

Protocol: Psychological Need Satisfaction and Frustration and Athlete Burnout: A Meta-analysis

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ADMINISTRATIVE INFORMATION

Support - No support.

Review Stage at time of this submission - The review has not yet started.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2026100009

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 2 October 2026 and was last updated on 2 October 2026.

INTRODUCTION

Review question / Objective Among athletes participating in organized training or formal competition, what are the direction and magnitude of the associations of basic psychological need satisfaction and need frustration with overall athlete burnout, and is the frustration association stronger in comparable samples?

Rationale Need satisfaction and need frustration are distinct experiences in sport contexts, yet their separate associations with athlete burnout and their relative strength have not been synthesized clearly.

Condition being studied Athlete burnout associated with sustained psychological depletion in competitive sport, including overall burnout and dimensions such as emotional and physical exhaustion, reduced accomplishment, and sport devaluation.

METHODS

Participant or population Athletes participating in organized competitive training, school or university teams, club training, or formal competitions, including youth, university, adult, and elite athletes. Mixed samples are eligible only when athlete data can be extracted.

Intervention Basic psychological need satisfaction and basic psychological need frustration in sport contexts. Satisfaction includes autonomy, competence, and relatedness; frustration reflects active thwarting, suppression, or denial of these needs.

Comparator Zero association as the statistical reference; in comparable samples, compare the association of need satisfaction with burnout with the association of need frustration with burnout.

Study designs to be included Cross-sectional or longitudinal observational studies reporting zero-order Pearson correlations and analyzable sample

sizes. Intervention studies are eligible only for baseline data meeting these criteria.

Eligibility criteria Include studies of competitive athletes measuring sport-context need satisfaction or frustration and overall athlete burnout or defined burnout dimensions, reporting zero-order correlations and sample sizes or recoverable statistics, in Chinese or English full text. Exclude non-athlete or recreational samples without extractable athlete data, non-zero-order effects, unresolvable overlapping samples, and studies lacking the relevant need or burnout measures.

Information sources Electronic bibliographic databases and supplementary reference sources used in the completed search were searched from database inception to the final search date. Reference lists of potentially eligible studies were also checked. The final review will report the exact databases and interfaces, complete search strategies, search dates, deduplication process, full-text screening, and supplementary searching procedures.

Main outcome(s) Primary outcome: overall athlete burnout or an overall burnout indicator. Effect measure: zero-order Pearson correlation, transformed to Fisher z for synthesis and back-transformed to r, with 95% confidence intervals.

Additional outcome(s) Exploratory outcomes: burnout dimensions including emotional and physical exhaustion, reduced accomplishment, and sport devaluation; associations of autonomy, competence, and relatedness dimensions with burnout dimensions.

Data management Extract author/year, country or region, sport, athlete level, age and sex composition, design, measures, dimensions, time point, correlation type and coefficient, sample size, reliability, result location, and reporting concerns. Treat independent cohorts as the unit and avoid duplicate contributions from overlapping reports.

Quality assessment / Risk of bias analysis Use the JBI analytical cross-sectional checklist for cross-sectional studies and the corresponding JBI cohort checklist for longitudinal studies. Two assessors work independently; disagreements are resolved by checking the full text and discussion, with a third assessor if needed.

Strategy of data synthesis Fit separate random-effects models for need satisfaction–overall burnout and need frustration–overall burnout, using Fisher z, REML for tau-squared, Hartung–

Knapp confidence intervals, I-squared, tau-squared, and prediction intervals when feasible. For comparable samples, calculate $D = |z_{\text{frustration}}| - |z_{\text{satisfaction}}|$ using dependent-correlation methods when covariance information is available.

Subgroup analysis Explore autonomy, competence, and relatedness by burnout dimension using stratified synthesis only when independent sample numbers and measurement meanings are sufficiently comparable; otherwise use narrative synthesis.

Sensitivity analysis Prespecified checks include restricting to clear Pearson correlations; excluding disputed or graph-derived sample sizes; retaining the earliest eligible wave per independent cohort; leave-one-out influence checks; excluding high-risk or poorly reported studies; and covariance scenarios for dependent effect comparisons.

Language restriction Chinese or English full text.

Country(ies) involved China.

Other relevant information The review is an observational association meta-analysis. The search phase is complete; current work begins with full-text verification, effect-data locking, overlap checks, risk-of-bias assessment, and analysis.

Keywords athlete burnout; basic psychological needs; need satisfaction; need frustration; meta-analysis; observational studies; sport psychology.

Dissemination plans Prepare a journal article reporting the review according to PRISMA and target journal requirements.

Contributions of each author

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