

Protocol for a Systematic Review and Meta-Analysis of the Relationship between Work-Family Conflict and Health Behaviors

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 31 December 2025 and was last updated on 31 December 2025.

INTRODUCTION

Review question / Objective To systematically review and meta-analyze the quantitative associations between work-family conflict and five key health behaviors (sleep disturbances, smoking behaviors, alcohol consumption, physical activity levels, healthy diet) among employed individuals, and to quantify the pooled effect sizes of these associations. To quantify associations between work-family conflict and five key health behaviors (sleep disturbances, smoking behaviors, alcohol consumption, physical activity, healthy diet) through a systematic review and meta-analysis, following PRISMA guidelines.

Rationale Contemporary changes in family structures and labor markets have intensified work-family conflict—a major occupational

stressor linked to multiple health problems. However, existing literature primarily focuses on work-related or psychological outcomes of work-family conflict, with a notable gap in systematically synthesizing its associations with health behaviors. Disparate findings also exist (e.g., inconsistent links between work-family conflict and physical activity across populations), highlighting the need for a comprehensive meta-analysis to clarify effect sizes. Theoretically, this study validates stress theory and Conservation of Resources (COR) theory in explaining health behavioral consequences of work-family conflict; practically, it bridges occupational health psychology and public health, providing evidence for individual, family, and organizational interventions to promote healthier lifestyles. Contemporary work-family conflict has become a prominent occupational stressor, yet a comprehensive synthesis of its

associations with multiple health behaviors remains absent. This study addresses this gap by systematically examining these relationships, bridging occupational health psychology and public health literature, and providing evidence for interventions to promote healthier lifestyles.

Condition being studied Exposure condition: Work-family conflict

Definition: A type of interrole conflict arising from incompatible demands between work and family domains, impeding effective functioning in either role (Greenhaus & Beutell, 1985).

Measurement: Assessed via validated scales (e.g., Netemeyer et al.'s 8-item scale, Carlson et al.'s multidimensional scale) or standardized questionnaires in included studies.

Outcome conditions: Health behaviors

Sleep disturbances: Indicators of sleep hygiene (e.g., difficulty falling asleep, poor sleep quality) measured by Pittsburgh Sleep Quality Index, Jenkins Sleep Questionnaire, etc.

Smoking behaviors: Self-reported smoking status, quantity, or frequency.

Alcohol consumption: Alcohol use, problematic drinking, or dependence measured by AUDIT, CAGE scale, or self-reported frequency/amount.

Physical activity levels: Leisure-time or daily physical activity assessed via International Physical Activity Questionnaire, Leisure Time Exercise Questionnaire, etc.

Healthy diet: Dietary quality (e.g., fruit/vegetable intake) measured by Adapted Healthy Eating Index, food frequency screeners, etc.

METHODS

Search strategy To conduct a comprehensive and systematic literature retrieval, this study adhered to the PICO-SD (Population, Intervention, Comparator, Outcome, Study Design) framework and PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. Electronic databases including PubMed, Web of Science, Embase, and PsycINFO were searched comprehensively, with the search period covering all relevant studies published up to March 4, 2025. In addition to database searches, manual retrieval was supplemented by reviewing the reference lists of included studies to avoid missing eligible literature.

The search terms were constructed by combining MeSH terms and entry terms to ensure comprehensive coverage of core concepts. For the exposure variable "work-family conflict", relevant terms included "work-life balance", "Work-Life Conflict", "Work Family Conflict", "Work-Family Conflicts", "Life-Work Imbalance", "Work-Family

Balance", and "Family-work conflict". For the outcome variables, general terms such as "Health behavior", "Health Behaviors", and "Healthy lifestyle" were used, combined with specific health behavior terms including "Sleep" (and its derivatives like "Sleeping Habits", "Sleep Quality"), "Smoking" (and "Smoking Behaviors", "Smoking Habit"), "Alcohol consumption" (and "Alcohol Use", "Problem Drinking"), "Physical activity" (and "Exercise", "Physical Exercises"), and "Healthy diet" (and "Healthy Eating", "Dietary Intake").

The search combination strategy for each database was formulated as (work-family conflict-related terms) AND (health behavior general terms OR specific health behavior terms). For example, in PubMed, the search involved combining MeSH terms such as "work-life balance" with title/abstract terms like "Work-Life Conflict" and "Family-work balance", and then intersecting with health behavior-related terms including "Health behavior", "Sleep", "Smoking", "Physical activity", and "Healthy diet". Similar term combinations and logical relationships were applied in Web of Science, Embase, and PsycINFO, adapting to the unique retrieval syntax and rules of each database. Strict search limits were set to ensure the relevance and eligibility of retrieved studies: study design was restricted to observational studies (including cross-sectional and longitudinal designs); only English-language studies were included; and qualitative studies, intervention studies, reviews (narrative reviews, conceptual reviews, systematic reviews, and meta-analyses), research protocols, editorials, and studies without full-text availability were excluded. This multi-database, multi-term, and multi-limitation search strategy aimed to maximize the retrieval of relevant literature while ensuring the rigor and reliability of the study selection process.

Participant or population Employed adults (across diverse occupations, e.g., nurses, IT workers, police officers) who were participants in observational studies (cross-sectional or longitudinal) examining the association between work-family conflict and health behaviors.

Intervention Not applicable (this is a systematic review of observational studies examining naturally occurring work-family conflict).

Comparator Not applicable (no comparative intervention; the review focuses on the association between work-family conflict and health behaviors).

Study designs to be included Observational studies (cross-sectional or longitudinal) that

reported quantitative associations between work-family conflict and at least one of the five health behaviors. Excluded study designs: qualitative studies, interventions, reviews, protocols, editorials, and non-English or full-text unavailable studies.

Eligibility criteria Inclusion criteria: (1) Examined work-family conflict as an exposure; (2) Evaluated at least one of the five health behaviors (sleep disturbances, smoking, alcohol consumption, physical activity, healthy diet); (3) Reported quantitative effect sizes (e.g., correlation coefficients); (4) Observational design (cross-sectional/longitudinal); (5) Published in English with full-text available. Exclusion criteria: Qualitative studies, interventions, reviews, protocols, editorials, duplicate samples, and incomplete data.

Information sources Electronic databases (PubMed, Embase, Web of Science, PsycINFO), manual searches of reference lists of included studies. No grey literature or trial registers were searched. Last search date: March 4, 2025.

Main outcome(s) Quantitative associations (pooled correlation coefficients) between work-family conflict and five health behaviors: sleep disturbances, smoking behaviors, alcohol consumption, physical activity, and healthy diet. Effect sizes with 95% confidence intervals (CIs) were the primary outcomes.

Additional outcome(s) Not applicable.

Data management Data were extracted independently by two reviewers using standardized tables, including study characteristics, sample details, measurement tools, and effect sizes. Discrepancies were resolved via team discussion. Duplicate studies (same participant groups) were excluded, and weighted average effect sizes were calculated for studies reporting multiple work-family conflict dimensions.

Quality assessment / Risk of bias analysis Study quality was assessed using the Kmet et al. (2004) criteria (14 items, scored 0-2 per item; total score >65% of maximum indicated moderate-high quality). Two independent reviewers conducted assessments, with inter-rater reliability (Kappa = 0.82) indicating robust agreement. All included studies were rated as low risk of bias.

Strategy of data synthesis Pooled correlation coefficients were estimated using Fisher's z-transform and inverse transformation. Heterogeneity was assessed via Cochrane's Q-

statistics and I^2 . A random-effects model was used due to significant heterogeneity ($I^2 \geq 50\%$). Publication bias was evaluated with funnel plots and Egger's test; trim-and-fill analyses were conducted if bias was detected. Analyses were performed using Comprehensive Meta-analysis Version 3.

Subgroup analysis No predefined subgroup analyses were planned. Heterogeneity was explored descriptively by study design (cross-sectional vs. longitudinal) and sample characteristics (gender, occupation).

Sensitivity analysis Sensitivity analyses were conducted using trim-and-fill methods to adjust for potential publication bias, particularly for associations with alcohol consumption and physical activity levels. The robustness of pooled effect sizes was verified by excluding individual studies one by one.

Language restriction English-only; non-English studies were excluded.

Country(ies) involved authors affiliated with China and the Netherlands.

Other relevant information This systematic review and meta-analysis followed the PRISMA 2020 guidelines (checklist provided in supplementary materials). A total of 33 studies (39 effect sizes) were included, with sample sizes ranging from 57 to 7551 participants.

Keywords meta-analysis; health behaviors; work-family conflict; systematic review; sleep disturbances; smoking; alcohol consumption; physical activity; healthy diet.

Dissemination plans The findings will be published in a peer-reviewed journal and shared with academic and public health communities via conferences and institutional repositories.

Contributions of each author

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