the body to relax, the feeling of fatigue was overwhelming. They described that it did not matter how much they slept, the feeling of fatigue was always present, controlling their life. Sleep was described to be a bad habit and

Authors (Yr)	First-Order Themes (Participants' Quotes)	Second-Order Themes (Authors' Interpretation)
	It's heavier in some way, because it's felt in the whole body. It's like you've lost your strength in some way, both in your arms and legs, and you are getting cold hands and feet. It's like another feeling of fatigue … and then I give so much of myself that I feel totally blown out We (my wife and I) don't talk much about it [fatigue] actually, it's just something that is there I feel hopelessness when I want to do things (activities), I don't have the strength to manage it I have to rest, to be able to start again	awakened feelings of guilt because the participants felt that life was being slept away. It also raised feelings of being unsociable, sleeping instead of being with family and friends Other causes that participants attributed fatigue to included aging, medications, pain, sleep disturbances, snoring, and weight gain. Social involvement and concerns for relatives also were described as a cause for fatigue The participants described that they had to force themselves to plan, prioritize, and be flexible to gain control of fatigue with techniques including resting and sleeping to get more energy
Wortz et al. (2012)[46]	Lots of thing I like to do, but I can't. We used to dance a lot. Our main activity now is going to the grocery store and the hospital I used to enjoy dancing … can't do that anymore … can't make it through a song	Concern about loss of normal functioning was characterized by the loss of normal activities not necessarily essential to survival, such as performing recreational activities and hobbies or the inability to complete tasks in a normal fashion or at a normal pace. This loss was often attributed to breathlessness and fatigue
Shalit et al. (2016)[47]	Now, I eat slower and I'm eating less. I know I'm eating less at the time I'm doing all this because I'm more tired. And sometimes I'll start off actually with the meal and eating it, and I just somehow cant eat it … you know, it's just too much, it won't go down, I have not gotten the appetite and it's somehow too exhausting. Like trying to carry a weight that's too heavy So that tiredness is a factor that you have to think ahead to have food that can be produced very quickly, otherwise I eat more sandwiches	Fatigue and reduced activity because of breathlessness resulted in early satiety, especially when unwell. Shortness of breath and fatigue were identified as limiting physical capacity as well as influencing nutritional intake

HF = heart failure; ADL = activities of daily living; MS = multiple sclerosis; CKD = chronic kidney disease; QoL = quality of life; COPD = chronic obstructive pulmonary disease.

Table 4

Summary of the Third-Order Themes by Study and Chronic Condition

Studies by Chronic Condition	Running Out of Batteries	Bad Life	Associated Symptoms	Feeling Misunderstood
HF				
Dickson et al.[17]	◆	◆		
Gwaltney et al.[18]	◆	◆	◆	
Hagglund et al.[15]	◆	◆	◆	◆
Holden et al.[20]	◆	◆	◆	
Jones et al.[23]	◆	◆	◆	◆
Jurgens et al.[19]	◆	◆	◆	◆
Norberg et al.[21]	◆	◆	◆	◆
Walsh et al.[22]	◆	◆	◆	◆
MS				
Al-Sharman et al.[24]	◆	◆	◆	◆
Kayes et al.[12]	◆	◆	◆	
Lohne et al.[11]	◆	◆	◆	◆
Moriya and Kutsumi[25]	◆	◆	◆	◆
Newland et al.[26]	◆	◆	◆	◆
Barlow et al.[27]	◆	◆	◆	◆
Turpin et al.[28]	◆	◆	◆	◆
RA				
Connolly et al.[29]	◆	◆	◆	◆
Feldthusen et al.[30]	◆	◆	◆	◆
Minnock et al.[31]	◆	◆	◆	◆
Mortada et al.[32]	◆	◆	◆	
Nikolaus et al.[33]	◆	◆	◆	◆
Repping-Wuts et al.[34]	◆	◆	◆	◆
Thomsen et al.[4]	◆	◆	◆	
CKD				
Cox et al.[36]	◆	◆	◆	◆

Studies by Chronic Condition	Running Out of Batteries	Bad Life	Associated Symptoms	Feeling Misunderstood
Kazemi et al.[37]	◆	◆	◆	◆
Monaro et al.[38]	◆	◆		
Picariello et al.[41]	◆	◆	◆	◆
Pugh-Clarke et al.[42]	◆	◆	◆	◆
Schipper et al.[39]	◆	◆	◆	◆
Yngman-Uhlin et al.[40]	◆	◆	◆	◆
COPD				
Kouijzer et al.[43]	◆	◆	◆	◆
Paap et al.[44]	◆	◆	◆	
Stridsman et al.[45]	◆	◆	◆	◆
Wortz et al.[46]	◆	◆	◆	◆
Shalit et al.[47]	◆	◆	◆	

HF = heart failure; MS = multiple sclerosis; RA = rheumatoid arthritis; CKD = chronic kidney disease; COPD = chronic obstructive pulmonary disease.

The symbol ‘◆’ denotes third-order themes included in the study.