





Review

# Challenges in the Management of Non-Alcoholic Fatty Liver Disease (NAFLD): Towards a Compassionate Approach

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**Abstract:** Representing a growing ‘silent epidemic’, non-alcoholic fatty liver disease (NAFLD) affects around 25–30% of the general population. Alarming, NAFLD increases the risk of cardiovascular disease, both independently and through its strong associations with obesity, type 2 diabetes, and metabolic syndrome, whilst posing a substantial burden from an economic and health-related quality of life perspective. Moreover, growing evidence links NAFLD to common mental health disorders including depression, anxiety, and stress. In this context, recent clinical and research attention further focuses on potential additional problems faced by patients with NAFLD, such as perceived stigma, lack of awareness regarding the condition, and possible feelings of loneliness and isolation that might emerge from unmet support needs. To date, despite a wealth of literature on NAFLD, management of the condition remains challenging and not straightforward, with most cases in primary care being treated with lifestyle modification on top of any other comorbidity treatment. However, for many patients with NAFLD, weight loss is hard to accomplish and/or sustain (e.g., patients may lack the skills, confidence, and motivation required to adhere to dietary changes, and/or may have problems limiting opportunities for increased physical activity). Therefore, tailored interventions which are manageable from the perspective of the individual patient with NAFLD could glean greater results. Accordingly, although there is a lack of research exploring the potential benefits of person-centered and compassion-based approaches to the management of NAFLD, in the present review, we draw on evidence from methods utilized in the treatment of other chronic conditions in postulating the view that such approaches might prove beneficial in the future management of NAFLD.

**Keywords:** non-alcoholic fatty liver disease; NAFLD; obesity; stigma; mental stress; loneliness; compassion; motivational interviewing; social prescribing; empathy

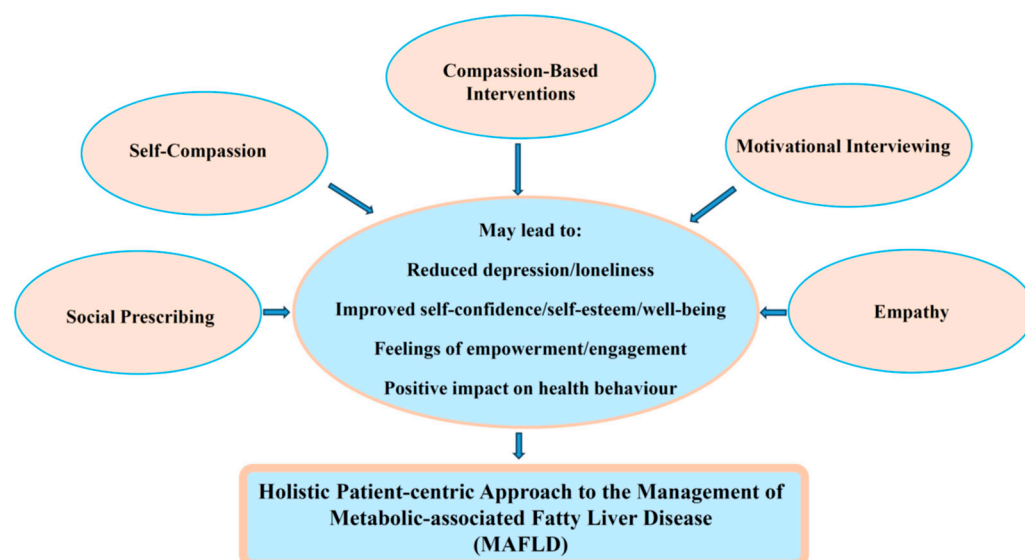
## 1. Introduction

Non-alcoholic fatty liver disease (NAFLD) is characterized by an excessive buildup of fat in the liver, which is unrelated to alcohol and is closely linked to manifestations of the metabolic syndrome, including obesity, hypertension, dyslipidaemia, and type 2 diabetes (T2DM) [1–3]. Currently constituting the most common chronic liver disease worldwide, NAFLD has reported prevalence rates of up to 25–30% in the general population [4]. As it is often asymptomatic in nature, NAFLD represents a ‘silent epidemic’, with even more alarming prevalence among adults with obesity which reaches up to 90% [5–8]. Furthermore, NAFLD is associated with an increased risk of cardiovascular disease (CVD), which is the most common cause of mortality in individuals with NAFLD [9,10]. Accordingly, NAFLD and particularly nonalcoholic steatohepatitis (NASH), which is a more severe form of NAFLD with hepatic inflammation, represents a growing public health challenge, both in terms of the disease burden requiring prompt management [e.g., by lifestyle interventions] and from a socioeconomic perspective [9,11].

Interestingly, as reported by Berry and Kotha [12], there are certain ethical dilemmas associated with NAFLD, owing to the lack of specific treatment options, clinicians’ attitudes regarding the management of comorbid obesity, and variability in relation to NAFLD-related risk factors which may include ethnicity and socioeconomic and genetic factors in terms of underlying causes [12]. In addition, individuals with NAFLD tend to frequently present with at least one feature of metabolic syndrome [13,14], making NAFLD a challenging ‘multisystemic’ disease [15], particularly from a holistic management perspective. The complexity of appropriate management for patients with NAFLD is further increased by the fact that many people with NAFLD may remain undiagnosed, or diagnosis might be delayed [13].

Adding to the complexity of NAFLD management, there is also growing evidence of associations between NAFLD and common mental health disorders including depression, anxiety, and stress, together with ongoing reports referring to the potential impact of NAFLD on quality of life [13,16]. Thus, attention is also required to address the probable unmet needs of patients with NAFLD, such as a lack of sufficient awareness regarding the condition, perceived stigma, mental health issues, and potential feelings of isolation and loneliness [17].

In this context and as lifestyle modification remains a cornerstone of NAFLD management, it is important to adopt a more holistic and person-centered approach when addressing the challenging issue of managing NAFLD. Thus, whilst it is important to ensure that patients with NAFLD are aware of the negative potential risks of not engaging in lifestyle modification, it is perhaps equally important to reinforce positive aspects of engagement, such as increased energy, self-esteem, and well-being. Accordingly, this review will first outline historical perspectives and current challenges regarding current NAFLD management issues, prior to discussing the potential of compassion-based approaches for the care of people with NAFLD. Of note, although reports document the benefits of compassion-related initiatives for people with obesity and associated conditions (e.g., for weight loss management), there are little, if any, references to such approaches towards individuals diagnosed with NAFLD. Thus, herein, we will draw on evidence from methods that embrace the concept of compassion and the notion of patient-centered care, and which are utilized in the treatment of other conditions, in addressing the challenges faced in the management of NAFLD. Such methods may include compassion interventions, motivational interviewing, the emerging role of social prescribers, and the importance of a trusting relationship between patients and healthcare providers based on empathy and encouragement. Figure 1 presents these approaches in a schematic diagram.



**Figure 1.** Schematic diagram presenting compassion-related approaches which could lead to enhanced psychosocial well-being and positive health behavior, representing a holistic patient-centric approach to the management of Metabolic-associated Fatty Liver Disease (MAFLD). The use of the term “MAFLD” reflects current proposals to change the name of the condition from non-alcoholic fatty liver disease (“NAFLD”) to “MAFLD” in the context of removing stigma associated with the term “NAFLD”.

## 2. Methods

For this narrative review we formulated a search strategy which utilized relevant search terms in relation to NAFLD, NAFLD management, related disorders (e.g., obesity, T2DM, CVD), lifestyle management, weight loss, self-blame, compassion, care, empathy, and trust. The databases searched included PubMed and Google Scholar. After removing duplicates and screening, key papers were reviewed in full and were included as relevant to the aim of this review. Due to the broad scope of this narrative review, we opted not to follow the methodology of a systematic review which would have limited the scope of this work to one specific intervention/approach. Nevertheless, where available we have identified and reviewed relevant evidence from existing systematic reviews. Supplementary Table S1 summarizes the key papers included in this narrative review.

## 3. Historical Perspectives

The importance of the liver as a vital organ has been recognized since antiquity, when the liver was considered to represent the center of the human soul and the origin of life, a theory known as hepatocentrism [18]. Indeed, the ancient Greeks may have been knowledgeable of the ability of the liver to regenerate, as demonstrated in two ancient Greek myths—the stories of Prometheus and Tityus—wherein the destruction and regeneration of the liver is portrayed [18–20].

The concept of a fatty liver has been in existence for a long time, being first described by Addison in 1836, and leading clinicians to draw attention to similarities between liver changes observed in individuals with obesity and in individuals with excessive alcohol intake [21]. In the 1800s, fatty liver was believed to be related to malnutrition, sedentary lifestyle, and alcohol, prior to being associated with diabetes at the beginning of the 20th century [22]. Consequently, suggested treatment of fatty liver included increasing physical exercise and reducing fat, carbohydrate, and alcohol intake. This is of potential interest to current issues of NAFLD care since historically it appears that the clinical and lifestyle risk factors were often expressed in a manner that has been described as ‘less compassionate’ than the means by which we may discuss such factors nowadays [22].

In the mid-1980s, the term NAFLD was proposed [22], whilst more recently, moves to rename NAFLD to Metabolic-associated Fatty Liver Disease (MAFLD) have been discussed in an attempt to more accurately describe the condition and potentially ameliorate the stigma associated with NAFLD [23,24].

#### 4. Management of NAFLD

Multiple guidelines have been developed regarding the management of NAFLD worldwide [9]. The general consensus is that early diagnosis of this condition is important, in order to at least prompt relevant lifestyle modifications as soon as possible, and to further attempt to lessen the risk of CVD by addressing any cardio-metabolic comorbidities [13]. Crucially, early detection of NAFLD could lead to full liver recovery or at least prevent or slow down progression to NASH and further liver complications (e.g., cirrhosis and hepatocellular carcinoma) [25].

##### 4.1. Role of Primary Care

Primary care settings play a pivotal role in the care of individuals with NAFLD, including prevention and early diagnosis [26,27]. However, primary care practitioners (PCPs) may face various challenges in order to adequately assist patients with NAFLD. Indeed, in a study aimed at investigating the needs of primary care providers in terms of the diagnosis and management of NAFLD, Islam et al. [28] identified that although PCPs are on the front line in terms of such issues, many of them lacked confidence when diagnosing the condition and were inconsistent in their approaches to its management [28]. Moreover, it is reported that there is a lack of information in relation to the attitudes of PCPs regarding NAFLD [29]. In a survey involving 250 PCPs, Said et al. [29] reported that although 83% of PCPs viewed NAFLD as an important health problem, 85% underestimated the prevalence of NAFLD, and only 46% offered NAFLD screening to patients with obesity and diabetes [29]. In addition, just 27% of PCPs referred patients with NAFLD to a hepatologist. Interestingly, 58% of PCPs reported that the main barrier to NAFLD management was related to a lack of confidence in their understanding of the condition [29].

Of note, as reported by Wong et al. [27], for PCPs to succeed in the prevention, diagnosis, and management of NAFLD, it is essential that they receive enhanced education, which could begin in medical school, and could extend to conferences and workshops [27]. To that aim, a European collaboration has recently resulted in the development of a continuing medical education program drawing together evidence and best practice regarding NAFLD/NASH care within the primary care setting [26]. The study emerging from this collaboration revealed that PCPs reported high satisfaction with the program together with increased confidence. The authors conclude that such an intervention can aid in an increase in knowledge and confidence when caring for people with NAFLD/NASH, and that extending such interventions to other languages should be recommended [26].

Although NAFLD in most cases is likely—at least initially—to be managed in primary care settings, some patients may need to undergo care in secondary settings. Thus, physicians need to decide whether some patients should be promptly referred to secondary care services, particularly when addressing NASH and multiple CVD risks in order to avoid negative longer-term outcomes [30]. Screening is therefore critical, particularly considering the often asymptomatic nature of NAFLD. This is, for example, reflected in the Clinical Care Pathway developed by the multidisciplinary panel of experts of the American Gastroenterological Association, which provides guidance on the management of NAFLD together with screening procedures [30]. Such pathways could also apply to practices addressing gastroenterology, endocrinology, and obesity services in order to provide evidence-based recommendations regarding the care needs of individuals with NAFLD [30].

It is also noteworthy that a study aimed at reviewing the variability of care and current management of NAFLD in patients attending hospital clinics in northeast England, further sought to develop a relevant 'care bundle' and assess its impact [31]. Notably, when assessing NAFLD management in 147 patients at hepatology, gastroenterology,

and specialist NAFLD clinics, significant variability with regard to lifestyle advice and the management of metabolic risk factors was observed. Indeed, individuals seen at the specialist NAFLD clinic were more likely to achieve above 10% weight loss together with having metabolic risk factors addressed [31]. Following the introduction of the care bundle of this study, evaluation of 50 patients demonstrated that this was associated with better implementation of a number of aspects of NAFLD management, suggesting that this approach could aid the improvement and standardization of care of patients with NAFLD [31].

#### 4.2. Lifestyle Modification

Despite the intense research aiming to develop specific pharmacological agents for the treatment of NAFLD/NASH, the lack of such NAFLD-specific treatment options further highlights the importance of appropriate lifestyle modification interventions as a cornerstone of managing patients with NAFLD. Such interventions aim to increase physical activity and healthy food intake so as to encourage weight loss (e.g., by promoting the benefits of the Mediterranean diet, which is particularly recommended due to its ability to reduce liver fat even in the absence of weight reduction and because of its association with improvements in insulin sensitivity and reductions in hepatic steatosis) [25,30]. Indeed, robust evidence shows that weight loss of 5–10% through diet and/or exercise can result in many benefits, including a reduction in liver inflammation and scar tissue [13,25]. In general, a reduction in liver fat can usually be observed upon more than 5% weight loss, whilst improvement in liver inflammation and scarring may be achieved with 7–10% weight loss and >10% weight loss, respectively [25]. Interestingly, in individuals whose NAFLD is not associated with obesity, a 3% weight loss can still aid improvement [25].

Typically, all patients with NAFLD (including those who are not overweight) should receive support and information in relation to nutrition and the importance of physical activity due to their less favorable cardio-metabolic profile [30]. However, there is no ‘magic’ diet, and thus it is important that patients receive personalized support from their healthcare team in order to identify a diet plan that is likely to be followed in the longer-term [25]. Moreover, many individuals experience barriers in modifying their lifestyle, and thus attempts to motivate such individuals are also partially dependent on their understanding of the condition and its relationship to potential complications (e.g., CVD events). As such, although it is important to ensure a management plan after diagnosing a patient with NAFLD, the effectiveness of such plans relies on the correct support [12].

Similarly, interventions to increase physical activity should be tailored to the individual patient based on both preferences regarding physical activities (e.g., some individuals may prefer home-based activities, whilst others may prefer more group-based activities) and comorbidities (e.g., physical injuries or musculoskeletal problems can interfere with the ability to adhere to exercise routines). Thus, such options should be made available based on the individual needs, preferences, fitness levels, and abilities of the individual [25,32].

Overall, as NAFLD represents a complex chronic disorder, a multidisciplinary and compassionate approach could aid attempts to overcome some of the challenges faced by both patients and PCPs when managing this condition. Some suggested behavioral interventions include peer support, counseling, and self-monitoring. Furthermore, the involvement of specialists such as dietitians and psychologists in addition to PCPs can prove crucial in ensuring that each individual patient with NAFLD receives adequate support [9].

#### 5. Compassionate Approaches

Compassionate approaches can aid recovery, help to relieve anxiety, alter the stress response, and have a positive effect on brain function and heart rhythm for both the recipient and the provider [33–35].

Described as the sensitivity to the pain or suffering of another, coupled with a deep desire to alleviate that suffering [36], compassion or compassion-related approaches have

recently received increased attention and deserve an important place in the healthcare setting, particularly in relation to the holistic management of chronic conditions. Indeed, the findings of a scoping review by de Guzmán Quispe et al. [37], which sought to identify the experiences and preferences of patients and caregivers regarding the self-management of four chronic disorders (T2DM, obesity, chronic obstructive pulmonary disease, and heart failure), revealed that adherence to self-management was enhanced by a number of factors, including empathy, compassion, emotional support, and effective communication with the healthcare professional [37].

Given the issues that individuals with NAFLD may face (e.g., self-management issues and potential lack of sufficient NAFLD knowledge) and based on the success of compassion-related approaches to other disorders linked to NAFLD, it is probable that such an approach could benefit individuals with NAFLD, and help to address the challenges encountered. Whilst this section does not intend to cover the concept of compassion per se, it aims to capture approaches that embrace this important concept.

### *5.1. Compassion-Based Interventions*

Compassion-based interventions have been explored among people with long-term physical conditions and reflect a psycho-educational approach towards emotions, including reflective exercises and homework designed to encourage practicing compassionate responding [38]. The formats may vary, ranging from brief to longer sessions comprising a number of components [38].

In a systematic review, Austin et al. [38] investigated the content and structures of compassion-based interventions together with their feasibility, acceptability, and potential benefits. When reviewing the 21 studies that met their inclusion criteria, most interventions were either shown to consist of between 6–12 face-to-face sessions or consisted of a brief compassion exercise. Of note, participants rated the feasibility and acceptability of the interventions as high, whilst various benefits were reported including reductions in depression, anxiety, and feelings of isolation, thus highlighting the potential benefits of compassion-based interventions for the management of long-term physical health conditions [38].

Moreover, Gilbert et al. [39] utilized semi-structured interviews to examine the understanding and use of compassion focused coping strategies in people requiring assistance for weight problems. During these interviews, several factors were explored, including an understanding of compassion, experiences of receiving and providing compassion, and the concept of self-compassion. Whilst participants viewed compassion as being associated with a caring attitude, being listened to, and helping people in distress, their responses to their own relapse tended to elicit responses such as self-criticism and self-disgust, instead of self-caring. These findings suggest that people with weight problems who find it difficult to control their eating and experience relapse may become self-critical. This, in turn, may lead to further problems regarding managing a healthy lifestyle and coping at an emotional level. Thus, it is suggested that interventions based on compassion and mindfulness could prove a valuable asset for overcoming such difficulties which are highly relevant to the management of NAFLD when it is combined with weight problems [39].

### *5.2. Self-Compassion*

Self-compassion is a concept which refers to being aware of oneself and treating oneself with care and kindness in the process of negative events [40–42].

A systematic review by Kilic et al. [43] studied the effects of compassion-related therapies on self-compassion in individuals with chronic health conditions. The reported findings from the included 15 eligible studies demonstrated that the use of therapies which increased self-compassion resulted in positive outcomes, such as a reduction in depression [43].

Likewise, in a review of the evidence concerning the benefits of self-compassion for people with diabetes, it is suggested that self-compassion may prove a useful tool for aiding self-care and glycaemic control, as well as for reducing depression and negative self-

judgement [41]. As such, further investigation is suggested into the use of self-compassion as an intervention for increasing self-care motivation and reducing self-criticism [41]. Moreover, a cross-sectional study by Morrison et al. [44] involving 176 patients with T2DM revealed that longer-term diabetes management was more effective as a result of increased levels of self-compassion and reduced levels of depression. These authors conclude that self-compassion could potentially prove a useful intervention in diabetes practice, reinforcing an emphasis on psychological factors [44].

In addition, a review of 16 articles regarding the role of self-compassion in diabetes management led to further findings regarding the association of self-compassion with improved psychological and physical outcomes, with the authors concluding that although there are factors that can affect levels of self-compassion, these can be improved via interventions [45]. Thus, self-compassion appears to be a promising way forward regarding diabetes management [45].

The concept of self-compassion has further been explored with regard to behavior change and health outcomes regarding weight loss. The benefits of weight loss may be easily observed, but a number of factors can influence attempts to lose weight including stress, genetics, and environmental issues. However, reports suggest that the concept of self-compassion to assist regulated eating appears promising to help improve weight management [40,42]. Indeed, it is suggested that self-compassion may act as a moderator regarding the challenges faced by people engaging in weight management programs. The effects of stress may be moderated by self-compassion by encouraging the individual away from avoidance as a coping mechanism and towards self-kindness when experiencing stress [40]. As such, self-compassion can help individuals to cope with stressful situations by enhancing their ability to engage in healthy behaviors, such as healthy eating and physical activity [40]. Furthermore, although some individuals may feel uncomfortable when first engaging in self-compassion, research suggests that engagement in such activities can help to buffer the effects of self-stigma related to weight [40].

Understandably, the diagnosis of a disease such as NAFLD can be difficult to accept and involves learning to cope with self-management [38]. Furthermore, there is a potential increased risk of common mental health problems, such as depression and anxiety [13,16]. In addition, self-blame may also be a feature, which may increase the distress experienced [38]. In this context, self-compassion can help to reduce feelings of shame and may assist in the individual choosing a healthier lifestyle, and thus can prove resourceful in overcoming the challenges associated with living with a chronic disorder [38]. However, it appears that further research is required to identify the mechanisms involved in the effectiveness of self-compassion [43], and particularly the potential role that this approach may have in the management of NAFLD.

### *5.3. Motivational Interviewing*

A further useful compassion-associated tool includes motivational interviewing, which is a form of counselling that aids behavior change through a patient–physician collaborative conversation to help increase motivation to change [46,47].

Motivational interviewing has also demonstrated effectiveness in the promotion of lifestyle modification for the management of T2DM. Indeed, an RCT by Steffen et al. [48], whereby participants were randomly assigned to motivational interviewing or usual care, showed—when compared to usual care—greater effectiveness of motivational interviewing for T2DM and arterial hypertension for key study outcomes, including HbA1C, and blood pressure levels. Furthermore, motivational interviewing has been described as an increasingly utilized method for assisting lifestyle modification in patients with CVD. A systematic review by Lee et al. [49] aimed to identify evidence regarding the use of motivational interviewing among individuals with or at risk of CVD on lifestyle modification, together with clinical and psychological outcomes. However, although their findings demonstrated that motivational interviewing seemed to have a positive effect on smoking habits and depression, the results were inconclusive regarding the other outcomes measured, indi-

cating that further research is required in this field [49]. Similarly, a systematic review by Mifsud et al. which explored the effectiveness of motivational interviewing in association with modifiable risk factors in people at risk of CVD reported that, whilst this technique may help patients to change their lifestyle and thus modify their CVD risk, the overall effectiveness remains unclear and needs to be further explored within this context [50].

Of further relevance to the care of patients with NAFLD, motivational interviewing has been shown to improve weight loss [46,47]. Hunt et al. [46] state that because motivational interviewing consists of an empathic and supportive approach, it can help patients address their feelings towards difficulties associated with engaging in weight loss plans. Such an approach can help these patients to develop and adhere to an action plan, leading to feelings of empowerment and engagement. The procedure also enables practitioners to address any issues that the patient may have and to congratulate and provide encouragement on progress [46]. Likewise, in a study by Pollak et al. [47] utilizing motivational interviewing techniques with patients experiencing weight problems and obesity, it was revealed that such techniques resulted in patients changing their physical activity patterns and making further attempts to lose weight. Thus, these authors conclude that training physicians in motivational interviewing could lead to weight loss benefits in patients with weight problems [47].

#### 5.4. Social Prescribing

Via the engagement of link workers, social prescribing represents an initiative for addressing a number of issues in relation to social, psychological, and health problems. Often involving patients with chronic disorders, it demonstrates great potential for improving health and well-being [51]. In addition, the social prescribing initiative aims to assist with social needs that can lead to poor physical and mental health [52]. Although seemingly complex in nature, social prescribing represents a person-centered model of care which operates by connecting individuals to community services and activities with the aim of improving health and well-being [53,54].

Indeed, social prescribing constitutes part of the UK NHS commitment to personalized care, allowing people the opportunity to make choices and gain control over the way in which care is delivered by identifying their individual needs, and allowing them to discuss issues that are of importance to them [53]. In a qualitative study in northwest England, involving mainly participants from disadvantaged backgrounds, and focused on developing a space for people to share experiences based on a social prescribing model, authors identified that such a model was able to enhance access to resources and support appropriate to improving mental health [55].

Discussing global developments in social prescribing across 17 countries in Europe, Asia, Australia, and North America, Morse et al. [56] reported that social prescribing is emerging as a method of addressing the social determinants of health and could potentially represent a crucial contribution to global goals for health and well-being [56]. Indeed, it appears that globally social prescribing offers individuals both the skills and confidence to manage their health condition and improve their well-being.

Using qualitative methods, Wildman et al. [57] explored the experiences of social prescribing among people with long-term conditions one to two years after their involvement with such a service. Despite some setbacks in relation to issues such as comorbidity, family, and socioeconomic factors, participants reported improvements in managing their condition and a reduction in social isolation. Many participants also referred to their positive experiences regarding the personalized service that they received and the focus that social prescribing had placed on gradual change regarding issues beyond health [57].

Another interesting qualitative study by Moffat et al. [51] also looked at the impact of a link worker social prescribing program as experienced by patients with long-term conditions [51]. This program consisted of ongoing support in the identification and achievement of goals directed towards health and wellness, via links with appropriate services within the community [51]. The majority of participants had experienced mental



health issues and social isolation in addition to their long-term conditions, but the program elicited favorable responses including reduced isolation, positive feelings of control, and enhanced problem-solving skills, as well as a marked impact on health behaviors such as physical activity and diet which improved weight loss [51]. Patients engaging with this program also reported feeling at ease with their link worker with whom they were able to develop a trusting relationship. Notably, the opportunities provided by the program enabling the individual to socialize within the community led to a reduction in feelings of social isolation and improved self-confidence [51].

Moreover, it appears that social prescribing can be particularly helpful in connecting individuals to support services that can help overcome the crucial issue of loneliness [56]. This is supported by the findings of a systematic review aimed at exploring the impact of social prescribing on loneliness, showing that social prescribing was viewed as a helpful tool by both service users and service providers [58].

Finally, a study conducted in Australia, where there are calls for social prescribing to be rolled out on a large scale, sought to gain an understanding of the role of link workers and to determine the training and resource needs that would aid in supporting such a workforce [52]. In total, 15 link workers participated in this study, mainly from backgrounds in social work or nursing, and among the themes identified, skills of social prescribing (e.g., multifaceted social and emotional skills), workforce challenges (e.g., lack of support and training), and job fulfilment issues arose. Regarding the latter, link workers referred to a sense of reward from engaging in such work. These findings suggest that, given the potential that social prescribing has in terms of benefits to clients and fulfilling rewarding experiences for link workers, adequate support and training should be made available. This is particularly pertinent to further support the momentum that social prescribing is gaining, since despite the problems and risks of burnout that link workers are faced with, they still report a sense of reward and accomplishment in the work that they do. Indeed, this is of great importance considering the value of such initiatives in helping people with physical and psychological health problems, together with reducing the risk of social isolation and loneliness [52].

Welcomed by individuals and link workers, social prescribing seems to represent a promising movement for shifting part of the required care initiatives from the (often backlogged and/or under-staffed) primary and secondary care to a less medical networking approach. This approach supports the patient's independence and bridges the gap between knowledge and behavior, whilst further extending a multidisciplinary approach to the management of chronic health conditions [59].

### 5.5. Empathy

Reported as being an essential tool for healthcare professionals [60], empathy represents a further important concept. Described as a frequently reported humanistic component of patients care and having positive effects on both patients and healthcare professionals, empathy is considered to be of value in the care of patients with chronic conditions [61].

Empathy has been described as having three dimensions (emotional, cognitive, and behavioral), whilst therapeutic change is reported as being more achievable when the healthcare practitioner exercises high empathy levels [62]. However, it may be difficult for healthcare professionals to demonstrate empathy on an everyday basis, due to influential factors, such as lack of time and high patient numbers, together with a lack of education in relation to the concept of empathy [62].

In analyzing the concept of empathy, Moudatsou et al. [62] suggest that empathy plays a significant role in terms of both patients' and healthcare professionals' behavior and well-being. Accordingly, developing such skills should be encouraged and incorporated into educational programs and all healthcare professionals should be supported throughout this process [62].

The potential role of empathy is supported by studies such as the study by Canovas et al. [63] which investigated the impact of physician empathy in association

with pain relief and health-related quality of life as perceived by patients with chronic pain (2898 patients who were visited by the same physician at baseline and after one and three months) [63]. The results of this prospective study suggested that physician empathy may represent an important additional factor in relation to positive outcomes among this patient group, and, thus, constitute an important component of healthcare by understanding the patient's perspectives and concerns, and communicating this understanding with the aim of relieving suffering.

## 6. Concluding Remarks

Currently constituting the most common chronic liver disease worldwide, NAFLD poses a significant challenge from both a disease management and socioeconomic perspective [4,9,11]. Furthermore, this prevalent condition is further complicated by its proposed relationship with common mental health problems (e.g., depression), and its association with possible unmet needs, such as lack of awareness regarding NAFLD, perceived stigma, and potential loneliness [16,17].

Diagnosis and treatment of NAFLD frequently take place in the primary care setting, but certain issues have been raised regarding PCP's lack of sufficient understanding of the condition, lack of confidence in diagnosis, and inconsistency in approaches to management [28,29]. Some of these issues can potentially be addressed by the introduction of educational programs and multidisciplinary care pathways [26,30,31].

However, due to the known difficulties that patients may encounter regarding lifestyle modification, the addition of a compassionate and empathetic approach in NAFLD care pathways could prove a significant aid in improving the holistic management of NAFLD. It could be argued that although lifestyle modification is an essential tool for treating NAFLD, healthcare providers should perhaps keep in mind that "caring and compassion were once often the only 'treatment' available to clinicians" [64]. This is still relevant within the modern NAFLD care pathways, since although PCPs should offer integrated patient-orientated care, the conditions within which they operate may not always be supportive, and although advances in medical science provide new options, such advances may unintentionally distance PCPs from their patients [65].

Within this review, we have explored certain approaches that embrace the concept of compassion. It is proposed that such approaches could be initiated via the primary care setting, involving a wider circle of individuals (e.g., social prescribers), leading to a more holistic approach to the management of NAFLD, whilst lessening the burden on PCPs. These approaches include compassion-based interventions [38,39], self-compassion [38,40–45], motivational interviewing [46–50], social prescribing [51,52,54,56,58,59], and empathy [60–63].

Subject to available training and resources, it is envisaged that these could prove beneficial in the longer term with regard to lifestyle and holistic management of NAFLD, and from a socioeconomic perspective via community involvement in collaboration with primary and secondary care.

Of note, this review is not without limitations, particularly given the lack of research linking directly NAFLD-specific outcomes to the compassion-based concepts discussed. Furthermore, we should note that our literature search was limited to PubMed and Google Scholar and, hence, there may be further relevant studies and/or systematic reviews that we were not able to identify within the scope of this review. Overall, more research is clearly required regarding the long-term effectiveness of the approaches covered and chronic conditions such as NAFLD. However, the purpose of this review was to raise awareness of the potential benefits and usefulness of compassionate approaches to the management of NAFLD and prompt research to that direction, which is also in alignment with multiple domains of the global research priority agenda to advance public health responses to NAFLD [66].

As research is lacking concerning the potential benefits of the use of compassion approaches when addressing lifestyle modification in patients with NAFLD, there is insufficient evidence at the current time to suggest that such an approach might be beneficial.

In addition, lack of time and resources may render such approaches difficult within busy health care settings. However, based on evidence relating to the success of compassion-based interventions in the treatment of related disorders (e.g., diabetes and obesity) and other long-term conditions, it would seem reasonable to propose that compassion-based approaches might aid in the lifestyle modification of patients with NAFLD. Such approaches may need some adaptation in order to meet any unmet needs or barriers to self-care which might be specific to this patient group, and initial qualitative studies might prove useful in identifying such factors. Investing time and resources in compassion-related approaches could prove beneficial in the longer term from both a disease management and socioeconomic perspective.

**Supplementary Materials:** The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/livers3030031/s1>, Table S1: Selected papers on compassion associated approaches that may be relevant to the management of non-alcoholic fatty liver disease (NAFLD), particularly when addressing lifestyle modification needs.

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