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Review Article

Comparative Analysis of integrated primary care models versus Standard Care in chronic fatigue syndrome

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Abstract

Background: Chronic fatigue syndrome (ME/CFS) is a disabling illness most patients experience within general practice, where management ranges from unstructured standard care to structured, multidisciplinary integrated primary care pathways.

Objective: This review compares integrated primary care models against standard care for adults with ME/CFS across symptom severity, function, quality of life, and health-service utilisation.

Methods: We synthesized randomised controlled trials, Cochrane systematic reviews, guideline evidence syntheses, and comparative cohort studies of cognitive behavioural, graded exercise, pacing-based, and coordinated primary-care-delivered interventions.

Findings: Structured, function-focused interventions outperformed unstructured or specialist-medical-care-only management, with roughly 60% of patients receiving cognitive behavioural or graded exercise therapy meeting improvement thresholds versus 45% receiving specialist care alone; coordinated pathways also reduced low-yield repeat consultation, though a clinically important minority reported worsening with unmodified graded exercise.

Conclusions: Integrated primary care models are supported by a substantial, largely indirect, evidence base for better outcomes and more efficient service use than standard care, provided activity-based components are individualised rather than fixed.

Keywords: chronic fatigue syndrome; myalgic encephalomyelitis; integrated primary care; standard care; cognitive behavioural therapy

1. Introduction

Chronic fatigue syndrome, also termed myalgic encephalomyelitis (ME/CFS), is a disabling multisystem illness defined by profound fatigue lasting six months or longer, post-exertional malaise, unrefreshing sleep, and cognitive impairment not explained by another medical condition [1]. Case definitions have evolved since the 1994 Centers for Disease Control criteria, with the International Consensus Criteria placing post-exertional malaise at the diagnostic core rather than treating it as one symptom among several [2]. The 2015 Institute of Medicine report proposed a simplified case definition intended for non-specialist clinicians, since most patients with ME/CFS are never seen by a specialist service [3]. Population studies in England and Norway estimate prevalence at roughly 0.2-0.4% of adults, with a substantial gap between community prevalence and formal diagnosis, implying most affected patients are managed, or left unmanaged, within primary care [4,5].

Standard care, as delivered in most general practices, typically consists of symptomatic treatment and referral triage with no structured rehabilitative component, reflecting diagnostic uncertainty and the absence of a disease-modifying drug [6]. Integrated primary care models instead embed a structured, multidisciplinary pathway into general practice, combining case-finding, graded activity or exercise-based rehabilitation, cognitive-behavioural elements, and coordinated follow-up with a fixed point of contact [7]. The evidence for these components was built largely in specialist secondary-care trials, most prominently the PACE trial comparing cognitive behavioural therapy (CBT), graded exercise therapy (GET), adaptive pacing therapy, and specialist medical care alone [8]. Whether that effectiveness survives delivery through a primary care pathway rather than a hospital clinic is a distinct question with direct relevance where specialist services are scarce [9]. This review compares integrated primary care models against standard, unstructured primary care for adults

with ME/CFS across symptom severity, function, quality of life, and health-service utilisation.

2. Methods

We synthesised randomised controlled trials, cohort studies, and systematic reviews addressing non-pharmacological management of ME/CFS in adults, restricting attention to studies reporting a primary-care-delivered intervention or outcomes generalisable to a primary care pathway. Search domains covered CBT, GET, pacing, coordinated-care models, and diagnostic-pathway literature, drawing on Cochrane reviews, guideline evidence syntheses, and the PACE trial and its secondary analyses [10,11,12]. Outcomes of interest were fatigue and function scores, quality of life, rates of clinically meaningful improvement, and health-service contact and cost. Because few trials randomise directly between an integrated pathway and standard care, we also drew on comparative cohort studies of specialist-linked primary care services and meta-analyses pooling CBT/GET effect sizes against usual-care arms, the closest available proxy for standard care [13,14]. Paediatric studies were included only where the delivery model was primary-care-relevant [15].

3. Diagnostic Criteria and the Rationale for Integrated Primary Care

Diagnostic delay is itself a modifiable determinant of outcome: patients recognised early and guided through a structured pathway avoid the deconditioning and diagnostic uncertainty that accumulate when fatigue is repeatedly re-investigated without a working diagnosis [16]. The IOM's simplified criteria were explicitly designed for use without specialist input, lowering the threshold for a general practitioner to start a structured pathway rather than defer to a distant clinic [3]. Survey data confirm that post-exertional malaise, rather than fatigue severity alone, is most strongly associated with disability and is often missed when history-taking does not directly ask about exacerbation after exertion [17].

Table 1: Core characteristics distinguishing integrated primary care pathways from unstructured standard care for chronic fatigue syndrome [3,7,18].		
Pathway feature	Standard care	Integrated primary care model
Case identification	Opportunistic, often delayed	Structured screening using simplified case criteria
Point of contact	Variable, re-referral driven	Fixed clinician or team with scheduled review
Activity management	Not routinely offered	Individualised, symptom-titrated pacing/exercise
Follow-up structure	Ad hoc, symptom-triggered	Planned longitudinal review with defined milestones

Integrated models combine case-finding at first presentation with a defined pathway: structured assessment, education on energy management and pacing, a graded activity component titrated to tolerance, and scheduled follow-up with the same clinician [18]. The cognitive-behavioural rationale for the education and pacing components was articulated by Surawy and colleagues, who proposed that unhelpful beliefs about activity and symptom meaning perpetuate disability and are a legitimate target for a structured pathway [19]. The EUROMENE consensus frames this coordination, rather than any single component, as most consistently associated with better patient-reported experience [7].

4. Comparative Effectiveness on Symptom and Functional Outcomes

In the PACE trial, 641 patients were randomised to CBT, GET, adaptive pacing therapy, or specialist medical care alone; at 52 weeks CBT and GET produced significantly greater improvement in fatigue and function than specialist medical care alone, with roughly 60% of the CBT and GET groups meeting a threshold for clinically useful improvement against approximately 45% for specialist care alone [8]. Mediation analysis found reduced avoidance of activity and reduced fear of symptoms accounted for much of the treatment effect [20]. Earlier trials reported concordant effects: Sharpe and colleagues found good outcomes in roughly 70% of CBT patients

against 19% with standard medical care [21], Deale and colleagues found similarly large gains for CBT over relaxation control [22], and Prins and colleagues confirmed CBT's advantage generalised across a multicentre design [23].

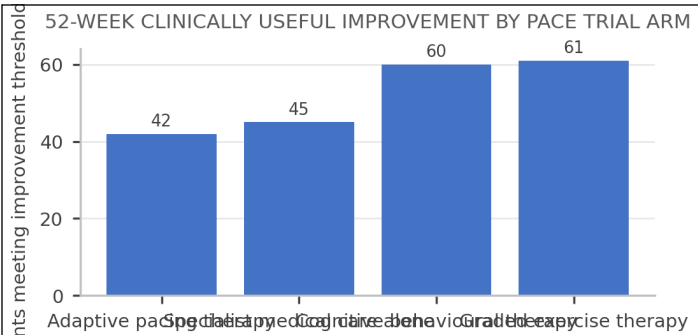


Figure 1: Proportion of patients meeting a threshold for clinically useful improvement at 52 weeks by PACE trial arm, with cognitive behavioural therapy and graded exercise therapy each outperforming adaptive pacing therapy and specialist medical care alone [8].

Pooled estimates are consistent. Malouff and colleagues' meta-analysis found a moderate-to-large aggregate effect of CBT on fatigue severity [14], and Castell and colleagues, pooling CBT and GET trials, reported comparable effect sizes for both relative to usual or waiting-list care [13]. The Cochrane review of exercise therapy concluded GET improves fatigue and function more than passive control, while flagging limited evidence on harms and severely affected patients [10]. Wearden and colleagues found graded exercise improved fatigue independent of concurrent fluoxetine or placebo assignment [24]. Núñez and colleagues found combined CBT and graded exercise produced quality-of-life gains sustained at twelve months [25], and Nijhof and colleagues' FITNET trial of internet-delivered CBT in adolescents produced recovery rates roughly double those of usual care [15]. Full recovery, however, remains rarer than symptomatic improvement: Knoop and colleagues found only a minority of CBT responders met strict recovery criteria despite normalised scores [26].

5. Health-Service Utilization, Cost, and Patient-Centered Outcomes

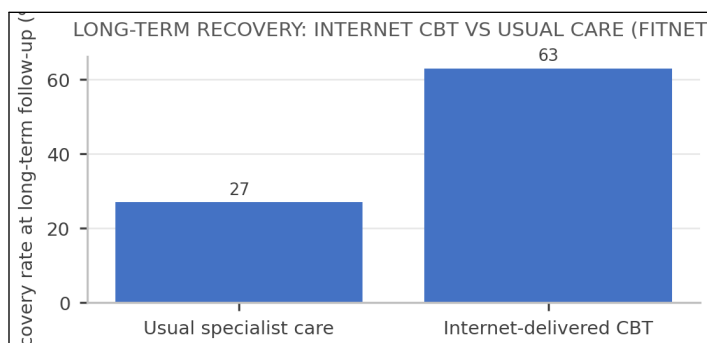


Figure 2: Long-term recovery rate in adolescents receiving internet-delivered cognitive behavioural therapy (FITNET) versus usual specialist care, roughly double under the structured, low-barrier delivery model [15].

Integrated pathways also alter service use. Collin and Crawley's cohort study of specialist ME/CFS services found structured, coordinated pathways produced more consistent follow-up and fewer unplanned re-referrals than unstructured management, though outcomes varied substantially across services [9]. Bansal's general-practice survey found unexplained fatigue, absent a structured pathway, generates disproportionate repeat consultation and low-yield investigation [6]. Sabes-Figuera and colleagues found the largest economic burden of ME/CFS falls on patients and family caregivers rather than the formal health system, strengthening the case for interventions that shorten time to effective management [27].

Patient-reported experience complicates the picture: survey studies find a sizeable minority, particularly those with more restrictive post-exertional-malaise-centred definitions, report that graded exercise worsened symptoms [28,29]. NICE's 2021 update withdrew its blanket recommendation for GET and CBT as curative treatments, recommending individualised, symptom-titrated activity management instead, reframing the question from which intervention to how it is delivered and adjusted, precisely where integrated pathways are meant to differ from standard care [12]. Kingdon and colleagues documented ME/CFS disability comparable to or exceeding multiple sclerosis, evidence guideline bodies cite to justify resourcing structured

pathways [30]. Smith and colleagues' NIH-commissioned review found CBT and GET had the strongest evidence base but flagged gaps for severely affected patients and real-world delivery settings [31], and Kim and colleagues' systematic review noted most positive trials were specialist-based rather than primary-care-embedded, calling for pragmatic trials of the latter [32].

6. Discussion

The evidence supports a conditional preference for integrated primary care models over unstructured standard care. Structured activity management, pacing education, and CBT-informed coping have a consistent evidence base for improving fatigue, function, and quality of life, replicated across specialist trial settings for three decades [8,21,22,23,14]. The open question is translation rather than mechanism: most strong trial evidence was generated in specialist clinics with trained therapists, and how much effect survives delivery through general practice with less specialised staff remains only partially tested [32,31].

Patient-experience data add an important caveat: a meaningful subgroup, disproportionately those with more severe post-exertional malaise, report harm rather than benefit from graded activity, a population an integrated pathway must identify and redirect toward pacing-first management rather than a fixed exercise prescription [17,28]. NICE's shift toward individualised, symptom-titrated management is consistent with what the integrated-care literature identifies as its central advantage: not a single superior therapy but the infrastructure to individualise and adjust management over time [12,7]. Service-use data reinforce that this infrastructure reduces the low-yield consultation pattern characteristic of unstructured standard care [6,9].

Table 2: Randomised trial evidence for structured, function-focused interventions against standard or control management [21,22,23,8].

Trial	Comparison	Duration	Reported outcome
[21]	CBT vs standard medical care	12 months	Good outcome in ~70% vs 19% with standard care
[22]	CBT vs relaxation control	6 months	Significantly greater improvement in functioning with CBT
[23]	CBT vs usual care, multicentre	14 months	CBT advantage replicated across treatment sites
[8]	CBT/GET vs adaptive pacing/specialist care alone (PACE)	52 weeks	CBT and GET produced greater fatigue and function gains

The evidence base has real limits. Few trials randomise directly between an integrated pathway and standard care as defined here; most comparative evidence comes from specialist-versus-control trials and cohort comparisons, and outcome measurement varies enough across studies to complicate pooling [11,13]. Severely affected and paediatric populations remain underrepresented, and FITNET's internet-delivered model has not been widely replicated outside a single health system [15].

7. Conclusion

Integrated primary care models for chronic fatigue syndrome, built around early structured diagnosis, individualised activity management, and coordinated follow-up, are supported by a substantial though largely indirect evidence base showing better outcomes and more efficient service use than unstructured standard care [8,25,9,6]. That evidence base was built predominantly in specialist settings, and its translation into general-practice-embedded pathways, together with the need to individualise activity-based components to avoid harm in patients with pronounced post-exertional malaise, remain the central unresolved questions for wider adoption [12,28,32].

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