Integrating digital health care data to support HTA: a case study of digital mental health interventions

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CODI project

Costs and **O**utcomes of **D**igital **I**nterventions for Mental Health

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Case study: DIs for generalised anxiety disorder (GAD)

Aim: To evaluate the cost-effectiveness of digital interventions for GAD compared to non-digital alternatives

Interventions: Supported and unsupported digital interventions and controls.

Comparators: treatment as usual, non-digital psychological therapy (face-to-face group therapy), pharmacotherapy

Outcomes: HRQoL, cost (UK health system perspective)

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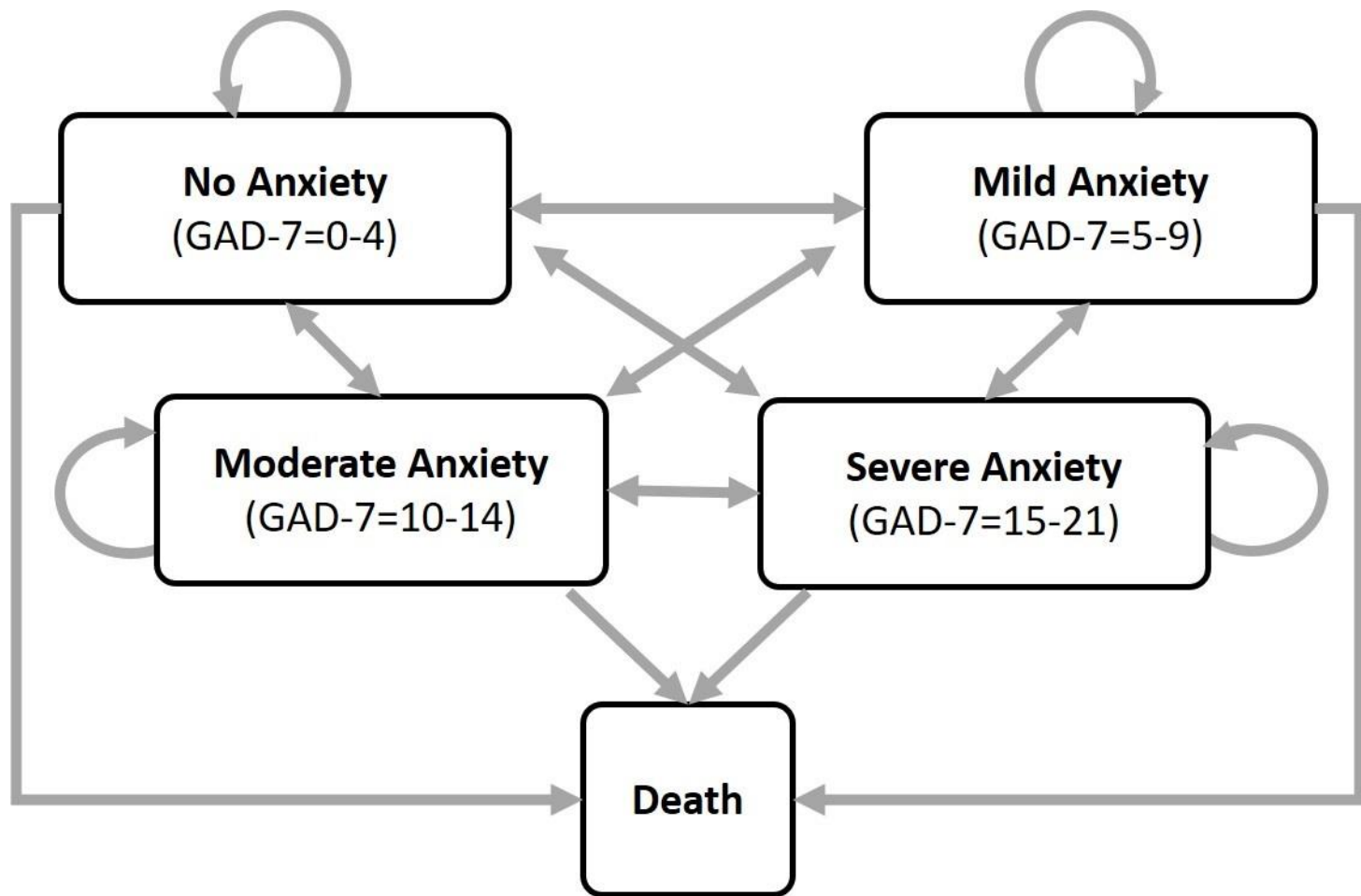
Results: Pharmacotherapy and face-to-face group therapy on average dominated digital interventions

Challenges and limitations

- High uncertainty in estimates of net benefit

- Uncertainty in the GAD trajectory over time

- Mapping of GAD-7 scores to HRQoL and resource use

- Uncertain duration of treatment effect

Could in-app data collection, linked to primary care data address these?

High uncertainty in estimates of net benefit

	Medication	Group therapy (face to face)	Digital interventions		Digital controls		TAU
			Supported	Unsupp.	Supported	Unsupp.	
Mean NMB (£)	182	171	164	162	158	158	149
NMB CrI (£)	132 – 209	111 – 209	112 – 198	98 – 205	88 – 203	81 – 206	74 – 180

Potential reasons for uncertainty:

- Insufficient data

- Heterogeneity in patients' response to treatment

- Heterogeneity in treatment history (treatment sequencing)

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Uncertainty in the GAD trajectory over time

Without treatment, GAD-7 scores assumed to improve spontaneously: patients drop to a lower GAD severity state

- 15% after year one, 10% after year two, 5% after year three.

GAD trajectory impacts on the value of interventions – quicker spontaneous recovery means shorter duration of treatment effect and less value in treatment.

In-app data collection provide an opportunity to mass collect long term data to provide better understanding of GAD (e.g. ZOE app, natural cycles).

Linking GAD severity (GAD-7 scores) to HRQoL and resource use

Data used to inform state-specific costs and HRQoL was **highly uncertain**.

Crucial model parameters e.g. cost gradient across GAD severity states was high (£344 per year in "no GAD" vs £1,296 per year in "severe GAD")

In-app data collection provides an easy way to collect more data, with better follow up, and linking to primary care data to inform resource use.

Uncertain duration of treatment effect

Trial follow up: post treatment (up to 12 weeks)

Base case assumption: treatment effect lasts indefinitely

Scenario analyses:

- treatment effect was constant for 1 year, then diminish immediately
- treatment effect was constant for 1 year, then diminish gradually for 10 years before returning to pre-treatment GAD-7 scores.

Role of digital in-app data in HTA

In-app data collection provide an opportunity to mass collect data over time to inform

- Natural disease trajectory

- Mapping of disease outcomes

- Long term outcomes

- Heterogeneity in treatment effect

Requires infrastructure for information sharing outside individual studies.

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Thank you