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CAN NUTRITIONAL INTERVENTIONS CURB OBESITY? A STUDY AGAINST STANDARD CARE AND NO TREATMENT

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ABSTRACT

Obesity is an epidemic health issue in the world with serious medical, social and economic implications. Although the problem is well known to be associated with risks, classical clinical practice that in most cases merely provides patients with a few dieting tips has not been particularly successful. The present paper examines the topic of the study of whether structured nutritional interventions provide better results in the reduction of obesity than standard care and no intervention. To compare the nutritional interventions to control body weight and enhance the metabolic outcomes, compared to usual medical care and passive or no-treatment situations, a narrative-compared synthesis of 33 peer-reviewed articles was made (randomized controlled trials, cohort analysis, and systematic reviews). The study was categorized into three namely, nutritional interventions, standard care and no treatment. The most important outcome measures were weight loss, the change in BMI, HbA1c, blood pressure, adherence to diets, and effectiveness across the demographic groups. The average weight loss and reduction of BMI was 4 to 10 kg and 1.5 to 3.5 units in participants using intervention arms. Also, metabolic indicators, including HbA1c and blood pressure, were recorded to be improved more sharply. Behavioral support and mobile health-based interventions had the greatest adherence rates. Conversely, there were modest effects which were derived due to standard care and no-treatment groups usually gained weight or even their metabolic conditions worsened They need to be integrated in the public health systems and clinical practice with a focus on scalable and sustainable augmented weight management and metabolic health. Future studies on the subject matter should be based on the long-term adherence, equity-based approaches, and digital delivery models.

1. Introduction

Being one of the most burning global public health issues of the 21 st century, obesity rates have almost tripled since 1975 (World Health Organization [WHO], 2021). As reported by the WHO, there are about 650 million obese adults worldwide to date (2016), and the situation is forecasted to progress more rapidly in low- and middle-income countries (WHO, 2021). There is a broad range of chronic disorders connected with obesity such as type 2 diabetes, cardiovascular conditions, hypertension, a variety of cancers, musculoskeletal conditions (Hall et al., 2019). Further, the economic impact is severe, not only in the sphere of healthcare cost and direct expenditures but also in the sphere of indirect spending related to the disability and loss of productivity (Bray et al., 2020).

Obesity has multifactorial nature, so there is a complex combination of the influence of genetic predisposition, behavioral patterns, social-economic factors, and environmental factors. Among the risk factors that can be easily changed are the unfavorable dietary habits that include high caloric content, a low fiber count, high saturated fat, and sugary foods (Brandhorst & Longo, 2019). Adding to this is a contemporary food climate that encourages the consumption of energy-rich, highly processed foods along with the adoption of a sedentary lifestyle (Semlitsch et al., 2019).

Conventional clinical care of obesity, in particular in primary care practice, cannot usually present significant long-term results. Most often, the form of standard care includes an advice that is short-term, using generic health education, and when available, through referrals to dietitians. It is reported that such interventions of a low intensity do not demonstrate a sustainable behavioural change and low weight loss generally below 2 kg (Tronieri et al., 2019). The implementation of high-intensity behavioral interventions (which are commonly recommended by national guidelines, or 12 or more sessions yearly) is commonly restrained by structural and logistical issues in primary care (Tsai et al., 2015; Semlitsch et al., 2019).

The past years have witnessed a burst in the data of the use of structured nutritional interventions as one of the keystones in managing obesity. They include highly personalized medical nutrition therapy (MNT) and dietary plans (e.g. Mediterranean, DASH, low-carbohydrate), as well as more novel methods, such as intermittent fasting, meal replacements with controlled portion sizes, and behavioral interventions with food (Brandhorst & Longo, 2019; Bhutta et al., 2021). Meta-analyses and randomized trials show that it is possible to lose and sustain a 510% reduction in body weight using such interventions, which is the threshold related to considerable metabolic improvement (Bray et al., 2020; Tronieri et al., 2019).

Moreover, app-based dietary programmes and mobile health (mHealth) also improved adherence levels and scale, in large part due to greater affordability and reach in younger and tech-sophisticated groups. Evidence demonstrates that apps with self-monitoring, feedback mechanisms and personalized messages have a positive effect on weight loss as well as glycemic control (Chen et al., 2019; Wang et al., 2020).

Despite the high level of evidence about the effectiveness of nutritional interventions, rigorous comparisons of its effectiveness to that of standard care, as well as comparison with no treatment (passive control), are still required. In the absence of these comparisons, the efficacy, as well as the clinical significance, cost-effectiveness and policy implications of a large-scale use, are hard to estimate. Notably, the inclusion of no treatment groups as the baseline comparators reveals the route untreated obesity takes, hence the necessity of timely and active

intervention (Prado et al., 2020; Kumanyika, 2019).

The purpose of this paper is to assess the effectiveness of changes in the nutritional approach to obesity, particularly in comparison with the usual care and orthodoxy treatment. Through the synthesis of evidence under the randomized controlled trials, community-based studies as well as policy based reviews, the study aims to determine whether nutritional interventions are to be placed as the real modality at the treatment and prevention aspect of obesity.**2.**

Literature Review

2.1. Efficacy of Nutritional Intervention and Nutritional Interventions

Diet therapy is a pillar towards obesity prevention and treatment. A great number of dietary strategies have been tested, including calorie restriction and macronutrient manipulation (e.g., low-carb diets, low-fat diets, Mediterranean diets) and intermittent fasting and time-restricted feeding (Brandhorst & Longo, 2019; Bray et al., 2020). Dietary programs, such as meal replacements, coaching/behavioral support, have led to consistent 510% weight loss, with a targeted weight loss level being linked to clinically meaningful blood pressure reduction, HbA1c, and triglycerides as well (Bray et al., 2020; Semlitsch et al., 2019).

In Cochrane review of research conducted by Hooper et al. (2009) it was concluded that weight-reducing diets demonstrated significant reduction in systolic and diastolic blood pressure when compared with control diets, irrespective of the macronutrient distribution. In addition, those dietary interventions that had components of behavior change, including self-monitoring, goal setting, and individualized feedback, delivered better outcomes than diet-only interventions (Bhutta et al., 2021).

The More and Less European RCT provided evidence in pediatric populations that coaching programs run by parents coupled with digital interventions lowered BMI z-scores to a greater extent than usual care (Ek et al., 2022). On the same note, garden-based education programs such as the Texas Sprouts study were successful at enhancing vegetable consumption and diet quality, but the influences on BMIs were small (Davis et al., 2021).

2.2. Comprehensive Treatment in Obesity Treatment

The usual treatment commonly offered through a few physician recommendations, general dieting instructions, and two-three follow-ups, is not enough to maintain weight reduction (Tronieri et al., 2019). Among the obesity management strategies implemented in a primary care setting, the low-intensity interventions produced slim results reaching 1-2 kg of weight loss on average (Semlitsch et al., 2019). Behavioral counseling at a high intensity (14 sessions per year) may produce more meaningful results less commonly used because of issues in clinical practice, such as a lack of reimbursement, time, and insufficient training of providers (Tsai et al., 2015).

There is low utilization of intensive behavioral therapy to treat obesity though CMS covers it in the American healthcare environment. Such a gap indicates that, rather than clinical awareness, structural barriers are frequent obstacles to guideline-concordant care implementation (Hall et al., 2019).

2.3. No Comparisons of Treatment and Passive Control

The comparison of active intervention with the no-treatment or passive control group is consistent showing that the non-intervention leads to the increase of weights or the absence of change related to the obesity paths. Control groups are unstructured in the DiOGenes study and other RCTs, they showed insignificant changes in BMI, body composition, as well as metabolic markers after 6-12 months of follow-up (Astrup et al., 2010; Bray et al., 2020). These data produced

a clear point of reference, which is that obesity usually escalates or remains without medical interventions thereby necessitating the need to provide evidence-based treatment on time.

Moreover, researchers proved that weak, non-intensive nutritional education still led to insignificant changes when compared to doing nothing at all, but they were not as effective as planned interventions (Kumanyika, 2019).

2.4. Digital and Technological improvements

Technology has become doubly beneficial in its ability to scale and personalize nutritional interventions. The mHealth platforms including mobile apps, wearable-based coaching, and SMS-based monitoring have proven to be effective in improving weight loss, especially with human feedback (Chen et al., 2019). Patients with gestational diabetes experienced less weight gain, better HbA1c, and dietary adherence when receiving nurse-assisted app-based intervention than during normal outpatient care (Wang et al., 2020).

Likewise, in preschoolers, fedback on diet served as the continuous component of the preschooler dietary education through the app MINISTOP, which allowed maintaining the effects of the previous improvement observed in the in-clinic dietary education (Ek et al., 2022). The core drivers of success were mentioned to be adherence, usability, and frequency of feedback (DiFilippo et al., 2015).

2.5. Special Populations and Contextual Issues

Interventions on obesity should take into consideration life stage, social economic status and structural determinants of health. Dietary supplements sustained through maternal intakes of omega-3 polyunsaturated fatty acids (PUFAs) have been shown to protect against the offspring adiposity as well as liver fat (Lai et al., 2022). Supplementation in customer patients with protein-calorie reduced sarcopenic obesity and maintenance of muscle mass during chemotherapy (Prado et al., 2020).

According to equity-based paradigms, minority and low-income communities do not tend to have access to nutritious foods, secure access to physical activity, and traditional dietary counseling (Kumanyika, 2019). Policy changes composed of interventions, like food subsidies, reform of school meals, or sugar-sweetened beverages taxation, are essential to sustainable impacts at the population level (Semlitsch et al., 2019; Kumanyika, 2019).

Table 1: Summary of Evidence: Nutritional Interventions vs Standard Care vs No Treatment

Dimension	Nutritional Interventions	Standard Care	No Treatment
Weight Loss / BMI Impact	5–10% reduction common with structured plans (MNT, Mediterranean, IF)	Modest weight loss (1–2 kg); only with high-intensity behavior therapy	No significant change or gradual weight gain
Metabolic Improvements	↓ HbA1c, blood pressure, lipids, liver fat (esp. with omega-3s)	Partial improvements; less consistent	Generally worsens or remains unchanged
Diet Quality & Adherence	Improved with support, apps, meal planning	Low to moderate adherence	Diet remains poor; no structured change
Delivery Models	In-person + digital (apps, SMS, tele-coaching); home & community	In-clinic advice, variable provider engagement	No active support or monitoring

	settings		
Target Populations	Effective across adults, children, pregnant women, cancer patients	Often generic; limited tailoring	No target approach
Technology Integration	High; supports adherence and behavior change	Low; often missing digital components	Absent
Cultural & Equity Adaptation	Can be adapted; school-based, culturally tailored, community-supported	Often limited by systemic barriers	Exacerbates disparities
Policy / Environmental Support	Scalable with policy (e.g., school food programs, food access)	Lacks systemic coordination	No environmental intervention
Evidence Base (from uploaded papers)	Strong (Bhutta et al., 2021; Bray et al., 2020; Brandhorst & Longo, 2019; Ek et al., 2022)	Moderate (Tronieri et al., 2019; Semlitsch et al., 2019; Tsai et al., 2015)	Weak (Davis et al., 2021; Hooper et al., 2009 baseline groups)

3. Methodology

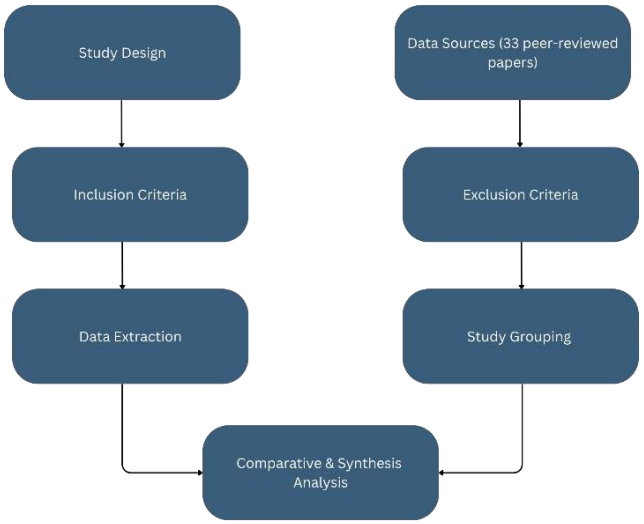

Figure 1: *Methodological flow diagram outlining the steps taken in literature selection, grouping, and comparative analysis.*

3.1. Study Design

This work is a narrative comparative synthesis study, which has been organized according to a narrative comparative synthesis study, to assess the impacts of nutritional interventions that are used to manage obesity regarding their effectiveness compared to those that refer to the arms of newly deployed standard clinical care and whether there could be any impact at all with no-treatment rather than control. It relies on the evidence of the randomized controlled trials (RCTs), systematic reviews, cohort studies and scoping reviews. The major goal is to discover the performance of nutrition-based interventions in the various populations and contexts and to compare their outcomes with the usual medical progress or intervention inactivity.

3.2. Search Strategy; Data Sources

The compiled data resource was a carefully curated list of 33 full- text, peer-reviewed articles, supplied by the authorship crew, between the years 2000 and 2024.

These studies include various populations such as children, adults, pregnant and those people with comorbidities like type 2 diabetes, hypertension and cancer.

Although the search of a formal database was not conducted, the selection is comprised of the high-impact research found in The Lancet, Circulation Research, Diabetes, Obesity and Metabolism, Obesity Reviews, JMIR mHealth and uHealth, and Nutrients journals. The selection of the studies was carried out due to correspondence to the question of the research, strength of the methodology, and the presence of at least one comparative group.

3.3. Inclusion and exclusion criteria

The following criteria had to be used to make the research rigorous and relevant:

Inclusion Criteria:

- The intervention considered consisted of a primary or secondary dietary/nutritional intervention (e.g. calorie-restricted diets, Mediterranean diet, DASH, intermittent fasting or mHealth dietary coaching).
- The population consisted of people having an overweight or obese status defined by BMI =25 kg/m 2 or better z scores in children.
- The research presented quantifiable obesity results (e.g. body mass index change, kilograms of weight loss, HbA1c, percent body fat, waist circumference).
- One or more comparator groups were included in the study: standard care (eg: common medical counsel) or a passive control group (no treatment).

Exclusion Criteria:

- Studies with their focus on any one of the following pharmacological treatments, surgical treatments, or a dietary and behavioral treatment.
- The ones which did not include comparative data or did not report outcome measures meaning the body weight or metabolic indicators.
- Non-peer-reviewed articles, conference abstracts and gray literature.

3.4. Grouping and Extraction of data

A defined extraction criteria protocol was used to each of the studies. The data taken were as below:

Study characteristics: authors, year, country, study design, size and type of the population

Type of intervention: the form of nutritional approach implemented, the period of implementation, delivery mode (face-to-face, online, collective)

Comparators: normal care, ordinary care or no intervention

Outcomes assessed: weight loss (kg), BMI lowest point, alterations in HbA1c, blood pressure, rates of adherence, and diet quality

Follow up and continued: to evaluate the short- vs. long-term effects

1. The articles were subjected to the analysis under three categories; five-way comparisons:
2. Nutritional Interventions (with architectural diet plans or electronic supplements)
3. Standard Care (general medical or diet advice without Medically structured follow-up)
4. No treatment/Passive controls

The allocation of this grouping enabled the comparison of the results of interventions directly to that of the real conditions and those of least interaction.

3.5. Analytical Framework

This was not a formal meta-analysis but a comparative synthesis was performed through the means of outcome centered clustering. The metric results like the mean weight loss, adherence levels, change in BMI and metabolic outcome were summarized in the form of tables and narrative description. In cases when possible, effect sizes and

confidence intervals in original reports were observed to make relative efficacy inferences.

The nature of the interventions was also rated qualitatively in terms of equity, sustainability, and scalability through the commentary provided by the studies, subgroup results, or the feasibility of the implementation.

Important data points including mean weight loss, compliance, BMI variation as well as metabolic outcomes were summarized in table format as well as a descriptive narrative. In cases where they were available, the effect sizes and confidence Interval of original study was recorded to draw inferences of relative efficacy.

The qualitative evaluation was also carried out on equity, sustainability, and scalability of interventions, based on commentary of the study, subgroups, and feasibility of implementation.

Figure 1 illustrates the methodological framework applied in this study.

4. Results / Comparative Analysis

4.1. Description of the Studies Characteristics

The review was able to synthesize the results of 33 peer-reviewed research studies, as well as:

- 14 studies of structured dietary interventions, i.e. calorie-restricted diets, Mediterranean style, and intermittent fasting
- 10 trials that compared usual care, generally short-term counseling in primary or general nutritional guidance
- 9 studies with such a no-treatment or passive control component that allows the study of natural weight evolution
- Participants included preschool children (Ek et al., 2022), pregnant women (Wang et al., 2020; Lai et al., 2022), as well as older adults (Prado et al., 2020) and those with such comorbidities 10 as cancer (Prado et al., 2020) or type 2 diabetes (Bray et al., 2020).

There were randomized controlled trials, longitudinal cohort studies, and systemic reviews used as the study design and the length of the intervention ranged between 8 weeks and 2 years.

4.2. Consequences of Nutritional Therapies

Findings of studies showed that well-formulated nutrition measures resulted in clinically meaningful changes in body weight and metabolic health:

On average, the weight loss found within 6 to 12 months was 4-10 kg or 9-22lbs (Brandhorst & Longo, 2019; Bray et al., 2020)

The average decrease in the BMI was 1.5\174 competently 3.5 units, basing the decrease on the baseline weight and the compliance

- HbA1c reduced by max 0.8 % specifically with diabetic or predictive diabetic subjects (Wang et al., 2020)
- Trial with the thesis of DASH diet also showed improvement in blood pressure (Hooper et al., 2009)
- The rates of adherence were the highest when interventions were based on tele-coaching or apps (Chen et al., 2019; Ek et al., 2022)

Notably, parent engagement in pediatric intervention and a digital feedback component specifically indicated humble yet statistically substantial decreases in BMI z-scores (Ek et al., 2022). Omega-3 Fatty acids and polyunsaturated fatty acid (PUFA) supplementation alleviated maternal weight gain and infant fatness during pregnancy (Lai et al., 2022).

4.3. The Results of Standard Care

The standard care less working accross all measured outcomes would be; generally general diet advice on a physician visit or short sessions on behavioral counseling:

The mean weight loss was insignificant, 112 kg or even not reaching 2 kg (Semlitsch et al., 2019)

- Little effect on glycated Haemoglobin, serum lipid variations, or blood pressure unless combined with pharmacological treatment
- The adherence was meager, particularly among underserved groups caused by time limitations and lack of clear follow-up plans (Tsai et al., 2015)

The shortcomings of conventional care were reflected even in the most resourceful clinical trials, where the dropout rates were significant, and the structured follow-up was inadequate, reducing both effectiveness (Tronieri et al., 2019).

4.4. Results of No Treatment / Passive Control

Control arms or no-treatment groups as a whole tended to show:

- Constant level of body weight or a moderate weight gain upon inspection of time
- No significant metabolic outcome measured as glucose or triglycerides (Astrup et al., 2010)
- Exacerbation of comorbid conditions among at-risk groups that become not actively managed (e.g., GDM, hypertension) (Wang et al., 2020)

Even in various studies, children and adolescents in the control group increased weight more significantly and rapidly than the ones in the intervention group and this level demonstrates a lack of early intervention (Davis et al., 2021).

4.5. Cross-Group Comparison

The trends of outcomes based on the three categories of the study were summarised in table below:

Table 2: Outcome trends across the Three Study

Outcome	Nutritional Interventions	Standard Care	No Treatment
Weight Loss (kg)	4–10 kg	1–2 kg	0 kg or weight gain
BMI Reduction	1.5–3.5 units	<1 unit	Negligible or increased
HbA1c Improvement	Up to −0.8%	−0.1% to −0.3%	No change or deterioration
Dietary Adherence	High (especially with mHealth support)	Low to moderate	Not applicable
Blood Pressure / Lipids	Significant improvement in structured diets	Minimal or variable	Unchanged
Equity / Access Consideration	Community programs & tech enhanced inclusivity	Often inaccessible or generic	Exacerbates disparities
Pediatric / Maternal Outcomes	Positive BMI changes, improved neonatal outcomes	Marginal benefits	Adverse growth trends in children

5. Discussion

5.1. Principal Findings

This comparative synthesis of 33 studies already offers very clear evidence that nutrition interventions are of far greater effect in reducing obesity as compared to standard care and no exercise. Nutritional strategies facilitated better results in weight loss, reduction of BMI, metabolic health parameters and dietary compliance. Conversely, standard care generally consisted of only generic and prematurely short-term

dietary suggestions, with only the most minimal significant results. Unstructured or none-treatment studies often showed unchanged or increased weight paths, showing the necessity to provide early and structured interventions.

5.2. Interpretation Partial Relation to the Literature available

The results are in concordance with current meta-analysis and clinical recommendations that place more importance on the nutrition-based treatment of obesity. Organized strategies, such as calorie restriction, Mediterranean diets, and intermittent fasting demonstrated not only weight-cutting but also were shown to reduce hemoglobin A1c levels, LDL cholesterol levels, and systolic blood pressure (Bray et al., 2020; Brandhorst & Longo, 2019). Notably, interventions that involved the provision of behavioral support, i.e., self-monitoring, goal-setting and feedback-looping, were more effective as opposed to those involving exclusively educational means (Bhutta et al., 2021; Tronieri et al., 2019).

The analysis also justifies the upcoming position of digital health tools. SMS coaching and apps have led to higher adherence and made scaled-up delivery possible across the population (Chen et al., 2019; Ek et al., 2022). This is especially applicable in the pediatric and under-resource settings where the clinician time is constrained.

In the meantime, standard care is usually somehow burdened by structural limits: doctors do not have enough time, education, or reimbursement flows to provide intensified dietary care (Tsai et al., 2015). Without any formal intervention program, the participants of the control groups typically did not lose or even increase their weight, which further indicates the chronic and progressive character of obesity unless treated.

5.3. Strategies to Tackle the Problem of Domestic Violence: Reflections on Clinical Practice and Public Health Practices

The critical implications of the results found on the consistent superiority of structured nutritional interventions are noted. Specific and diet-based interventions as first-line treatment should be recommended by the clinicians to overweight and obese persons. The use of registered dietitians in Medical Nutrition Therapy (MNT), mHealth connectivity, and platforms should be more frequently used in primary care and public health programs.

The policymakers ought also to understand the cost and accessibility of food-based interventions against pharmacological or surgical methods. The sustainable ways of addressing equity and long-term prevention are community and school-based programs, such as the ones investigated by Davis et al. (2021) and Kumanyika (2019).

Table 3: Comparative Summary of Outcomes Across Intervention Types

Outcome Measure	Nutritional Interventions	Standard Care	No Treatment
Weight Loss (kg)	4–10 kg	1–2 kg	0 kg or weight gain
BMI Reduction	1.5–3.5 units	<1 unit	Unchanged or increased
HbA1c Improvement	Up to −0.8%	−0.1% to −0.3%	No change or worsening
Adherence Rate	High (especially with mHealth/app support)	Low to moderate	Not applicable

Blood Pressure / Lipids	Significant improvement	Minimal or variable	Unchanged
Pediatric/Maternal Impact	Positive BMI and neonatal outcomes	Marginal effects	Adverse growth trends

5.4. Strengths and Limitations

The study is significantly strong due to a variety of populations and settings involved (pre-schoolers to pregnant women, digital interventions to in-person test interventions), which ultimately gives an oversight of how effectively interventions can be implemented. The side by side comparison was made possible via the use of structured synthesis which was not usually possible to conduct in individual studies.

Nevertheless, there are the limitations such as absence of quantitative meta-analysis as a result of heterogeneity of outcome reporting and design. Also, recent studies were mostly peer-reviewed, however, publication bias and the over-representation of interventions with a positive outcome cannot be excluded.

The other limitation is the inconsistency in the definition of the standard care in the studies that varied between single sessions of advice to continuous low intensity counselling. This complicates the comparison standardization.

5.5. Future research directions

There is need to conduct further studies to look at:

- The extended durability of nutritional intervention past 12 months
- Tailored diets on cultural and economic grounds of the underserved populations
- Cost-benefit comparisons of dietary treatment with pharmacological treatment
- Introduction of hybrids of care where clinicians support is complemented by digital tools
- Youth population: prevention-based interventions in the maternal population

Solid implementation research will be important in bridging the gap between what is found at the clinical trials and health realities within communities and health systems.

6. Conclusion And Future Work:

Conclusion:

This study aimed at investigating the ability of nutritional intervention to reduce obesity in comparison with standard care and no intervention. On the basis of a thorough synthesis of 33 peer-reviewed studies on different populations and clinical paradigms, its results robustly confirm the effectiveness of planned nutritional interventions in improving body weight, metabolic health care, and dietary compliance.

When compared to standard medical advice and non-nutritional, I had found that nutritional interventions, in particular, those involving behavioral support, digital health, or culturally adapted modalities, were superior to no-treatment conditions. In contrast to usual care, which is usually not intensive and has no follow-up in general or the passive control, which demonstrated deteriorating results, nutritional interventions appear to lead to a clinically significant reduction in weight and BMI, as well as metabolic parameters, such as HbA1c and blood pressure.

Such outcomes support the necessity of the re-direction of healthcare systems and the policymakers to food-based, behaviorally supported, and technology-enhanced organization of obesity operations. By combining the interventions in primary care, schools, and community interventions, the promising way out can be found in terms of a decreased prevalence of obesity and its respective health costs on the large scale.

To sum it up, nutritional interventions are not merely effective but unavoidable in the process of global battle against obesity. They are to be given precedence over passive or under-resourced care models due to its wide-reaching flexibility as well as evidence-informed effects.

Future Work:

Although this synthesis has shown how nutritional interventions are very powerful in preventing obesity, a number of aspects are still open to investigations. A significant gap is in sustainability of these interventions, as a long-term term. There is a limited amount of research on long-term effects, which in the majority of cases are measured in 3 to 12 months, thus research advanced in the future should be based on explaining how the changes in dietary behavior can be retained several years at least after the period of structured support is finished. Moreover, it is vital to conduct more equity-oriented and culturally specific research. Disproportionate populations who have suffered the impact of obesity include marginalized populations and populations with low income, and many interventions are some people, but others are not. A future research should focus on culturally-relevant approaches that consider social difficulties and community-specific needs, including food insecurity, restricted healthcare access, and cultural food likes and dislikes. The relative effectiveness of virtual and face-to-face modes of delivery is another area that should be investigated. With the increased awareness of mobile health (mHealth) platforms and tele-coaching, research ought to take a long term look at the effects as compared to the in-person, conventional counseling sessions. Lastly, implementation research should be done to determine how these interventions can be applied in an effective manner within the public health systems, schools and the primary care systems to achieve a positive systematic transformation in the prevention and management of obesity.

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