

# A qualitative study of the symptoms and health-related quality of life impact experienced by patients diagnosed with NASH (Non-Alcoholic Steatohepatitis)

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## INTRODUCTION

- Non-alcoholic steatohepatitis (NASH) is the progressive form of non-alcoholic fatty liver disease.
- Currently affects 1.5-6.45% of global population and its incidence and prevalence are increasing, with a projected prevalence of 18 million by 2027 in US, Japan, and EU 5 (1)
- Five stages of NASH defined by the degree of fibrosis in the liver are:



- Fibrosis stage 4 can be categorised as compensated (F4C) or decompensated (F4D) (i.e., reduced liver function)
- In the initial stages (F0-1), NASH is often asymptomatic. As the disease progresses, patients present with non-specific symptoms (e.g., fatigue, pain in the upper right of abdomen) (2).
- At advanced stages, patients face an increase in symptoms and risk of end-stage liver disease, hepatocellular cancer (HCC), the need for liver transplantation, and death (3,4), resulting in reduced health-related quality of life (HRQL) (5)
- However, limited research has qualitatively explored the impact of NASH on patients' HRQL.
- This study aimed to explore the symptomatic and HRQL burden of NASH at different fibrosis stages using qualitative methods.

## METHODS

- Semi-structured interviews with NASH patients from the UK and USA with biopsy/fibroscore confirmed fibrosis stage.
- Participants were recruited by a specialist patient recruitment agency.
- Recruitment aimed to cover the range of fibrosis stages (F0: no fibrosis to F4: cirrhosis).
- The study was considered minimal risk and exempt from requiring full IRB review; all participants provided consent.
- Interviews (60-80 minutes) explored symptoms and HRQL impacts. Participants completed a background questionnaire.
- Qualitative data were analysed using thematic analysis in MAXQDA and background data were analysed descriptively

## RESULTS

### Demographics

- 17 patients were interviewed:
  - mean age of 46.2 years (SD=10.6); 29% male; 76% white ethnicity; 65% employed; mean time since diagnosis of 5.1 years (SD=4.2); mean time since biopsy of 3.3 years (3.6)
  - High proportion presented with comorbidities: Type 2 diabetes, 59%; hypertension, 59%; high cholesterol, 41%; sleep apnea, 35%; cardiovascular disease, 12%.
- All fibrosis stages were included in the sample (F0 = 6%, F1 = 12%, F2 = 29%, F3 = 29%, F4C = 18%, F4D = 6%)

### Symptoms of NASH

- Significant symptomatic burden observed at all fibrosis stages.
- Fatigue/tiredness (N=17) and abdominal pain (N=16) were common symptoms and more severe at advanced stages (F3 and F4).
- Cognitive problems, sleep issues, itchy skin and nausea/vomiting/bloating were also common (N=10-15) but the impact of fibrosis stage on severity was less clear. Sweating, bowel issues and weight gain were also reported but less frequently.
- Due to comorbidities, some participants were not always able to attribute certain symptoms (e.g., cognitive problems and sleep difficulties) to NASH

### HRQL burden of NASH

- All participants reported a HRQL burden of NASH
- Participants reported negative impacts on daily, social and physical activities, emotional well-being, relationships and work. Impacts were more severe at advanced stages (F3 and F4), except for social activities and diet which seemed to have a similar impact across stages
- A small number of F2 to F4 patients also reported needing assistance with self-care and housework
- Patients also reported a lack of awareness of NASH among the general public and healthcare professionals
- Some patients reported lifestyle changes (e.g., improvements in dietary behaviours and physical activity), resulting in weight loss

### NASH patient reported symptoms: illustrative quotes

#### Fatigue/tiredness

- "A lot of times, I'm really, really tired" (F0)
- "Because of my exhaustion, I'm tired" (F4D)

#### Abdominal pain

- "Some days it would feel like somebody was stabbing me" (F1)
- "It's there constantly, it's not something that comes and goes" (F4D)

#### Sleep difficulties

- "I take sleeping tablets...if I don't take them I can't sleep" (F2)
- "I'll drop off to sleep for half an hour or so because I can't sleep at night" (F3)

#### Cognitive problems

- "I do have trouble focusing and putting words together" (F2)
- "She's (participant's niece) named after me and I could not remember her name" (F4D)

#### Nausea/vomiting/bloating

- "I always looked like I was nine months' pregnant half of the time. It was awful." (F1)
- "I'm always sick in my stomach" (F4D)

#### Itchy skin

- "The itching was on my side, it was on my chest. It was awful." (F1)
- "At those joints my skin gets very, very itchy and dry" (F2)

#### Daily activities

- "When I do my housework, I have to keep stopping" (F3)
- "Sometimes I cook but I have to sit down when I'm cooking" (F4C)

### NASH patient reported HRQL burden: illustrative quotes

#### Physical activities

- "I have a lot of muscle wasting so I'm not able to walk very far" (F4C)

#### Social activities

- "Well, when I want to do something, I have to cancel a lot" (F0)
- "Yeah, I don't really have a social life now." (F2)

#### Emotional wellbeing

- "It's gotten better with that whole being anxious or worried about it." (F1)
- "Getting to F4...and being very ill, that's terrifying to me." (F3)

#### Work

- "It's hard to concentrate...and also it leads to time off work" (F3)
- "the nausea, liver pain, upset stomach, that's what really caused me to have to stop working" (F4C)

#### Diet/lifestyle

- "I never have fried food, I stay away from carbs" (F3)
- "I've lost a lot of weight from where I was" (F4D)

## CONCLUSIONS

- This study highlights the substantial symptomatic and HRQL burden experienced by NASH patients at all fibrosis stages.
- The symptomatic and HRQL burden was generally most severe in patients with more advanced fibrosis. However, even patients in the earlier stages (F0-3) reported significant burden.
- Some of the burden experienced by NASH patients may be attributable to the large number of comorbidities associated with NASH, however patients were generally able to determine which symptoms were caused by NASH.

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