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What nonpharmacological interventions are effective for treating fatigue in adolescents?

A systematic review of randomised controlled trials

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Introduction

Fatigue refers to an extreme state of physical and/or mental exhaustion and is assumed to be a "normal" part of adolescence [1]. However, prolonged fatigue can be highly disabling and has been associated with poor outcomes in adolescents, like school absenteeism and impaired social development [2, 3]. To prevent these adverse outcomes, fatigue is an important symptom to be identified and address.

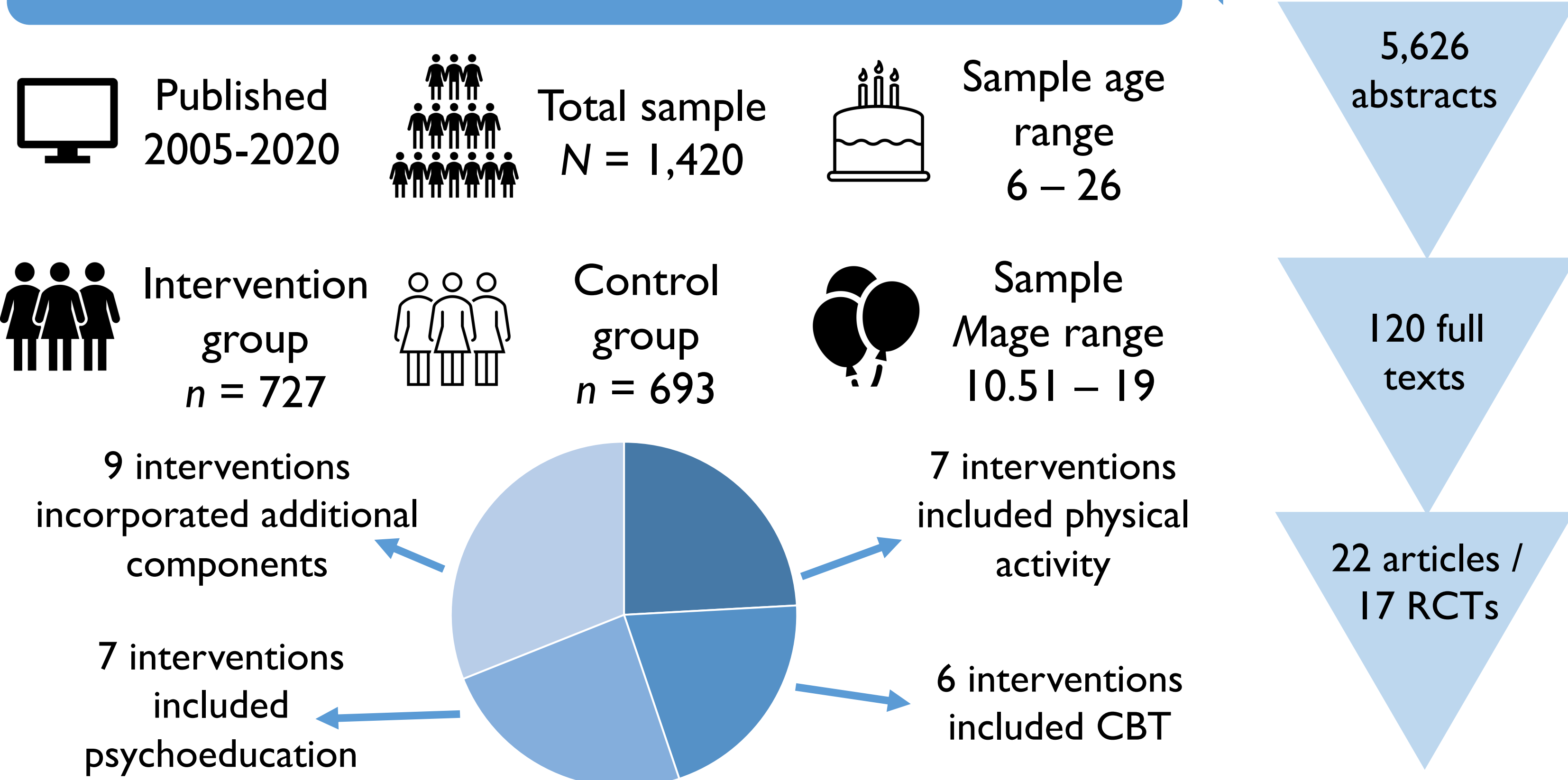
A range of nonpharmacological interventions are available for fatigue. In the context of adolescents, research has focused on interventions within specific populations, such as cancer and CFS/ME [4, 5]. However, this potentially results in a segregated evidence-base, with evidence only being available for specific populations, despite fatigue being transdiagnostic and common [6, 7]. Without an integrated evidence-base, we do not know which interventions are most effective for adolescents as a whole and should be used as the basis for decisions regarding policy and practice.

Aims

The aim of this systematic review is to identify, synthesise and evaluate randomised controlled trials (RCTs) of nonpharmacological interventions for treating fatigue in adolescents. We want to learn which interventions are effective and what the active ingredients of these interventions are.



Results



Methods

Search strategy

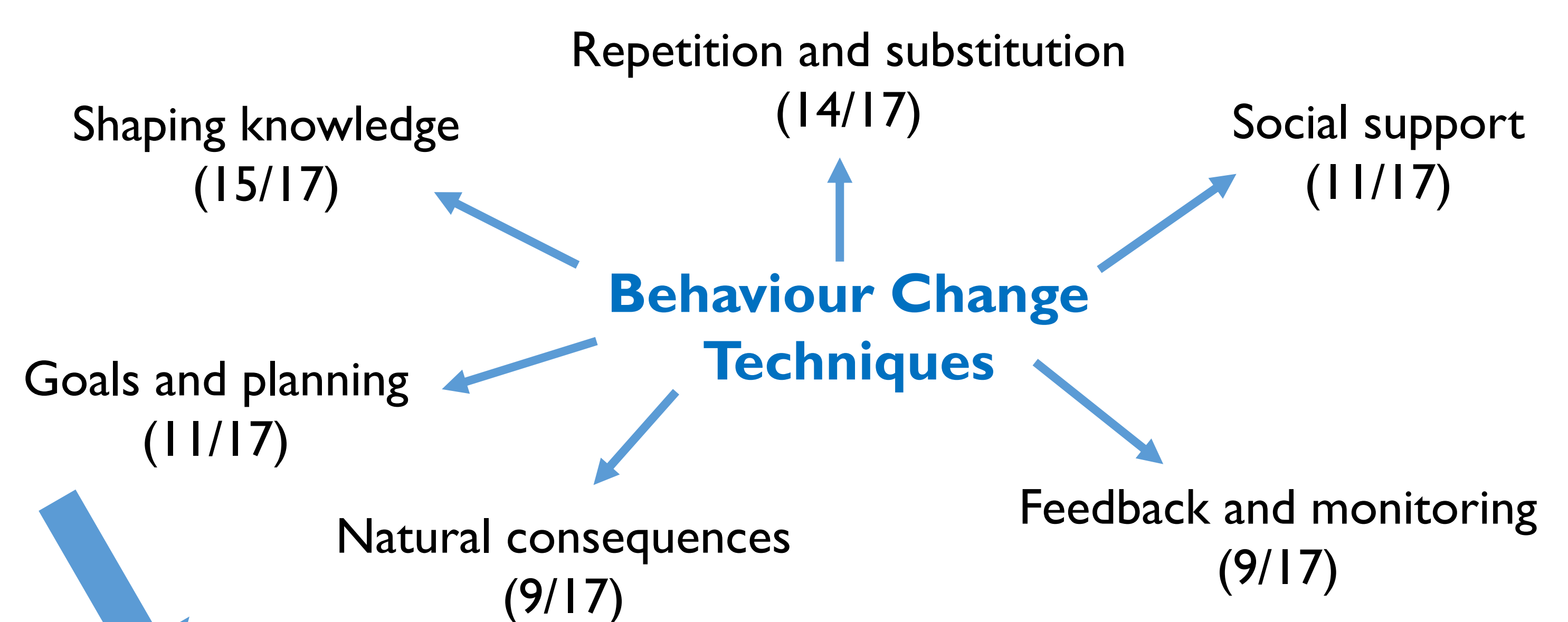
- (1) Adolescents aged 10-19 years
- (2) Fatigue
- (3) Nonpharmacological interventions
- (4) RCTs

<https://doi.org/10.17605/OSF.IO/N4WFW>

Inclusion criteria

Population: Adolescents, sample mean age > 10 and < 19 years
Intervention: Includes a nonpharmacological treatment arm
Comparison: Standard care, waiting list, alternative treatment
Outcome: Change in self-reported fatigue on a validated measure, as a primary or secondary outcome, measured pre- and post-intervention
Study design: RCTs, peer-reviewed, available in English

First author (Year)	True randomisation?	Allocation concealment?	Similar baseline?	Participants blinded?	Providers blinded?	Assessors blinded?	Identical treatment?	Complete follow-up?	Intention-to-treat?	Measured similarly?	Measured reliably?	Appropriate statistics?	Appropriate design?
Al-Haggar (2006)	✓	?	✓	?	✗	✓	?	✗	✗	✓	?	✓	✓
Akel (2019)	✓	✓	✓	?	✗	✓	✓	✓	✗	✓	?	✓	✓
Bakker (2011)	✓	?	✓	?	NA	✗	✓	✗	✗	✓	?	?	✓
Chalder (2010)	✓	✓	✗	?	✗	✓	✓	✗	✓	✓	?	✓	✓
Crawley (2018)	✓	✓	✗	✗	✗	✓	✓	✗	✗	✓	?	✓	✓
Evans (2014)	✓	?	✓	?	✗	?	✓	✗	✗	✓	?	✓	✓
Gradisar (2011)	✓	?	✓	?	✗	✗	✓	✗	✗	✓	?	?	✓
Lam (2018)	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	?	✓	✓
Li (2018)	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	?	✓	✓
Malik (2020)	✓	✓	?	✗	✗	✓	?	✗	✓	✓	?	✗	✓
Nijhof (2012)	✓	✓	?	✗	✗	✗	✗	✓	✓	✓	?	✓	✓
Renaud (2020)	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	?	✓	✓
Richardson (2018)	✓	?	?	?	?	?	✓	?	✗	✓	?	?	✓
Stössel (2020)	✓	?	✓	✗	✗	✗	?	✓	✗	✓	?	✓	✓
Stulemeijer (2005)	✓	✓	?	✗	✗	✗	✗	✗	?	✓	?	✓	✓
Van Brussel (2008)	✓	✓	?	?	✗	✓	?	✓	?	✓	?	?	✓
Van Dijk-Lokkart (2016)	✓	✓	✓	?	?	?	✓	✓	✗	✓	?	✓	✓



Initial Discussion

- Effective interventions for fatigue often include elements of physical activity, CBT, or psychoeducation
- Interventions for fatigue are also often multimodal, incorporating multiple approaches into one
- A range of BCTs used, but predominantly shaping knowledge and repetition and substitution
- BCTs involving reward and punishments least used
- Mixed quality studies – particular issues with blinding, evidencing measurement reliability, and providing sufficient reasons for loss to follow-up
- Difficult to be conclusive – mixed findings, small number of studies, often small sample sizes

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