

DIETARY PATTERNS AND HEALTH OUTCOMES: A NARRATIVE REVIEW OF MEDITERRANEAN AND NORDIC DIET EVIDENCE

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ABSTRACT

BACKGROUND

Dietary patterns are increasingly recognised as key determinants of cardiometabolic health and chronic disease risk. The Mediterranean diet and the Nordic diet are frequently cited as region specific models of healthy eating. Despite apparent conceptual similarities, these dietary patterns differ substantially in the scope, structure and methodological strength of the supporting evidence.

AIMS

This narrative review aimed to critically analyse and compare the Mediterranean and Nordic dietary patterns with respect to their associations with cardiometabolic diseases, other major chronic conditions and mortality, with particular emphasis on differences in levels of evidence, study design, outcome assessment and real world clinical applicability.

METHODS

A focused literature search was conducted in PubMed and Scopus for human studies published between January 2010 and June 2024. Randomised controlled trials, prospective cohort studies, systematic reviews and meta analyses evaluating adherence to Mediterranean or Nordic dietary patterns in adult populations were prioritised. Earlier landmark studies were included selectively to support definitions and foundational evidence. The synthesis was qualitative and thematic.

RESULTS

The Mediterranean diet is supported by a methodologically mature evidence base, including large randomised controlled trials and long term prospective cohort studies demonstrating consistent reductions in major cardiovascular clinical events, incidence of type 2 diabetes and all cause mortality. In contrast, evidence for the Nordic diet is derived predominantly from shorter term intervention studies, observational cohorts and meta analyses that mainly assess surrogate cardiometabolic outcomes, such as blood pressure, lipid profile, insulin sensitivity and body weight. Long term data on clinical events and mortality for the Nordic diet remain limited. Differences in study design, duration of follow up, adherence definitions and outcome selection substantially affect the comparability of reported effects between these dietary patterns.

CONCLUSION

Both Mediterranean and Nordic dietary patterns are associated with favourable cardiometabolic profiles compared with Western dietary habits. The Mediterranean diet currently represents the most robustly supported reference model for clinical prevention, whereas the Nordic diet constitutes a reasonable alternative in appropriate cultural contexts, albeit with more limited evidence for long term clinical outcomes. Interpretation and application of evidence should account for methodological heterogeneity and contextual factors influencing transferability. Emphasis on shared dietary principles may be more clinically relevant than strict adherence to any single named dietary model.

Keywords: Mediterranean diet, Nordic diet, dietary patterns, cardiometabolic disease, cardiovascular disease, type 2 diabetes, mortality, evidence synthesis, clinical applicability.

INTRODUCTION

BACKGROUND AND RATIONALE

Noncommunicable diseases, including cardiovascular diseases, type 2 diabetes, obesity, and cancer, are the leading causes of morbidity and mortality worldwide and are largely determined by modifiable lifestyle factors [1,2]. Poor diet quality is among the major contributors to premature mortality and disability adjusted life years, comparable in significance to arterial hypertension and smoking [1,2]. In this context, improving dietary patterns is regarded as a key element of preventive cardiology and public health.

Traditional research in nutrition has focused on individual nutrients, such as saturated fats or cholesterol. However, in real life, individuals consume complex combinations of foods, the interactions of which may better explain disease risk than the effects of isolated components. This has led to a shift from a nutrient centered approach toward the analysis of overall dietary patterns that reflect the quantity, quality, and sources of foods consumed in daily life [3].

The Mediterranean diet is one of the most thoroughly characterized models of healthy eating. It is based on the traditional dietary habits of Mediterranean countries and is characterized by high intake of vegetables, fruits, legumes, nuts, seeds, and whole grains, the use of olive oil as the main source of fat, moderate consumption of fish and fermented dairy products, low to moderate alcohol intake mainly in the form of wine with meals, and low intake of red and processed meat, refined grains, and sweets [1,4]. High adherence to this dietary pattern is associated with a reduced incidence of cardiovascular disease and mortality, improved cardiometabolic parameters, and lower all cause mortality, as demonstrated by both randomized controlled trials and large prospective cohort studies [4–7,16–18].

The Nordic diet, including the New Nordic Diet and related concepts of healthy Nordic eating, was proposed as a regionally adapted model for Northern European countries. It emphasizes the consumption of whole grains such as rye, oats, and barley, root vegetables and cruciferous vegetables, legumes, berries, rapeseed oil, low fat dairy products, and fish, while limiting red and processed meat, sugar sweetened beverages, and refined grains [8–10,12]. This model was originally developed with consideration of health, environmental sustainability, and regional food culture [8,9]. Interventional studies and cohort data indicate improvements in lipid profiles, blood pressure, insulin sensitivity, and body weight, as well as a potential reduction in the risk of cardiovascular disease and type 2 diabetes [9–12,22–27].

Both dietary patterns are predominantly plant based, relatively low in saturated fat, and high in unsaturated fatty acids, dietary fiber, and phytochemicals, but they differ in their primary sources of fats, types of grains, fruits, and vegetables [9,14]. Understanding the similarities and differences in their effects is important for clinicians and for those involved in developing dietary recommendations for different populations.

In addition to their documented health effects, both the Mediterranean and Nordic dietary patterns have been widely discussed in the context of contemporary approaches that seek to align dietary recommendations with broader considerations of sustainability. Modelling studies and life cycle assessments suggest that dietary patterns characterised by a high proportion of plant based foods, moderate intake of animal products, and preference for

minimally processed foods are associated with lower environmental footprints compared with typical Western diets. In this regard, both the Mediterranean and Nordic diets are often cited in the literature as examples of regionally rooted dietary models that may offer combined health and sustainability advantages. At the same time, the magnitude of these potential benefits is highly dependent on specific food choices and patterns of adherence, underscoring the importance of careful interpretation when extrapolating such findings beyond controlled study settings.

The novelty of this review lies in the critical comparison of two regional dietary models that are widely regarded in the literature as clinically relevant examples of healthy dietary patterns, yet differ substantially in the volume, structure, and level of the available evidence base [5–7,9,17]. For the Mediterranean diet, data from large randomized trials and high level summary studies are available, allowing analysis of effects on hard clinical endpoints and mortality [4–7,16–18]. In contrast, the evidence base for the Nordic diet consists mainly of interventional studies of limited duration, cohort studies, and meta analyses, primarily focused on surrogate cardiometabolic markers [9–12,22–27]. Comparing these data within a unified analytical framework, with emphasis on differences in study design, adherence indices, and endpoints, allows a clearer delineation of the boundaries of justified interpretation for each dietary model and helps identify priorities for future clinical research.

At the same time, the practical implementation of both the Mediterranean and Nordic diets in routine clinical practice is associated with several limitations. These limitations are related to the regional specificity of these dietary models, their reliance on particular traditional food groups and culinary practices, and the variability of adherence indices used in research [3,9,12]. When these diets are applied outside their original cultural and geographical contexts, the composition of the diet and the structure of food consumption inevitably change, which complicates the interpretation and comparability of results across studies [3,9]. As a result, the transferability of data on the benefits of the Mediterranean and Nordic diets to real world clinical settings requires critical evaluation and consideration of local dietary habits and lifestyle factors, an aspect that remains insufficiently systematized in existing reviews [9,17].

The relevance of this review is determined by the fact that the Mediterranean diet is widely regarded as a benchmark for healthy eating, while the Nordic diet is increasingly proposed as a regionally adapted alternative for populations outside the Mediterranean area [7,9]. At the same time, the scientific literature often shows an uncritical convergence of these dietary models, despite differences in the volume and quality of the evidence base, study designs, and the availability of data on hard clinical endpoints [5,9,17]. The lack of a clear distinction between levels of evidence and methodological limitations complicates the interpretation of results and their application in clinical practice and public health recommendations.

In this context, a systematic and critical analysis is required to compare data on both dietary models, identify genuine points of convergence and divergence, and define the boundaries of their justified application.

The aim of this review is to provide an up to date and critical synthesis of evidence on the effects of the Mediterranean and Nordic diets on major health outcomes and sustainability, using a regular narrative review structure.

AIMS

The aim of this narrative review is to analyze and compare the available evidence on the Mediterranean and Nordic dietary patterns with respect to their effects on health and sustainability. The review synthesizes findings from epidemiological studies, randomized controlled trials, and meta analyses assessing the associations between these regional dietary models and major cardiometabolic and chronic diseases across different populations. The analysis is based on a comparison of two culturally distinct but nutritionally related dietary approaches, taking into account both clinical and environmental aspects of diet quality.

RESEARCH QUESTIONS

This review addresses the following questions.

1. Which key dietary components and adherence indices are used to characterize the Mediterranean and Nordic diets in research and clinical practice.
2. How strong and consistent is the evidence linking these dietary patterns to cardiometabolic outcomes, obesity, cancer, cognitive and mental health disorders, and mortality.
3. What are the main methodological strengths, limitations, and gaps in the existing literature, and how can the available data be used to inform clinical recommendations, public health strategies, and priorities for future research.
4. How do differences in levels of evidence, study design, and choice of endpoints influence the interpretation and comparability of the effects of the Mediterranean and Nordic diets.
5. Which limitations and sources of variability arise when the Mediterranean and Nordic diets are applied outside their original cultural and geographical contexts, and how do these factors affect the transferability and

METHODS

SEARCH STRATEGY

A focused, reproducible literature search was conducted in PubMed and Scopus for articles published from January 2010 to June 2024. Search terms combined exposure-related keywords ("Mediterranean diet", "Mediterranean dietary pattern", "Mediterranean-style diet", "Nordic diet", "New Nordic Diet", "healthy Nordic diet", "Baltic Sea diet") with outcome-related terms ("cardiovascular disease", "coronary heart disease", "stroke", "cardiometabolic", "metabolic syndrome", "type 2 diabetes", "obesity", "cancer", "neoplasms", "cognitive decline", "dementia", "depression", "mortality").

Medical Subject Headings were used where available. Searches were limited to human studies with abstracts in English. Reference lists of key systematic reviews and meta-analyses were manually screened to identify additional eligible studies. No restrictions were applied regarding country or baseline health status.

Priority was given to systematic reviews, meta-analyses, large prospective cohort studies and randomised controlled trials, as these were considered most informative for causal inference.

Seminal earlier papers predating 2010 were included selectively when they provided foundational evidence on the health effects or definitions of Mediterranean and Nordic dietary patterns.

INCLUSION CRITERIA:

1. Population: adults aged 18 years or older.
2. Exposure: adherence to a Mediterranean or Nordic dietary pattern defined by validated scores, for example, Mediterranean Diet Score, alternate Mediterranean Diet score, Healthy Nordic Food Index, Baltic Sea Diet Score, or by structured dietary intervention protocols.
3. Design: randomised or non-randomised controlled trials, prospective cohort studies, case-control studies, systematic reviews or meta-analyses.
4. Outcomes: incident cardiovascular disease, type 2 diabetes, metabolic syndrome, obesity and adiposity measures, site-specific or overall cancer, cognitive decline or dementia, depressive symptoms, all-cause or cause-specific mortality. In addition, study characteristics related to design, duration of follow up, choice of endpoints, and contextual factors affecting dietary implementation were extracted to support comparative interpretation of evidence levels and transferability of findings across different populations and settings.

EXCLUSION CRITERIA:

1. Studies limited to children or adolescents.
2. Studies examining only single foods or isolated nutrients, such as olive oil or berries, without a pattern-based dietary exposure.
3. Case reports, small case series, narrative commentaries without original data, and academic theses.
4. Publications without an abstract or full text available in English.

Approximately 150 records were initially identified. After screening titles and abstracts and reviewing full texts where necessary, around 70 key publications were selected for detailed evaluation.

STUDY APPRAISAL AND SYNTHESIS

Formal risk-of-bias tools were not consistently applied due to heterogeneity in study designs. Instead, methodological features such as sample size, duration of follow-up, control for confounding, validity of dietary assessment and outcome ascertainment were considered when interpreting findings. Systematic reviews and meta-analyses were used to summarise quantitative estimates where available.

Given the diversity of dietary pattern definitions, populations and outcomes, a thematic synthesis approach was adopted rather than meta-analysis. Results are organised into subsections addressing dietary pattern definitions followed by specific outcome domains.

RESULTS

RECENT EVIDENCE ON MEDITERRANEAN AND NORDIC DIETARY PATTERNS AND HEALTH

OUTCOMES

DIETARY PATTERN DEFINITIONS AND ADHERENCE INDICES

Mediterranean diet

The MD is operationalised in epidemiological studies using several indices, including the Mediterranean Diet Score and the alternate Mediterranean Diet score [5,16-18]. These indices award points for higher consumption of vegetables, fruits, legumes, nuts, whole grains and fish; moderate alcohol intake; and lower consumption of red and processed meat and high-fat dairy products. Some versions explicitly incorporate olive oil usage or the ratio of monounsaturated to saturated fat [5,17]. Higher adherence scores consistently reflect diets rich in plant foods, unsaturated fats and minimally processed items.

Nordic diet

Indices for ND include the Healthy Nordic Food Index and Baltic Sea Diet Score [11,12,25]. These tools allocate points for higher intake of whole-grain rye, oats and barley; root vegetables and cabbages; apples and pears; berries; low-fat dairy products; fish; and in some indices, rapeseed oil and legumes. Differences in components and scoring thresholds complicate comparison across studies, yet overall they reflect adherence to traditional or health-promoting Nordic food patterns with high fibre and favourable fat quality [9-12,25].

Table 1 summarizes and contrasts the core food groups, typical sources, and recommended consumption frequencies characterizing the Mediterranean and Nordic dietary patterns.

Table 1. Core components of Mediterranean and Nordic dietary patterns

Food group	Mediterranean diet (MD): typical sources and recommended frequency	Nordic diet (ND): typical sources and recommended frequency
Whole grains	Predominantly whole wheat bread, pasta, barley, bulgur; refined grains limited. Consumption daily.	Moderate to high intake of fruits and particularly berries (blueberries, lingonberries, cloudberries). Consumption daily or several times per week.
Vegetables	High intake of diverse vegetables, including leafy greens, tomatoes, onions, peppers, zucchini and eggplant. Consumption daily, multiple servings.	High intake of root vegetables (carrots, beets), cabbage family (kale, cabbage), onions and seasonal vegetables. Consumption daily.
Fruits and berries	High intake of fresh fruits, particularly citrus fruits, grapes, figs and apples. Consumption daily.	Moderate to high intake of fruits and particularly berries (blueberries, lingonberries, cloudberries). Consumption daily or several times per week.
Legumes	Key protein source including lentils, chickpeas, beans and peas. Consumption several times per week.	Present but less central; peas and beans consumed regularly. Consumption several times per week.
Nuts and seeds	Frequent consumption of almonds, walnuts, hazelnuts and seeds. Consumption several times per week or daily.	Moderate intake of nuts and seeds, often locally sourced. Consumption several times per week.
Dairy products	Mainly fermented dairy (yogurt, cheese), moderate intake. Consumption daily in small to moderate amounts.	Low-fat milk, fermented dairy (skyr, yogurt), moderate intake. Consumption daily.

Fish and seafood	Frequent intake of fish and seafood, including oily fish. Consumption at least twice per week.	High intake of fatty fish (salmon, herring, mackerel) and lean fish. Consumption at least twice per week.
Meat and meat products	Low intake of red and processed meat; poultry consumed in moderation. Red meat consumption limited to a few times per month.	Low intake of red and processed meat; emphasis on game and lean meats in moderation. Consumption limited.
Fats and oils	Olive oil as the principal source of fat; high monounsaturated fatty acid content. Used daily.	Rapeseed (canola) oil as the primary fat; balanced monounsaturated and polyunsaturated fatty acids. Used daily.
Alcohol	Moderate wine consumption, typically with meals (optional). Up to one drink per day for women and up to two for men.	Alcohol not a core component; moderate consumption allowed but not emphasized.

CARDIOVASCULAR AND CARDIOMETABOLIC OUTCOMES

Mediterranean diet

The cardioprotective effects of MD are supported by an extensive evidence base. In the landmark PREDIMED trial, 7,447 Spanish adults at high cardiovascular risk were randomised to MD supplemented with extra-virgin olive oil, MD supplemented with mixed nuts or a control low-fat diet [4]. After a median of 4.8 years, the pooled MD groups exhibited a roughly 30% relative reduction in major cardiovascular events (non-fatal myocardial infarction, non-fatal stroke or cardiovascular death) compared with the control group [4]. MD also improved blood pressure, lipid profile, glycaemic control and inflammatory markers [6,7,15].

Prospective cohort studies from Mediterranean and non-Mediterranean countries consistently report that higher MD adherence is associated with lower incidence of CVD, coronary heart disease and stroke [5,16-18]. Umbrella reviews of meta-analyses indicate risk reductions in the range of 10–25% for CVD and CVD mortality when comparing the highest versus lowest adherence categories [5,18]. MD adherence also correlates with reduced risk of type 2 diabetes and improved insulin sensitivity and metabolic syndrome components [19-21].

Nordic diet

ND evidence is more recent but generally consistent. The NORDIET trial demonstrated that six weeks of a healthy Nordic diet in hypercholesterolaemic adults reduced total and LDL cholesterol and improved LDL:HDL ratio versus control [10]. Other randomised interventions in overweight or metabolic syndrome populations have reported reductions in blood pressure, LDL cholesterol, triglycerides and markers of low-grade inflammation, as well as improved insulin sensitivity [9,22,26].

Systematic reviews and meta-analyses confirm these findings. Healthy Nordic diet interventions typically reduce systolic blood pressure by 2–4 mmHg and LDL cholesterol by around 0.2–0.3 mmol/L compared with habitual or Western-style control diets [23].

Meta-analyses also show modest but significant reductions in body weight and waist circumference [23,24].

Observational cohorts using the Healthy Nordic Food Index or Baltic Sea Diet Score show inverse associations between ND adherence and CVD, stroke, type 2 diabetes and cardiometabolic mortality, although effect sizes vary and some associations attenuate upon extensive adjustment for lifestyle factors [11,25-27].

COMPARATIVE INTERPRETATION

Direct head-to-head comparisons of MD and ND within the same population are scarce. However, both patterns consistently improve cardiometabolic risk markers and are associated with lower cardiometabolic disease incidence relative to Western diets [14,18,23]. The MD currently benefits from larger and longer randomised trials and more numerous cohort studies, supporting stronger causal inference. ND evidence supports comparable directions of effect, but effect sizes and long-term outcomes are less precisely estimated.

Table 2 summarizes selected randomized controlled trials and meta analyses evaluating the effects of Mediterranean and Nordic dietary patterns on cardiometabolic outcomes across different adult populations.

Table 2. Selected randomised controlled trials and meta-analyses of Mediterranean and Nordic diets on cardiometabolic outcomes.

Diet pattern	Study design	Population	Intervention duration	Comparator diet	Main cardiometabolic outcomes	References
Mediterranean diet	Randomised controlled trial (PREDIMED)	Adults at high cardiovascular risk	Median 4.8 years	Low-fat diet	Approximately 30% reduction in major cardiovascular events; improvements in blood pressure, lipid profile, glycaemic control and inflammatory markers	[4]
Mediterranean diet	Randomised controlled trial	Adults with cardiovascular risk factors	12 months	Low-fat diet	Improvements in LDL cholesterol, triglycerides and insulin sensitivity	[20]
Mediterranean diet	Randomised controlled trial (DIRECT)	Overweight and obese adults	24 months	Low-fat diet	Greater and more sustained weight loss; favourable changes in lipid profile and glycaemic control	[29]
Mediterranean diet	Meta-analysis of RCTs and cohort studies	Multiple adult populations	Not applicable	Low-fat or habitual diets	Consistent reductions in cardiovascular risk factors and all-cause and cardiovascular mortality	[18,21]
Nordic diet	Randomised controlled trial (NORDIET)	Hypercholesterolaemic adults	6 weeks	Control diet	Significant reductions in total cholesterol and LDL cholesterol	[10]
Nordic diet	Randomised controlled trial (SYSDIET)	Adults with metabolic syndrome	18–24 weeks	Habitual diet	Improvements in insulin sensitivity, lipid profile and markers of lowgrade inflammation	[22]
Nordic diet	Randomised controlled trial (New Nordic Diet)	Adults with increased waist circumference	6 months	Control diet	Modest but significant reductions in body weight, waist	[24]

					circumference and blood pressure	
Nordic diet	Systematic review and meta analysis	Adults participating in Nordic diet interventions	Not applicable	Habitual or Western style diets	Modest reductions in systolic blood pressure, LDL cholesterol and body weight	[23,27]

OBESITY, METABOLIC SYNDROME AND WEIGHT MANAGEMENT

Adiposity is a key mediator between diet and cardiometabolic disease. Energy-restricted MD interventions often result in greater long-term weight loss and more favourable changes in waist circumference and metabolic syndrome features than conventional low-fat diets [20,21,29]. In the DIRECT trial, an MD produced larger and more sustained weight reductions over two years compared with a low-fat diet, with concomitant improvements in lipid profile and glycaemic control [29]. Mechanisms include high fibre intake, low energy density and increased satiety derived from vegetables, whole grains, legumes and nuts.

For ND, randomised trials of New Nordic Diet interventions in overweight adults have shown modest but significant reductions in body weight (1–4 kg), BMI and waist circumference compared with control diets [23,24,30]. High fibre content from rye, oats and root vegetables, along with improved satiety, likely mediates these effects [10,23]. Observational studies also link higher ND adherence to lower prevalence of obesity and metabolic syndrome [23,24,30].

Both MD and ND appear compatible with effective weight-management strategies and may contribute to prevention and treatment of metabolic syndrome when combined with energy restriction and lifestyle counselling.

CANCER AND OTHER CHRONIC DISEASES

Mediterranean diet

MD adherence has been associated with lower overall cancer incidence and mortality as well as reduced risk of site-specific cancers, notably colorectal, breast and gastric cancers [18,31,33]. A meta-analysis by Schwingshackl et al. reported that high MD adherence was associated with approximately 10% lower overall cancer risk and mortality [31]. Possible mechanisms include reduced intake of carcinogenic compounds from processed meats, higher fibre and whole-grain intake, improved insulin sensitivity and chronic inflammation reduction via polyphenol-rich plant foods and olive oil [31-33].

Nordic diet

Evidence on ND and cancer is comparatively limited. Some cohort analyses suggest that higher Baltic Sea Diet Score is associated with reduced overall cancer incidence and mortality, but results are not uniformly significant and can be attenuated after adjustment for confounders [27,34]. Given ND's alignment with general cancer-preventive dietary recommendations, a protective effect is plausible, yet further longitudinal data are needed before firm conclusions can be drawn.

OTHER CHRONIC CONDITIONS

MD-style patterns have shown benefits for non-alcoholic fatty liver disease, largely through improvements in weight, insulin resistance, lipid profile and systemic inflammation [35]. ND may confer similar advantages due to its high fibre and omega-3 content, but evidence remains sparse.

COGNITIVE FUNCTION AND MENTAL HEALTH

Mediterranean diet

Multiple prospective cohorts and clinical trials link higher MD adherence with slower cognitive decline, reduced incidence of mild cognitive impairment and Alzheimer's disease and better global cognitive performance [36,37,39]. Observational studies also suggest inverse associations between healthy dietary patterns, including Mediterranean-style diets, and depressive symptoms [38,40]. In a randomised sub-study of PREDIMED, participants allocated to MD supplemented with extra-virgin olive oil or nuts demonstrated better cognitive outcomes over 6.5 years than those on a control diet [38]. Observational data also show inverse associations between MD adherence and depressive symptoms [40].

Nordic diet

Evidence for ND and brain health is emerging. Cross-sectional and longitudinal studies in older adults report associations between healthy Nordic dietary patterns and better cognitive scores or lower risk of cognitive impairment, although residual confounding remains a concern [41-43]. Systematic reviews suggest that ND may support mental health, but heterogeneous definitions and relatively few studies limit interpretation [43]. Overall, evidence is stronger for MD, but ND appears promising.

MORTALITY AND COMPOSITE HEALTH INDICES

Higher MD adherence is consistently associated with lower all-cause and CVD mortality [5,16-18,31]. Beyond named dietary patterns, higher overall diet quality is associated with decreased risk of all-cause, cardiovascular, and cancer mortality among older adults [28]. Meta-analyses typically report 10–20% reductions in all-cause mortality among those with highest versus lowest MD adherence [16,18]. For ND, cohort studies suggest modest reductions in total and cardiovascular mortality with greater adherence to healthy Nordic dietary indices [11,25-27,34]. Differences in index composition and baseline diets between populations complicate cross-pattern comparisons, but available data indicate that both patterns are compatible with longevity.

METHODOLOGICAL PROFILE OF THE EVIDENCE AND CONTEXTUAL TRANSFERABILITY

Across outcome domains, the evidence base differs substantially between the Mediterranean diet and the Nordic diet in terms of study design, duration of follow up, and the nature of reported endpoints. For the Mediterranean diet, the literature includes large randomised controlled trials with hard cardiovascular endpoints and mortality, alongside numerous prospective cohort studies and umbrella reviews providing consistent estimates for cardiovascular events and overall mortality [4–7,16–18]. In contrast, evidence for the Nordic diet is predominantly derived from shorter term intervention trials, prospective cohort studies, and meta-analyses that focus mainly on surrogate cardiometabolic markers, with relatively limited long term data on hard clinical endpoints and mortality [9–12,22–27]. In addition, greater heterogeneity is observed in the operational definition of the Nordic diet and in the composition of adherence indices used across studies [9,12].

Contextual characteristics of the available literature indicate that transferability of findings is influenced by the setting in which dietary patterns are assessed and implemented. Studies on the Nordic diet are largely concentrated in Nordic populations, whereas investigations of the Mediterranean diet include both Mediterranean and non Mediterranean settings, which introduces variability in baseline dietary habits, adherence scoring systems, and the practical form of the dietary pattern under real world conditions [7,9,17]. Differences in index components, scoring thresholds, dietary assessment methods, and background dietary patterns limit direct comparability between studies and may contribute to heterogeneity in reported effect estimates across populations and settings [3,9].

DISCUSSION

MD and ND represent two regional expressions of a broader concept, namely a plant-forward, minimally processed dietary pattern rich in whole grains, legumes, fruits, vegetables and unsaturated fats. This review demonstrates that both dietary patterns are associated with improved cardiometabolic risk profiles and favourable health outcomes, particularly when contrasted with typical Western dietary habits.

At present, the Mediterranean diet is supported by the most robust evidence base, including large randomised controlled trials demonstrating reductions in major cardiovascular clinical events and mortality outcomes, as well as numerous prospective cohort studies consistently linking higher adherence to lower incidence of cardiovascular disease, type 2 diabetes, several cancers and all cause mortality [4–7,16–18,31]. In contrast, the evidence for the Nordic diet, although steadily expanding, is derived predominantly from shorter term intervention studies, prospective cohorts and meta-analyses focusing mainly on surrogate cardiometabolic markers, such as blood pressure, lipid profile, insulin sensitivity and body weight, with more limited data on long term clinical events and mortality [10–12,23–27].

Shared dietary characteristics likely account for many of the observed benefits, including high intakes of dietary fibre and phytochemicals, low consumption of added sugars and processed meats, and favourable fatty acid profiles [3,13,14,35]. While differences in predominant grains, fruits, vegetables and fat sources may result in nuanced metabolic effects, the available evidence does not support clear clinical superiority of one dietary pattern over the other when their core principles are adhered to.

From a practical perspective, both MD and ND provide culturally grounded frameworks for implementing dietary recommendations. The Mediterranean diet appears particularly well suited to Mediterranean and culturally related populations, whereas the Nordic diet represents a feasible alternative in Nordic countries and other regions where its characteristic food components are readily available. In clinical practice, MD can be recommended with a high level of confidence for individuals at increased cardiometabolic risk, while ND can be considered a valid alternative when cultural preferences or local food availability favour its adoption. Public health strategies may therefore emphasise

adherence to shared dietary principles rather than strict replication of any single named diet.

Differences in levels of evidence, study design and choice of endpoints substantially influence the interpretation and comparability of the reported effects of the Mediterranean and Nordic diets. Evidence for the Mediterranean diet is supported by a combination of large randomised controlled trials, long term prospective cohort studies and umbrella reviews, which allows relatively confident interpretation of associations with clinical events and mortality outcomes. In contrast, conclusions regarding the Nordic diet are largely based on shorter term intervention studies and observational cohorts that predominantly assess surrogate cardiometabolic endpoints. As a result, apparent similarities or differences in effect sizes between these dietary patterns may reflect methodological heterogeneity rather than true differences in clinical effectiveness, and direct comparisons should therefore be interpreted with caution.

In addition, important sources of variability arise when the Mediterranean and Nordic diets are applied outside their original cultural and geographical contexts. Implementation in non native settings often involves modified food choices, altered culinary practices and adapted adherence indices, which may differ substantially from those used in the populations in which these diets were originally studied. Such contextual adaptations affect baseline diet quality, magnitude of dietary change and measured adherence, thereby influencing the transferability and reproducibility of observed effects in real world clinical practice. These considerations highlight that evidence on dietary patterns should be interpreted not only in relation to reported outcomes, but also with careful attention to the settings and conditions under which the data were generated.

CRITICAL ANALYSIS AND STUDY LIMITATIONS

Despite the substantial body of evidence, several limitations should be acknowledged. A large proportion of studies on MD are observational and therefore susceptible to residual confounding by lifestyle and socioeconomic factors, although consistent dose-response relationships and supportive trial data strengthen causal inference [5,16-18]. The PREDIMED trial, while influential, encountered methodological issues related to randomisation procedures at some centres, however subsequent reanalyses have largely confirmed its main conclusions regarding cardiovascular clinical events and mortality outcomes [4].

For the Nordic Diet, the main principal limitations include a smaller number of randomised trials, shorter follow up periods, smaller sample sizes and marked heterogeneity in the operational definition of the dietary pattern and adherence indices used across studies [9-12,23-27]. In addition most Nordic diet cohorts are confined to Nordic populations, which limits generalisability raising questions about generalisability to regions with different traditions and food environments. Data on long term clinical events and mortality remain comparatively scarce.

Direct comparisons between MD and ND are further complicated by differences in baseline diet quality and lifestyle characteristics across study populations. For example, similar adherence scores may reflect substantially different absolute dietary changes depending in the cultural context, which may influence observed effect estimates.

CONCLUSION

The Mediterranean and Nordic dietary patterns represent two regionally shaped variants of a broader dietary paradigm oriented toward predominantly plant based and minimally processed foods, with a high intake of whole grains, legumes, fruits, vegetables and unsaturated fats. The body of available evidence indicates that adherence to both models is associated with favourable cardiometabolic profiles and a reduced risk of major chronic diseases compared with typical Western dietary patterns.

The Mediterranean diet is supported by the most extensive and methodologically mature evidence base. Large randomised controlled trials and numerous long term prospective cohort studies consistently demonstrate reductions in major cardiovascular clinical events, incidence of type 2 diabetes and all cause mortality among individuals with high adherence to this dietary pattern. These data allow relatively confident interpretation of associations with clinically meaningful outcomes and support the Mediterranean diet as a reference model in preventive cardiology and metabolic disease prevention.

In contrast, the evidence base for the Nordic diet, although expanding and generally consistent in the direction of observed effects, is predominantly derived from shorter duration intervention studies, observational cohort studies and meta analyses focusing mainly on surrogate cardiometabolic markers, such as blood pressure, lipid profile, insulin sensitivity and body weight. Data on long term clinical events and mortality remain limited. Accordingly, conclusions regarding the comparative clinical effectiveness of the Nordic diet require cautious interpretation, particularly when directly compared with the Mediterranean diet.

Differences in study design, duration of follow up and the spectrum of analysed clinical outcomes substantially affect the comparability of observed effects for these dietary models. Apparent similarities or differences in effect magnitude may reflect methodological heterogeneity rather than true differences in clinical impact. This highlights the

need for explicit consideration of levels of evidence and the nature of evaluated outcomes when interpreting and comparing results across dietary pattern studies.

An additional source of variability arises from the application of both dietary models outside their original cultural and geographical contexts. Changes in food availability, culinary practices and adherence assessment systems may influence dietary composition and the extent of achieved dietary modification, which in turn affects the transferability and reproducibility of observed effects in real world clinical practice. These contextual factors remain insufficiently systematised in the existing literature and constitute an important limitation when extrapolating findings to different populations.

From a clinical perspective, the Mediterranean diet can be recommended with a high level of confidence for individuals at increased cardiometabolic risk. The Nordic diet represents a justified alternative, particularly in Northern countries, where its core food components align with traditional dietary patterns and can be readily integrated into everyday practice. Expectations regarding long term clinical outcomes should, however, remain consistent with the current level of evidence.

Overall, the findings of this review support prioritising shared principles of healthy eating over strict adherence to any single named dietary model. Future research priorities include long term controlled studies of the Nordic diet with clinical events and mortality as outcomes, methodologically rigorous comparative studies of different dietary patterns, and research focused on the practical applicability and reproducibility of dietary interventions across diverse real world clinical settings.

DISCLOSURES

AUTHOR CONTRIBUTIONS

Conceptualisation: Zuzanna Dynowska, Aleksandra Rysak, Patryk Rocznik, Zuzanna Muszkiet

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USE OF AI

The authors acknowledge the use of ChatGPT (OpenAI) for assistance in drafting and language editing of early manuscript versions. All sections were subsequently reviewed, revised and approved by the authors, who take full responsibility for the scientific content and conclusions.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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