Virtual reality for treating agoraphobia and agoraphobic avoidance [GID-HTE10016]

External Assessment Group report

Appendix F

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Early Value Assessment Programme

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Purpose of the assessment report

The purpose of this External Assessment Group (EAG) report is to review the evidence currently available for included technologies and advise what further evidence should be collected to help inform decisions on whether the technologies should be widely adopted in the NHS. The report may also include additional analysis of the submitted evidence or new clinical and/or economic evidence. NICE has commissioned this work and the report forms part of the papers considered by the Medical Technologies Advisory Committee when it is making decisions about the early value assessment.

Declared interests of the authors

Description of any declared interests with related companies, and the matter under consideration. See NICE's Policy on managing interests for board members and employees.

None.

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Responsibility for report

The views expressed in this report are those of the authors and not those of NICE. Any errors are the responsibility of the authors.

Contents

Abbreviations

Term	Definition
A&E	Accident and emergency
Afc	Agenda for change
ASD	Autism spectrum disorder
BAI	Beck Anxiety Inventory
CBT	Cognitive behavioural therapy
CEA	Cost-effectiveness analysis
CE mark	*Conformité européenne* (European conformity) marking
CI	Confidence interval
CORE-OM	Clinical Outcomes in Routine Evaluation – Outcome Measure
CRD	Centre for Reviews and Dissemination
DP	Decision problem
DTAC	Digital Technology Assessment Criteria
EAG	External assessment group
EE	Economic evaluation
EQ-5D	EuroQoL-5 dimensions
EQ-5D-5L	EuroQoL-5 dimensions 5-level
EVA	Early value assessment
GAD-7	Generalised Anxiety Disorder Assessment 7
GP	General practitioner
HRQoL	Health-related quality of life
HRSD	Hamilton Rating Scale for Depression
HTA	Health technology assessment
IAPT	Improving Access to Psychological Therapies
ICD	International Classification of Diseases
ICER	Incremental cost effectiveness ratio
ICTRP	International Clinical Trials Registry Platform
INAHTA	International Network of Agencies for Health Technology Assessment
IQR	Interquartile range
ITT	Intention to treat
MANCOVA	Multivariate analysis of covariance
MANOVA	Multivariate analysis of variance
MAUDE	Manufacturer and User Facility Device Experience

MCID	Minimally clinically important difference
MID	Minimally important difference
MeSH	Medical subject headings
MHRA	Medicines & Healthcare products Regulatory Agency
MTEP	Medical Technologies Evaluation Programme
N/A	Not applicable
NG	NICE guideline
NHS	National Health Service
NICE	National Institute for Health and Care Excellence
NLM	National Library of Medicine
NR	Not reported
O-AS	Oxford Agoraphobic Avoidance Scale
O-BAT	Oxford Behavioural Avoidance Test
ONS	Office for National Statistics
OWSA	One-way sensitivity analysis
PenTAG	Peninsula Technology Assessment Group
PHQ-9	Patient Health Questionnaire-9
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PSS	Personal social services
PSSRU	Personal Social Services Research Unit
PW	People with
QALY	Quality-adjusted life year
RCT	Randomised controlled trial
ReQoL	Recovering Quality of Life quality
RWE	Real world evidence
SA	Sensitivity analysis
SCM	Specialist Committee Member
SD	Standard deviation
SE	Standard error
SIGN	Scottish Intercollegiate Guidelines Network
TAU	Treatment as usual
UK	United Kingdom
UKCA	United Kingdom Conformity Assessed marking
VAS	Visual analogue scale
VR	Virtual reality

WHO	World Health Organization

1. SUMMARY

The purpose of this appendix is to provide additional analyses which NICE considers may be useful for the appraisal committee.

Specifically, an analysis with a reduced time horizon (two years instead of five), and analyses representing more severe subgroups for DP1 (gameChange).

2. TWO-YEAR TIME HORIZON

Table 1 and Table 2 reproduce Tables 11 and 12 from the main report, with the results of the two-year scenario added. Analyses are probabilistic based on 10,000 simulations.

The shorter time horizon leads to an increased ICER for DP1 (gameChange, deteriorating cost-effectiveness), but very little difference for DP2 (Amelia, CBT still on average dominates Amelia+CBT).

Table 1: Time horizon scenario analysis, DP1 (gameChange+TAU vs TAU)

Time horizon		Costs			QALYs				P(CE)	
	Perspective	**gC+TAU**	**TAU**	**Inc.**	**gC+TAU**	**TAU**	**Inc.**	**ICER**	**£20k**	**£30k**
5 years	NHS+PSS	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	26.3%	31.2%
	Additional perspectives									
	Public	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	22.9%	27.5%
	Societal	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	99.0%	99.0%
2 years	NHS+PSS	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	9.8%	13.4%
	Additional perspectives									
	Public	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	8.7%	12.0%
	Societal	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	97.6%	97.6%

Note QALYs vary by perspective due to Monte Carlo error

Table 2: Time horizon scenario analysis, DP2 (Amelia+CBT vs CBT)

Time horizon		Costs			QALYs				P(CE)	
	Perspective	**A+CBT**	**CBT**	**Inc.**	**A+CBT**	**CBT**	**Inc.**	**ICER**	**£20k**	**£30k**
5 years	NHS+PSS	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	41.0%	41.6%
2 years	NHS+PSS	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	40.8%	41.4%

3. SEVERE SUBGROUP ANALYSIS

In a series of post-hoc analyses, Freeman et al[1] reported outcomes including EQ-5D utilities at six weeks and six months follow-up for a number of subgroups. As the treatment effect appears to be greater in more severe subgroups, the EAG conducted analyses in those with high and severe avoidance.

The EAG noted a decline in utility difference at six months vs six weeks in the complete analysis (+0.026 to +0.007) and the high avoidance subgroup (+0.09 to +0.04), but the reverse in the severe subgroup (+0.01 to +0.05). This is somewhat counterintuitive and appeared to be valid (and not a typographical error). The EAG therefore conducted additional scenario analyses on DP1 (gameChange) assuming an incremental utility from gameChange of +0.04 (SE 0.05) and +0.05 (SE 0.0525).

Table 3 Health state utilities by subgroup

Subgroup	Adjusted difference, EQ5D utility at 6 weeks, mean (SE)	Adjusted difference, EQ5D utility at 6 months, mean (SE)	Source
All	+0.026 (0.013)	+0.007 (0.013)	Altunkaya et al. 2022[2]. imputed, adjusted analysis. Table 2. SE estimated from 95%CI
High avoidance	+0.09 (0.0475)	+0.04 (0.05)	Freeman et al. 2022c[1], SE estimated from 95%CI
Severe Avoidance	+0.01 (0.05)	+0.05 (0.0525)	Freeman et al. 2022c[1], SE estimated from 95%CI

Table 4 Severity subgroup scenario analysis, DP1 (gameChange+TAU vs TAU)

Subgroup		Costs			QALYs				P(CE)	
	Perspective	**gC+TAU**	**TAU**	**Inc.**	**gC+TAU**	**TAU**	**Inc.**	**ICER**	**£20k**	**£30k**
All	NHS+PSS	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	26.3%	31.2%
	Additional perspectives									
	Public	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	22.9%	27.5%
	Societal	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	99.0%	99.0%
High avoidance	NHS+PSS	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	57.1%	65.2%
	Additional perspectives									
	Public	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	54.4%	62.3%
	Societal	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	98.7%	97.7%
Severe avoidance	NHS+PSS	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	63.1%	70.4%
	Additional perspectives									
	Public	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	60.7%	68.5%
	Societal	[redacted]	£0.00	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	99.0%	98.6%

4. CONCLUSION

A shorter time horizon is associated with a higher ICER. The appropriate time horizon for an economic evaluation is long enough to capture all differences in cost and outcomes between all interventions being compared. Therefore, the shorter (two year) time horizon may yield an unduly pessimistic estimate of the cost-effectiveness of gameChange and Amelia.

Point estimate ICERs of gameChange for the high and severe avoidance subgroups from an NHS & PSS perspective are within the range normally considered cost-effective by NICE. However, there is substantial uncertainty associated with this, and the EAG noted that in Freeman et al,[1] the point estimate incremental utility at six months' follow-up was substantially higher compared with the six-week value, when typically a tailing off of treatment effect over time would typically be expected. This requires further exploration to verify or refute.

5. REFERENCES

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