

View Abstract

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TITLE: Feasibility of “LvL^{UP}”: Designing a Smartphone-Based Chatbot-Delivered Lifestyle Behaviour Intervention

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PRESENTATION PREFERENCE: Oral

CURRENT PRIMARY TOPIC: Mobile health

CURRENT SECONDARY TOPIC: Implementation science

ABSTRACT BODY:

Context: Physical and mental health are inextricable, where common mental disorders (CMDs) increase risk of non-communicable diseases (NCDs) and many NCDs increase risk of CMDs. A holistic intervention paradigm that increases health-promoting behaviour and mental wellbeing is needed for effective prevention of NCDs and CMDs. However, lifestyle behaviour change is difficult to achieve and human-delivered lifestyle coaching is neither scalable nor sustainable. Conversational agents (CAs) may act as digital assistants of healthcare providers that reach out to individuals in their daily lives. Accordingly, smartphone-based personalised holistic health interventions delivered via CAs may prevent NCDs and CMDs on a large scale and at low cost.

Methods: This study forms the preparation phase of the multiphase optimisation strategy (MOST) for behavioural interventions. 200 participants will be recruited via various recruitment channels and their feasibility will be assessed through app download and demographic data. Technical feasibility will be assessed through objective app usage data and surveys on working alliance, technology acceptance, cultural relevance, and willingness to pay. Participants will also be asked to complete a feedback survey with the option to participate in a follow-up interview. Smartphone sensor data will be gathered and personality traits assessed and analysed against app notification response rates to understand receptivity to notifications. PHQ-4, IPAQ Short Form and FFQ measures will be administered pre and post intervention as an indication of clinical outcomes.

Intervention (if relevant): LvL^{UP} comprises of three pillars; Move More on physical activity, Eat Well on nutrition and healthy eating, and Stress Less on emotional wellbeing and self-regulation of stress, anxiety, and depression. It is structured in three levels where users are required to a) interact with the CA through coaching sessions; b) implement *Life Hacks*, actionable health and wellbeing tips delivered via notifications; c) use *Breeze*, a gamified biofeedback slow-paced breathing tool and *Journal*, an in-app journaling tool and d) complete process research surveys. These components are packaged within an overarching story of four characters from which participants choose the CA they interact with, as well as receive short animated videos of the characters' stories as a reward for completing levels.

Results: This study will commence in June 2022 and results will be presented at the conference.

Conclusions: Results from this study can indicate the demographic profile of end-users and marketing strategies to reach them, user perceptions and preferences of LvL^{UP} through objective app usage patterns and survey responses, and states of receptivity through user interaction with notifications in relation to collected sensor and personality data.

Implications: The results and derived conclusions will inform the development and refinement of future versions of LvL^{UP} and the next optimization and evaluation phases of the MOST framework.

(No Image Selected)

Full Manuscript: No

BY CHECKING THIS BOX, I AGREE TO PRESENT MY SUBMISSION AT ISRII 11 IF IT IS ACCEPTED:

Aishah Alattas : Selected

Agreement: Jacqueline Mair: I attest.;Jacqueline:Mair | Alicia Salamanca-Sanabria: I attest.;Alicia:Salamanca | Oscar Castro: I attest.;Oscar:Castro | Aishah Alattas: I attest.;Aishah:Alattas | Roman Keller: I attest.;Roman:Keller | Tobias Kowatsch: I attest.;Tobias:Kowatsch

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Feasibility of “LvL^{UP}”: Designing a Smartphone-Based Chatbot-Delivered Lifestyle Behaviour Intervention

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LvL^{UP} is a smartphone-based chatbot-delivered holistic lifestyle behaviour intervention targeting the prevention of NCDs and CMDs.



Holistic health and wellbeing

A holistic intervention paradigm is needed for effective prevention of non-communicable diseases (NCDs) and common mental disorders (CMDs)^{1,2}

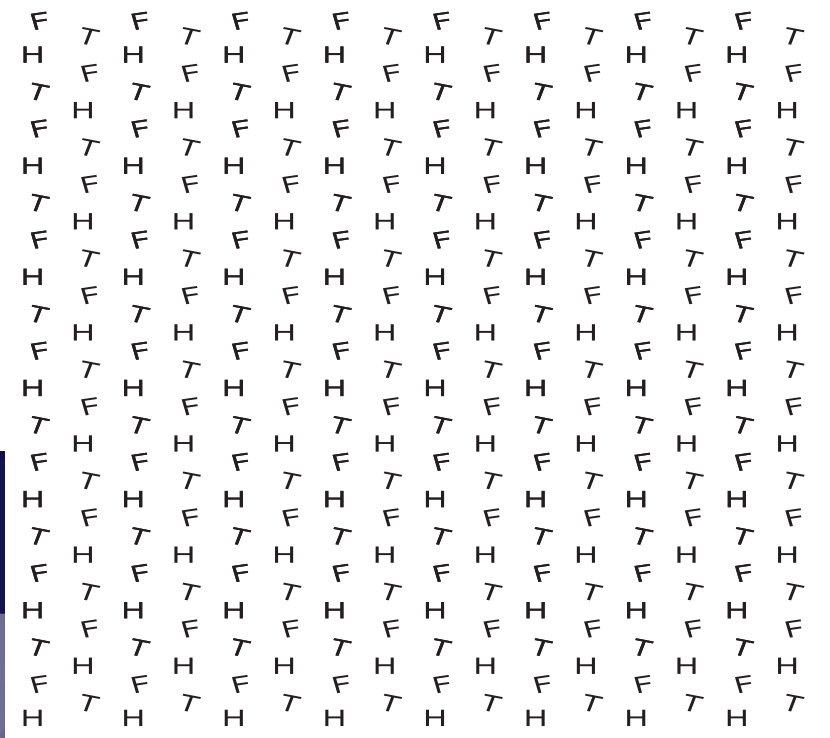
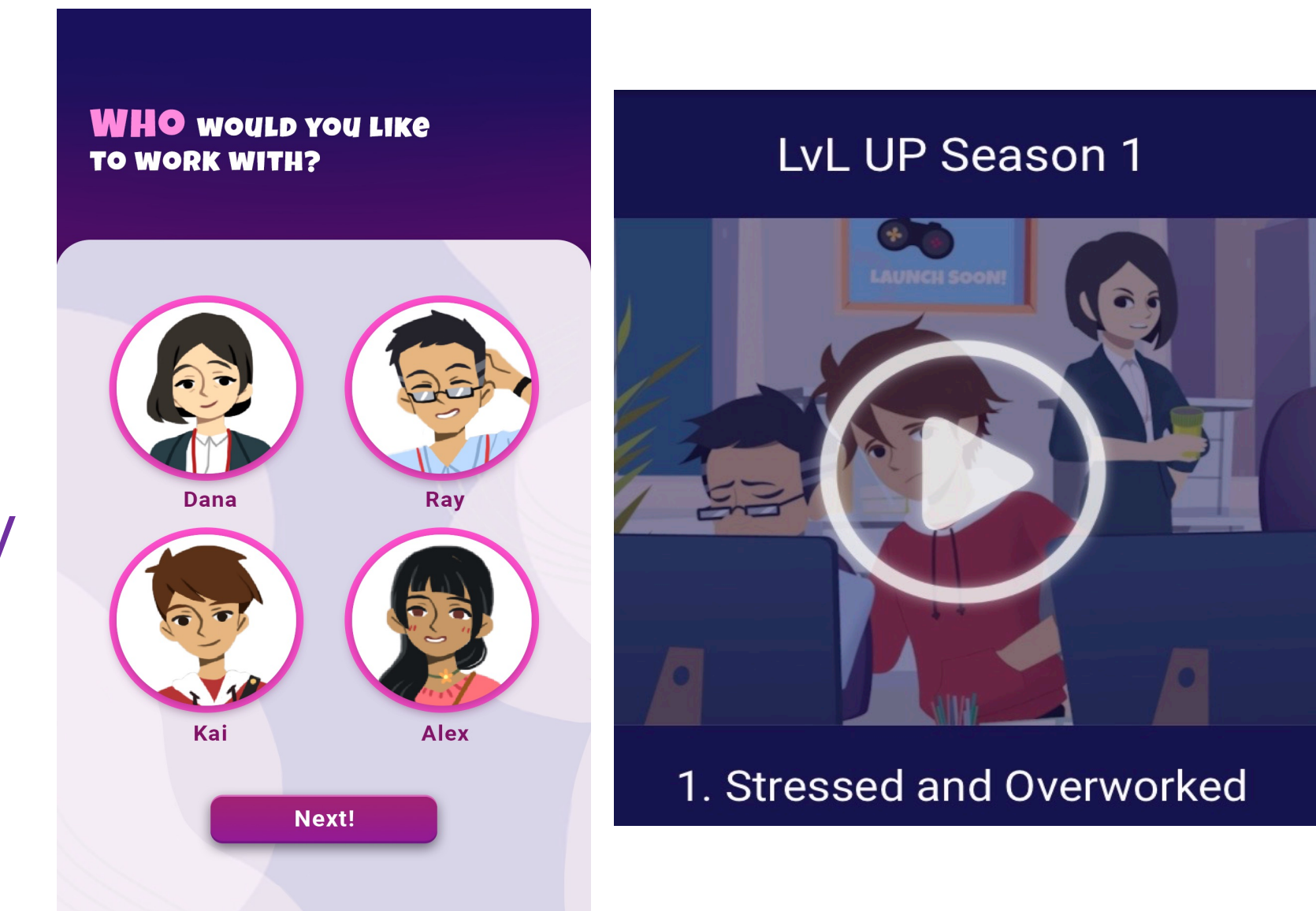
LvL^{UP} comprises of three pillars;

1. Move More focusing on physical activity,
2. Eat Well on nutrition and healthy eating, and
3. Stress Less on emotional wellbeing and self regulation of stress, anxiety, and depression

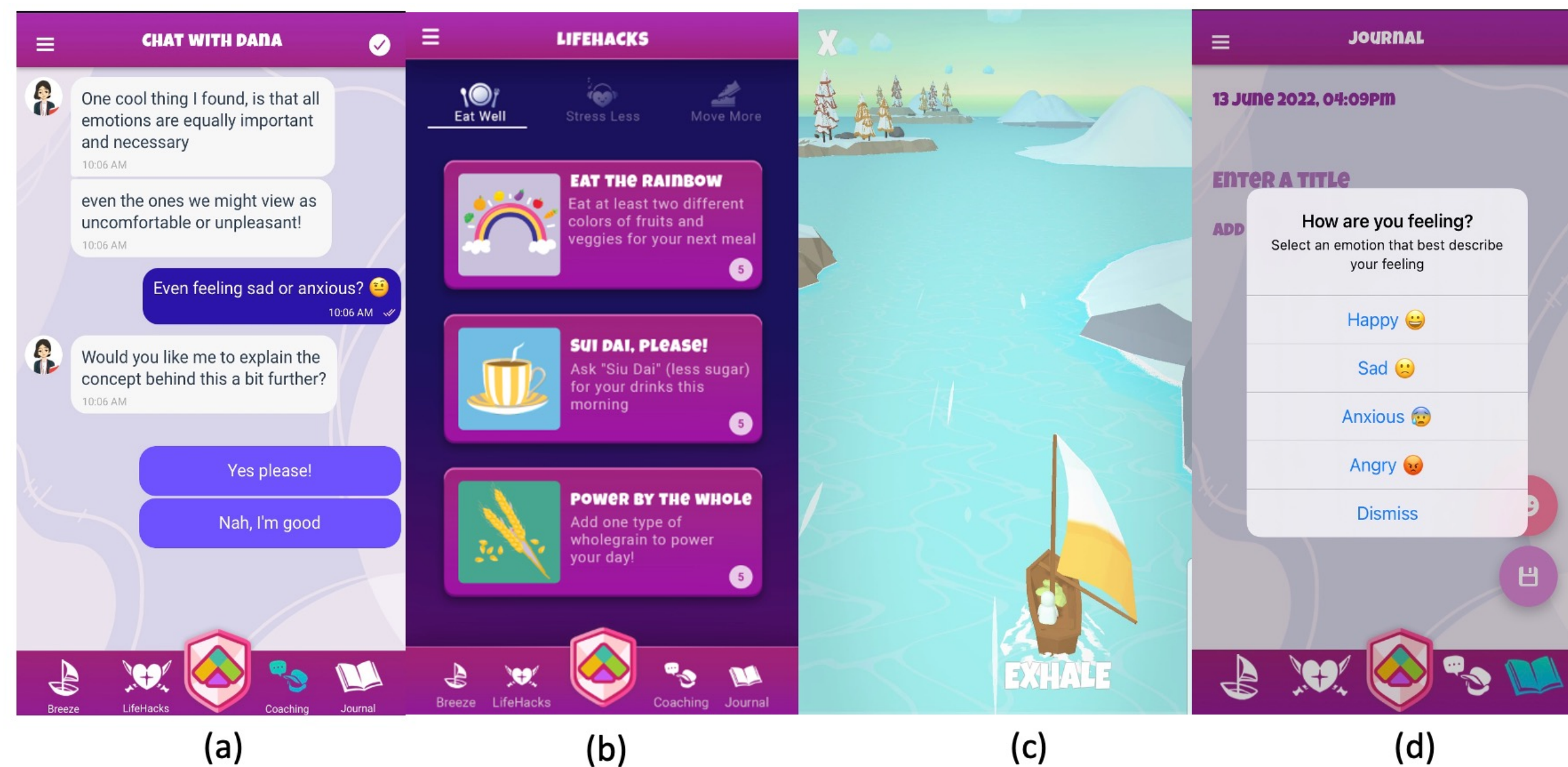
A story-driven approach

From a health communication perspective, storytelling can be more effective than approaches that rely on facts and data^{3,4}

LvL^{UP} participants choose the digital coach (chatbot) they would like to work with and then follow the journey of four characters as they overcome their respective challenges in the areas of physical activity, diet and mental health.



Talk-and-tools user interface paradigm



- (a) *Coaching Sessions*: health literacy and psychoeducational content
- (b) *Life Hacks*: actionable health tips delivered via notifications
- (c) *Breeze*: gamified slow-paced breathing tool
- (d) *Journal*: in-app journaling tool

LvL^{UP} offline

Technostress and the attention economy can negatively impact wellbeing⁵

The LvL^{UP} booklet acts as a complementary resource where users can perform the activities in the LvL^{UP} app without needing a digital device.



References

1. Chan, C. S., & Hazan, H. (2022). *SSM-Mental Health*, 2, 100071.
2. Stein, D. J., et al. (2019). *Bmj*, 364.
3. Hinyard, L. J., & Kreuter, M. W. (2007). *Health education & behavior*, 34(5), 777-792.
4. Martinez-Conde, S., & Macknik, S. L. (2017). *Proceedings of the National Academy of Sciences*, 114(31), 8127-8129.
5. Salanova, M., et al. (2014). *The impact of ICT on quality of working life*, 87-103.

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Scan to Download LvL^{UP} !

