

# Developing, Co-Designing and Testing a New Approach in Digital Mental Health: *Match Emoji*, a Casual Video Game Adapted for Mental Health and Well-Being

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## Introduction

Mental distress and low well-being are common among adolescents and adolescent depression, anxiety and distress appear to have increased in recent decades. Given this increasing trend and the worldwide ramifications of the ongoing COVID-19 pandemic and climate change, adolescents' mental health requires urgent attention. Digital mental health interventions are a scalable way of reaching many young people as they can be scaled up at a low cost. However, engagement with these interventions outside of trial settings is poor. Casual video games which can be played in short bursts of time require no specialized skills and are often free to download have underexplored as a mechanism to build upon.

## Research Aims

- 1) Conduct a preliminary review of the existing literature investigating the therapeutic effects of casual video games (CVGs).
- 2) Explore young adolescents' interest in CVGs and prototypes of CVGs adapted for mental health and well-being.
- 3) Test the acceptability and feasibility of *Match Emoji*.

## Study 1: The Effects of Casual Video Games on Anxiety, Depression, Stress and Low Mood: A Systematic Review



## Findings

From the thirteen studies that met the inclusion criteria, nine different CVGs were used. Six studies aimed to investigate the effects of playing a CVG for reducing anxiety, two examined the effects of depression, and four investigated the effects of CVGs on treating stress or low mood. Given promising effects were identified across all but one study, CVGs may have promise for reducing anxiety, depression, stress and low mood.

## Study 2. Young adolescents' interest in a mental health casual video game

### Method

A presentation about the project was given to young adolescents (aged between 13 and 16) across eight colleges. Student feedback on the project was recorded through discussions, field notes and pen and paper response forms (N=207). Participants interested in mental health and CVGs were then invited to participate in interviews (N=52) and workshops (N=20) to elicit further ideas on the game.



### Findings

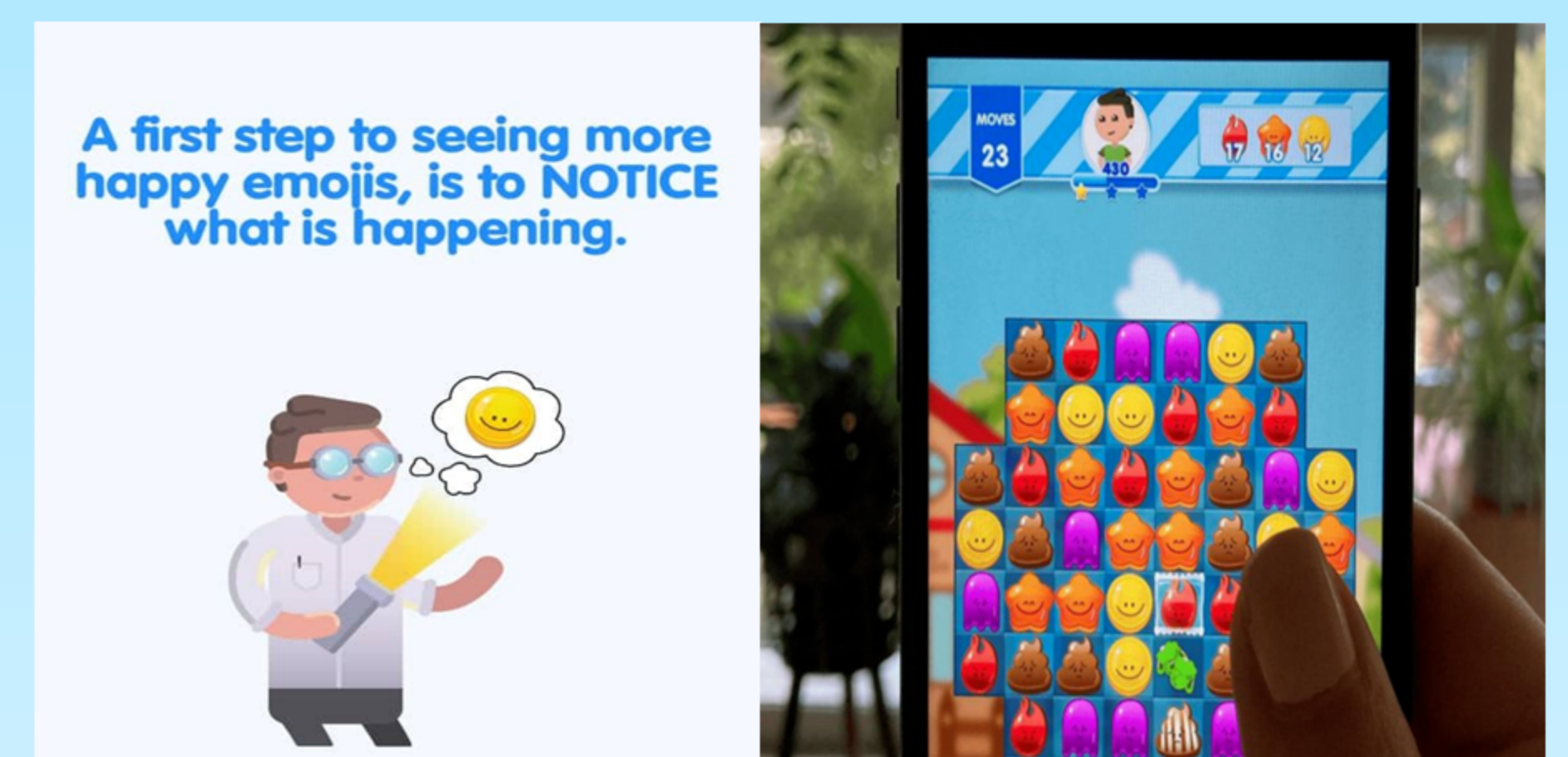
Participants reported playing CVGs several times a week or day. Many young adolescents reported playing CVGs to help relieve stress, feel more relaxed and relieve boredom. They identified several key elements to consider when designing a mental health CVG: an engaging interface, simple colours, subtle mental health skills and information. Participants expressed high interest in playing and helping create a mental health CVG.



## Study 3. A pilot study of a (*Match Emoji*) of young adolescents.

### Method

Young adolescents (45: 57% New Zealand European, 26% Māori- the indigenous people of New Zealand, 60% Male) aged participated from the Wellington region of New Zealand. The Child and Adolescent Mindfulness Measure, General Help-Seeking Questionnaire, Flourishing Scale and Revised Children's Anxiety and Depression Scale were used at baseline and after two weeks of following the recommended gameplay regime of *Match Emoji*. Usage data recorded on the Unity Platform was accessed, and after the study, semi-structured interviews were completed



### Results

80% (36/45) of participants still played the game after a 4-week follow-up. Key learnings included the need to ensure participants' phones have enough storage space and are running the latest software. Promising therapeutic data were also recorded, particularly on the RCADS, where a significant difference was found ( $P=.049$ ) after two weeks.

Outcome	Mean at baseline (± sd)	Mean post game (± sd)	Mean of differences (95% CI)	Paired t test statistic	p-value*
CAMM	22.44 (±8.35)	23.82 (± 8.93)	1.38 (-0.03; 2.79)	1.9719	0.05492
GHSQ	62.89 (±21.96)	63.69 (±23.30)	0.8 (-2.71; 4.31)	0.45876	0.6487
FS	41.71 (±11.58)	40.62 (±12.07)	-1.09 (-2.83; 0.66)	-1.2579	0.2151
RCADS	46.24 (±26.39)	42.82 (± 26.49)	-3.42 (-6.84; 0.001)	-2.0161	0.04992

## Implications

- 1) Explore the affordances of casual video games for mental health.
- 2) Exploit target Users' current technology strategies
- 3) Continue to develop *Match Emoji*