

HEART FAILURE

AN INCONVENIENT TRUTH

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CHAPTER 1

ABOUT THIS REPORT

AUTHORS AND SPONSORSHIP

The pan-European patient survey and whitepaper have been funded and enabled by CSL Vifor. The views expressed in this whitepaper are those of heart failure patients and are not an official position statement by CSL Vifor.

This whitepaper has been co-authored by the following heart failure patient representatives: Nick Hartshorne-Evans from the Pumping Marvellous Foundation in the United Kingdom, Steven Macari from AVEC in France, Winfried Klausnitzer from Herzschwäche Deutschland in

Germany, and Denis Janssen from The Patients Voice in the Netherlands; and by Alexandra Nagler and Emanuele Degortes from CSL Vifor; and Natalia Eitel, Carlijn Hintzen and Bas Amesz from the consulting company Vintura.

This whitepaper has also been made possible thanks to the contributions of Marc Bains from HeartLife Foundation in Canada and the patient advocacy group Harteraad in the Netherlands, who contributed with qualitative and quantitative input, respectively.

ABSTRACT

This whitepaper is the first publication based on a pan-European survey among heart failure patients (n=621), improving quality of life of heart failure patients is perceived as being as important by patients as reducing risk of mortality and even more important than morbidity and safety.³⁴ Patients living with heart failure have evident impaired quality of life compared to the general healthy population. Survey results also show that, following their diagnosis with heart failure, patients report a 21% decrease in quality of life.³⁴ The majority of heart failure patients experience severe physical and mental symptoms that impact their quality of life.^{6,9} Nieminen et al. (2015)¹ show that poor health-related quality of life is related to high hospitalisation and mortality rates, indicating the importance of good quality of life management.

Quality of life is subjective and goes beyond purely clinical or physiological indicators. It reflects patients' own subjective perception about the impact of a certain clinical condition on their lives. This also leads to different and individual definitions of quality of life according to the patients' personal lifestyle and preferences. Quality of life is comprised of various elements

including physical and mental wellbeing along with social, community and civic activities including recreation and fun.⁹

There is an urgent need to redefine health; we must include quality of life elements on all physical, mental, and social domains. This requires an extension of current heart failure management strategies to include and increasingly focus on improving quality of life. We must continually assess and manage quality of life in heart failure patients throughout their lifespan. Although validated questionnaires are available to assess quality of life and the impact of heart failure symptoms, they are not widely used to tailor disease and quality of life management.² We must equip, enable, empower, and engage heart failure patients in order to coach and support them to self-manage their condition and improve their quality of life. Heart failure patients must be included in the decision-making process by the medical team and relevant healthcare providers. Shared decision-making can be a complex task and its implementation in healthcare needs a comprehensive strategy aligned with updated policies and change management strategies.

This whitepaper highlights the experiences of patients living with heart failure and clearly demonstrates the burden of heart failure and its impact on quality of life. We hope, that as a result, all stakeholders in the healthcare ecosystem will work together with patients to improve patients' quality of life:

- Governments must demand from their healthcare systems to take action and define what is required to ensure better quality of life, including necessary policy updates.
- Governments must mandate that Health Technology Assessment (HTA) representatives include quality of life-related endpoints in their assessment to better inform reimbursement and coverage decisions by insurers and national health systems.
- The life sciences industry must increasingly include validated quality of life-related endpoints in their clinical trials.
- Social and healthcare systems must coach and support patients living with heart failure in self-managing their condition and improving their quality of life.
- Heart failure patients must make their voices heard and drive the change. They must steer quality of life discussions with peers, their medical team, and all other relevant healthcare stakeholders.

**HEART FAILURE IS NOT JUST A CONDITION
BUT A PATIENTS' LIFE TO CARE FOR! HEART
FAILURE REALLY MATTERS!**

ABOUT THIS WHITEPAPER

This initiative started at the beginning of 2021 with the goal to raise awareness of quality of life in heart failure. This whitepaper has been written based on qualitative and quantitative input. Multiple round-table discussions with heart failure patient representatives from Germany, France, the Netherlands, the United Kingdom and Canada were held on a regular basis to discuss the impact of heart failure on quality of life from a patient's perspective. Furthermore, a pan-European survey amongst people living with heart failure was conducted from June to December 2021 to validate the qualitative findings from the discussions and quantify the impact of heart failure on patients' quality of life (n=621 with 402 UK, 198 NL, 12 FR and 9 DE answers).³⁴ The survey consisted of 36 multiple-choice questions assessing heart failure disease background, quality of life before and after heart failure diagnosis, and current and desired quality of life assessment and management in clinical practice (see Appendix). Individual survey results were aggregated and analysed quantitatively using Microsoft Excel (v2104). Survey respondents were diverse and representative, covering all age groups and genders, education levels and all disease stages.

PRELIMINARY RESULTS OF THE SURVEY HAVE BEEN PRESENTED IN THE FOLLOWING EVENTS:

- Poster presentation in the Virtual ISPOR Europe 2021 congress, on 1 December 2021 (POSB327: "Assessing the benefits of improving health-related quality of life in heart failure: a preliminary analysis in the Netherlands and the United Kingdom")³⁵
- Panel discussion with heart failure patients in the 19th Global Cardiovascular Clinical Trials Forum, December 2021: "Heart Failure: An Inconvenient Truth"

CHAPTER 2

SIGNIFICANT IMPACT OF HEART FAILURE ON QUALITY OF LIFE

HEART FAILURE IS NOT JUST A CONDITION, IT CAN HAVE A MASSIVE ASSOCIATED BURDEN

Heart failure is a chronic condition in which the heart is unable to adequately pump nutrient-rich oxygenated blood around the body. One in five adults are at risk of developing heart failure during their lifetime.⁶ Heart failure is an incredibly debilitating condition, characterised by a variety of symptoms including shortness of breath, fatigue/tiredness and fluid retention leading to oedema or swelling in other parts of the body.^{2,3} Nevertheless, only 3% of the general public in Europe can correctly identify heart failure from a description of typical symptoms and signs.⁴

Globally, cancer is the most well-known cause of mortality. However, heart failure ranks as one of the top three deadliest diseases and remains one of the leading causes of death worldwide.^{5,6} It is estimated that currently over 15 million people live with heart failure in Europe alone⁶, and 64 million people worldwide.⁷ The prevalence of heart failure is expected to increase by 25% by 2030. Heart failure is the biggest cause of hospitalisations in the population above 65 years old, it contributes to almost 2 million yearly admissions in Europe⁶. Of those hospitalised with heart failure, 25% will be readmitted to hospital within one month of discharge and one in three will die within one year.³³

Our survey shows that the burden of heart failure is significant. One in five heart failure patients declared themselves as disabled.³⁴ The World Health Organization (WHO) estimates that 6% to 10% of the population of Member States of the WHO European Region live with a disability.⁸

Currently, heart failure accounts for 1–2% of healthcare costs in high-income countries. To put this in perspective, all types of cancer combined are estimated to together account for around 6%.⁶ In a study from 2012, the overall cost of heart failure was estimated to be \$108 billion per year worldwide, with a national cost of \$4.5 billion in Germany, France, and the UK and over \$1 billion in Italy, Spain, and Belgium. Of the overall cost of heart failure, 60% can be accounted by direct costs and 40% by indirect costs. The direct costs are largely driven by the frequency and length of hospitalisations. With the expected rise in the number of heart failure cases in the future and the prospect of better treatment outcomes leading to a decrease in mortality, an even greater impact on healthcare expenditure can be expected.⁶

**1 IN 5 HEART FAILURE PATIENTS
SELF-DECLARED THEMSELVES AS
DISABLED³⁴**

HEART FAILURE CAN CHANGE THE LIFE OF PATIENTS: IT CAN LIMIT HOW PATIENTS LIVE THEIR LIFE AND REDUCES THEIR INDEPENDENCE

Heart failure can seriously impact patients' lives by limiting their ability to take part in normal life, reducing their independence. Due to the great impact and burden that symptoms cause, patients need to alter their life situation completely, which has an impact on all facets of their quality of life, leading to emotional, physical, relational, psychological, and social consequences.⁹

The impact of heart failure is not limited to the patients themselves; the patient ecosystem,

including family and friends, also experience the burden of the disease. Whilst family members do believe that supporting the patient in fighting the disease can be a positive experience, carers of patients with heart failure experience stressful and burdensome changes to their lives as well. This can impact their mental and physical well-being.¹⁰

Furthermore, the burden on patients and caregivers is directly related to the economic burden of heart failure, adding to indirect costs due to the impact on productivity.⁶ Besides improving the lives of patients and caregivers, optimal heart failure care and management can also contribute positively to the healthcare system by reducing the economic impact of the disease.

HEART FAILURE CAN SERIOUSLY IMPACT PATIENTS' LIVES BY LIMITING THEIR ABILITY TO TAKE PART IN NORMAL LIFE, REDUCING THEIR INDEPENDENCE

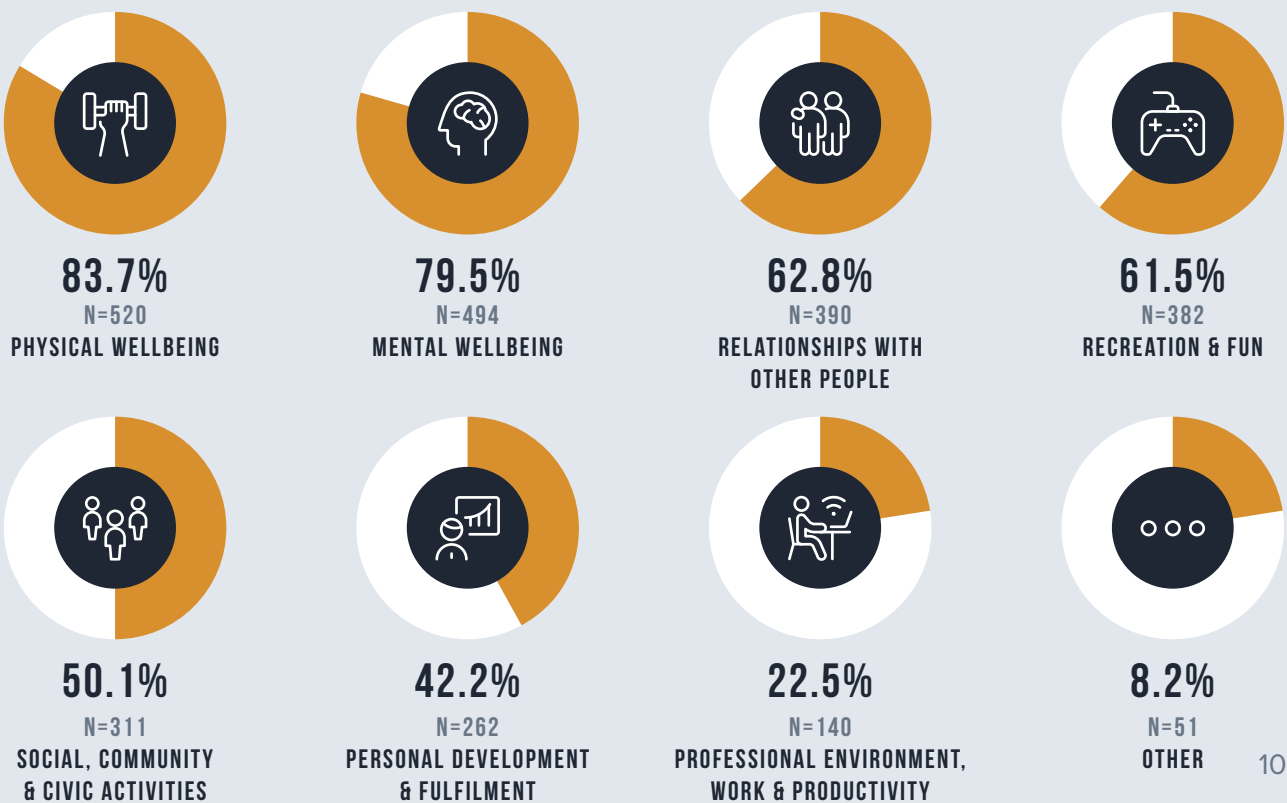
HEART FAILURE CAN HAVE AN IMPACT ON MANY FACETS OF A PATIENT'S LIFE OFTEN LEADING TO A DETERIORATION IN OVERALL QUALITY OF LIFE

Quality of life is associated with the extent to which one can fulfil their needs, wants and aspirations. Therefore, individuals might have different and individual perceptions of quality of life. This is also demonstrated by our survey, whose results show that quality of life is perceived mainly as a mixture of physical and mental wellbeing, as well as social, community and civic activities including recreation and having fun. When asked how they would define quality of life, being able to select more than one option, 84% of the respondents selected physical wellbeing, 80% mental wellbeing, 63% relationships with other people, 62% recreation and fun, 50% social, community and civic activities, 42% personal development and

fulfilment and 23% professional environment, work, and productivity (Figure 1).³⁴ These results indicate that it is important to take into consideration the impact that heart failure has on these individual elements of quality of life to tailor disease management correctly.

Various quality of life questionnaires have been systematically developed to assess the impact heart failure has on the quality of life of patients. The KCCQ-12 (Kansas City Cardiomyopathy Questionnaire) and MLHFQ (Minnesota Living with Heart Failure Questionnaire) questionnaires are the most widely used questionnaires and have been validated in patients with heart failure.^{11,12}

Figure 1
Quality of life definition according to heart failure patients, respondents of survey³⁴



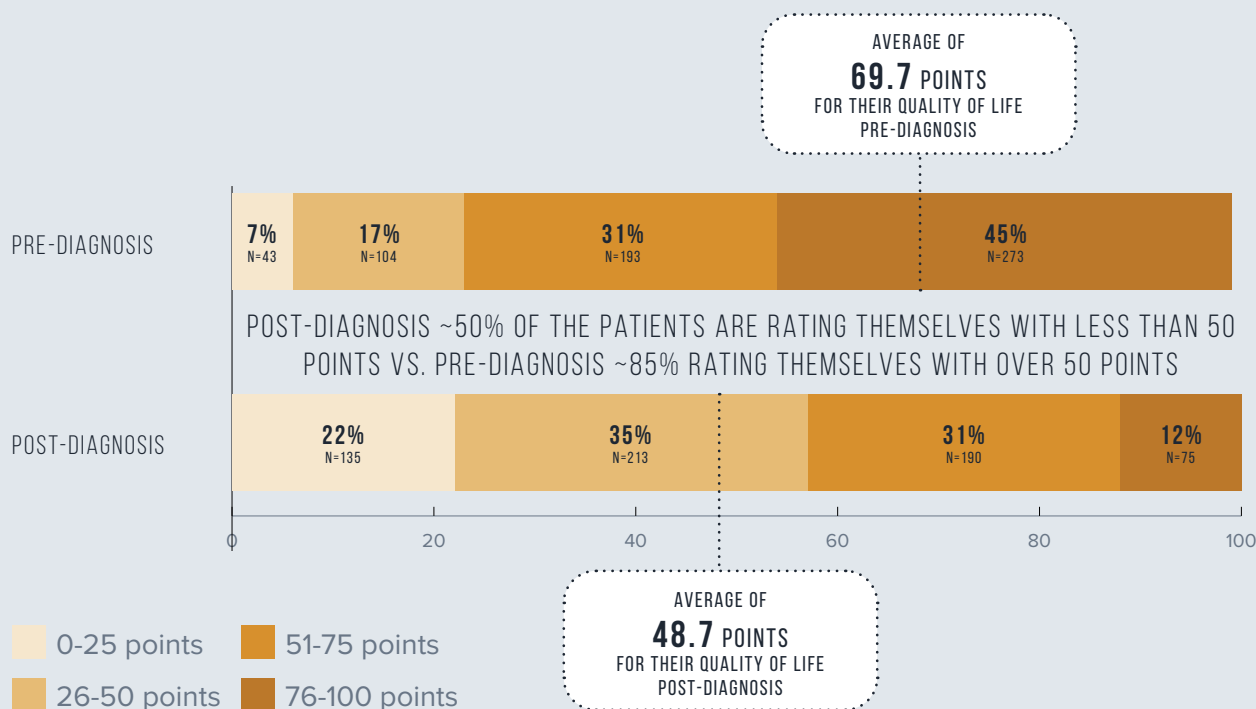
The KCCQ-12, a disease-specific heart failure questionnaire, assesses four key domains of quality of life: physical limitation, social limitation, symptom frequency and quality of life.¹¹ The MLHFQ, another disease-specific heart failure questionnaire, provides two subscales on two key domains of quality of life, a physical and an emotional subscale.¹² Both questionnaires should be used to assess the impact validly and reliably on heart failure patients' quality of life.^{11,12}

Our survey shows that, in general, heart failure has a large and significant ($p < 0.0001$) impact on patients' quality of life. Patients report a 21% decrease in quality of life following their heart failure diagnosis (Figure 2). Prior to being diagnosed with "heart failure", heart failure

patients rated their quality of life, on average, 69.7 points out of 100. This rating decreased by 21.0 points to an average of 48.7 points out of 100 once they had been diagnosed with "heart failure".³⁴ Compared to the general population, patients living with heart failure have an impaired quality of life; the average score for the general population is 66.1 ± 21.7 points out of 100.¹³ Other diseases do not exhibit the same impact on quality of life. For instance, studies show that oncology patients report an average score of 61.3 points out of 100.¹⁴ This highlights the urgency and importance of correctly assessing and managing quality of life in heart failure throughout the entire patient journey.

Figure 2

Heart failure can have a big impact on patients' quality of life - When asked "**How would you rate your quality of life prior and after being diagnosed with heart failure?**" patients report a 21% decrease in quality of life following their heart failure diagnosis.³⁴ The % indicates the share of patients who self-assessed their quality of life as X-Y points out of hundred (indicated by the colour of the bars).

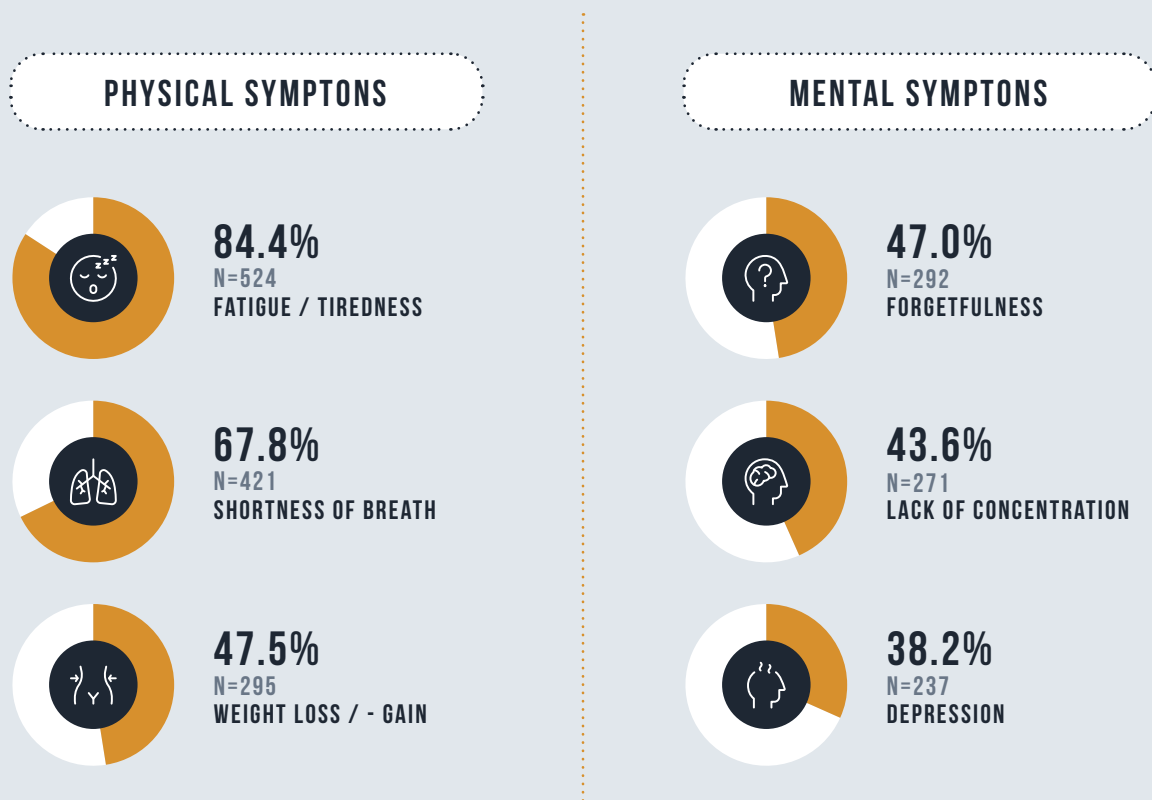


The deterioration in quality of life after heart failure diagnosis is mainly driven by heart failure symptoms. The majority of patients experience several physical and mental symptoms (Figure 3) that impact their quality of life. The major symptoms reported by patients are fatigue and tiredness (84.4%), shortness of breath (67.8%), weight fluctuations (47.5%), and mental symptoms such as forgetfulness (47.0%), lack of concentration (43.6%) and depression (38.2%).³⁴

We can conclude that it is important that the quality of life of heart failure patients is assessed and correctly managed throughout the entire patient journey. Patients confirm that key heart failure symptoms are both physical and mental, which is aligned with key domains assessed by validated quality of life questionnaires.¹⁵ Nevertheless, various studies and our survey results indicate that these validated questionnaires are often not being used in clinical practice.²

Figure 3*

Patients confirm that key heart failure symptoms are both physical and mental, aligned with key domains assessed by validated questionnaires^{11,12,34}



* Only showing the three most experienced physical and mental symptoms

RELIEVING SYMPTOMS CAN HAVE A DIRECT IMPACT ON THE PERCEIVED QUALITY OF LIFE OF PATIENTS

There is no doubt that with more accentuated symptoms, the perception of the severity of the disease is impacted, which also has an impact on the patient's ecosystem. Iron deficiency is one of the key drivers of the most reported symptoms: fatigue/tiredness and breathlessness. It is estimated that 50% of all chronic heart failure patients are actually iron deficient.¹⁷ There is a clear recommendation from the European Society of Cardiology (ESC) to periodically screen heart failure patients for anaemia and iron deficiency.¹⁷

ESC Heart Failure guidelines recommend exercising and other life-style interventions to improve quality of life and reduce hospitalisations related to heart failure. Guidelines task force chairperson Professor Theresa McDonagh of College Hospital, London, UK also highlighted that the vast majority of drug treatments that improve survival and reduce hospitalisations also have beneficial effects on quality of life and symptoms.¹⁶

Professor Marco Metra of the University of Brescia, Italy, another guidelines task force chairperson, reinforces the importance to also treat the underlying causes of heart failure and its comorbidities: "Proper treatment of high blood pressure, diabetes and coronary artery disease can prevent the development of heart failure. Atrial fibrillation, valvular heart disease, diabetes, chronic kidney disease, iron deficiency and other comorbidities frequently co-exist with heart failure and the adoption of specific treatments may have a major impact on the clinical course of our patients."¹⁶

ESC 2021 guidelines* have the following highest class (I and IIa) recommendations for the above mentioned conditions and comorbidities¹⁷ (see Table 1).

* At the time of this publication, the latest recommendations were published in the ESC 2021 guidelines¹⁷. In the future, the recommendations here listed might be outdated. Therefore, we kindly request you to check and confirm what are the latest heart failure recommendations.

Table 1

Highest class (I and IIa) recommendations from the ESC 2021 guidelines¹⁷

RECOMMENDATIONS	CLASS ^a	LEVEL ^b
RECOMMENDATIONS FOR THE TREATMENT OF ATRIAL FIBRILLATION IN PATIENTS WITH HEART FAILURE		
ANTICOAGULATION		
“Long-term treatment with an oral anticoagulant is recommended in all patients with AF, HF, and CHA2DS2-VASc score ≥ 2 in men or ≥ 3 in women.”	I	A
“DOACs are recommended in preference to VKAs in patients with HF, except in those with moderate or severe mitral stenosis or mechanical prosthetic heart valves”	I	A
“Long-term treatment with an oral anticoagulant should be considered for stroke prevention in AF patients with a CHA2DS2-VASc score of 1 in men or 2 in women.”	IIa	B
RECOMMENDATIONS FOR THE TREATMENT OF ATRIAL FIBRILLATION IN PATIENTS WITH HEART FAILURE		
RATE CONTROL		
“Beta-blockers should be considered for short- and long-term rate control in patients with HF and AF.”	IIa	B
“Digoxin should be considered when the ventricular rate remains high, despite beta-blockers, or when beta-blockers are contraindicated or not tolerated.”	IIa	C
RECOMMENDATIONS FOR THE TREATMENT OF ATRIAL FIBRILLATION IN PATIENTS WITH HEART FAILURE		
CARDIOVERSION		
“Urgent ECV is recommended in the setting of acute worsening of HF in patients presenting with rapid ventricular rates and haemodynamic instability.”	I	C
RECOMMENDATIONS FOR THE TREATMENT OF ATRIAL FIBRILLATION IN PATIENTS WITH HEART FAILURE		
AF CATHETER ABLATION		
“In cases of a clear association between paroxysmal or persistent AF and worsening of HF symptoms, which persist despite MT, catheter ablation should be considered for the prevention or treatment of AF.”	IIa	B
RECOMMENDATIONS FOR THE MANAGEMENT OF VALVULAR HEART DISEASE IN PATIENTS WITH HEART FAILURE		
AORTIC STENOSIS		
“Aortic valve intervention, TAVI or SAVR, is recommended in patients with HF and severe high-gradient aortic stenosis to reduce mortality and improve symptoms.”	I	A
“It is recommended that the choice between TAVI and SAVR be made by the Heart Team, according to individual patient preference and features including age, surgical risk, clinical, anatomical and procedural aspects, weighing the risks and benefits of each approach.”	I	C

Table 1 (continued)

Highest class (I and IIa) recommendations from the ESC 2021 guidelines¹⁷

RECOMMENDATIONS	CLASS ^a	LEVEL ^b
RECOMMENDATIONS FOR THE TREATMENT OF ATRIAL FIBRILLATION IN PATIENTS WITH HEART FAILURE SECONDARY MITRAL REGURGITATION		
“Percutaneous edge-to-edge mitral valve repair should be considered in carefully selected patients with secondary mitral regurgitation, not eligible for surgery and not needing coronary revascularization, who are symptomatic despite OMT and who fulfil criteria d for achieving a reduction in HF hospitalizations.”	IIa	B
“In patients with HF, severe secondary mitral regurgitation and CAD who need revascularization, CABG and mitral valve surgery should be considered.”	IIa	C
RECOMMENDATIONS FOR THE TREATMENT OF DIABETES IN HEART FAILURE		
“SGLT2 inhibitors (canagliflozin, dapagliflozin, empagliflozin, ertugliflozin, sotagliflozin) are recommended in patients with T2DM at risk of CV events to reduce hospitalizations for HF, major CV events, end-stage renal dysfunction, and CV death.”	I	A
“SGLT2 inhibitors (dapagliflozin, empagliflozin, and sotagliflozin) are recommended in patients with T2DM and HFrEF to reduce hospitalizations for HF and CV death.”	I	A
RECOMMENDATIONS FOR THE MANAGEMENT OF ANAEMIA AND IRON DEFICIENCY IN PATIENTS WITH HEART FAILURE		
“It is recommended that all patients with HF be periodically screened for anaemia and iron deficiency with a full blood count, serum ferritin concentration, and TSAT.”	I	C
“Intravenous iron supplementation with ferric carboxymaltose should be considered in symptomatic patients with LVEF <45% and iron deficiency, defined as serum ferritin <100 ng/mL or serum ferritin 100-299 ng/mL with TSAT <20%, to alleviate HF symptoms, improve exercise capacity and QOL.”	IIa	A
“Intravenous iron supplementation with ferric carboxymaltose should be considered in symptomatic HF patients recently hospitalized for HF and with LVEF <50% and iron deficiency, defined as serum ferritin <100 ng/mL or serum ferritin 100-299 ng/mL with TSAT <20%, to reduce the risk of HF hospitalization.”	IIa	B

^a Class of recommendation. ^b Level of evidence. ^c NYHA class II-IV. ^d All of the following criteria must be fulfilled: LVEF 20-50%, LVESD <70 mm, systolic pulmonary pressure <70 mmHg, absence of moderate or severe right ventricular dysfunction or severe TR, absence of haemodynamic instability.

AF = atrial fibrillation; **CABG** = coronary artery bypass graft; **CAD** = coronary artery disease; **CHA2DS2-VASc** = congestive heart failure or left ventricular dysfunction, Hypertension, Age >75 (doubled), Diabetes, Stroke (doubled)-Vascular disease, Age 65-74, Sex category (female) (score); **CV** = cardiovascular; **DOAC** = direct-acting oral anticoagulant; **ECV** = electrical cardioversion; **HF** = heart failure; **HFrEF** = heart failure with reduced ejection fraction; **LVEF** = left ventricular ejection fraction; **LVESD** = left ventricular end-systolic diameter; **MT** = medical therapy; **NYHA** = New York Heart Association; **OMT** = optimal medical therapy; **QOL** = quality of life; **SAVR** = surgical aortic valve replacement; **SGLT2** = sodium-glucose co-transporter 2; **T2DM** = type 2 diabetes mellitus; **TAVI** = transcatheter aortic valve implantation; **TSAT** = transferrin saturation; **VKA** = vitamin K antagonist.

DENIS JANSSEN

HEART FAILURE PATIENT, NL

“
**HEART FAILURE IS NOT ONLY AN
INCONVENIENT TRUTH, IT IS A
LIFETIME EXPERIENCE.**”



“Always envied the Spanish for being able to enjoy their “siesta”. However, envy became a burden. For many years, this siesta is interrupting my daily rhythm now. Due to Heart Failure. The “lion” needs to refill his energy every six hours. Every day again. It is a nuisance, not only for me, but for everybody around me. Apart from nightly sleeping hours I live my life in periods of two times six hours.

But Heart Failure doesn’t stop me from living. On the contrary, there is so much more. You just have to realise Heart Failure is a lifetime experience... It makes you very eager to get as much quality in your life as possible.

Honestly speaking no concrete help was offered after being diagnosed. In fact, the message I received was that life was only to get worse. The only person involved in the process how to deal with Heart Failure, has been myself. Did I have a choice? Simply said: no, there was no hand stretched out to hold.

My way out still is be satisfied with what you still are able to do and always stretch the line! Be involved in your own created trials, your own initiatives, surpass your limits wherever possible. Self management is crucial for improving your quality of life. It serves literally all purposes to improve your physical and mental condition. Should be standard practice.

Let’s include the patient! It may sound alien but involving a patient how to improve the quality of their own life is not common policy, patients are rarely involved in the decision-making process.

Let’s face it, Heart Failure is not only an inconvenient truth, but also a lifetime experience. You hardly can improve the condition as such, you can only improve the acceptance of the harsh truth. By building your own spectrum of possibilities. Assisted by healthcare professionals. The patient is leading. It is called self management. This must be the future!”

CHAPTER 3

HOW QUALITY OF LIFE IN HEART FAILURE IS CURRENTLY TAKEN INTO ACCOUNT

CURRENTLY, QUALITY OF LIFE IS NOT CONSIDERED FOR DECISION-MAKING IN REIMBURSEMENT DECISIONS FOR NEW HEART FAILURE TREATMENTS

Quality of life is increasingly being seen as an important focus of care and decision-making, especially for chronic conditions such as heart failure.¹⁸ The World Heart Federation (WHF) specifies that the aim of heart failure treatment should be to improve life expectancy and quality of life.¹⁹ Therefore we must ensure that, in addition to data on life expectancy, evidence on the improvement of quality of life is collected and provided by pharmaceutical companies and considered throughout the approval of these treatments. The drug approval process consists of various steps before new treatments reach patients (Figure 4).

Figure 4

Step-by-step drug approval process. Figure adapted from Janssen & Amesz (2020)²⁰



The first step after drug development is market authorisation by regulatory agencies, such as the Food and Drug Administration (FDA) in the US and the European Medicine Agency (EMA) in Europe and Medicines and Healthcare products Regulatory Agency (MHRA) in the UK. These regulatory agencies assess whether new therapies are safe and effective for patients. Following regulatory approval, national agencies need to make reimbursement decisions for new treatments in each country separately. Through health technology assessments (HTA), these national agencies determine whether new treatments have a clinical benefit over existing treatments and whether they are a cost-effective use of the healthcare budget. The outcomes of the HTA are then used to guide subsequent pricing and reimbursement decisions.²¹

For both the market authorisation and market access decisions, pharmaceutical companies have to submit a dossier proving the added value of their new treatment for patients. This dossier includes clinical evidence on the impact of new treatments in terms of mortality (increase in life expectancy), morbidity (impact on disease-related symptoms), quality of life and potential adverse events. Data on quality of life can provide impactful evidence from a patient's perspective during the market authorisation and market access decisions. However, quality of life data is not being optimally leveraged for these decisions, from the perspective of pharmaceutical companies or from regulatory and national HTA agencies.²¹ Including quality of

life measurements in clinical trials and decision-making is key for optimal patient-centric care.

Patient-reported outcome (PRO) tools are the most efficient measure for analysing the impact of new treatments on patient's quality of life in clinical trials. Therefore, to ensure the availability of reliable evidence regarding the impact on quality of life of patients, pharmaceutical companies should make it standard practice to include PRO tools as outcomes in their clinical trials. If used and analysed correctly, PRO data can provide valuable information to help various stakeholders make patient-centric decisions.^{22,23} Currently, PRO tool inclusion in clinical trials is not standard practice and when they are used, there are often issues with the quality of the data. These issues are numerous and have various causes – for instance, the use of inappropriate PRO tools for a certain disease, low PRO compliance rates, and lack of training people on the use of PRO measures, amongst others.^{23,24}

Once data on quality of life is being captured during clinical drug development, regulatory and HTA agencies should then make it standard practice to use this PRO data to inform their decisions. Although their current guidelines stress the importance of quality of data for decision-making (Table 2), only limited number of assessments consider quality of life data to be a key decision driver.²¹

Table 2

Guidelines on use of quality of life data in HTA decision-making

AGENCY	COMMENTS ON THE USE OF QUALITY OF LIFE DATA FOR HTA
EUROPEAN MEDICINES AGENCY ²⁵	<i>HRQL assessment is optional. In some cases, it might provide insight in the interpretation of the observed effect on the primary endpoint in terms of consequences for the daily life and social functioning. In any case, HRQL goes beyond the efficacy and safety assessments, which are the basis for approval.</i>
NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE ²⁶	<i>“Clinical evidence shows how well the technology works – the health benefits. The evidence includes the impact on quality of life (for example, pain and disability), and the likely effects on mortality”</i>
ZORGINSTITUUT NEDERLAND ²⁷	<p><i>“The gold standard for determining the beneficial effects of a treatment is the randomised, double-blind, comparative study. Favourable effects are preferably expressed in clinically relevant outcome measures that are noticeable to the patient, such as the degree of morbidity, mortality and/or quality of life”</i></p> <p><i>“Research explicitly aimed at quality of life is limited. However, the added value of the drug can actually be expressed in an improvement in the quality of life. Relevant data regarding this aspect is therefore always worth mentioning. It is not always possible to draw firm conclusions from the results of research in which quality of life is a secondary parameter.”</i></p>
GEMEINSAMER BUNDES-AUSSCHUSS ²⁸	<p><i>“In the assessment, the use of patient-relevant target values should also be included (such as mortality, morbidity, quality of life), care aspects of age, biological and social gender as well as life-situation-specific peculiarities, special concerns of the disabled and chronically ill people and the measures used to avoid distorted study results being taken into account.”</i></p> <p><i>“Priority is given to clinical studies, in particular direct comparative studies with other drugs of a similar group of active substances with patient-relevant endpoints, in particular mortality, morbidity and quality of life”</i></p>
HAUTE AUTORITÉ DE SANTÉ ²⁹	No guideline available, other sources confirm quality of life is included in the assessment.

To assess the impact of quality of life data in HTA decisions for new heart failure treatments, HTA reports from four agencies (NICE, ZIN, G-BA and HAS) for new heart failure treatments were reviewed. The analysis was not exhaustive and only based on a few examplesⁱ. For these five drugs, the reports from the EMA and four HTA agencies were read to identify the impact of quality of life data on the decision-making.

Only in two of the five EMA reports were data on quality of life presented and discussed. For the other three products the lack of data might be due to the manufacturer not submitting this data, however no definite conclusion can be drawn as submissions are not publicly available.

When looking at the HTA reports, data on quality of life was reported in the assessments by at least three of the four agencies: NICE, ZIN and G-BA. An impact of the quality of life data on the overall decision was found in all the HTA reports only for 2 drugs. This does not mean that in the other cases the data did not have an impact at all, only that this was not clearly stated in the report.

Based on this analysis we can conclude that, for new heart failure treatments, quality of life is deemed important, but not always considered in HTA decision-making. Although both the pharmaceutical industry and the regulatory and national HTA agencies see the added value of quality of life data to help guide decision-making for the approval and reimbursement of new drugs, this data is not optimally leveraged. It is important that national HTA agencies make it common practice to include quality of life improvements in their assessments. And to facilitate this, pharmaceutical companies should ensure that quality of life assessment is included in all steps of drug development, starting in the early phases of clinical development when treatments are tested in humans.

Therefore, it is key to have close alignment between patients, life science companies, regulatory and national HTA agencies along the entire drug development pathway to ensure that the common goal of optimising patients' quality of life can be reached. And aligned with the common goals of reducing symptoms, minimising disability, and improving quality of life, patients must be involved. Considering patients' views increases public accountability of health services and healthcare professionals.³⁰

ⁱ Drugs analyzed include Entresto (sacubitril/valsartan), Procolaran (ivabradine), Verquvo (vericiguat), Forxiga (dapagliflozin) and Jardiance (empagliflozin).

WINFRIED KLAUSNITZER

HEART FAILURE PATIENT, DE

“...AND THE RECOGNITION THAT QUALITY OF LIFE IS AT LEAST AS IMPORTANT FOR THE HEART FAILURE PATIENT AS A LONGER LIFE EXPECTANCY.”



“I was diagnosed with heart failure by an emergency physician at the beginning of 2014. After a silent heart attack in the 90s, I was diagnosed with lung disease in 2002. After a longer hospital stay, my condition is now relatively stable.

When it comes to quality of life, the points of social belonging or self-realization are essentially important to me. See and get to know something new, be there, visit and enjoy life. Heart failure is hampered here by the lower resilience, faster fatigue and shortness of breath. As a result, longer trips, visits to higher floors without elevator, hikes and sightseeing are only possible to a very limited extent. But not only the disease itself is a hindrance here, but also the side effect and interaction of the usually many drugs. What good is it if I have a good cholesterol level but can no longer walk longer? What good is it to have low blood pressure, but it makes me dizzy when I get up? My biggest problem is that family, friends and environment have to be unduly considerate of me.

Since my hospital stay, I have had regular appointments with my family doctor and cardiologist. Important for us, heart failure patients, is the daily control of blood pressure, pulse, weight (edema) and oxygen saturation. It is also important to control the medication intake, after consultation with the doctors. It makes no sense to take diuretics before traveling and blood pressure lowering drugs on a hot summer day in the early morning. For many doctors, however, the correct laboratory value and the prescribed intake time are still more important than the quality of life of the patient.

It would be desirable to strengthen the networking and coordination of the different medical specialties, the more precise view of the side effects and interactions of drugs, the involvement of the patient in the treatment decisions and the recognition that quality of life is at least as important for the heart failure patient as a longer life expectancy.”

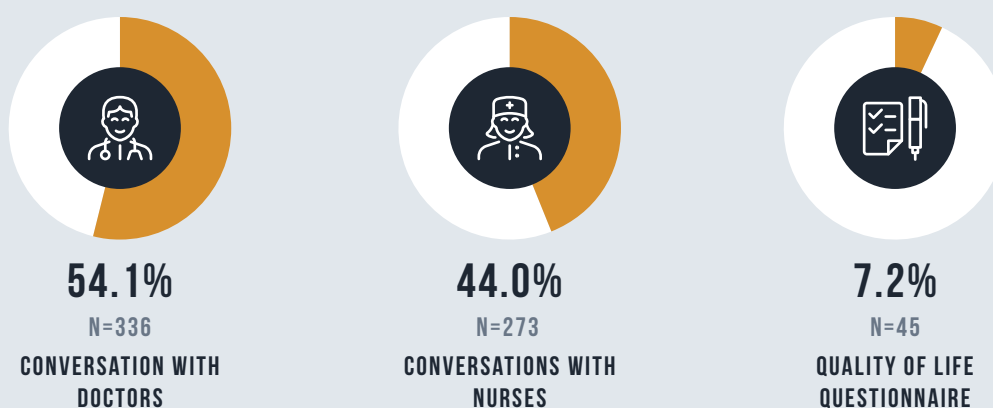
CURRENTLY, GOOD MANAGEMENT AND ASSESSMENT OF QUALITY OF LIFE IS LACKING ALONG THE PATIENT CARE PATHWAY

When it comes to clinical practice, assessment and management of quality of life does not meet the standards desired by heart failure patients. Quality of life is not always part of discussions between heart failure patients and their dedicated medical team. Although heart failure patients report having quality of life-related conversations with doctors (54.1%)

and nurses (44%), these discussions do not take place at frequent intervals. Only 4.7% of heart failure patients report always discussing quality of life with their medical team, whilst 20% report never having these discussions at all. Most discussions on quality of life take place as an open conversation between the medical team and the heart failure patient; only in 7.2% of the discussions are validated quality of life questionnaires being used (Figure 5).³⁴ These results indicate that there is a clear unmet need to increase the support of the medical team in equipping, enabling, empowering, and engaging patients to self-manage their disease and improve their quality of life.

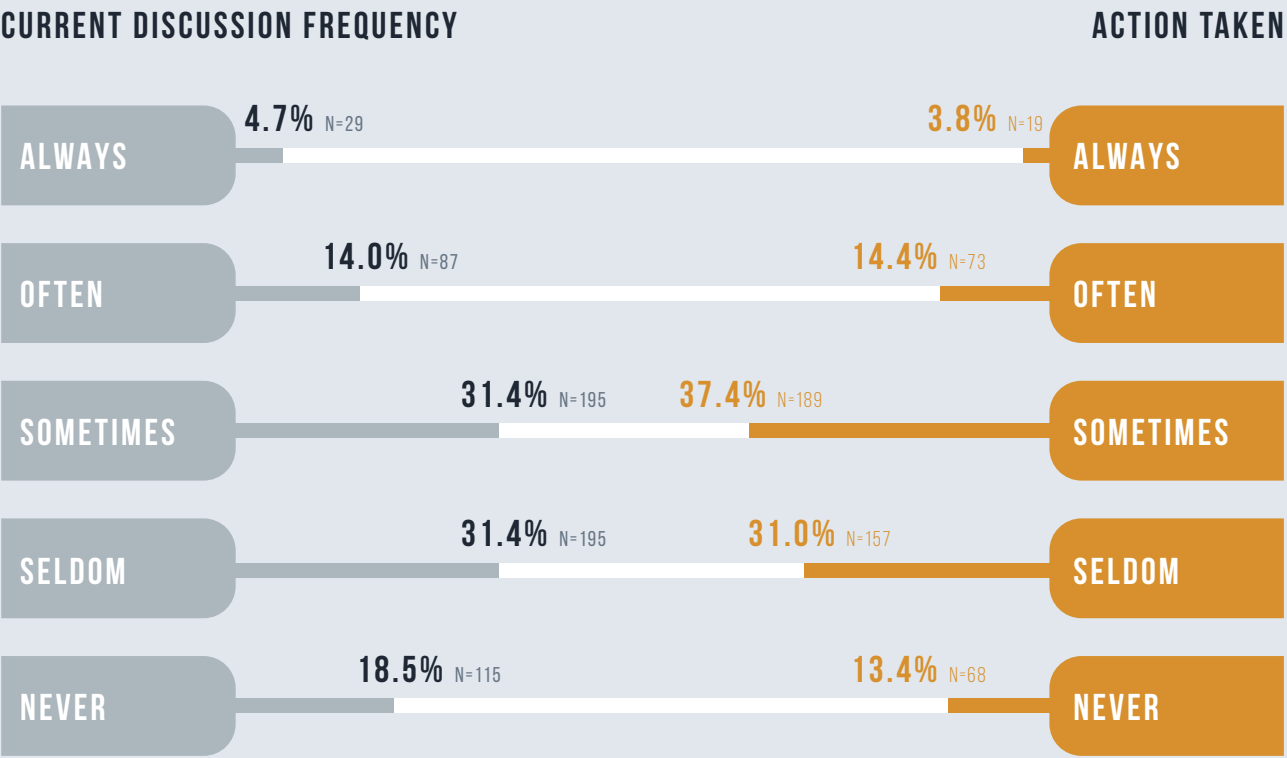
Figure 5

Patients report that quality of life is not frequently discussed with their dedicated medical team³⁴



Furthermore, even when quality of life is discussed, actions to improve or correctly manage quality of life are rarely taken, with less than one in five patients highlighting that those actions are being taken on a more frequent basis (Figure 6).³⁴

Figure 6
Frequency of quality of life related discussions with medical team and frequency of quality of life actions³⁴



NICK HARTSHORNE-EVANS

HEART FAILURE PATIENT, UK

“
**HEART FAILURE, HEART
FAILURE, HEART FAILURE,
WHICH WORD DO YOU
REMEMBER?**”



“Have you ever won at “failure”, have you ever invested in failure? Of course not. Google “heart failure” and see what happens. Although there are glimmers of hope, the coverage has not changed. Other than a handful of medical advances in treatment and care but you’d expect that, in the 12-year period I have been living with heart failure. The language we use is polarised to that of Cancer. Health systems need to change how we both communicate and deliver services to people living with heart failure.

Quality of life is a very personal measure of people’s ability to live in their environment. Mortality and hospital admission/readmission costs drive decision making at a population level and are relatively easy to quantify. Quality of life is sometimes difficult to quantify but this should not be a reason to not involve it in decision making. Patients tell us that their perception of quality of life is important. Decision makers need to work harder to quantify and include the impact of quality of life on people living with heart failure in their calculations when making decisions. If Governments embrace quality of life metrics, the rest of the processes that make up a health system will be part of a domino effect. Now, at the table of decision making, mortality and cost are on the menu, there is a patient movement

to ensure quality of life measurements are given equal standing. Heart Failure defined me as an individual.

I received my diagnosis of heart failure in January 2010 due to a viral infection. I was 39 going on 40, it was a massive shock! “Why me?”. When you’re told you’ve got heart failure, that’s a big moment and it tends to define you, whether you recognise that or not.

What I have learnt, over the past 12 years, being a patient advocate in heart failure has shone the spotlight on how chronically invested it is. We know what works but, on the agenda, it is not. Supporting people with heart failure with optimised treatments gives them a foundation to start to live their lives again, rather than being defined by their heart failure. They may carry it with them, but they package it up so that it lives with them within their environment, not defining their life.

Quality of life is important to people. For many it enables them to live their life with meaning, allowing them to contribute back to society in a meaningful way to them. This is important.”

CHAPTER 4

LET'S BRING BACK THE PATIENT PERSPECTIVE IN HOW WE ORGANIZE HEALTHCARE

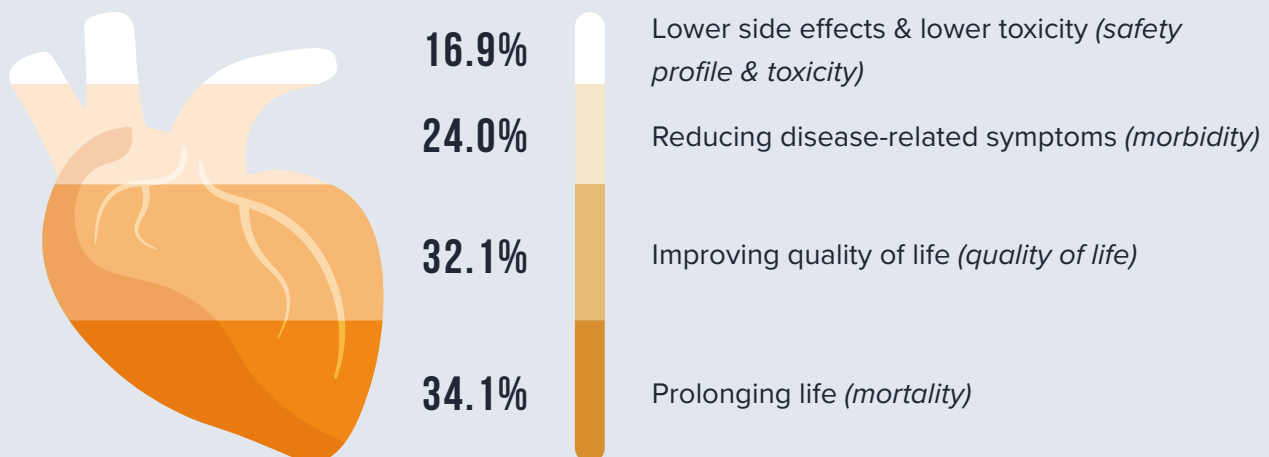
QUALITY OF LIFE SHOULD BE ONE OF THE KEY DECISION CRITERIA IN REIMBURSEMENT DECISION-MAKING FOR NEW HEART FAILURE TREATMENTS

Patients perceive quality of life as being as important as mortality and even more important than improving morbidity or increased safety and a lower toxicity profile. They advocate that this must be the main focus of heart failure treatments. When asked what the focus and

characteristics of new heart failure treatments should be, patients reported this should be 34% on prolonging life (i.e. improving mortality), 32% on improving quality of life (i.e. improving morbidity) and 17% on lowering side effects and lowering toxicity of drug treatment (i.e. safety profile & toxicity). Further statistical analysis confirmed that there is no significant difference ($p=0.22$) between mortality and quality of life, highlighting the highest priority of new treatments as being the focus on improving both elements.³⁴

Figure 7

Patients perceive quality of life as being as important as mortality³⁴



This is also aligned with the World Heart Federation (WHF) heart failure roadmap.¹⁹ It specifies that the goals of heart failure management should be to:

- treat the underlying cause;
- improve clinical status, functional capacity, and quality of life;
- prevent hospitalisations;
- reduce mortality.

Yet, as previously described and reported by patients, we observe that innovative treatments continue to focus on increased safety, reduced morbidity, and delayed mortality instead of improving quality of life. By rewarding the impact on quality of life in our reimbursement decisions, the industry will be incentivised to further invest in R&D focusing on improving quality of life. It's time to re think our national market access criteria, i.e. the criteria for making therapies available in our countries. Furthermore, focusing on quality of life as an outcome can help bridge boundaries between disciplines and between social, mental, and medical services, i.e. optimising the patient journey.³⁰

Other cardiology-focused institutions also highlight the importance of improving the quality of life of heart failure patients. During the European Society of Cardiology (ESC) 2021 conference, Professor Piepoli said “Patients often ask us to improve the quality of their life, instead of concentrating only on extending life. We will hear up-to-the-minute data on the most effective strategies to help patients with their daily activities, sleep, and sex and relationships.”³¹

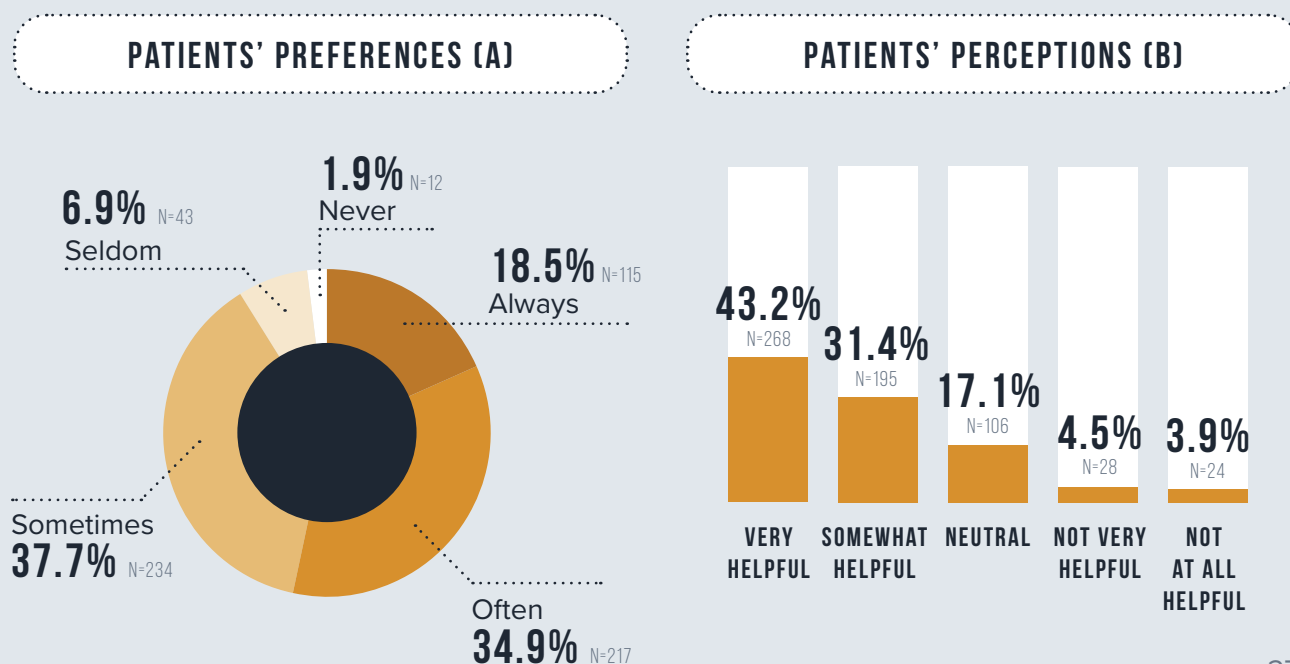
IMPROVING QUALITY OF LIFE SHOULD BE ONE OF THE MAIN GOALS ALONG THE PATIENT CARE PATHWAY

Patients would like to have more quality of life-related discussions with their medical team, since they perceive these as 'very helpful' (43.16%) or 'somewhat helpful' (31.40%) (Figure 8a). According to their preferences (Figure 8b): ³⁴

- **18.5%** of the patients would like to **always** have quality of life-related discussions with their medical team
- **34.9%** of the patients would like to **often** have quality of life-related discussions with their medical team
- **37.7%** of the patients would like to **sometimes** have quality of life-related discussions with their medical team
- **6.9%** of the patients would like to **seldom** have quality of life-related discussions with their medical team
- **1.9%** of the patients would like to **never** have quality of life-related discussions with their medical team

Figure 8

Patients' preferences (a) and perceptions (b) regarding quality of life related discussions with their medical team³⁴

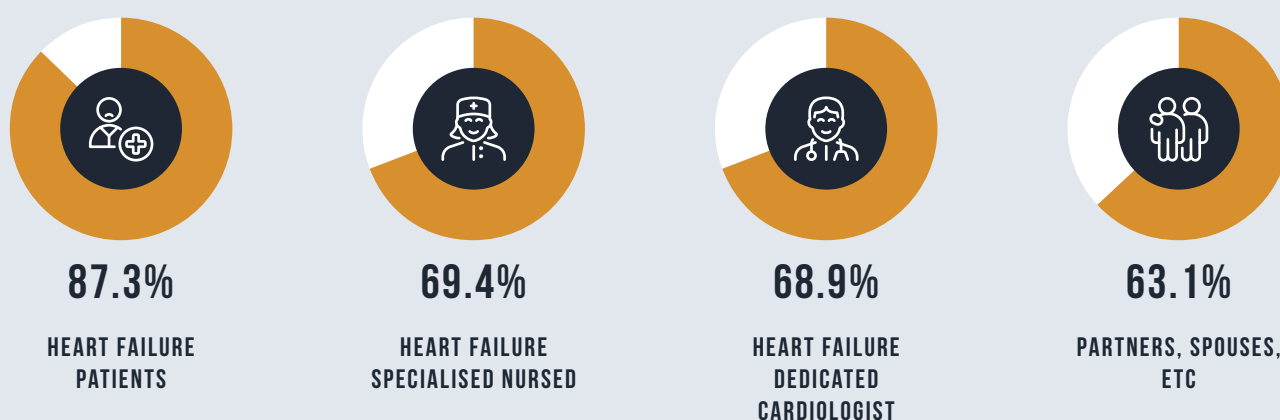


According to heart failure patients, improving quality of life is not only their responsibility, but also the responsibility of their medical team and caregivers. They agree that they themselves are for a large part responsible, 87.25% (on a scale of 0–100%); however, they also report that heart failure-focused nurses (69.35%), heart failure-dedicated cardiologists (68.89%), and their partners (63.13%) should also have a large share in this responsibility. Other parties that are partly responsible in the management of the patient's quality of life included general practitioner / family doctor (62.94%), general cardiologist (61.47%), cardiac rehabilitation professionals (60.42%), psychologists / mental health coaches (52.72%), other family members (50.63%), pharmacists (48.54%), lifestyle coach (48.17%), professional caregiver (47.82%), general nurses (47.62%), friends (39.98%) and peers, i.e., other heart failure patients (39.41%) (Figure 9).³⁴

This shared responsibility for managing and improving quality of life requires including patients in the decision-making process, which is imperative to patient-centricity and appropriate heart failure management.^{19,31} Studies also highlight that shared decision-making can lead to better health outcomes and cost savings.³² Furthermore, right quality of life assessments and patient data could guide interventions to improve the situation of heart failure patients and avert more serious consequences.³⁰ Shared decision-making can be a complex intervention, and its implementation in healthcare needs a comprehensive strategy aligned with updated policies and changed management strategies.

Figure 9*

Improving quality of life is a shared responsibility of patients, medical teams and other stakeholders³⁴



*Only showing four most important key stakeholders

Ensuring informed decision-making relies heavily on patient education. When they are more knowledgeable about potential treatment options and the impact on their overall quality of life, patients are better able to identify how they do or do not want to receive their heart failure care. Of our survey respondents, 68% confirmed that being better educated could help them improve their overall quality of life. Patients also identified additional tools that could support them in their quality of life management and improvement:³⁴

- Support programs, including mental health support (56.84%)
- Peer-to-peer conversations (52.66%)
- Self-management help (50.72%)
- Lifestyle coaching (39.29%)
- Digital solutions (example: health apps) (35.91%)

Those tools are already partially available to heart failure patients, and they are perceived as having a very positive impact (2.42%), positive impact (55.07%), no impact (38.49%), negative impact (2.58%) and a very negative impact (1.45%) on their quality of life.³⁴

This shows the importance of focusing even more on equipping, enabling, empowering, and engaging patients to allow them to self-manage their disease and improve their own quality of life.

Ensuring informed decision-making relies heavily on patient education. When more knowledgeable about potential treatment options and the impact on their overall quality of life, patients are better able to identify how they do or do not want to receive their heart failure care. Of our survey respondents, 68% confirmed that being better educated could help them improve their overall quality of life.³⁴

STEVEN MACARI

HEART FAILURE PATIENT, FR

“
**NOW I OFTEN FEEL
VULNERABLE WHEN I AM IN
UNFAMILIAR SURROUNDINGS.**”



“Heart failure has seriously impacted my life for 12 years now. I was 50 years old when it developed, I aged overnight and slowed down physically and mentally. It became difficult to concentrate and think at work. The constant tiredness and need to take frequent breaks and rest left me guilty. I got rather tired of explaining this invisible illness, so people that would understand.

I love to travel and explore. Now I often feel vulnerable when I am in unfamiliar surroundings. I have to calculate distances, anticipate toilet

locations, gradients and stairs (the Paris Metro is a nightmare) so I am not over tiring myself and being reassured that I can get back to my hotel, etc.

Quality of life is extremely important, living as “normal” a life as possible. I’m lucky I have a good nursing team around me, others don’t. I really think that concentrating more on quality of life will help reduce overall health care costs through benefiting heart failure patients emotionally and psychologically.”

CONCLUSION

As a result of this project, it is clear that quality of life is not taken into consideration across the decision-making process, from therapy development to patient care. Therefore, our joint call to action is:

1

TO GOVERNMENT

Governments must demand from their healthcare systems to take action and define what is required to ensure better quality of life, incl. necessary policy updates.

3

TO LIFE SCIENCES INDUSTRIES

The life sciences industry must increasingly include validated quality of life-related endpoints in their clinical trials.

5

TO PATIENTS

Heart failure patients must make their voices heard and drive the change. They must steer quality of life discussions with peers, their medical team, and all other relevant healthcare stakeholders.

2

TO HTA REPRESENTATIVES

Governments must mandate that Health Technology Assessment (HTA) representatives include quality of life-related endpoints in their assessment to better inform reimbursement and coverage decisions by insurers and national health systems.

4

TO SOCIAL AND HEALTHCARE SYSTEMS

Social and healthcare systems must coach and support patients living with heart failure in self-managing their condition and improving their quality of life.

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APPENDIX

PAN-EUROPEAN HEART FAILURE PATIENTS SURVEY QUESTIONS

- Are you a heart failure patient or a caregiver, answering on behalf of a heart failure patient?
 - a. Yes
 - b. No **[TERMINATE]**
- 1. What is your gender?
 - a. Male
 - b. Female
 - c. Other
 - d. Prefer not to answer
- 2. How old are you?
 - a. 18-24
 - b. 25-34
 - c. 35-44
 - d. 45-54
 - e. 55-64
 - f. 65-74
 - g. 75 or older
- 3. What is your marital status?
 - a. Married / Domestic Partner
 - b. Widowed
 - c. Divorced
 - d. Separated
 - e. Single / Never Married
 - f. Prefer not to answer
- 4. What is your highest level of education?
 - a. Less than secondary school
 - b. Graduated secondary school
 - c. Trade/technical school
 - d. Some college, no degree
 - e. Bachelor's degree
 - f. Master's degree
 - g. Advanced degree (Ph.D., M.D., etc.)
- 5. What is your working status?
 - a. Employed, working 1-39 hours per week
 - b. Employed, working 40 or more hours per week
 - c. Not employed, looking for work
 - d. Not employed, NOT looking for work
 - e. Retired
 - f. Disabled, not able to work
- 6. What country do you currently live in?
 - a. Long list of countries
- 7. How would you define the area that you live in?
 - a. Large city
 - b. Suburb area near a large city
 - c. Small city or town
 - d. Rural area
- 8. How long ago were you diagnosed with heart failure?
 - a. <6 months
 - b. 6 months - 1 year
 - c. 1-3 years
 - d. 3-5 years
 - e. 5+ years
- 9. When you first went to your doctor with signs and symptoms of heart failure were you diagnosed correctly?
 - a. Yes
 - b. No
 - c. I don't know / I don't remember

10. Where were you diagnosed with heart failure?

- a. Heart failure centre or similar
- b. Hospital
- c. Private practice
- d. Other

11. Do you know what is the cause of your heart failure?

- a. Ischaemic
- b. Non-ischaemic
- c. I don't know/ I am not sure

12. How is your heart failure defined by your cardiologist?

- a. HFrEF - Heart Failure with Reduced Ejection Fraction (<40%)
- b. HFmrEF – Heart Failure with Mid-Range Ejection Fraction (40-49%)
- c. HFpEF - Heart Failure with Preserved Ejection Fraction (≥50%)
- d. I don't know/ I am not sure

13. How has your heart failure been classified, according to the New York Heart Association (NYHA) classification?

Note: The New York Heart Association (NYHA) Classification provides a simple way of classifying the extent of heart failure. It classifies patients in one of four categories based on their limitations during physical activity; the limitations/symptoms are in regards to normal breathing and varying degrees in shortness of breath and or angina pain."

- a. Class I - No symptoms and no limitation in ordinary physical activity, e.g. shortness of breath when walking, climbing stairs etc.
- b. Class II - Mild symptoms (mild shortness of breath and/or angina) and slight limitation during ordinary activity
- c. Class III - Marked limitation in activity due to symptoms, even during less-than-ordinary activity, e.g. walking short distances (20—100 m). Comfortable only at rest
- d. Class IV - Severe limitations. Experiences symptoms even while at rest. Mostly bedbound patients.
- e. I do not know my NYHA class

14. Are you anaemic?

- a. Yes
- b. No
- c. I don't know/ I am not sure

15. Regarding your (re-)hospitalisations:**15. a. How many times have you been (re-) hospitalised due to a heart failure event?**

- a. 1-5 times
- b. 5-10 times
- c. 10-15 times
- d. 15+ times
- e. I have not been to the hospital for my heart failure

15. b. Usually, in which time frame do you need to be re-hospitalised due to your heart failure?

- a. Every month
- b. Every quarter
- c. Every 6 months
- d. Once per year
- e. Every 2 years
- f. Every 3-5 years
- g. I have not been re-hospitalised due to my heart failure

16. Regarding your follow-up appointments:**16. a. Where do you do your follow-up appointments for your heart failure? Check all that apply**

- a. Heart failure centre or similar
- b. Hospital
- c. Private practice
- d. Other

16. b. Currently, how often do you have follow-up appointments with your heart failure specialist?

- a. Every month
- b. Every quarter
- c. Every 6 months
- d. Once per year
- e. Every 2 years
- f. Every 3-5 years
- g. I do not have follow-up appointments for my heart failure

17. Who is involved in the management of your heart failure? Check all that apply

- a. Heart failure-focused cardiologist
- b. General cardiologist
- c. General nurse
- d. Specialized heart failure nurse
- e. GP/Family doctor
- f. Psychologist/Mental health coach
- g. Lifestyle coach
- h. Cardiac rehabilitation
- i. Pharmacist
- j. Other

18. Who supports you with your heart failure on a day-to-day basis? Check all that apply

- a. Partner/Spouse
- b. Other family member(s)
- c. Friend(s)
- d. Peer(s)
- e. Professional caregiver
- f. I don't get additional support

19. How do you personally manage your heart failure? Check all that apply

- a. Medication
- b. Lifestyle changes
- c. Self-management
- d. I do not treat my heart failure
- e. Other

20. Do you have a device (ICD, LVAD, pacemaker, etc.) to help you manage your heart failure?

- a. Yes
- b. No
- c. I don't know/ prefer not to answer

21. In general, how would you define quality of life? Please, check all that apply

- a. Physical wellbeing;
- b. Mental wellbeing;
- c. Relationships with other people;
- d. Social, community, and civic activities;
- e. Personal development and fulfilment;
- f. Professional environment, work and productivity;
- g. Recreation and fun;
- h. Other

22. How would you rate your quality of life prior to being diagnosed with heart failure?

[Sliding scale 0-100] + I do not know/ prefer not to answer

23. How would you rate your quality of life now, living with heart failure?

[Sliding scale 0-100] + I do not know/ prefer not to answer

24. Which one of the following symptoms do you experience?

Symptoms: Shortness of breath, fatigue/tiredness, fluid retention/edema/swelling, irregular heart beat, coughing/wheezing, weight loss/gain, appetite loss, nausea, depression and anxiety, lack of concentration, forgetfulness"

25. For each quality of life aspect, please rank the symptoms according to their impact.

[Aspects will be linked to Q24 - Ranking grid]

- a. Day-to-day life
- b. Physical wellbeing;
- c. Mental wellbeing;
- d. Relationships with other people;
- e. Social, community, and civic activities;
- f. Personal development and fulfillment;
- g. Professional environment, work and productivity;
- h. Recreation and fun

26. How would you rate the impact of the following heart failure-associated events on your quality of life at the time of each event? [Sliding scale 0-100 for each event]

- a. Worsening of health pre-diagnosis
- b. Diagnosis and acceptance of heart failure
- c. Accessing heart failure treatment
- d. Acute worsening of heart failure requiring hospitalisation
- e. Acute cardiac event requiring hospitalisation
- f. Diagnosis of comorbidities
- g. Receiving (implanted) cardiac devices

27. Discussing heart failure-related quality of life**27. a. How often do you discuss heart failure-related quality of life with your dedicated healthcare professionals?**

[Never - Always (5-point scale)]

27. b. [If not never] How is it discussed? Check all that apply

- a. Conversation with doctor
- b. Conversation with nurse
- c. Quality of life questionnaire
- d. Other

27. c. [If not never] How often are actions taken based on your answers about your quality of life? (e.g. lifestyle intervention, change of treatment, etc.)

[Never - Always (5-point scale)]

28. How helpful would heart failure-related quality of life discussions with your dedicated healthcare professionals be to you?

[Not at all - Very helpful (5-point scale)]

29. How often would you like heart-failure related quality of life to be discussed?

[Never - Always (5-point scale)]

30. How satisfied are you with the current support you receive concerning your quality of life?

[Not at all – Very satisfied – (5 point scale)] + I do not receive any support

31. To what extent are you able to manage your quality of life?

[Not able - Perfectly able (5-point scale)]

32. Do you use any of the following tools to optimize your quality of life? Check all that apply

- a. Education on heart failure
- b. Support programs (including mental health support)
- c. Lifestyle coaching
- d. Self-management help
- e. Digital solutions (example: health apps)
- f. Peer-to-peer conversations or support groups
- g. Other

33. To what extent are the tools impacting your quality of life?

[Negative impact, no impact, positive impact (5-point scale)]

34. To what extent should the following people be responsible for your quality of life?

[Link to medical team + caregivers + patients (Q15&16)]

[Scale Not at all - 100% responsible] + Not applicable

35. What in your opinion, should be the focus and characteristics of a heart failure treatment? Please divide 100 points between the following categories

- a. Prolonging life (Mortality)
- b. Reducing disease-related symptoms (Morbidity)
- c. Improving quality of life
- d. Lower side effects & lower toxicity (safety profile & toxicity)

36. What tools could help you improve your overall quality of life? Check all that apply

- a. Education on heart failure
- b. Support programs (including mental health support)
- c. Lifestyle coaching
- d. Self-management help
- e. Digital solutions (example: health apps)
- f. Peer-to-peer conversations or support groups
- g. Other