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# Nutrition Misinformation on TikTok and Dietary Behaviours in Young Adults: A Systematic Review Protocol

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## ABSTRACT

**Background**: There is a substantial volume of false nutrition information on TikTok, much of it created by individuals without nutrition credentials. Experimental evidence links viewing TikTok food videos to body image, mood, social comparison, and eating intentions, but this evidence has not yet been synthesised systematically for young adults.

**Methods**: This protocol is registered on PROSPERO (CRD420261424452). MEDLINE/PubMed, Embase, Scopus, Web of Science, PsycInfo, CINAHL, and Cochrane Library will be searched from January 2018 onwards for studies of adults aged 18–25 years (Tier 1), with secondary inclusion of studies reporting a mean sample age of >25–30 years (Tier 2) or >30–35 years (Tier 3), each treated as a separate, non-overlapping subgroup. Eligible designs include content analyses, surveys, experiments, and qualitative studies. Two reviewers will independently screen and extract data, with a third resolving disagreements. Synthesis will follow SWiM, with certainty assessed using GRADE and CERQual.

**Results:** This review will assess the quality and accuracy of TikTok nutrition content, psychological mechanisms linking exposure to dietary attitudes, dietary behaviours as the primary outcome, and body image, mood, and dietary intentions as secondary outcomes.

**Conclusion:** This will be the first systematic review to examine TikTok nutrition misinformation and dietary behaviour in young adults aged 18–25. It will draw on the Tripartite Influence Model and Social Comparison Theory to examine how content exposure may relate to dietary behaviour change. Findings may inform clinical practice, marketing regulation, digital nutrition education, and platform design.

**Keywords:** Social media, emerging adulthood, short-form video, eating habits, media influence

## 1. INTRODUCTION

### 1.1. TikTok as a nutrition-information environment

The health-information landscape for young people has changed dramatically, especially with the rise of short-form video platforms, such as TikTok. TikTok's machine learning algorithms for its recommendation system focus on the amount of time spent watching a video, which means that suggested content is based on the likelihood of engagement, not on the credibility of the source or quality of the evidence (Griffiths et al., 2025). The result is a structural imbalance: Credentialed evidence-based content is less likely to be seen than inaccurate, emotionally charged,

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or eye-catching content. The platform has a strong penetration in the youth market. Pew Research Center nationally representative survey data from 2024 show that 62% of U.S. adults under 30 use TikTok (Gottfried, 2024). There are two overlapping reasons for placing a strong emphasis on young adults – and on the 18–25-year-old group. First, this portion of the audience is the backbone of TikTok's active audience. Second, it is consistent with the developmental stage of emerging adulthood, when eating habits are cemented and eating disorders are taking shape, and with the age when eating disorders are most likely to start (Arnett, 2000; Galmiche et al., 2019). In light of the fact that the published experimental and survey literature may sample broader age ranges of young adults (18–30+ or 18–35+ years), a tiered population approach (fully described in Section 2.2.) has been used in this review to maximise the coverage of evidence while keeping the focus on the 18–25 age band in sub-population analyses.

### 1.2. Evidence of content inaccuracy

There has been systematic documentation of poor accuracy in nutrition content on TikTok through peer-reviewed content analyses. Zeng et al. (2025) coded 250 posts using a modified Social Media Evaluation Checklist and found that 36% of the posts were entirely accurate, 24% were mostly inaccurate, and 18% were completely inaccurate. Minadeo and Pope (2022) examined 1,000 videos from each of ten hashtags that had more than one billion views and discovered that less than 3% of the videos were weight-inclusive and that about 1.4% of videos with the hashtag #nutrition were made by a registered dietitian. In a study of 250 videos from the top five most viewed diet-related hashtags with a total of approximately 39.7 billion views, the only content characteristic that was significantly associated with engagement was humour (Munro et al., 2024). In a study of 233 high-view supplement-promotion videos, Raffoul et al. (2024) found that 97% did not present any scientific evidence, 93.6% did not specify any credentials for the video creator, and 95.7% did not mention any sponsorship. These numbers total a virtual absence of basic transparency standards that professional health communicators need.

Overall, the studies align in indicating that most of the nutrition content created on TikTok comes from non-experts, is focused on weight-loss or restrictive eating habits, and does not contain fundamental transparency indicators.

### 1.3. Theoretical framework

The review is based on two interrelated theoretical models, which can be applied to explain the platform-level amplification mechanisms and individual-level psychological processes linking content viewing and dietary behaviours.

*Tripartite Influence Model*. Thompson et al. (1995) proposed that parents, peers, and media each shape body dissatisfaction and disordered eating through two proximal pathways – thin-ideal internalisation and social comparison – a model that remains widely used in media-and-eating-disorders research (Cafri et al., 2005; Rodgers & Melioli, 2016). Applied to TikTok, high-frequency, algorithmically tailored content exposure is theorised to activate both pathways, increasing body dissatisfaction and a desire for dietary change.

*Social Comparison Theory*. Festinger (1954) proposed that people evaluate themselves relative to others, particularly in the absence of objective criteria; upward comparisons are associated with negative affect and behavioural responses including dietary restriction. In one preregistered experiment ($N$ = 316; Drivas et al., 2024), exposure to low-calorie 'WhatIEatInADay' (WIEIAD) content increased upward social comparison and decreased body satisfaction, with social comparison and mood identified as mediators. Together, these two models structure this review's outcome hierarchy and synthesis design:

TikTok platform architecture → Nutrition content exposure → Social comparison and thin-ideal internalisation → Body dissatisfaction → Dietary attitudes (secondary outcomes) → Dietary behaviours (primary outcome)

Moderating variables identified in the literature – including age, gender, pre-existing eating-disorder risk, TikTok usage frequency, body mass index, and nutrition literacy – are incorporated at the pathway level and will be examined in pre-specified subgroup analyses where data permit.

### 1.4. Evidence gap and justification for this review

Seven systematic and scoping reviews address TikTok and health information broadly, or social media and nutrition and eating-disorder outcomes more broadly. Table 1 maps each review against the four axes that define this review's contribution.

Table 1. **Gap-mapping analysis: Existing TikTok-related systematic reviews**

| Review | Year | Platform Specificity | Young-Adult Focus or Age Specified | Nutrition Misinformation Focus | Dietary Behaviour as Primary Outcome |
|---|---|---|---|---|---|
| Suarez-Lledo & Alvarez-Galvez, *Journal of Medical Internet Research* | 2021 | Multi-platform; pre-TikTok era | No | Health misinformation broadly | No |
| Denniss et al., PROSPERO CRD42021224277 | 2022 | Multi-platform | No | Nutrition information quality and accuracy | No; explicitly notes TikTok as unstudied |
| Li et al., *International Journal of Medical Informatics* | 2024 | TikTok | No | Health science video quality | No; no behavioural outcomes |
| Sattora et al., *Journalism & Media* | 2024 | TikTok | No | Health topics broadly | No |
| Merga, *IFLA Journal* | 2025 | TikTok | No | Digital health literacy | No |
| Disinformation on social networks (28 studies) | 2024–25 | Multi-platform | No | Diet and nutrition disinformation | No; TikTok ≈5% of studies |
| Social media and disordered eating, *Nutrients* | 2025 | Multi-platform | 18–30 secondary focus | General social-media use | EAT-26/ EDE-Q associations; not TikTok-specific |

As Table 1 demonstrates, no published PRISMA 2020 systematic review simultaneously: (a) focuses on TikTok specifically; (b) adopts a young-adult population focus with a pre-specified subgroup analysis for the 18–25 age band; (c) addresses nutrition misinformation as the primary exposure; and (d) treats dietary behaviour as the primary outcome. The four-axis intersection constitutes the precise and original contribution of this review.

The Denniss et al. (2022) review explicitly identified TikTok as an unstudied platform; the 2024–25 multi-platform review confirms that TikTok remains underrepresented at approximately 5% of the literature. Li et al. (2024) and Sattora et al. (2024) address TikTok but examine neither nutrition misinformation as the primary exposure nor behavioural outcomes. Merga (2025) addresses digital health literacy rather than nutrition misinformation or dietary behaviour. None of the seven reviews specifies the 18–25 age band as the population of primary interest, despite this being the period of peak eating-disorder onset and the demographic core of TikTok's user base.

### 1.5. Objectives

*Primary aim*. To draw a group-level conclusion about the relationship between exposure to nutrition information on TikTok and dietary behaviour in young adults, with primary emphasis on the 18–25-year-old age band (Tier 1), and to extend these findings, as a lower-certainty secondary contribution, to studies that do not provide an extractable 18–25-year-old subgroup but report a mean sample age of up to 35 years (Tiers 2 and 3; Section 2.2.).

*Secondary aims*. (a) To describe the nature and quality, accuracy and sources of nutrition-related TikTok content. (b) To understand the psychological processes (social comparison, thin ideal

internalisation, body dissatisfaction, and mood) that mediate between food content exposure and food attitudes. (c) To explore moderating factors such as gender, self-reported risk for eating disorders, frequency of use of TikTok, and nutrition literacy between the exposure pathway and behaviour.

## 2. METHODS

### 2.1. Reporting standards

This protocol was prepared beforehand to inform the review process and to promote methodological transparency. This protocol is registered on PROSPERO (registration number CRD420261424452). This protocol was prepared in accordance with the PRISMA-P 2015 reporting guideline (Moher et al., 2015; Shamseer et al., 2015). The final review will be reported according to PRISMA 2020 (Page et al., 2021a, 2021b) and the PRISMA-S extension for reporting literature searches (Rethlefsen et al., 2021). The PRISMA-P 2015 reporting checklist is provided in Appendix A.

### 2.2. Eligibility criteria

All eligibility is based on the Population, Exposure, Comparator, Outcome, and Study design (PECOS) approach.

*Population*

Age classification follows a two-step, pre-specified, mutually exclusive, and reproducible procedure, applied in the following order.

Step 1 – Participant-level data (preferred). Where a study reports extractable data for a subgroup of participants aged 18–25 years – a stratified result, an age-disaggregated analysis, or a sample recruited exclusively within this range – that subgroup's data is classified as Tier 1 and is included in all Tier 1 (primary) analyses and in every pre-specified subgroup analysis, regardless of the age of any other participants in the same study. A single study may contribute Tier 1 data for outcomes reported within an extractable 18–25-year-old subgroup, and Tier 2 or Tier 3 data (by its overall mean sample age; Step 2) for any other outcomes in the same publication that are not age-disaggregated; this dual contribution will be recorded explicitly on the data-extraction form (Section 2.6.) and reported transparently in the results.

Step 2 – Mean-sample-age classification (applied only where 18–25-year-old participant-level data cannot be extracted). The whole study is classified by its reported mean sample age into exactly one of two non-overlapping bands: Tier 2 – mean sample age greater than 25 and up to 30 years (>25–30 years). Tier 3 – mean sample age greater than 30 and up to 35 years (>30–35 years). These bands do not overlap; a study classified under Step 2 is assigned to Tier 2 or Tier 3, never both.

Because a mean age within either band does not, on its own, establish that a meaningful proportion of participants fell within 18–25 years, every Tier 2/3 study will also have its reported standard deviation and, where available, minimum–maximum age range or the proportion of the sample within 18–25-year-old age band extracted (Section 2.6.). Where this information indicates that little of the sample could plausibly fall within 18–25 years, this will be recorded and explicitly factored into the GRADE indirectness judgment for that study's contribution (Section 2.8.), rather than the study being treated as automatically representative of the Tier 1 population on the strength of its mean age alone.

Studies recruiting exclusively below the age of 18, or with a reported mean sample above 35 years of age and no extractable 18–25-year-old subgroup, are excluded. This classification is pre-specified and is applied identically everywhere age-based inclusion is described in this protocol (Abstract, Section 1.5., this section, and Sections 2.8. and 3); it does not require a protocol amendment to apply.

Tier 1 corresponds to the primary European demographic targeted by TikTok and the window of highest epidemiological risk for the onset of eating disorders (Arnett, 2000; Galmiche et al., 2019). Tiers 2 and 3 are retained because most existing studies use undergraduate or online convenience samples – typically reporting mean ages in the low-to-mid-twenties – rather than participants recruited exclusively at the age of 18–25, and excluding them would discard much of the available behavioural-outcome evidence. The 18–25-year-old focus is preserved through the Tier 1 subgroup analysis (Section 2.8., the highest-priority pre-specified analysis) and through sensitivity analyses isolating Tier 1 findings; the contribution of Tier 2 and Tier 3 studies is reflected in the GRADE indirectness domain.

Content analyses, which do not recruit human participants, are classified by the stated target audience or hashtag context of the sampled content rather than by participant age, and are reported as a separate stratum alongside the three participant-age tiers.

Age will be coded as a continuous moderator in all meta-analytic models if a sufficient cluster of comparable studies becomes available.

*Exposure*

The exposure of interest is defined as: (a) nutrition- or diet-related content on TikTok – including content tagged with hashtags related to nutrition, diet, weight loss, dietary supplementation, body image, or related themes – as the primary exposure unit in content analyses; or (b) self-reported or experimentally assigned use of TikTok for nutrition or diet information in survey or experimental studies. Nutrition content is operationally defined as content-making explicit claims about food, dietary patterns, weight management, nutritional supplementation, or body composition. Content addressing exercise or physical activity without dietary claims is excluded. Studies using TikTok alongside other platforms are eligible only if TikTok-specific data are extractable.

*Comparator*

No comparator is required for content analyses or single-arm exposure studies. Where present, eligible comparators include no-TikTok exposure, exposure to accurate nutrition content, exposure to non-diet TikTok content, and exposure to content from other social media platforms.

*Outcomes*

**Primary outcome.** The primary outcome is dietary behaviour, comprising three conceptually distinct constructs that will be extracted, synthesised, and GRADE-rated separately rather than combined into a single effect estimate:

**(a) Actual dietary intake** – what is eaten, operationalised as food intake patterns assessed by a validated food frequency questionnaire (FFQ) or structured dietary recall.

**(b) Dietary restraint** – a cognitive and behavioural orientation towards restricting food intake, operationalised using validated restraint measures (e.g. the restraint subscale of the TFEQ-R18/R21 or an equivalent validated instrument).

**(c) Disordered-eating symptoms** – the severity of eating-disorder psychopathology, operationalised using validated instruments (EAT-26, EDE-Q).

These three constructs are related but not interchangeable: intake describes what is consumed, restraint describes a cognitive and behavioural orientation towards food, and disordered-eating symptoms describe a clinical or subclinical symptom profile. Each will be reported and GRADE-rated as its own outcome domain; convergence or divergence across the three will be discussed narratively, but no composite 'dietary behaviours' score or pooled estimate spanning all three will be constructed.

**Distinction from dietary intentions.** Dietary intentions (see *Secondary outcomes* below) are conceptually and operationally distinct from the primary outcome: intentions capture stated willingness or plans to change eating patterns, whereas the primary outcome captures actual or self-reported eating behaviour. The two will be extracted, reported, and interpreted separately throughout the review and will not be conflated in the narrative synthesis or in any summary statement about the primary outcome.

**Secondary outcomes:** Body image satisfaction; social comparison orientation (Iowa–Netherlands Comparison Orientation Measure, INCOM); thin-ideal internalisation; mood and affect; dietary intentions (stated willingness or plans to change eating patterns – distinct from the primary outcome, above); nutrition confusion (Nagler's Nutrition Confusion Scale); content quality and accuracy (DISCERN, Global Quality Scale, JAMA benchmark criteria); creator credential disclosure; and engagement metrics (likes, comments, shares, view counts).

*Study designs*

Eligible designs include quantitative content analyses, cross-sectional surveys, randomised experiments, non-randomised experiments, and qualitative studies included for mechanistic evidence. Algorithm audit studies are eligible but will be appraised using a bespoke instrument and reported in a separately demarcated section of the synthesis (see Section 2.7.). Case reports, editorials, commentaries, letters, and narrative reviews without primary data are excluded. Grey literature – including advocacy reports and commercially funded analyses – will not be included in the primary evidence synthesis but will be described in a separately demarcated supplementary appendix (see Section 2.9.).

*Language, date range, and publication type*

English-language publications only. Studies published in other languages will be recorded in the PRISMA 2020 flow diagram as excluded, with language cited as the reason. The search covers the period from January 2018 to the date of search completion; the lower bound corresponds to TikTok's international public launch and is methodologically justified by platform availability. Peer-reviewed primary studies and registered reports are eligible. Conference abstracts without accompanying full-text primary data are excluded. Preprints are eligible only if they are under active peer review at a named journal at the time of screening.

*Explicit exclusion criteria*

Studies are excluded if they meet any of the following criteria:

- Do not examine TikTok specifically, and TikTok-specific data cannot be disaggregated from multi-platform analyses.
- Have a reported mean sample age above 35 years and no extractable data for a subgroup aged 18–25 years; or recruit exclusively below age 18.
- Examine physical activity or fitness content with no dietary or nutritional component.
- Are editorials, commentaries, letters, or narrative reviews without primary empirical data.
- Report inter-rater reliability for content-analysis coding below $\kappa = 0.60$.
- Use non-validated, bespoke outcome measures with no psychometric properties reported.
- Consist solely of platform-produced, commercial, or advocacy reports without peer-reviewed methodology.

### 2.3. Information sources

Searches will be conducted across the following databases by a qualified information specialist:

- MEDLINE/PubMed (National Library of Medicine)
- Embase (Elsevier, via Ovid)
- Scopus (Elsevier)
- Web of Science Core Collection (Clarivate)
- PsycInfo (American Psychological Association, via Ovid)
- CINAHL (EBSCO)
- Cochrane Library (CENTRAL and Cochrane Database of Systematic Reviews)

Supplementary search methods will include: Google Scholar (first 200 unique results per query set, with search terms and retrieval date documented); backward and forward citation chasing for all included studies via Scopus and Semantic Scholar; and hand-searching of the following key journals: Nutrients, Body Image, International Journal of Eating Disorders, Public Health Nutrition, Journal of Medical Internet Research, Appetite, and Eating Behaviors. All search dates, last-run dates, and result counts per database will be reported in accordance with PRISMA-S.

### 2.4. Search strategies

The database-specific Boolean search strings (Appendix B) were developed by the review team in consultation with a qualified information specialist and validated against a set of ten known-relevant primary studies as a sensitivity check. The exact search date, database/interface used, and search results will be recorded at the time of execution and reported in the final manuscript. Each string is organised into four logical blocks: platform terms (Block 1), nutrition and dietary content terms (Block 2), misinformation and psychological-mechanism terms (Block 3), and population terms (Block 4). Blocks 1 and 2 are mandatory and combined using the AND operator. Blocks 3 and 4 are combined with each other using OR, and the result is required via AND – that is, Block 1 AND Block 2 AND (Block 3 OR Block 4). This reflects the eligibility criteria in Section 2.2.: content analyses sample platform content rather than human participants and will typically satisfy Block 3 (e.g. via 'accuracy' or 'content analysis' terms) without using population-descriptor language, whereas participant-based studies will typically satisfy Block 4 without necessarily using misinformation-specific terminology. Requiring only one of the two, rather than both, preserves search sensitivity for both study types while still excluding platform-and-nutrition records unrelated to either population or content-quality/mechanism concerns. Within each block, terms are combined using the OR operator.

*Supplementary terms*. The following terms were prespecified for inclusion within the database-specific search strategies to improve sensitivity to relevant terminology: 'algorithmic recommendation', 'recommendation system', 'watch time', 'ByteDance', 'short video application', 'nutrition literacy', 'food literacy', 'healthy eating', 'diet advice', and 'food influencer'. These terms will be applied as free-text searches in the available title, abstract, and keyword fields and combined with the existing terms using the OR operator within the appropriate search block. The terms 'algorithmic recommendation', 'recommendation system', and 'watch time' will be used to capture algorithm-audit literature; 'ByteDance' and 'short video application' will capture variant platform terminology; and 'nutrition literacy', 'food literacy', 'healthy eating', 'diet advice', and 'food influencer' will broaden retrieval of relevant nutrition-related terminology. The term 'weight management' is substantively covered by 'weight loss' and 'weight reduction' and therefore does not require separate addition.

### 2.5. Study selection

Two reviewers will screen the titles and

abstracts of all the possibly eligible records and subsequently carry out a full text assessment of all the potentially eligible records separately, either on Covidence or Rayyan. It will be discussed what occurs with disagreements at each stage; there will be a third reviewer for disagreements that will not be resolved by discussion. The inter-rater agreement will be determined by Cohen's κ and reported at both screening stages. If κ is below 0.70 during full-text screening, then a calibration exercise will be carried out as needed, and the agreement will be recalculated, before the restart of the screening process. Records identified, screened, assessed for eligibility, and included will be documented in a PRISMA 2020 four-phase flow diagram. Records that are excluded and records that have been excluded at the full text stage will be documented in the PRISMA 2020 four-phase flow diagram.

### 2.6. Data extraction

A standardised data-extraction form will be piloted on five included studies before full extraction commences. The following information will be extracted from each included study:

- *Study characteristics*: design, country, setting, recruitment method, and sampling frame.
- *Platform details*: hashtags searched, sampling strategy (keyword-based, trending, incognito or private account), number of videos or participants, and observation period.
- *Population*: age range, mean age, standard deviation of age (and, where available, the proportion of the sample aged 18–25), gender distribution, and clinical status (general population versus at-risk).
- *Exposure definition*: passive scrolling versus active search; experimentally assigned versus self-reported.
- *Quality and accuracy measures*: instrument used (DISCERN, Global Quality Scale, JAMA benchmarks, or modified Social Media Evaluation Checklist), inter-rater reliability of coders, and operational definition of accuracy.
- Outcome measures and instruments for all primary and secondary outcomes.
- *Effect estimates*: mean differences, odds ratios, correlation coefficients, and standardised mean differences, each with 95% confidence intervals.
- *Engagement metrics*: likes, comments, shares, and view counts.
- *Creator characteristics*: credential type, disclosed versus undisclosed, and expert versus non-expert.
- Funding sources and declared conflicts of interest.
- Data extraction will be performed independently by two reviewers; discrepancies will be resolved by consensus or third-reviewer adjudication. Risk-of-bias judgments will be extracted on the same form and processed as described in Section 2.7.

### 2.7. Risk-of-bias and quality appraisal

Design-appropriate appraisal tools will be applied by two independent reviewers:

*Cross-sectional surveys*: Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross-Sectional Studies (nine items).

*Randomised experiments*: Cochrane Risk of Bias 2.0 (RoB 2), addressing the randomisation process, deviations from intended interventions, missing outcome data, measurement of the outcome, and selection of the reported result.

*Non-randomised experiments and quasi-experiments*: ROBINS-I (Risk of Bias in Non-randomised Studies of Interventions), addressing confounding, selection bias, classification of interventions, deviations from intended interventions, missing data, measurement of outcomes, and selective reporting.

*Qualitative studies*: Critical Appraisal Skills Programme (CASP) Qualitative Checklist (ten items).

*Content analyses*: JBI Checklist for Analytical Cross-Sectional Studies adapted for content-analytic designs, supplemented by a five-item sampling-transparency subscale assessing: (a) use of incognito or private accounts to reduce algorithmic personalisation bias; (b) reproducibility of hashtag selection; (c) sampling frame documentation; (d) coder training and inter-rater reliability reporting (minimum acceptable $\kappa = 0.60$); and (e) temporal representativeness of the sampling period.

Algorithm audit studies do not map onto existing standardised appraisal tools. A bespoke seven-item checklist will therefore be applied, addressing: (a) account-creation transparency; (b) behavioural protocol, including viewing sequences and dwell times; (c) independence from platform provision; (d) reproducibility; (e) scope of hashtags or search terms audited; (f) declared conflicts of interest; and (g) the existence of independent replication or a formal platform rebuttal. Algorithm audit findings will be reported in a designated, clearly

demarcated section of the synthesis, separate from the peer-reviewed primary-study results.

Overall risk-of-bias judgments will be reported per study and summarised at the domain level. Sensitivity analyses will exclude studies rated as high overall risk of bias.

*Publication-bias assessment*. If ten or more studies report effect estimates on the same outcome, a contour-enhanced funnel plot will be constructed and Egger's Test applied. Where fewer than ten studies are available, publication bias will be assessed narratively, acknowledging the documented tendency for positive results to be more readily published in the social-media health literature (Suarez-Lledo & Alvarez-Galvez, 2021).

### 2.8. Evidence synthesis

A structured narrative synthesis following the SWiM (Synthesis Without Meta-analysis) guidance (Campbell et al., 2020) will serve as the primary synthesis method. Meta-analysis is not pre-specified, given the anticipated heterogeneity across content quality instruments (DISCERN, Global Quality Scale, JAMA benchmarks, bespoke checklists) and behavioural outcome measures (EAT-26, EDE-Q, TFEQ-R18/R21, dietary restraint indices). A pre-specified decision rule for meta-analysis is defined as follows: if five or more experimental studies report the same validated behavioural or attitudinal outcome instrument at a comparable follow-up interval, a random-effects meta-analysis of standardised mean differences will be conducted using the DerSimonian–Laird estimator with the Hartung–Knapp adjustment. Heterogeneity will be quantified using $I^2$ and $\tau^2$.

The narrative synthesis will be organised by outcome domain:

**Domain 1** – Content quality and accuracy (contextual and secondary): characterise the prevalence and correlates of inaccurate nutrition content; compare accuracy estimates across studies; examine the relationship between accuracy and engagement metrics.

**Domain 2** – Creator characteristics and disclosure (contextual and secondary): characterise the credential profile of dominant content creators; quantify non-disclosure of credentials and commercial sponsorship.

**Domain 3** – Psychological mechanisms (secondary outcomes): synthesise evidence on social comparison, thin-ideal internalisation, and body dissatisfaction as mediators of the content–attitude pathway, organised according to the Tripartite Influence Model.

**Domain 4** – Dietary attitudes and behaviours (primary and secondary outcomes): synthesise evidence on dietary intentions, body image satisfaction, mood, nutrition confusion, and – as the primary outcome – dietary behaviour across its three constituent constructs (actual dietary intake, dietary restraint, and disordered-eating symptoms), each as measured by its respective validated instruments.

Effect-direction tables will represent convergence or divergence across studies within each domain. Vote-counting is explicitly avoided; the synthesis will instead rely on narrative description of effect direction and magnitude with appropriate uncertainty language.

Pre-specified subgroup analyses will be conducted where data permit for the following variables: age tier (Tier 1: 18–25 years versus Tier 2: mean sample age >25–30 years versus Tier 3 sensitivity: mean sample age >30–35 years; age will also be examined as a continuous moderator where individual participant data are available); gender (female versus male versus gender-diverse); baseline eating-disorder risk (at-risk versus general population); TikTok usage frequency (heavy versus moderate versus light); and experimental design (randomised versus non-randomised). The age subgroup analysis is designated the highest-priority pre-specified analysis and will be reported first within the results.

*Certainty of evidence*. For each primary and secondary outcome, two reviewers will independently rate certainty using GRADE (quantitative evidence) or CERQual (qualitative evidence), with disagreements resolved by consensus or third-reviewer adjudication. GRADE ratings will begin at high (randomised designs) or low (observational and content-analytic designs) and will be downgraded for: risk of bias (per the domain-level judgments in Section 2.7.); inconsistency (substantial unexplained heterogeneity in direction or magnitude of effect across studies); indirectness (including the Tier 2/Tier 3 age-range extrapolation described in Section 2.2., informed by each study's extracted age standard deviation and range or 18–25-year-old proportion where available, and evidence drawn from non-English-speaking or non-Western populations); imprecision (wide confidence intervals or small total sample size relative to an outcome's optimal information size); and publication bias (per the funnel-plot or narrative assessment in Section 2.7.). CERQual ratings will apply the parallel four components of methodological limitations, coherence, adequacy of data, and

relevance. Final certainty ratings (high, moderate, low, or very low) will be presented as SWiM-adapted evidence profiles reporting direction of effect for each outcome; full GRADE Summary of Findings tables with pooled effect sizes will be produced only for outcomes meeting the pre-specified meta-analysis threshold (Section 2.8.).

### 2.9. Grey literature and commercially funded sources

Grey literature – including advocacy organisation reports, commercially commissioned analyses, platform-reported user statistics, and news-media accounts – will not be incorporated into the primary evidence synthesis. Such sources will be identified by separate designation for contextual purposes only with an explicit indication of any known limitations or conflicts of interest and a statement that it is not a peer-reviewed source. Imported findings from the grey literature will not be included in findings that support or qualify the conclusions in the main synthesis. If the claims from the grey literature sources will be subsequently investigated by fashioning peer-reviewed literature items, references to the peer-reviewed literature will be found in the primary synthesis.

## ANTICIPATED SCOPE OF THE EVIDENCE BASE

This section describes the volume and composition of evidence anticipated on the basis of database scoping conducted for this protocol; it is not an anticipated-results section. The review is expected to identify approximately 25–50 eligible peer-reviewed papers, reflecting TikTok's availability since 2018 and the growing volume of relevant publications since 2022. Under the tiered inclusion framework (Section 2.2.), Tier 2 (mean sample age >25–30 years) studies are anticipated to form the majority of the evidence base, with Tier 1 (18–25 years) findings reported as the primary subgroup analysis and Tier 3 (mean sample age >30–35 years) findings reported in the sensitivity analysis. Anticipated directions of effect within specific outcome domains are discussed, as a single hypothesis rather than a set of expected results, in Section 4.1.

## 4. DISCUSSION

### 4.1. Anticipated interpretation

If the evidence aligns with the model outlined in Section 1.3., the synthesis may support the hypothesis that TikTok's combination of high reach and low content accuracy contributes to social comparison and thin-ideal internalisation, which may in turn be associated with body dissatisfaction and altered dietary behaviour in young adults. This interpretation will be treated as one possible explanation to be tested by the synthesis, not as a conclusion of this protocol.

### 4.2. Clinical and policy implications

If the anticipated pattern of findings is confirmed, implications may extend to: (a) clinical psychoeducation regarding social media recommendation systems and their differential effects on at-risk patients; (b) regulatory frameworks governing the promotion of dietary supplements and weight-loss products on short-form video platforms, an area Raffoul et al. (2024) have already flagged as a regulatory priority; (c) digital nutrition literacy curricula for young adults; and (d) platform design obligations, including the evidence-based labelling or algorithmic demotion of nutritionally inaccurate content. These are presented as potential, not guaranteed, applications of the review's findings.

### 4.3. Limitations of the evidence base

The review will acknowledge the following structural limitations of the current literature and of this review's own methodological decisions: dominance of cross-sectional and content-analytic designs that cannot establish causal pathways to dietary behaviour change; sampling bias introduced by TikTok's recommendation algorithm, which elevates trending content even when private browsing accounts are used; a Western, female, and White skew across existing study populations that limits global generalisability; short experimental observation windows – typically minutes to days – that may not capture the cumulative effects theorised by the Tripartite Influence Model; heterogeneity across content quality instruments that constrains direct comparison of accuracy estimates between studies; and language restriction bias. This review will exclude, literally, key information from areas outside of English-speaking nations, such as China, but also from non-English populations in the same country, because the food habits and 'comparison norms' among the latter could meaningfully differ from that of populations which participate in the English-language literature on such topics. The geographical and linguistic scope of included studies will be mapped descriptively, and the potential direction of any resulting bias will be discussed in the context of the GRADE indirectness domain.

### 4.4. Future research priorities

Background scoping for this protocol (Section 1.4.) suggests that longitudinal panel designs, pre-registered experiments using common validated outcome measures, API-based or researcher-controlled content delivery, understudied populations (including men, non-Western samples, and gender-diverse individuals), and a standardised instrument for assessing TikTok nutrition content quality are all currently underrepresented in this literature. Whether these remain genuine gaps, and which are most pressing, will be established by the completed synthesis rather than assumed here.

## 5. CONCLUSIONS

This protocol describes a planned systematic review prepared in accordance with the PRISMA-P 2015 reporting guideline. The planned review will examine nutrition misinformation on TikTok and its relationship with dietary behaviours among young adults aged 18–25 years, with actual dietary intake, dietary restraint, and disordered-eating symptoms considered as distinct outcome domains. The pre-specified subgroup analysis and tiered population framework aim to maximise evidence coverage while maintaining a primary focus on the population at greatest epidemiological risk of eating-disorder onset. It will draw on the Tripartite Influence Model and Social Comparison Theory to examine the mechanisms through which content exposure may be associated with dietary behaviour change. The results could affect clinical psychoeducation, recommendation for making claims regarding food supplements in short-form videos, nutrition literacy education in the digital environment, and platform design responsibilities. This will be a timely and original review, expected to add to the body of evidence on social media, nutrition misinformation, and young adult health.

**Protocol Amendments**

Any amendments to this protocol after the search has commenced will be documented in writing, specifying the date of the amendment, the nature of the change, and the rationale. All amendments will be reported transparently in the methods section of the final published review.

**Ethics**

No primary data will be collected. Formal ethics approval is thus not needed. In addition, a content note will be added to the final review stating that this is a topic which overlaps eating-disorder research, and readers with distress will be referred to suitable clinical support services in a separate section from the academic text.

**Patient and Public Involvement**

Patient and public involvement was not incorporated in the development of this protocol. Where feasible, lived-experience perspectives will be sought in the interpretation of qualitative findings in Domain 3, particularly for thematic analyses of participant accounts of TikTok use and eating-related behaviour.

**Dissemination**

The completed review will be submitted to a Scopus-indexed peer-reviewed journal. Data extraction forms, risk-of-bias assessments, and the PRISMA 2020 flow diagram will be published as supplementary materials or deposited in an open-access repository (e.g. Open Science Framework) upon publication.

**Author Contributions**

Conceptualisation, S.M.; methodology, S.M. and A.B.; formal analysis, S.M.; validation, A.B.; writing – original draft preparation, S.M.; writing – review and editing, S.M. and A.B.; project administration, S.M. Guarantor S.M. accepts overall responsibility for the integrity of this protocol, including the accuracy of its methodological decisions and consistency across all sections. All authors have read and agreed to the published version of the manuscript.

**Funding**

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**Clinical Trial Registration**

Clinical trial number: Not applicable.

**Informed Consent Statement**

Not applicable. No primary data were collected from human participants.

**Ethical Approval**

This study is a systematic review protocol and does not involve human participants, human data, or human biological materials. Therefore, ethical approval was not required and the Declaration of Helsinki does not apply.

**Acknowledgements**

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**Conflicts of Interest**

The authors declare no conflict of interest.

**Data Availability Statement**

In this study, no new data were collected or analysed. At publication, data extraction forms and risk-of-bias assessments along with PRISMA 2020 flow diagram will be available as supplementary material or on an open access repository (e.g. Open Science Framework) following the systematic review.

**AI Use Statement**

AI-assisted tools were used solely for grammar checking, language refinement, and sentence structure improvement during the preparation of this manuscript. All scientific content, including the study concept, research design, literature review, methodology, analysis of findings, interpretation of results, and conclusions,

was developed entirely by the authors. AI-generated scientific content was not used. Authors reviewed and approved all final text.

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## APPENDIX A. **PRISMA-P 2015 REPORTING CHECKLIST**

The following table provides an item-by-item assessment of this protocol against the PRISMA-P 2015 reporting guideline (Moher et al., 2015; Shamseer et al., 2015). The checklist identifies the location of each PRISMA-P item within the manuscript and includes the relevant sub-items of the guideline. Items that are not applicable are identified as such.

The checklist follows the official PRISMA-P 2015 item numbering and includes the relevant sub-items. 'Dissemination' is retained as a separate manuscript section but is not presented as an official PRISMA-P checklist item.

| # | Section / Topic | Checklist Item | Location in This Manuscript |
|---|---|---|---|
| ADMINISTRATIVE INFORMATION | | | |
| 1a | Title – Identification | State plainly that this is a protocol for a systematic review. | Title page; Abstract ("A Systematic Review Protocol") |
| 1b | Title – Update | If this protocol updates an earlier one, say so and describe what changed. | Not applicable – original protocol, not an update |
| 2 | Registration | Name the registry and registration number; the official checklist calls for this to appear in the Abstract. | Abstract; Section 2.1. — This protocol is registered with PROSPERO (CRD420261424452). |
| 3a | Authors – Contact | Name, affiliation, and e-mail for every protocol author; postal address for the corresponding author. | Title page (author list, affiliations, corresponding-author e-mail, phone) |
| 3b | Authors – Contributions | Each author's contribution, and who is named as guarantor of the review. | Author Contributions section — S.M. is identified as the guarantor of the review and accepts responsibility for the integrity of the protocol and review process. |
| 4 | Amendments | How amendments will be identified and documented, now or in future. | Protocol Amendments section |
| 5a | Support – Sources | Financial or other support received for the review. | Funding section ("This research received no external funding.") |
| 5b | Support – Sponsor | Name of the funder or sponsoring body, if any. | Funding section – not applicable, no external funder |
| 5c | Support – Role of sponsor | What role, if any, the funder/sponsor played in developing the protocol. | Funding section – not applicable, no external funder |
| INTRODUCTION | | | |
| 6 | Rationale | Why the review is needed, in the context of what is already known. | Sections 1.1.–1.4., particularly 1.4. (Evidence gap and justification for this review) |
| 7 | Objectives | An explicit statement of the review question(s), tied to the PECOS elements. | Section 1.5. (Objectives) |
| METHODS | | | |
| 8 | Eligibility criteria | Study and report characteristics that determine inclusion. | Section 2.2. |
| 9 | Information sources | All planned sources, with intended dates of coverage. | Section 2.3. |
| 10 | Search strategy | A complete draft strategy for at least one database, detailed enough to be re-run. | Section 2.4. and Appendix B |

| # | Section / Topic | Checklist Item | Location in This Manuscript |
|---|---|---|---|
| 11a | Study records – Data management | How records and data will be tracked and managed throughout the review. | Section 2.5. (screening managed via Covidence or Rayyan) |
| 11b | Study records – Selection process | Who selects studies and how, at each stage of the review. | Section 2.5. |
| 11c | Study records – Data collection process | How data will be extracted, including piloting and independent duplication. | Section 2.6. |
| 12 | Data items | Every variable to be extracted, with any pre-planned assumptions or simplifications. | Section 2.6. |
| 13 | Outcomes and prioritisation | Every outcome to be extracted, with primary/secondary status and the rationale for it. | Sections 2.2. (Outcomes) and 1.5. (Objectives) |
| 14 | Risk of bias in individual studies | Planned appraisal methods, and whether bias is assessed at study or outcome level. | Section 2.7. |
| 15a | Data synthesis – Quantitative criteria | The threshold conditions under which studies will be statistically pooled. | Section 2.8. (pre-specified meta-analysis decision rule) |
| 15b | Data synthesis – Summary measures | Planned effect measures, pooling method, and heterogeneity exploration. | Section 2.8. (random-effects model, DerSimonian–Laird with Hartung–Knapp; $I^2$, $\tau^2$) |
| 15c | Data synthesis – Additional analyses | Planned sensitivity, subgroup, or meta-regression analyses. | Section 2.8. (subgroup analyses) and Section 2.7. (sensitivity analyses by risk of bias) |
| 15d | Data synthesis – Non-quantitative summary | What form the synthesis will take where pooling is not appropriate. | Section 2.8. (SWiM narrative synthesis by outcome domain) |
| 16 | Meta-bias(es) | Planned assessment of biases such as publication bias or selective outcome reporting. | Section 2.7. (Publication-bias assessment subsection) |
| 17 | Confidence in cumulative evidence | How certainty in the body of evidence will be graded. | Section 2.8. (Certainty of evidence – GRADE/CERQual) |

## APPENDIX B. **SEARCH STRATEGIES**

### *PubMed/MEDLINE*

**Block 1 — Platform terms (title, abstract):**

("TikTok"[tiab] OR "Douyin"[tiab] OR "short-form video"[tiab] OR "short form video"[tiab] OR "video sharing platform"[tiab] OR "WhatIEatInADay"[tiab] OR "WIEIAD"[tiab] OR "For You page"[tiab] OR "FYP"[tiab])

**Block 2 — Nutrition and dietary content terms (MeSH headings and free text):**

AND ("nutrition"[MeSH Terms] OR "nutrition"[tiab] OR "diet"[MeSH Terms] OR "diet"[tiab] OR "dietary"[tiab] OR "food habits"[MeSH Terms] OR "feeding behavior"[MeSH Terms] OR "weight loss"[tiab] OR "weight reduction"[tiab] OR "supplement*"[tiab] OR "disordered eating"[tiab] OR "eating disorders"[MeSH Terms] OR "body image"[MeSH Terms] OR "food intake"[tiab] OR "dietary behavior*"[tiab] OR "dietary behaviour*"[tiab] OR "diet culture"[tiab])

**Blocks 3 OR 4 — Misinformation/mechanism terms OR population terms:**

AND (("misinformation"[tiab] OR "disinformation"[tiab] OR "infodemiology"[tiab] OR "infodemic"[tiab] OR "health information quality"[tiab] OR "accuracy"[tiab] OR "content analysis"[tiab] OR "social comparison"[MeSH Terms] OR "body dissatisfaction"[tiab] OR "internalization"[tiab] OR "thin ideal"[tiab]) OR ("young adult"[MeSH Terms] OR "young adult*"[tiab] OR "college

student*"[tiab] OR "university student*"[tiab] OR "emerging adult*"[tiab] OR "adolescent"[MeSH Terms]))

*Filters applied*: English language; publication date 2018/01/01 onwards.

***Embase (via Ovid)***

**Block 1 — Platform terms (title, abstract, keywords):**

(tiktok OR douyin OR "short-form video" OR "short form video" OR "video sharing platform" OR WhatIEatInADay OR WIEIAD OR "for you page" OR "for you algorithm").ti,ab,kw.

**Block 2 — Nutrition and dietary content terms:**

AND (nutrition/ OR diet/ OR "food habit*" OR "feeding behavior" OR "weight loss" OR "dietary supplement*" OR "eating disorder*" OR "body image" OR "food intake" OR "dietary behav*" OR "diet culture").ti,ab,kw.

**Blocks 3 OR 4 — Misinformation/mechanism terms OR population terms:**

AND ((misinformation OR disinformation OR infodemiology OR infodemic OR "health information quality" OR "information accuracy" OR "content analysis" OR "social comparison" OR "body dissatisfaction" OR internalization OR "thin ideal" OR sociocultural).ti,ab,kw. OR ("young adult*" OR "college student*" OR "university student*" OR "emerging adult*" OR adolescent*).ti,ab,kw.)

*Limits applied*: English language; 2018 onwards.

***Scopus***

**All blocks searched in title, abstract, and keywords (TITLE-ABS-KEY field):**

TITLE-ABS-KEY( ("TikTok" OR "Douyin" OR "short-form video" OR "video-sharing" OR "WhatIEatInADay" OR "WIEIAD" OR "For You page") AND ("nutrition" OR "dietary" OR "diet" OR "food habits" OR "weight loss" OR "supplement*" OR "eating disorder*" OR "body image" OR "dietary behavior*" OR "dietary behaviour*" OR "diet culture" OR "food intake") AND (("misinformation" OR "disinformation" OR "infodemiology" OR "content accuracy" OR "content analysis" OR "health information quality" OR "social comparison" OR "thin ideal" OR "body dissatisfaction" OR "internalization" OR "tripartite") OR ("young adult*" OR "college student*" OR "university student*" OR "emerging adult*" OR "adolescent*")) ) AND PUBYEAR > 2017 AND LANGUAGE ( english )

(*Block 4 — population terms — added; absent in the previous version of this string.*)

**Web of Science Core Collection**

TS = ("TikTok" OR "Douyin" OR "short-form video" OR "video-sharing platform" OR "WhatIEatInADay" OR "WIEIAD" OR "For You page") AND TS = ("nutrition" OR "dietary" OR "diet" OR "food habits" OR "weight loss" OR "dietary supplement*" OR "eating disorder*" OR "body image" OR "dietary behav*" OR "diet culture" OR "food intake") AND TS = (("misinformation" OR "disinformation" OR "infodemiology" OR "health information quality" OR "content accuracy" OR "content analysis" OR "social comparison" OR "thin ideal" OR "body dissatisfaction" OR "internalization" OR "sociocultural pressure") OR ("young adult*" OR "college student*" OR "university student*" OR "emerging adult*" OR "adolescent*"))

*Limits applied*: English language; 2018 onwards; document types: Article, Review, Early Access.

***PsycINFO (via Ovid)***

(tiktok OR douyin OR "short-form video" OR "video sharing platform" OR WhatIEatInADay OR WIEIAD OR "for you page").ti,ab,id. AND (nutrition/ OR "dietary behaviors"/ OR "food intake"/ OR "eating disorders"/ OR "body image"/ OR "weight loss" OR "dietary supplement*" OR "diet culture").ti,ab,id. AND ((misinformation/ OR "health information" OR "content accuracy" OR "content analysis" OR "social comparison"/ OR "social comparison theory" OR "thin ideal"/ OR "body dissatisfaction"/ OR internalization/ OR "tripartite influence").ti,ab,id. OR ("young adults"/ OR "college students"/ OR "university students"/ OR "emerging adulthood" OR "emerging adult*").ti,ab,id.)

*Limits applied*: English language; 2018 onwards.

**CINAHL (via EBSCO)**

(TW "TikTok" OR TW "Douyin" OR TW "short-form video" OR TW "video-sharing" OR TW "WhatIEatInADay" OR TW "For You page") AND (MH "Nutrition" OR MH "Diet" OR MH "Eating Disorders" OR MH "Body Image" OR TW "dietary behavior*" OR TW "dietary behaviour*" OR TW "weight loss" OR TW "diet culture") AND ((TW "misinformation" OR TW "disinformation"

OR TW "health information quality" OR TW "content accuracy" OR TW "content analysis" OR TW "social comparison" OR TW "thin ideal" OR TW "body dissatisfaction" OR TW "internalization") OR (MH "Young Adults" OR MH "College Students" OR TW "university student*" OR TW "emerging adult*"))

*Limits applied*: English language; 2018 onwards.

**Cochrane Library (CENTRAL and Cochrane Database of Systematic Reviews)**

#1 TikTok OR Douyin OR "short-form video" OR "short form video" OR "video sharing platform" OR WhatIEatInADay OR WIEIAD OR "For You page"

#2 nutrition OR diet OR dietary OR "food habits" OR "feeding behavior" OR "weight loss" OR "weight reduction" OR supplement* OR "disordered eating" OR "eating disorders" OR "body image" OR "food intake" OR "dietary behavior*" OR "dietary behaviour*" OR "diet culture"

#3 misinformation OR disinformation OR infodemiology OR infodemic OR "health information quality" OR accuracy OR "content analysis" OR "social comparison" OR "body dissatisfaction" OR internalization OR "thin ideal"

#4 "young adult*" OR "college student*" OR "university student*" OR "emerging adult*" OR adolescent*

#5 #3 OR #4

#6 #1 AND #2 AND #5

*Limits applied*: Publication year 2018 to present; search restricted to Trials (CENTRAL) and the Cochrane Database of Systematic Reviews.