

INTRODUCTION

NAFLD as a Major Public Health Threat

Non-Alcoholic Fatty Liver Disease (NAFLD) is a very common chronic disease, with a worldwide prevalence of 25% and rising¹. Its metabolic form is driven by daily-life behaviors (hypercaloric diets and sedentarism) and its therapeutic management, currently based in a lifestyle intervention targeting weight loss, is characterized by poor adherence to treatment and low success rates².

Patient Empowerment to Increase Quality of Care

NAFLD awareness amongst metabolic patients and the general population is low. Acknowledging that 90% of chronic disease care is self-care, several models of health promotion advocate for patient empowerment through the provision of tailored knowledge and self-management skills ultimately aiming to improve health outcomes and the patient's quality of life^{3,4}.

Comics in Health Communication

Used for health communication in the past, comics foster knowledge acquisition and behavioral changes, as explained by the Transportation Imagery Model and the Social Cognitive Theory⁵. The inherent narrative format of comics is particularly suited to convey biomedical knowledge whilst embedding individual and macro-social dimensions in the comics' world and the characters' journeys.

AIM

The creation of an educational tool in the form of a comic able to communicate tailored biomedical knowledge on NAFLD as well as the promotion of healthy lifestyles, providing support for the development of self-management skills that in turn might spring preventive behaviors and boost therapeutic adherence in metabolic patients.

METHOD

This study uses a participatory research approach based on:

PHASE 1: Qualitative Study on NAFLD Awareness

Elicitation of baseline knowledge and mapping of knowledge gaps

- **Study Design:**
Construction of guidelines based on available literature on NAFLD biomedical and clinical knowledge, health communication and NAFLD awareness.
- **Data Collection:**
Semi-structured interviews (n=30) with Type 2 Diabetes Mellitus (T2DM) patients at the Portuguese Diabetes Association (APDP) in Lisbon between October - December 2018.
- **Data Analysis:**
Identification of emerging themes using MAXQDA2018 Software following verbatim transcription of audio files.

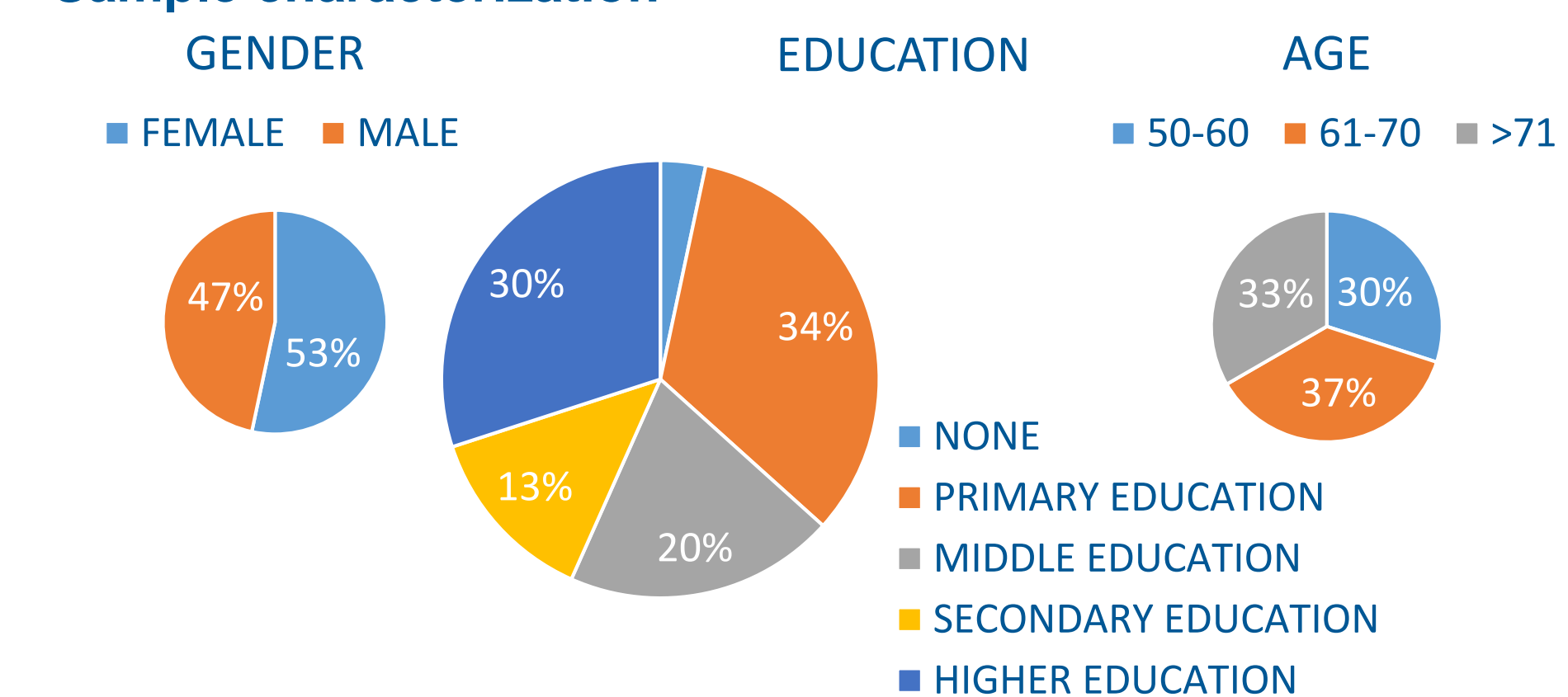
PHASE 2: Co-creation of a Comic as a NAFLD Educational Tool

- **Conceptual content:**
Creation of a preliminary narrative focused on the main emerging themes identified aiming to contextualize NAFLD biomedical information to the non-biomedical perspectives of the disease.
- **Visual representation:**
Creation of preliminary sketches by the illustrator after initial discussion on target concepts and sequential follow-up meetings to ensure biomedical accuracy, narrative coherence and visual appeal.

RESULTS

Elicitation phase (PHASE 1)

Sample characterization



NAFLD Awareness is Low

Only 30% of participants recognized the concept of fatty liver. The majority of those aware had been diagnosed with NAFLD.

NAFLD Etiology and Treatment

- Those aware attributed it to the dietary consumption of fats and/or to having "high cholesterol".
- Only a minority was aware of the increased susceptibility for NAFLD, or the relationship between T2DM and NAFLD.
- No participants recognized the concept of insulin resistance.
- Only one participant mentioned exercise practice as part of the strategies for NAFLD management.

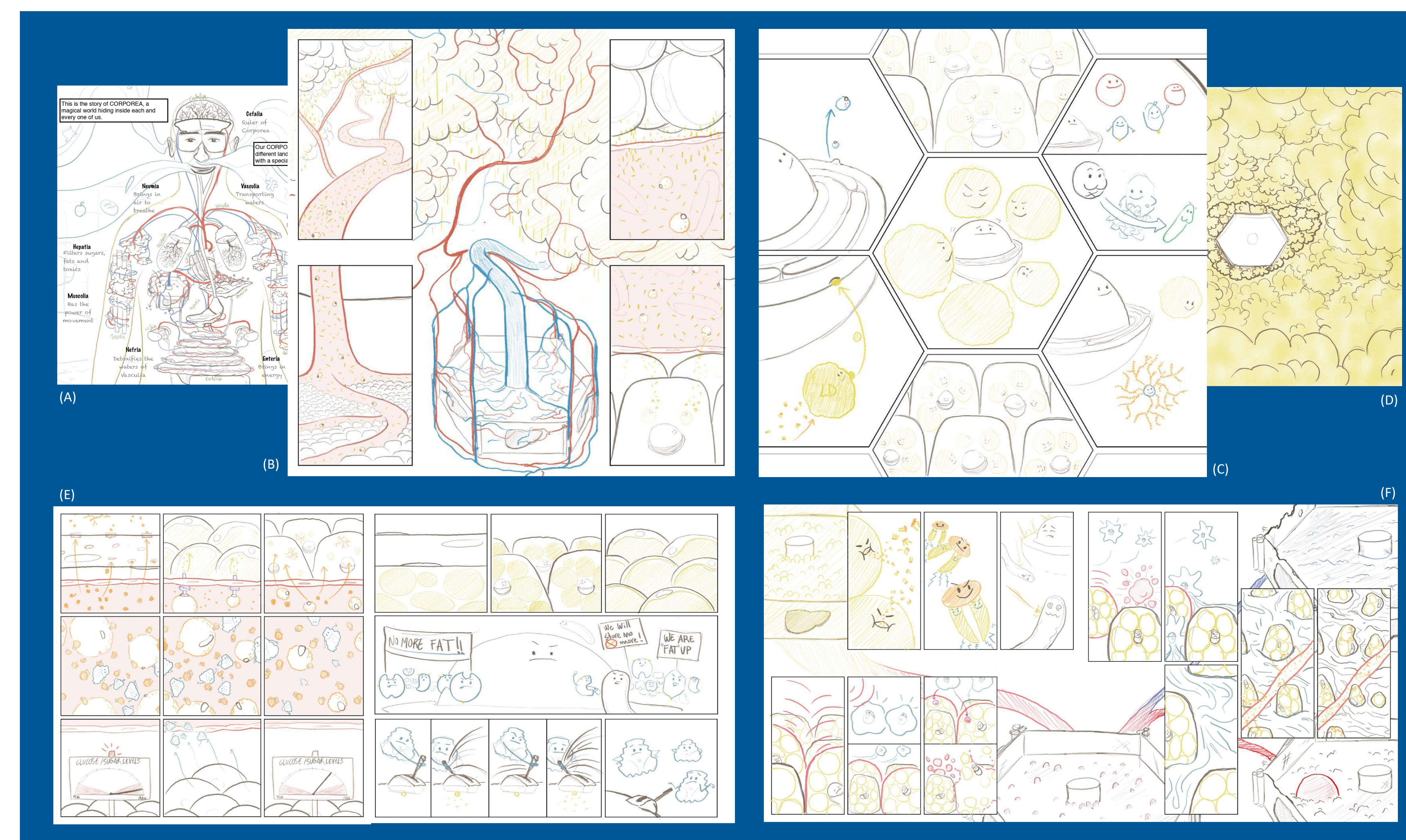
NAFLD Progression

- Cirrhosis awareness was high with 90% of patients recognizing the concept, associating it to the liver as affected organ and identifying alcohol as an etiological factor.
- Although they were aware of non-alcoholic cirrhosis, only a minority of participants recognized cirrhosis as an end-stage liver disease resulting from NAFLD. Thus, the perceived severity of NAFLD was low.
- There were no mentions to Non-Alcoholic Steatohepatitis (NASH) or hepatocellular carcinoma (HCC).

Co-creation phase (PHASE 2)

The biomedical concepts identified as targets for the narrative are: insulin resistance, *de novo* lipogenesis and the relationship of NAFLD with T2DM, NASH and HCC.

Selection of panels and pages from the comic under construction: (from upper left to bottom right) The story is set in a fictional representation of the human body (A). The narrative intends to explain the process of insulin resistance and the lipid burden that the hepatic cells face under the continuous arrival of free fatty acids coming from the unrestrained lipolysis in the white adipose tissue (B-D). As it evolves, the comic explains the role of insulin in the liver, the skeletal muscle and the adipose tissue and how insulin resistance leads to a bioenergetic remodeling with serious consequences (E), including extra-hepatic conditions such as T2DM or cardiovascular diseases (not shown) as well as the development of liver diseases such as NASH and HCC (F).



CONCLUSIONS

Following the ongoing construction of a visual narrative targeting the conceptual map on NAFLD knowledge gaps obtained from the elicitation phase, we plan:

PHASE 3: Validation study

Test understandability of conceptual and visual content of the comic on a small group of patients.

PHASE 4: Evaluation of Comic as a NAFLD Educational Tool

Qualitative study (questionnaires) to determine the effectivity of the product in communicating NAFLD biomedical knowledge and promoting healthy lifestyles.

REFERENCES

1. Younossi ZM. Non-alcoholic fatty liver disease – A global public health perspective. J Hepatol [Internet]. 2019;70(3):531–44.
2. Romero-Gómez M, Zelber-Sagi S, Trenell M. Treatment of NAFLD with diet, physical activity and exercise. J Hepatol. 2017;67(4):829–46.
3. Nutbeam D. The evolving concept of health literacy. Soc Sci Med [Internet]. 2008;67(12):2072–8.
4. Singal AG, Volk ML, Rakoski MO, Fu S, Su GL, Mccurdy H, et al. Patient Involvement in Healthcare is Associated With Higher Rates of Surveillance for Hepatocellular Carcinoma. 2011;45(8):727–32.
5. Dobbins S. Comics in public health: The sociocultural and cognitive influence of narrative on health behaviours. J Graph Nov Comics. 2016.

ACKNOWLEDGEMENTS

This study received support from the FOIE GRAS project, funded by the European Union's Horizon 2020, Research and Innovation programme under the Marie Skłodowska-Curie Grant Agreement No. 722619.

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