Economic evaluation of 27,540 patients with mood and anxiety disorders and the importance of waiting time and clinical effectiveness in mental healthcare

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Objetivos:

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> This study extends this knowledge and investigates the principal cost drivers for treatment of common mental disorders, by comparing a form of internet-delivered CBT with general NHS TT services. Using a modeling approach grounded in real-world health-systems data, we conduct a cost-effectiveness analysis to understand the health and economic impact of different types of care and discuss the potential implications our results have for policy and clinical practice.

> doenças psíquicas, tal como a depressão, tem um impacto econômico e social direto, seja pela diminuição de produtividade dos acometidos ou custo de tratamento, que varia de acordo com o tipo adotado. E mesmo tendo uma diversidade de modalidades de tratamento para esse tipo de patologia, são poucos os estudos que comparam o fardo econômico de cada tratamento.

> Este estudo investiga as bases de tratamento e seus custos em saúde mental, baseado em dados sobre fluxo e manejo de tratamento de sistemas de saúde distribuídos em larga escala e mundialmente, tais como o programa HS Talking Therapies (NHS TT).

Metodologia:

> **Declaração ética**
>
> Este estudo está de acordo com a regulação ética do NHS TT
>
> **Design do estudo e fonte de dados**

Study design e data source

> This study is an economic evaluation of real-world mental healthcaresystems data, using routinely collected quantitative clinical-outcomes data from patients receiving care for a mood or an anxiety disorder within the UK National Healthcare Service. Deidentified real-world data were obtained from records of 83,110 patients receiving either standard treatment through NHS TT services or internet-delivered CBT, discharged from treatment between January 2018 and December 2020. All patients received treatment under a stepped-care approach, in which patients are offered the least intensive interventions appropriate for their needs first 14 . Under the stepped-care model, patients with milder presentations are signposted to low-intensity interventions (step 2), whereas patients with more severe symptoms or more complex needs are signposted to high-intensity interventions (step 3).

> a maioria dos dados disponibilizados pelo DHC foram de pacientes em tratamentos multidisciplinar, incluindo aconselhamento, autoajuda guiada e terapia em grupo, e dados disponibilizados pelo ios incluiam terapias via internet
> Visto a maior bibliografia possível, as patologias foram limitadas a depressão e ansiedade, e foram selecionados apenas pacientes com diagnóstico primário de depressão (sem comorbidades) e paciente com ansiedade generalizada. pacientes que apenas participaram de sessões terapêuticas de reconhecimento e possuem doenças crônicas não transmissíveis foram excluídos do modelo final, mesmo reconhecendo a sobreposição dessas condições a longo prazo.

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> The final model was populated with real-world data from 27,540 patients receiving standard treatment through NHS TT services (16,790, mean age 35.7, 65.7% female) or internet-delivered CBT (10,750, mean age 32.6, 73.6% female) (Extended Data Fig. 1). As ieso operates within the NHS TT program, there is a small proportion of DHC patients who received internet-delivered CBT provided by ieso (687 of 16,790, 4.1%). Removing the small proportion of patients who received internet-delivered CBT from the DHC dataset did not meaningfully affect the results of the final model. To make the results representative of the complete service offering provided by DHC, we therefore opted not to exclude these patients from the dataset.

> **Entradas do modelo**
>
> Os dados utilizados incluem ***tempo de espera***, ***tempo de tratamento***, ***diagnóstico clínico***, ***gravidade dos sintomas antes e depois do tratamento*** (utilizou-se o PHQ-9 e GAD-7)
> a
> **Dados sobre eficiência clinica**

	Internet-delivered CBT	NHS TT	Source/comment
Depression			
Proportion who did not engage by starting severity			
Mild	9.6%	11.6%	DHC and ieso data.
Moderate	10.2%	11.6%	
Moderate/severe	10.4%	12.0%	
Severe	12.7%	12.3%	
Monthly symptom deterioration rates by starting severity			
Mild	1.9%		[43] Assumed the same for anxiety and depression, and for internet-delivered CBT and NHS TT services in general.
Moderate	2.4%		
Moderately severe	2.5%		
Severe	3.5%		
Monthly natural recovery rate by starting severity			
Mild	3.7%		[43] Assumed the same for internet-delivered CBT and NHS TT services in general.
Moderate	2.1%		
Moderately severe	2.2%		
Severe	1.3%		
Waiting time (from referral to start of treatment)	0.8 months	0.7 months	DHC and ieso data.
Treatment time (from start to end of treatment)	2.3 months	4.8 months	
Monthly probability of recurrence and needing treatment, by starting severity – Within 1 year			
Mild	0.7%		DHC data. Assumed to be the same for ieso.
Moderate	0.7%		
Moderately severe	0.8%		
Severe	0.8%		
Monthly probability of recurrence and needing treatment, by starting severity – Within 1 to 2 years			
Mild	0.3%		DHC data. Assumed to be the same for ieso.
Moderate	0.3%		
Moderately severe	0.4%		
Severe	0.4%		
Anxiety			
Proportion who did not engage by starting severity			
Mild	7.9%	12.0%	DHC and ieso data.
Moderate	7.8%	10.4%	
Severe	8.1%	11.2%	
Monthly symptom deterioration rates, by starting severity			
Mild	1.9%		[43] Assumed the same for anxiety and depression, and for internet-enabled CBT and NHS TT services in general.
Moderate	2.4%		
Severe	3.5%		
Monthly natural recovery rate	0.6%		[52] Assumed the same for all severities.
Waiting time (from referral to start of treatment)	0.7 months	0.6 months	DHC and ieso data.
Treatment time (from start to end of treatment)	3.3 months	4.9 months	
Monthly probability of recurrence and needing treatment, by starting severity – Within 1 year			
Mild	0.6%		DHC data. Assumed to be the same for ieso.
Moderate	0.6%		
Severe	0.8%		
Monthly probability of recurrence and needing treatment, by starting severity – Within 1 to 2 years			
Mild	0.3%		DHC data. Assumed to be the same for ieso.
Moderate	0.3%		
Severe	0.4%		

Cálculo do custo

	Internet-delivered CBT	NHS TT	Source/comment
Depression			
Average treatment cost per patient, by starting severity			
Mild	£459	£672	ieso data, [32,53] A further detailed breakdown of this can be found in Supplementary Materials S10.
Moderate	£499	£658	
Moderate/severe	£512	£698	
Severe	£500	£778	
Treatment costs for non-engaged patients, by starting severity			
Mild	£42	£23	ieso data, [32,53] A further detailed breakdown of this can be found in Supplementary Materials S10.
Moderate	£43	£22	
Moderate/severe	£43	£22	
Severe	£44	£22	
Monthly background costs, by starting severity			
Minimal	£19.76		[7,32] Analysis of the economic data provided from the Proudfoot study, inflated using PSSRU inflation indices. Assumed to be the same for and for internet-delivered CBT and NHS TT services in general.
Mild	£44.53		
Moderate	£48.24		
Moderate/severe	£61.35		
Severe	£74.46		
Utilities, by starting severity			
Minimal	0.75		[54] Final values are from personal communication with the author. Assumed to be the same for and for internet-delivered CBT and NHS TT services in general.
Mild	0.72		
Moderate	0.65		
Moderately severe	0.61		
Severe	0.56		
Anxiety			
Average treatment cost per patient, by starting severity			
Mild	£467	£520	ieso data, [32,53] A further detailed breakdown of this can be found in Supplementary Materials S10.
Moderate	£502	£604	
Severe	£541	£699	
Treatment costs for non-engaged patients, by starting severity			
Mild	£44	£30	ieso data, [32,53]. A further detailed breakdown of this can be found in Supplementary Materials S10.
Moderate	£45	£29	
Severe	£45	£29	
Monthly background costs, by starting severity			
Minimal	£32.08		[7,32]. Analysis of the economic data provided from the Proudfoot study, inflated using PSSRU inflation indices. Assumed to be the same for and for internet-delivered CBT and NHS TT services in general.
Mild	£31.64		
Moderate	£34.87		
Severe	£47.29		
Utilities, by starting severity			
Minimal	0.75		[54] Final values are from personal communication with the author. Assumed to be the same for and for internet-delivered CBT and NHS TT services in general.
Mild	0.69		
Moderate	0.63		
Severe	0.56		

> Todos os valores estão em libra britânica.
>
> **Estruturas do modelo**
>
> Dois modelos foram desenvolvidos: *pretratamento* e *pós tratamento* Antes de seu desenvolvimento, fora feito uma análise de escopo para procurar por modelos semelhantes.

Resultados:

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> Results from the health economic modeling showed a difference in costs and health-related quality of life between the two data samples, with internet-delivered CBT showing small improvements in quality-adjusted life years (QALYs) and lower costs for both anxiety and depression, across all severity bands, relative to NHS TT services in general (Table 1). This means that internet-delivered CBT results in increased health benefits at a lower cost, relative to NHS TT services in general, and can therefore be said to have a 'dominant' incremental cost-effectiveness ratio (ICER).

	Internet-delivered CBT	NHS TT	Difference [95% CI]
Depression			
Mild			
Total cost per patient	£1,264	£1,503	−£239 [−£381; −£109]
QALYs per patient	1.34	1.33	0.01 [0.00; 0.05]
Net monetary benefit [95% CI]	£508 [£166; £1,188]		
ICER	Dominant		
Probability of cost-effectiveness	0.991		
Moderate			
Total cost per patient	£1,445	£1,601	−£156 [−£286; −£31]
QALYs per patient	1.27	1.26	0.01 [0.00; 0.03]
Net monetary benefit [95% CI]	£359 [£67; £828]		
ICER	Dominant		
Probability of cost-effectiveness	0.895		
Moderately severe			
Total cost per patient	£1,618	£1,810	−£192 [−£343; −£61]
QALYs per patient	1.22	1.21	0.01 [0.00; 0.03]
Net monetary benefit [95% CI]	£415 [£96; £823]		
ICER	Dominant		
Probability of cost-effectiveness	0.916		
Severe			
Total cost per patient	£1,826	£2,100	−£275 [−£431; −£129]
QALYs per patient	1.14	1.13	0.004 [0.00; 0.02]
Net monetary benefit [95% CI]	£358 [£154; £624]		
ICER	Dominant		
Probability of cost-effectiveness	0.871		
Anxiety			
Mild			
Total cost per patient	£1,231	£1,250	−£18 [−£144; £97]
QALYs per patient	1.31	1.30	0.02 [−0.01; 0.06]
Net monetary benefit [95% CI]	£328 [−£138; £1,261]		
ICER	Dominant		
Probability of cost-effectiveness	0.700		
Moderate			
Total cost per patient	£1,305	£1,388	−£82 [−£226; £58]
QALYs per patient	1.24	1.21	0.03 [−0.01; 0.09]
Net monetary benefit [95% CI]	£597 [−£88; £1,749]		
ICER	Dominant		
Probability of cost-effectiveness	0.870		
Severe			
Total cost per patient	£1,477	£1,653	−£176 [−£344; −£33]
QALYs per patient	1.16	1.12	0.04 [0.00; 0.09]
Net monetary benefit [95% CI]	£941 [£145; £1,987]		
ICER	Dominant		
Probability of cost-effectiveness	>0.999		

Total costs per patient are the sum of initial treatment costs, recurrent treatment costs and background costs, per patient. A 'dominant' ICER refers to the introduction of an intervention that results in increased health benefits at a lower cost. Probability of cost-effectiveness excludes ICERs with an incremental QALY loss. CI, confidence interval

Síntese de discussão e conclusões:

> Os achados denotam uma necessidade importante de se reduzir o tempo de espera e tempo de tratamento para ambas as doenças.
> A eficiência de tratamento, tempo para referir o fim do tratamento e custo do tratamento foram as variáveis que mais interfiriam com o custo.

Conclusão

> We have used large robust real-world healthcare data to understand the costs associated with treating mental health conditions. Our analysis highlights the key healthcare and human costs from waiting times and treatment duration. Treatment costs are generally outweighed by the increased draw on other medical services, and in the loss of healthrelated quality of life that comes from poor mental health. This highlights that the substantive costs of mental health conditions are driven by not intervening in an adequate or timely manner. Internet-delivered CBT provides one means of reducing waiting times and quickening the pace of a patient’s recovery, with similar treatment effectiveness

Informações adicionais

Referência ABNT:

Referência Vancouver: