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ORIGINAL ARTICLE

Cost-effectiveness analysis of telephone-based cognitive behaviour therapy compared to treatment as usual CBT for cancer patients: Evidence from a small, randomised controlled trial

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Abstract

Objective: A previous equivalence randomised trial indicated that Telephone-based Cognitive Behaviour Therapy (T-CBT) was not inferior to Treatment as Usual CBT (TAU-CBT) delivered face to face in terms of psychological benefit with both groups showing post-therapy improvements compared to pre-therapy baseline. The aim here is to clarify costs and benefits through an economic evaluation of the two therapy models.

Method: The cost-effectiveness analysis (cost per quality-adjusted life year [QALY]) was derived from a single-centre (UK-based), two-arm randomised control trial. Data from 78 patients were available for the main analysis, which includes both an NHS cost perspective and a societal perspective which includes the cost of time off work and any additional private care. Sensitivity analyses were undertaken, which included patients only completing the four core therapy sessions (46 patients) and considering only patients taking both core and the additional therapy sessions which were optional (32 patients).

Results: The base-case analysis, adopting an NHS perspective, showed that T-CBT was associated with an incremental cost of £50 (95% CI: −£759 to £989) and a 0.03 QALY (95% CI: −0.09 to 0.03) decrement per patient when compared to TAU-CBT. The analysis adopting a societal perspective yielded similar results, with T-CBT providing an incremental cost of £171 (95% CI: −£769 to £1112) and a 0.03 QALY (95% CI: −0.08 to 0.03) decrement per patient in comparison to TAU-CBT. The first sensitivity analysis, considering patients only taking the core therapy sessions, showed that T-CBT provided an incremental cost of £100 (95% CI: −£945 to £1247) and yielded a decrement of 0.01 QALY (95% CI: −0.03 to 0.01) per patient compared to TAU-CBT. The second sensitivity analysis, which focused solely on patients who also underwent optional sessions, showed that T-CBT was associated with an

incremental cost of £17 (95% CI: −£1307 to £1454) and a 0.04 QALY (95% CI: −0.11 to 0.03) decrement per patient when compared to TAU-CBT.

Conclusions: Based on this single trial, T-CBT is not cost-effective as a therapy option for cancer patients with high psychological needs when compared to TAU-CBT.

KEYWORDS
cancer, cognitive behaviour therapy, cost-effectiveness analysis, health economics, oncology, psycho-oncology, quality-of-life

1 | BACKGROUND

The impact of Telephone-based Cognitive Behaviour Therapy (T-CBT) on mental health outcomes has already been reported.[1] Data from this equivalence RCT indicated that T-CBT was of equivalent effectiveness to gold standard face-to-face Treatment as Usual CBT (TAU-CBT) in terms of patient reported psychological symptoms and benefits. Data on economic aspects of psychological interventions within oncology care remain sparse, however,[2-5] and require further investigation. While T-CBT and TAU-CBT are both of proven effectiveness in reducing psychological morbidity, the question arises of whether important cost implications exist both in terms of one therapy model compared to another, but also for the healthcare sector more broadly. There are potentially important implications for patients and their families in terms of productivity loss through time missed from work, alongside costs of attending hospital appointments, possible impact of psychological therapies on use of community-based services and in terms of patient and carer quality of life.

The current study provides a cost-effectiveness analysis that looks at both the costs of therapy provision in relation to the patient quality of life benefits derived and whether any such benefit represents value for money in the UK NHS. This study design compares individualised over the T-CBT with the gold standard face-to-face TAU-CBT. Since participants were cancer patients referred to an existing onsite psychological therapy service and deemed by cancer clinicians to have high psychological care needs, a no-treatment control is not ethically appropriate. Furthermore, the TAU-CBT used in the trial was previously verified[6,7] in an RCT with cancer patients and CBT is psychological therapy of choice endorsed by the UK National Institute for Health and Care Excellence (NICE).[8]

The rationale for the development and evaluation of T-CBT is based on the need to consider how patients can be offered psychological care when a hospital-based service may be inaccessible or difficult to access. By offering outreach services it thereby becomes possible to give consideration to improving equity of access and patient choice. There may be a number of potential advantages to telephone-based outreach delivery of psychological care including: dispenses with travel time and costs to attend hospital-based sessions, immune suppressed patients can participate as well as those who are too ill or have reduced physical mobility, and may reduce time off work needed by patients and carers to attend hospital-based appointments. Furthermore, in-hospital service provision has been severely impacted recently by the COVID19 global pandemic and whilst this study was conducted prior to this, the move to virtual clinics has gathered significant pace.

Here, we present a cost-utility analysis performed in this study to answer the research question of whether T-CBT is cost-effective when compared to TAU-CBT for the treatment of high psychological care need patients when it comes to their mental health and coping with cancer. The outcomes of interest in this analysis were quality of life, measured as quality-adjusted life years (QALYs), and cost per patient. The analysis was performed adopting both an NHS perspective and a societal perspective and all data were collected prior to the COVID19 pandemic.

2 | METHOD

2.1 | Participants

A consecutive series of cancer patients referred to the Pastoral and Psychological Care Service at the Royal Marsden Hospital by hospital clinical staff (doctors or nurses) meeting study eligibility criteria were approached including: any diagnosed cancer except non-melanoma skin cancer, age >18, no psychotic illness or serious suicide risk (as ascertained by routine brief mental health status assessment at baseline), >8 weeks post-diagnosis (providing an opportunity to recover from the immediate psychological effect of the diagnosis), able to complete a study questionnaire unaided, regular access to a telephone, aware of their diagnosis, not receiving other formal psychological therapy at recruitment, and minimum prognosis ≥3 months (clinician judged) to allow for core therapy sessions to be delivered. The trial was approved by the Royal Marsden NHS Foundation Trust Ethical Committee NHS/HSC R&D (Protocol REC 09/H0801/60). All participants provided written informed consent.

A study flowchart describes recruitment (See Online Supplementary Figure S1).

2.2 | Perspective

We compared the cost-effectiveness of individualised T-CBT with the gold standard face-to-face TAU-CBT from the perspective of the NHS and from a societal perspective. The NHS perspective considers

only resources used within the NHS setting, whereas expanding to the societal perspective allows inclusion of additional costs, including time off work as a consequence of the treatment or intervention.

2.3 | Resource use and costs

Patients reported their use of resources within the trial at 0, 2 and 6-month time points. The questionnaires included the use of further inpatient, outpatient, primary and community care consultations. Furthermore, the questionnaires captured additional use of aids, adaptations and medication use along with the use of personal social services. Medication costs were obtained from the British National Formulary[9] and the drugs and pharmaceutical electronic market information tool.[10] Patients reported their use of medication and total medication costs were calculated using the mean cost per dose for each product. A summary of healthcare resource use collected and associated unit costs along with any assumptions made are shown in the Online Supplementary Tables S1–S12. All costs (currency UK £ pound sterling) were collected at the time of the trial (2014) and adjusted to 2017–18 prices using the CCEMG-EPPI Centre Cost Converter[11] when the source of unit cost was prior to 2017–2018. The analysis uses the 'within-trial' period of 6 months, excluding the need to apply an annual discount rate of 3.5% to both costs and outcomes, as the follow-up period is less than 12 months.[12] According to the PSSRU,[13] the cost of a GP appointment is cheaper for a telephone consultation as opposed to face-to-face, and we would expect the same to hold for a CBT consultation. As further information regarding the length of the T-CBT consultations during the trial was unavailable, we assumed the same cost as TAU-CBT, given sessions were intended to be standardised at 50 min across T-CBT and TAU-CBT. This is potentially a conservative estimate and would favour TAU-CBT.

2.4 | Societal perspective and productivity costs

Costs from the societal perspective were calculated by combining 'loss of earnings' from patient reported work absence with costs incurred for additional treatments from private providers such as additional medical treatments, for example, massage therapy, osteopathy, acupuncture, and other out of pocket (OOP) expenses such as house help, books focused on CBT, wigs, and pieces of clothing (see Supplemental Table S8). Unit costs were assigned using PSSRU.[13] Where patients reported their time off work, a 'human capital' approach[14] was used to generate the cost of lost productivity per day by using the gross median weekly pay rate for full-time employees from the Office for National Statistics (£569, 2018) divided by five to get a notional day rate.[15]

2.5 | Outcome measures

The primary outcome for the economic evaluation as guided by the NICE reference case[12] is the QALY, a measure which combines health-related quality of life with length of life.[16] Each patient's health-related quality of life was assessed using the EQ-5D-3L questionnaire at baseline, 2 and 6-month follow-up time points. The EQ-5D questionnaire scores were then converted into a utility score using standard UK tariff values.[17]

2.6 | Missing data

Respondents failing to complete individual items of the EQ-5D questionnaire were not allocated a utility index score. A complete case analysis was performed in this case based on data from 78 patients.

2.7 | Statistical method

The economic evaluation of T-CBT compared to TAU-CBT consisted of individual level patient-specific resource use and costs, and patient-specific outcome and quality of life data collected directly from the 6-month trial. The cost-effectiveness analysis was estimated first by reporting the costs and consequences of both T-CBT and TAU-CBT, reporting data in a disaggregated manner. From this the Incremental Cost-Effectiveness Ratio (ICER), a summary measure that represents the additional spend required to produce an additional unit of health was produced. Incremental net benefits (INB) were also calculated to summarise the intervention's cost-effectiveness. In this present analysis, the NICE threshold of £20,000 to £30,000 per QALY was considered.[12]

The impact of sampling uncertainty on the results was estimated by running 1000 bootstrap iterations with replacement from the dataset. For each iteration, mean total costs and QALYs per patient were determined, as well as the ICER and INB, with the respective 95% confidence intervals. The 1000 incremental costs and QALYs resulting from the bootstrap iterations were plotted on a cost-effectiveness plane and were used to build a cost-effectiveness acceptability curve (CEAC),[18] which is a graphic representation of the probability of the T-CBT intervention being cost-effective compared to TAU-CBT.

A sensitivity analysis was conducted adopting a societal perspective, which included costs beyond those falling on the NHS perspective, namely OOP payments made by patients, travel/parking costs, and family/friends time off paid work. Another sensitivity analysis was performed including patients only undertaking core therapy sessions, and therefore truncating the trial span to 2 months. In this analysis, there was complete EQ-5D data for 27 patients on the T-CBT arm and for 19 patients on the TAU-CBT arm. Concerning resource use, the sensitivity analysis included the same number of patients as the base case analysis. A final sensitivity analysis was conducted considering only patients who undertook the additional optional sessions. In this case, there was complete EQ-5D data (and resource use data) for 16 patients on the T-CBT arm and 16 patients on the TAU-CBT arm. All analyses were performed in R version 3.6.

3 | RESULTS

A CONSORT diagram shows the flow of patients through the study (see Supplementary Figure S1); 118/400 (30%) eligible patients were randomised. Patients declined participation either because they did not want any therapy 58/400 (15%) or because they wanted therapy but declined trial participation 183/400 (46%). A further 41/400 (10%) failed to reply to the opt-in letters. 60 patients were randomised to T-CBT and 58 to TAU-CBT with 43 and 35 providing complete analysable data, respectively. Online Supplementary Tables S14 and S15 show the patients in each trial arm by cancer type and stage of cancer, respectively. The proportion of patients with each type of cancer present in each arm are similar with no meaningful difference between the two arms. Breast cancer followed by gastrointestinal cancer are the two most common cancers in each therapy arm. There is no statistical difference between the two arms based on cancer stage with early, locally advanced and advanced all corresponding to approximately a third of patients in each arm.

3.1 | Missing data

From the overall sample of 118 patients, missing data represented 34% of all observations ($n = 30$ patients). Complete data case analysis was based on the remaining 78 patients. From these 78 patients, there was complete EQ-5D data (baseline, and core sessions or baseline, core and optional sessions) and resource use data for 43 patients on the T-CBT arm and 35 patients on the TAU-CBT arm.

3.2 | Costs

The mean patient costs per category (and total per patient cost) considered in the base-case health economic analysis (NHS perspective) are reported in Table 1. The mean per patient cost resulting from resource use were higher in the T-CBT arm in comparison with the TAU-CBT arm, although not statistically significant (mean: £1056 vs. £1005 $p = 0.77$). This small difference in cost was mainly driven by the higher number of inpatient admissions to NHS hospitals, as well as

TABLE 1 Mean per patient base-case costs per cost category (NHS perspective)

	T-CBT			TAU-CBT			Mean difference (£)	p-value
Cost category	Mean cost (£) per patient per category	SD	Mean resource use per patient	Mean cost (£) per patient per category	SD	Mean resource use per patient		
Support services provided during counselling	4.7	0.6	0.10	22.8	2.1	0.37	−18.1	0.02
Support services provided after counselling	5.9	0.6	0.12	21.1	2.0	0.29	−15.2	0.06
GP visits	35.7	2.0	0.95	24.6	2.0	0.66	11.1	0.67
Practise nurse visits	1.3	0.2	0.12	1.9	0.3	0.17	−0.6	0.51
Other healthcare professionals' visits	7.7	1.2	0.14	8.1	1.4	0.06	−0.4	0.83
Home visit from healthcare professionals	0.8	0.1	0.02	2.1	0.4	0.06	−1.3	0.49
Medication for anxiety	0.5	0.0	0.58	0.1	0.0	0.14	0.4	0.10
Medication for depression	1.2	0.2	0.40	0.7	0.1	0.43	0.5	0.76
Sleeping medication	0.4	0.0	0.40	0.5	0.1	0.34	−0.2	0.37
Other services provided by the hospital or NHS	68.4	4.3	1.26	48.5	4.0	0.80	19.9	0.76
Other social services provided free of charge	7.0	0.9	0.12	0	0	0	7.0	0.28
Outpatient consultations in NHS hospitals	321.8	21.1	2.72	526.8	33.4	4.77	−205.0	0.11
Inpatient admissions to NHS hospitals	601.9	66.8	0.84	353.5	50.7	0.71	248.4	0.69
Total mean cost per patient	1057	179.3	7.74	1011	165.3	8.80	46.5	0.96

Abbreviations: TAU-CBT, Treatment as Usual CBT; T-CBT, Telephone-based Cognitive Behaviour Therapy.

other services provided by the hospital or NHS in the T-CBT arm. Providing telephone counselling reduced the costs associated with outpatient consultations in NHS hospitals, support services provided during counselling, and support services provided after counselling.

3.3 | Utilities

EQ-5D data was also gathered as part of the study. Mean utilities at baseline and follow-up 1 and 2 are reported in the supplementary materials. Utilities were fairly similar at baseline between the T-CBT and TAU-CBT arms (mean: 0.62 vs. 0.66, $p = 0.48$). The utility values for both interventions followed a similar increasing trend at both follow-up 1 and 2 with the difference between the two interventions remaining statistically insignificant at both time points. The standard deviations are large, especially regarding the utility values for follow-up 2, which highlights the uncertainty associated with these estimates based on a small number of patients (see Online Supplementary Table S13).

3.4 | Cost-effectiveness analysis

T-CBT was associated with an incremental cost of £50 (95% CI: −£759 to £989) and a 0.03 QALY (95% CI: −0.09 to 0.03) decrement per patient when compared to TAU-CBT (see Table 2: Base-case cost-effectiveness results and Online Supplementary Figure S2: Base-case cost-effectiveness plane). The wide-confidence intervals are indicative of the small number of patients available for the analysis.

3.5 | Sensitivity analyses

The cost-effectiveness plane shows the results of the within-trial probabilistic cost-effectiveness analysis, where each dot corresponds to one of the 1000 bootstrap iterations and the triangle is the mean value of those iterations. The cloud of dots on the plane depicts the uncertainty around the cost-effectiveness results. When considering a £20,000/QALY threshold, T-CBT was less effective than TAU-CBT 82% of the time and was more costly than TAU-CBT 51% of the time. T-CBT was dominated by TAU-CBT 43% of the time, providing less benefits whilst being more costly.

The uncertainty associated with the cost-effectiveness results across different willingness-to-pay thresholds is depicted in the CEAC (see Online Supplementary Figure S3: Base-case cost-effectiveness acceptability curve). The CEAC showed that the probability of T-CBT being cost-effective when compared to TAU-CBT was 0% for any willingness-to-pay threshold.

The results of the cost-effectiveness analysis conducted from a societal perspective demonstrated that T-CBT was associated with an incremental cost of £171 (95% CI: −£769 to £1112) and a 0.02 QALY (95% CI: −0.08 to 0.03) decrement per patient when compared to TAU-CBT (see Table 3: Societal probabilistic cost-effectiveness results). T-CBT when compared to TAU-CBT is less effective in terms of QALYs yielded and more expensive although neither difference is statistically significant.

The results of the sensitivity analysis, which focused on patients who only undertook core therapy sessions, showed that T-CBT was associated with an incremental cost of £100 (95% CI: −£945 to £1247) and a 0.01 QALY (95% CI: −0.03 to 0.01) decrement per patient when compared to TAU-CBT (see Table 4: Sensitivity analysis one results).

The results of the sensitivity analysis, which included patients who took the optional therapy sessions, showed that T-CBT was associated with an incremental cost of £17 (95% CI: −£1307 to £1454) and a 0.04 QALY (95% CI: −0.08 to 0.06) decrement per patient in comparison with TAU-CBT (see Online Supplementary Table S16: Sensitivity analysis two results).

The results of the sensitivity analysis, which included all patients at the core session cut-off (effectively truncating the trial to

TABLE 2 Base-case cost-effectiveness results (NHS perspective)

Intervention	Mean cost £ (95% CI)	Mean QALY (95% CI)	Incremental cost £ (95% CI)	Incremental QALY (95% CI)	ICER	NB	Incremental NB (95% CI)
TAU-CBT	1005 (473 to 1638)	0.22 (0.18 to 0.26)	-	-	-	0.17 (0.12 to 0.23)	-
T-CBT	1056 (487 to 1803)	0.20 (0.16 to 0.23)	50 (−759 to 989)	−0.03 (−0.09 to 0.03)	Dominated	0.14 (0.09 to 0.19)	−0.03 (−0.11 to 0.04)

Abbreviations: ICER, Incremental Cost-Effectiveness Ratio; NB, net benefit; QALY, quality-adjusted life year. TAU-CBT, T-CBT, Telephone-based Cognitive Behaviour Therapy; Treatment as Usual CBT.

TABLE 3 Societal cost-effectiveness results

Intervention	Mean cost £ (95% CI)	Mean QALY (95% CI)	Incremental cost £ (95% CI)	Incremental QALY (95% CI)	ICER	NB	Incremental NB (95% CI)
TAU-CBT	1145 (553 to 1861)	0.22 (0.18 to 0.26)	-	-	-	0.16 (0.11 to 0.21)	-
T-CBT	1315 (673 to 2061)	0.20 (0.16 to 0.24)	171 (−769 to 1,112)	−0.02 (−0.08 to 0.03)	Dominated	0.13 (0.08 to 0.18)	−0.03 (−0.11 to 0.04)

Abbreviations: ICER, Incremental Cost-Effectiveness Ratio; NB, net benefit; QALY, quality-adjusted life year. TAU-CBT, T-CBT, Telephone-based Cognitive Behaviour Therapy; Treatment as Usual CBT.

TABLE 4 Sensitivity analysis results: patients who only took four core sessions

Intervention	Mean cost £ (95% CI)	Mean QALY (95% CI)	Incremental cost £ (95% CI)	Incremental QALY (95% CI)	ICER	NB	Incremental NB (95% CI)
TAU-CBT	933 (392 to 1666)	0.13 (0.12 to 0.13)	-	-	-	0.08 (0.04 to 0.11)	-
T-CBT	1033 (364 to 1928)	0.12 (0.10 to 0.13)	100 (−945 to 1,247)	−0.01 (−0.03 to 0.01)	Dominated	0.07 (0.01 to 0.11)	−0.01 (−0.08 to 0.04)

Abbreviations: ICER, Incremental Cost-Effectiveness Ratio; NB, net benefit; QALY, quality-adjusted life year. TAU-CBT, T-CBT, Telephone-based Cognitive Behaviour Therapy; Treatment as Usual CBT.

2 months duration) showed that T-CBT was associated with a cost saving of £25 (95% CI: −£790 to £808) and a 0.01 QALY (95% CI: −0.02 to 0.01) decrement per patient in comparison with TAU-CBT (see Online Supplementary Table S17: Sensitivity analysis three results).

4 | DISCUSSION

This study reports an economic evaluation of the cost-effectiveness of T-CBT compared to TAU-CBT for cancer patients. The within-trial analysis adopting an NHS perspective estimated that T-CBT, when compared to TAU-CBT, was associated with a small incremental cost and a reduction in health outcome as measured in QALYs and as such was not considered cost-effective as it is dominated by TAU-CBT. Due to the small number of patients involved in the analysis, there was a significant level of uncertainty as highlighted by the bootstrap results plotted on the cost-effectiveness plane which cross each of the four quadrants.

When performing the analysis from a societal perspective, T-CBT showed an increased incremental cost and was again dominated by TAU-CBT. Whilst the health benefits were expected to be similar between the two methods with patient data taken from the original equivalence trial, the cost of T-CBT was not necessarily expected to be higher.

The data collected in this trial suggest that patients in the T-CBT arm visited the GP and other health professionals more often, took more medication for their anxiety and were admitted as inpatients more often than the patients in the TAU-CBT arm. Whilst these differences were not statistically significant, they did increase the overall cost of the T-CBT intervention. Of interest, patients in the TAU-CBT arm used support services both during and after the CBT sessions more often than patients in the T-CBT arm and this could be because they were more aware of the services which are often delivered in person whereas the patients not attending face-to-face appointments may be more reluctant to use additional services and relied on their GP and medication more as shown in their resource use.

One of the benefits of undertaking telephone-based interventions is the expectation that less travel time and OOP expense as well as time off work would be expected than actually attending an appointment in person for the intervention, as so it may reduce the overall cost of the intervention pathway. We did not find this within our study with the overall cost difference increasing between the two rather than reducing.

Our sensitivity analyses that considered patients who only undertook the four core therapy sessions (sensitivity analysis 1), or that considered only those patients who also undertook the optional sessions available (sensitivity analysis 2), estimated that T-CBT increased costs when compared to TAU-CBT and was thus dominated, being more expensive whilst providing less health benefits. Despite this similarity between patients who chose to either only take the core sessions and those who also chose to undertake the optional session, there was nevertheless a higher degree of uncertainty associated with the second sensitivity analysis, translated by the wider 95% confidence intervals. This uncertainty can be explained by the reduced number of individuals included in the second sensitivity analysis (27% and 28% of the population randomised to the T-CBT and TAU-CBT arms, respectively). The final sensitivity analysis truncated the trial to 'remove' the option of additional therapy sessions. In this analysis, T-CBT was associated with a cost saving of £25 (95% CI: −£790 to £808) and an incremental loss of 0.01 QALY (95% CI: −0.02 to 0.01) per patient in comparison with TAU-CBT. Whilst the Incremental Cost-Effectiveness Ratio may reside below the National Institute for Health and Care Excellence threshold of £20,000 to £30,000 there is significant uncertainty and the detrimental impact in terms of health would suggest that T-CBT would likely not be implemented based purely on this study but would require further investigation. Furthermore, it also highlights that the timeframe for the intervention and the costs and benefits that accrue over that time period play an important part in economic evaluation.

It should be noted that this study was undertaken prior to the COVID19 pandemic. Over the past year care delivery has changed, by necessity, and eHealth methods have increased in use. However, a recent study focussing on the use of technology in non-face-to-face therapy during and beyond the COVID19 pandemic emphasised there is a challenge when it comes to the ability to connect at a human level when using this method as a therapy alternative.[19] The same study also concluded that some of the *essence* present in face-to-face therapy may be lost when transitioning to the non-face-to-face alternative, which may help explain the results found in the present study, mainly in terms of health-related quality of life. Another recent study, also focussing on the transition to non-face-to-face therapy during COVID19, concluded that this alternative, although having improved accessibility and increased reach of the

therapy program, still imposes some challenges to patients. One challenge that stands out is the lack of privacy necessary to achieve the safest and most optimal session.[20] It may therefore stand that whilst non-face-to-face therapy may be preferable for some people, many more people may still gain greater benefit from and furthermore prefer face-to-face therapy when possible.

4.1 | Study limitations

The main limitation of the analysis was the sample size, which consequently created uncertainty around the results and this is reflected in some wide confidence intervals. Health economics data are also required from larger samples, across the care delivery methods under consideration, before robust findings will be available to guide service provision decisions. A future study needs to undertake a detailed costing of the interventions as delivered rather than relying on standard unit costs from the literature. A further issue links to the observation[21] that most economic evaluations in psycho-oncology have been '*piggybacked on clinical trials to 'demonstrate' the cost-effectiveness of the studied services without a clear link to a decision problem or decision-making context*'. The development of future services will increasingly be impacted by cost data. Therefore, the conduct of clinical trials of psychological therapies needs to include this information, alongside efficacy data, so decisions for increased service development can progress.

4.2 | Clinical implications

There has been increasing development of e- and m-Health methods for psycho-oncology care delivery. However, cost-effectiveness evidence continues to be insufficient. Our data suggest that, where cancer patients have high psychological needs, a face-to-face level of delivery may remain cost-effective compared to non-face-to-face but both are similarly clinically effective.[1] As services develop alongside patient preferences for how services are delivered in the post-COVID19 era, it is increasingly important that health economics data be routinely collected within clinical trials in order for cost-effectiveness to be estimated.

5 | CONCLUSION

In conclusion, this analysis shows that, with higher incremental costs and negative incremental QALYs, T-CBT is not a cost-effective option for cancer patients with high psychological needs in comparison with TAU-CBT based on this single, small trial.

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CONFLICT OF INTEREST

The authors have declared no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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