

# ChatPal: a digital solution to make a difference to our everyday mental health and wellbeing

Presentation to

"Frontiers in eMental Health - the future is now"

27 May 2022

**Prof Maurice Mulvenna**



# What are people searching for?



COVID-19  
&  
Respiratory  
Conditions

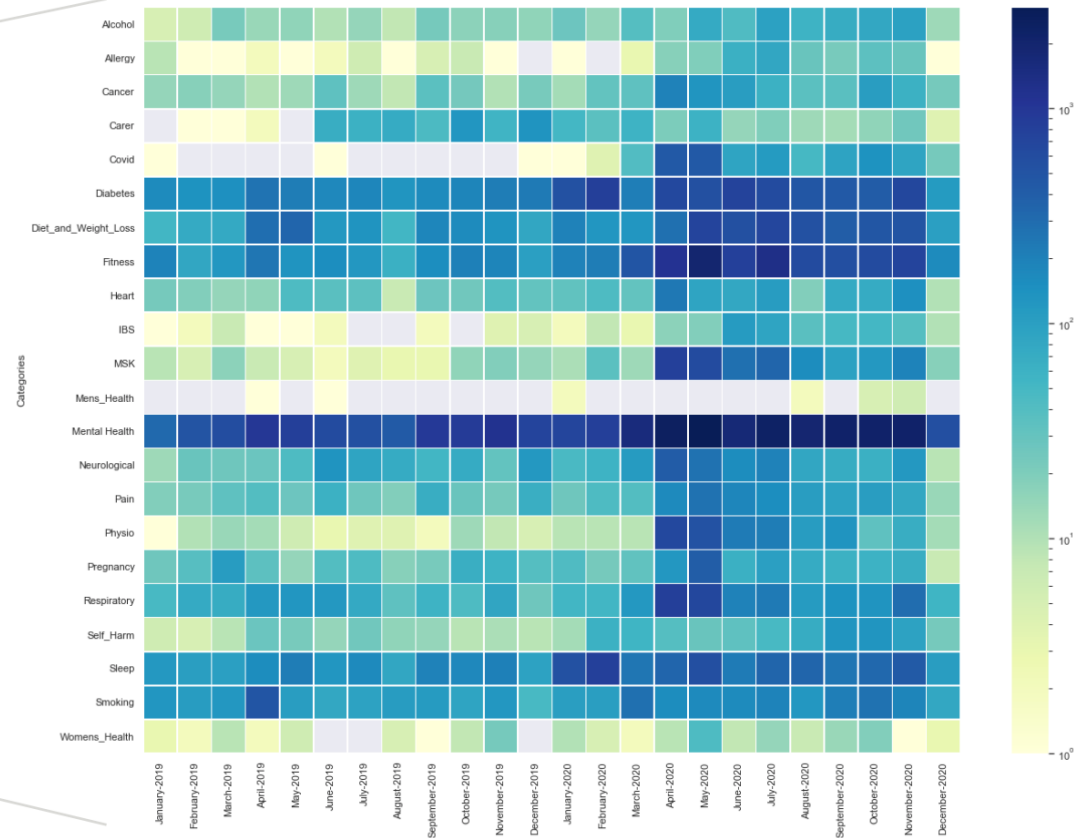
Mental Health

Diet & Fitness

Mar – Jun 20

Jul – Sept 20

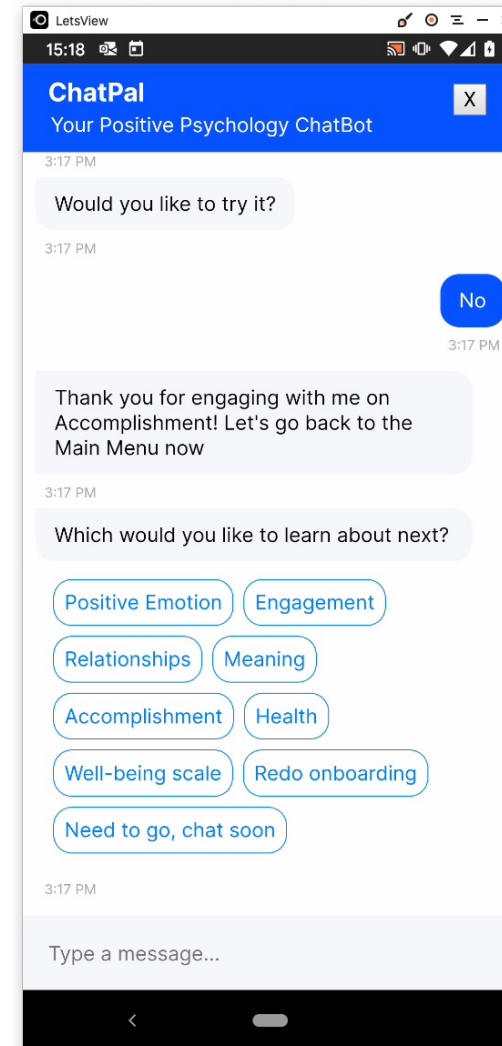
Oct – Dec 20



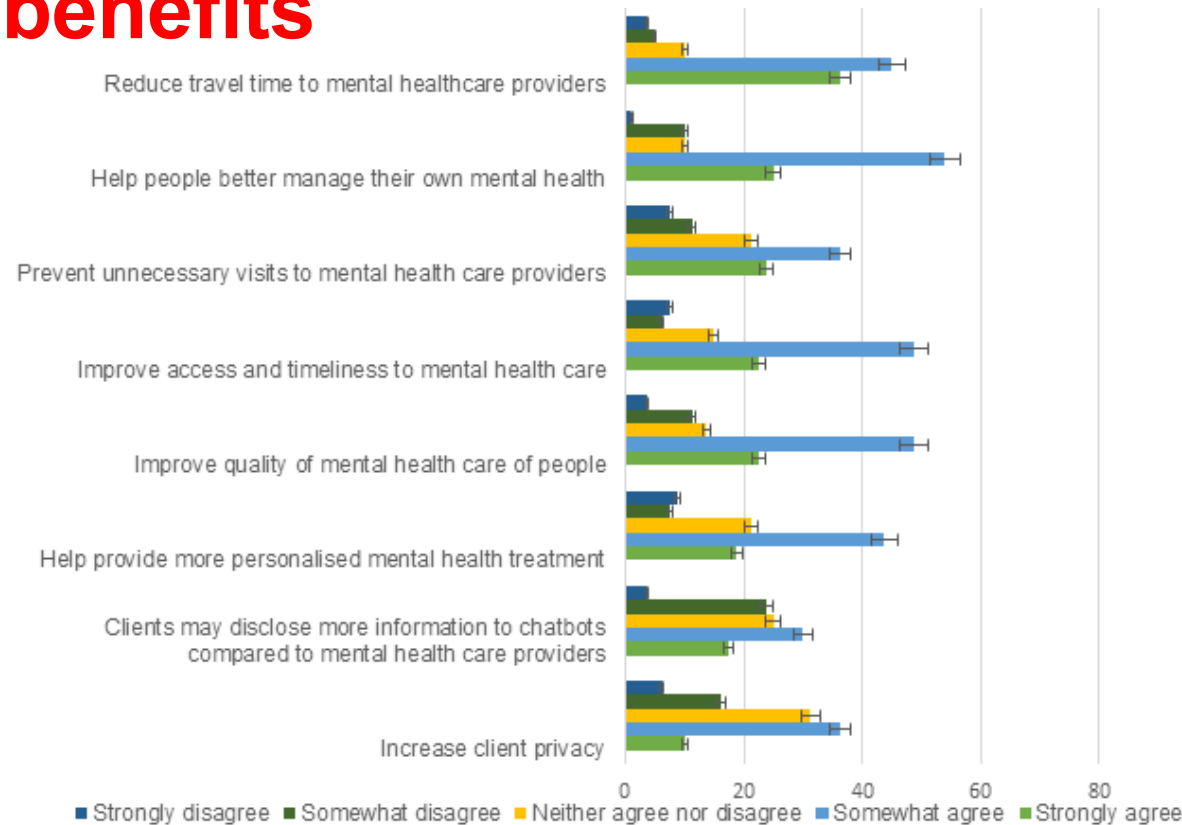
Source: Digital Health UK Market Report Launch (<https://www.laingbuissonevents.com/#demand>)

# What is a chatbot?

- A conversational user interface, or chatbot is a computer program designed to simulate conversation with human users



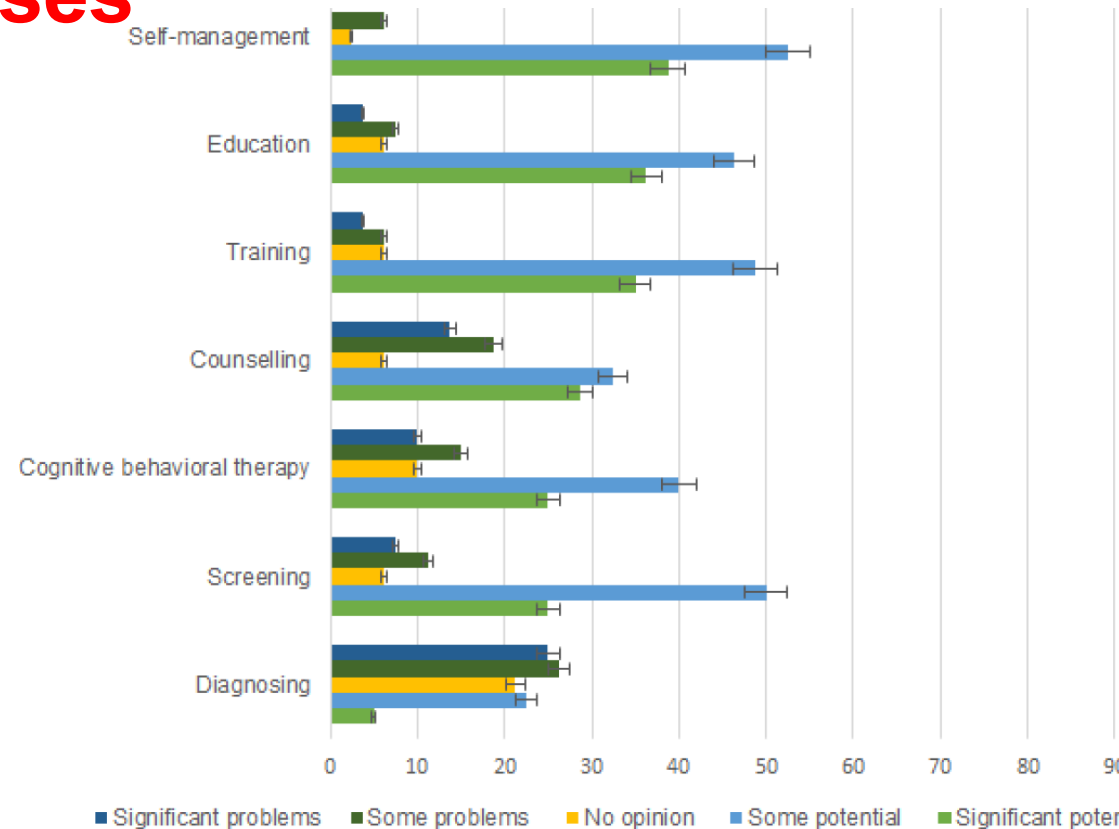
# Mental healthcare professionals: perceived benefits



Sweeney, C., Potts, C., Ennis, E., Bond, R., Mulvenna, M.D., O'Neill, S.M., Malcolm, M., Kuosmanen, L., Kostenius, C., Vakaloudis, A., McConvey, G., Turkington, R., Hanna, D., Nieminen, H., Vartiainen, A.-K., Robertson, A., McTear, M.F. (2021) Can Chatbots Help Support a Person's Mental Health? Perceptions and Views from Mental Healthcare Professionals and Experts, *ACM Health*, 2(3) <https://doi.org/10.1145/3453175>



# Mental healthcare professionals: perceived uses



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# Co-design strategy



- Mental wellbeing needs of people living in rural and sparsely populated areas
- Pros and cons of current mental health services they may have used or know about
- Everyday coping strategies that participants believe support emotional resilience, higher moods and better overall mental wellbeing
- Analysis of short mental health survey scales regarding their fitness for purpose in regularly monitoring wellbeing
- Demonstration of chatbot technologies and a mental health chatbot



Potts, C., Ennis, E., Bond, R.B. et al. Chatbots to Support Mental Wellbeing of People Living in Rural Areas: Can User Groups Contribute to Co-design?. *J. technol. behav. sci.* 6, 652–665 (2021). <https://doi.org/10.1007/s41347-021-00222-6>

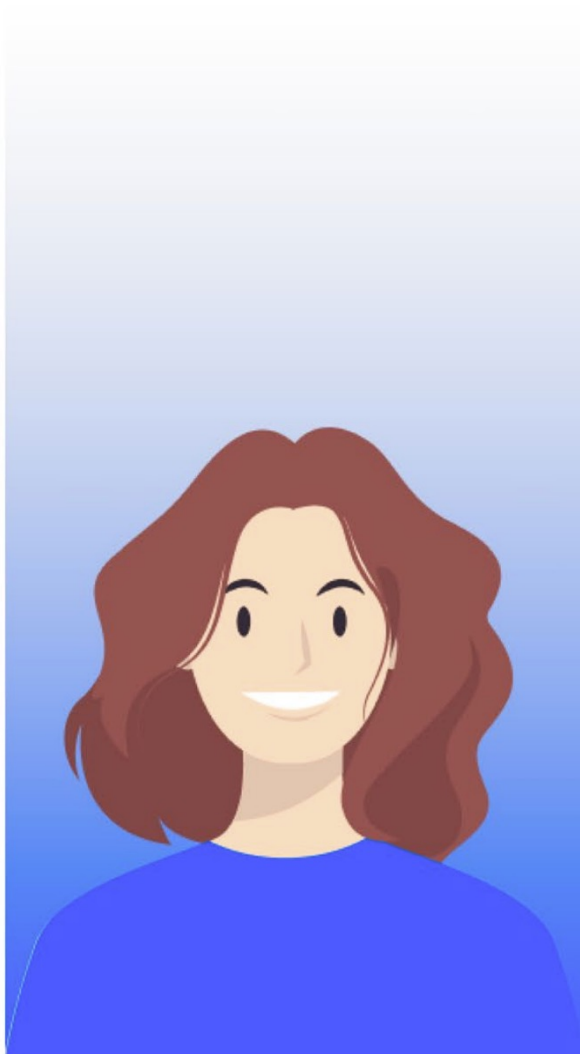
# Co-design strategy



- Participants provided with hypothetical personalities that a chatbot can imbue and tasked to discuss these whilst providing their preferred persona of a chatbot
- Consideration of the kind of questions asked by workers to clients in a mental health service
- Co-designing chatbot dialogue
- Mood monitoring
- Defining chatbot user stories

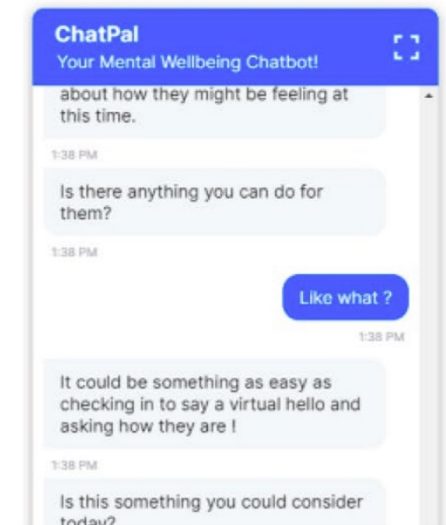
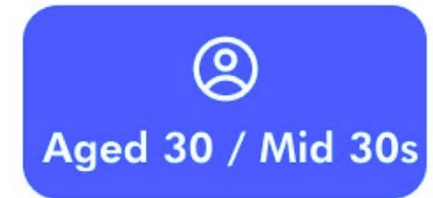


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## Personality / Character Traits

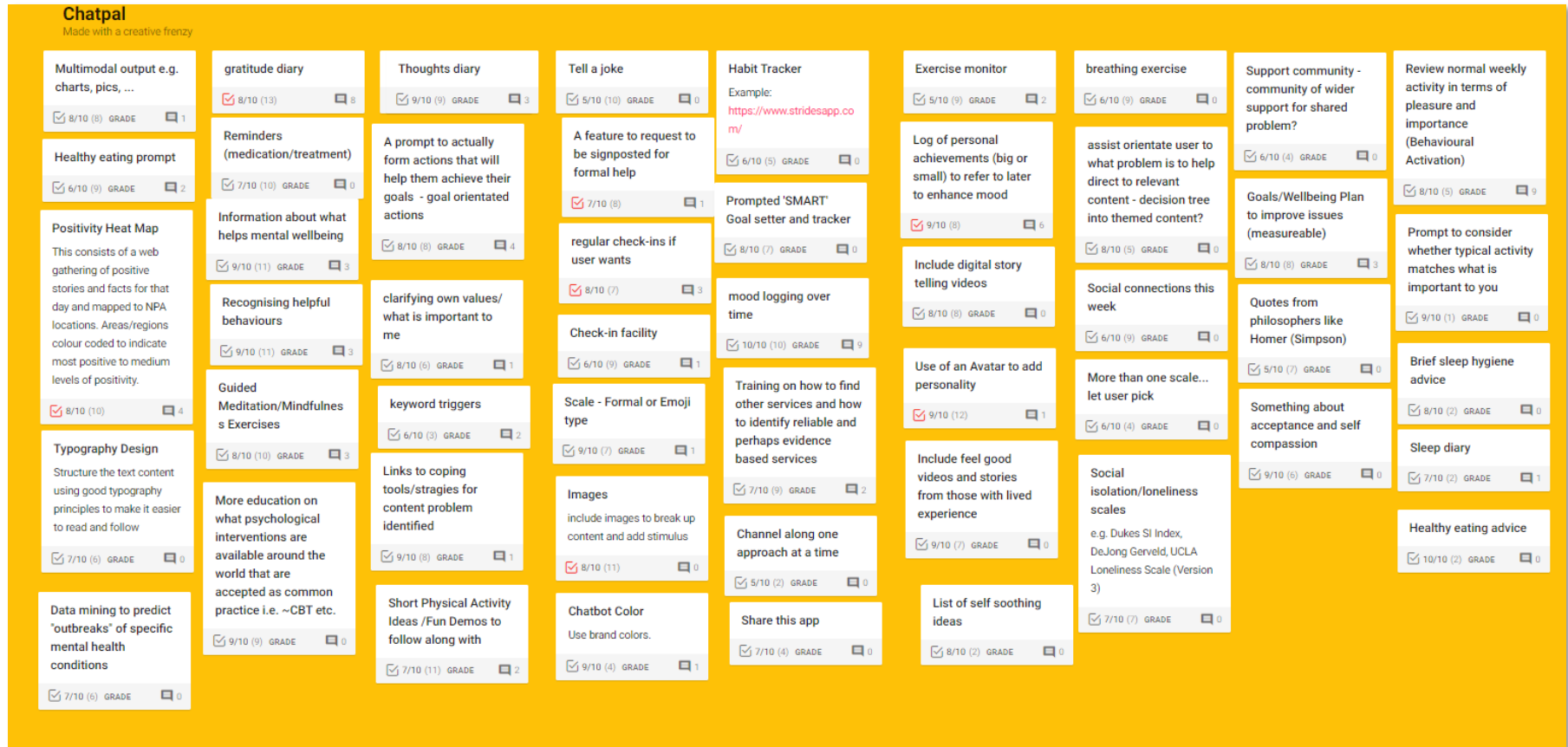
- Extrovert
- Empathetic / Caring
- Positive
- Mature
- Anthromorphic or Human Persona
- Accessible across different populations
- Reliable
- Justified and valid answers
- Supportive of users
- Prompting
- Understands / Aware of context
- Listens / Reciprocates
- Personalised conversations / Rapport
- Problem solving
- Informs / Signposts



**Fig. 1** Desirable chatbot persona based on collated participant feedback

# Design thinking workshop – ideation

**Chatpal**  
Made with a creative frenzy



Card Title	Progress (Checkmark)	Grade	Comments (Speech Bubble)
Multimodal output e.g. charts, pics, ...	8/10	8	1
Healthy eating prompt	6/10	9	2
Positivity Heat Map	8/10	10	4
Typography Design	7/10	6	0
Data mining to predict "outbreaks" of specific mental health conditions	7/10	6	0
gratitude diary	8/10	13	8
Reminders (medication/treatment)	7/10	10	0
Information about what helps mental wellbeing	9/10	11	3
Recognising helpful behaviours	9/10	11	3
Guided Meditation/Mindfulness Exercises	8/10	10	3
More education on what psychological interventions are available around the world that are accepted as common practice i.e. ~CBT etc.	9/10	9	0
Thoughts diary	9/10	9	3
A prompt to actually form actions that will help them achieve their goals - goal orientated actions	8/10	8	4
clarifying own values/ what is important to me	8/10	6	1
keyword triggers	6/10	3	2
Links to coping tools/strategies for content problem identified	9/10	8	1
Short Physical Activity Ideas /Fun Demos to follow along with	7/10	11	2
Tell a joke	5/10	10	0
A feature to request to be signposted for formal help	7/10	8	1
regular check-ins if user wants	8/10	7	3
Check-in facility	6/10	9	1
Scale - Formal or Emoji type	9/10	7	1
Images	8/10	11	0
Chatbot Color	9/10	4	1
Habit Tracker	6/10	5	0
Example: <a href="https://www.stridesapp.com/">https://www.stridesapp.com/</a>	6/10	5	0
Prompted 'SMART' Goal setter and tracker	8/10	7	0
mood logging over time	10/10	10	9
Training on how to find other services and how to identify reliable and perhaps evidence based services	7/10	9	2
Channel along one approach at a time	5/10	2	0
Share this app	7/10	4	0
Exercise monitor	5/10	9	2
Log of personal achievements (big or small) to refer to later to enhance mood	9/10	8	6
Include digital story telling videos	8/10	8	0
Use of an Avatar to add personality	9/10	12	1
Include feel good videos and stories from those with lived experience	9/10	7	0
List of self soothing ideas	8/10	2	0
breathing exercise	6/10	9	0
assist orientate user to what problem is to help direct to relevant content - decision tree into themed content?	8/10	5	0
Social connections this week	6/10	9	0
More than one scale... let user pick	6/10	4	0
Social isolation/loneliness scales	7/10	7	0
Support community - community of wider support for shared problem?	6/10	4	0
Goals/Wellbeing Plan to improve issues (measurable)	8/10	8	3
Quotes from philosophers like Homer (Simpson)	5/10	7	0
Something about acceptance and self compassion	9/10	5	0
Review normal weekly activity in terms of pleasure and importance (Behavioural Activation)	8/10	5	9
Prompt to consider whether typical activity matches what is important to you	9/10	1	0
Brief sleep hygiene advice	8/10	2	0
Sleep diary	7/10	2	1
Healthy eating advice	10/10	2	0



# ...led to themes

## Design

- Use of an Avatar to add personality
- Multi-modal output e.g. charts, pics, ...
- Images, include images to break up content and add stimulus
- Checklist/Goal: Use brand colors
- Typography: Don't just structure the text content using good typography principles to make it easier to read and follow
- Word choice: user to what problem it to help direct to relevant content - decision less into related content?
- Channel along one approach at a time
- Show the app

## Logging

- Regular check-ins if user wants
- Review normal weekly activity in terms of pleasure and importance (Behavioural Advisor)
- Reminders (medication/treatment)
- Prompted 'SMART' Goal setter and tracker
- Log of personal achievements (big or small) to refer to later to enhance mood
- Habit Tracker. Example: <https://www.strixeapp.com/>
- Mood logging over time

## Physical wellbeing Diary

- Healthy eating prompt
- Exercise monitor
- Thoughts diary. And discussing the entries in the diary with the ChatPal
- Gratitude diary
- Healthy eating advice
- Short Physical Activity Ideas /Fun Demos to follow along with
- Brief sleep hygiene advice
- Sleep diary ([https://go.bighealth.com/sleepio\\_nhs](https://go.bighealth.com/sleepio_nhs))

## Mental wellbeing

- Information about what helps mental wellbeing
- Something about acceptance and self compassion
- Prompt to consider whether typical activity matches what is important to you
- List of self soothing ideas
- Include feel good videos and stories from those with lived experience
- Social connections this week
- Links to coping tools/strategies for content problem identified
- Check-in facility
- Goals/Wellbeing Plan to improve issues (measurable)
- Support community - community of wider support for shared problem?
- Clarifying own values/ what is important to me
- Data mining to predict "outbreaks" of specific mental health conditions

## Coaching

- Recognising helpful behaviours
- Guided Meditation/Mindfulness Exercises
- More education on what psychological interventions are available around the world that are supported by common practice (e.g. CBT etc.)
- Training on how to find other services and how to identify reliable and perhaps evidence based services
- A feature to request to be supported for formal help
- Include digital diary taking videos
- breathing exercises
- A prompt to actually form actions that will help them achieve their goals - goal oriented actions
- keyword triggers, triggered response keywords e.g. 'suicidal' may trigger alert to contact or user to contact appropriate service. Might be better to trigger a set of relevant questions first.

## Scales

- Social isolation/loneliness scales. e.g. Dukes SI Index, DeJong Gerveld, UCLA Loneliness Scale (Version 3)
- Scale - Formal or Emoji type
- More than one scale... let user pick

## Positivity

- Tell a joke
- Quotes from philosophers (like Homer Simpson)
- Positivity Heat Map. This consists of a web gathering of positive stories and facts for that day and mapped to NPA locations. Areas/ regions colour coded to indicate most positive to medium levels of positivity



# ChatPal: your positive psychology chatbot

<http://chatpal.interreg-npa.eu/>

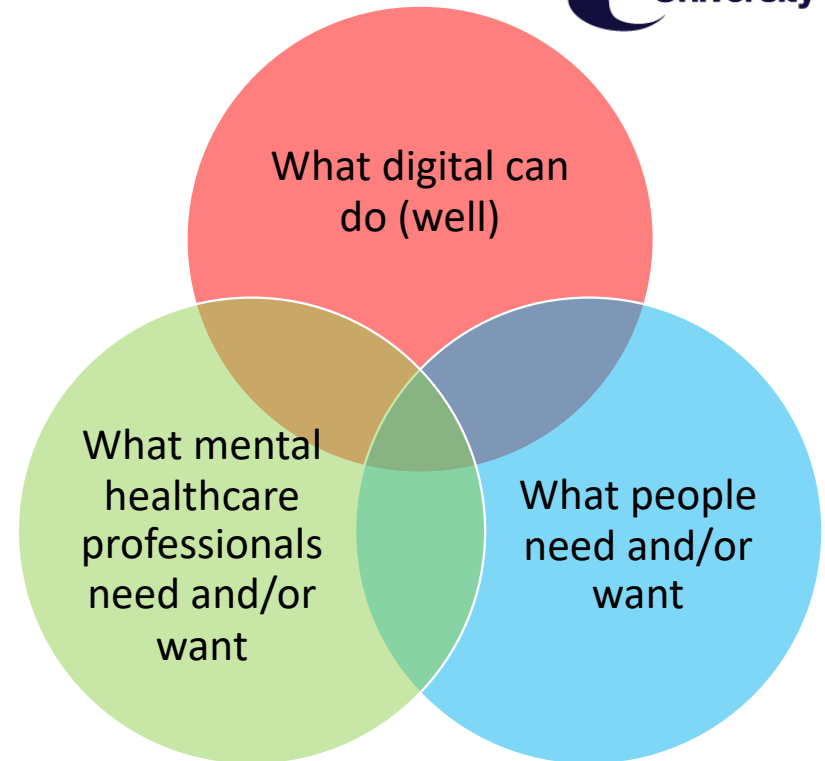


- A chatbot to support and promote mental wellbeing in rural areas
- Needs analysis informs the requirements for the chatbot
- Content and dialogue scripts for the chatbot designed by experts and psychologists
- Trial measures engagement, adoption and efficacy of the chatbot for supporting mental wellbeing in rural areas



# Goals

- People using the service
- Digital tools supporting health and wellbeing
- Benefits for the people who use it
- Benefits for the healthcare professional
- Implications for service pathway
- Co-design with people to develop the tool/service
- Next steps



# Thanks!



Project web site: <http://chatpal.interreg-npa.eu/>

Trial registration: <https://bit.ly/Chatpal-Trial>



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