Review

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Review

The Role of the Mediterranean Diet in Assisted Reproduction: A Literature Review

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Abstract: The Mediterranean Diet, characterized by high intake of plant foods and unsaturated fats, has been suggested to improve assisted reproductive technology (ART) outcomes. This literature review aimed to summarize the evidence from observational studies on the associations between preconception Mediterranean Diet and ART outcomes. PubMed/MEDLINE, Embase, ScienceDirect, and Google Scholar databases were searched to identify relevant studies. Seven observational studies (n=2,321 women on ART) were included. Adherence to the Mediterranean Diet was assessed by food frequency questionnaires with 6-195 items. Three studies found that higher Mediterranean Diet scores improved Clinical Pregnancy or Live Birth rates, while two studies showed a positive effect on ART eggs and embryos. However, two studies reported no significant associations with ultimate ART success, and four studies found no effects on oocyte and embryo number or quality. Evidence for the effects of greater adherence to the Mediterranean Diet on ART outcomes is limited but promising. Additional rigorous research is needed to clarify and weigh the degree of association between the Mediterranean Diet and ART success.

Keywords: mediterranean diet; infertility; fertility; assisted reproductive techniques; assisted reproduction; ART; IVF

1. Introduction

The Mediterranean Diet, developed in countries around the Mediterranean, emphasizes a high consumption of plant foods such as fruits, vegetables, whole grains, legumes, nuts, and olive oil, combined with moderate amounts of fish, poultry, eggs, and dairy products [1–3]. The Mediterranean Diet's value in supporting and improving human health is indisputable, as it exhibits a significant protective effect against cardiovascular diseases [1,4], Diabetes Mellitus, Metabolic Syndrome [5], and certain types of cancer [1,6]. Recent research highlights the Mediterranean Diet as a useful tool for promoting Fertility and improving Assisted Reproduction results, even supporting the position that the Mediterranean Diet should be recommended to infertile couples who resort to Assisted Reproduction methods (ART) for having a child [7].

Infertility, defined by the World Health Organization as a disease, plagues up to 15% of reproductive-age couples, with its incidence and prevalence increasing [8–11]. Assisted Reproduction, a branch of Reproductive Medicine science, includes procedures such as IVF and ICSI and serves infertile couples to conceive and create a complete family [8,9]. Although Assisted Reproduction Techniques (ART) have greatly contributed to Infertility treatment, they remain expensive and invasive methods, with possible complications and live and viable birth rates per ART/IVF cycle of only 30% [12]. Therefore, it becomes obvious the need to improve these techniques per se and the adjunctive treatment of infertility in couples seeking treatment through ART with

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complementary, easily applicable measures, such as dietary intervention, to further improve both the final and intermediate results of Assisted Reproduction.

The majority of studies have examined and highlighted the benefit of specific components and foods of the Mediterranean Diet in improving several parameters of Human Fertilization, such as semen quality [13–22], egg quality and development [13,23–31], embryo quality, and optimization of conditions for their subsequent implantation in the endometrium [13]. The Mediterranean Diet is rich in antioxidants, polyunsaturated fatty acids (such as ω3 & ω6 fatty acids), monounsaturated fatty acids (PUFAs & MUFAs), fiber, and vitamins C, E, and the vitamin B complex [32–36], which contribute to Reproductive Health [37] through mechanisms that include reducing inflammation [36], increasing insulin sensitivity [13], and protecting against oxidative stress and its damage [23–28,38,39].

Despite the Mediterranean Diet being defined as an entity since the 1960s [40], the investigation of its relationship with the improvement of Human Fertility and especially with Assisted Reproduction has only recently gained more interest. The fact that the majority of the existing literature investigates the individual nutritional elements and substances individually should be emphasized, overlooking their possible synergistic action in a wider context by considering them as a whole that constitutes a Diet - Nutritional Pattern/Model. Therefore, the holistic examination of the Mediterranean Diet and the highlighting of the beneficial role of the individual components and foods that make it up through the overall combination and interaction is of particular research interest with possible further clinical applications and bridging an important knowledge gap.

Consequently, this review focuses on summarizing the existing knowledge and literature on one of the most popular diets, arguably the Mediterranean Diet, regarding its role and impact on the outcome of Assisted Reproduction.

2. Materials and Methods

2.1. Process of Studies Retrieval

A thorough research was performed using databases and online platforms such as PubMed/MEDLINE, Embase, Google Scholar, ScienceDirect, Scopus, Web of Science (Clarivate), and UpToDate. The 'snowball literature searching method' of finding additional bibliographic sources was also followed from the References Lists to expand the pool of available bibliographic sources used, extracting information on the Mediterranean Diet, Infertility, Assisted Reproduction Techniques, and especially on the correlation and interaction between them.

2.2. Algorithm Search

(ICSI OR "Intracytoplasmic sperm injection" OR IVF OR fertility OR infertility OR ART OR "assisted conception" OR "assisted reproductive technology" OR "assisted reproductive" OR "assisted reproduction") AND ("mediterranean diet")

2.3. Screening - Eligibility Criteria

The selection of the included studies was carried out based on their relevance to the subject in terms of their title and abstract and after the examination of the full manuscript. Studies that examine the Mediterranean Diet and Mediterranean Diet patterns in infertile couples seeking to have children through ART, as a whole and not with an emphasis on specific ingredients, vitamins, trace elements, foods, etc., included in it, were selected. Only studies dealing with ART for the purpose of IVF/ICSI were included. Studies focusing only on cryopreservation and storage of embryos, donation, or surrogacy were included. Studies focusing only on specific pathological conditions associated with infertility, such as endometriosis or polycystic ovary syndrome, were excluded. Only published original research studies were included, while other literature and systematic reviews and case report studies were excluded. Furthermore, studies that did not include methods for evaluating adherence to the Mediterranean Diet were excluded. There was no time limit, and the search language was English. Given the large heterogeneity of the studies, quantitative meta-analysis was not feasible. The

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finding process, the examination, and inclusion of the selected studies from the aforementioned databases took place from October 2022 to July 2023.

3. Results

3.1. Study Features & Demographics

After a thorough search of the above-mentioned databases, seven studies were found that met the inclusion criteria in the present literature review [41–47], of which six were cohort studies, while one was a cross-sectional study (Noli et al.) [47], which in total included 2,321 women with Infertility under ART therapy [8,9]. Individual sample sizes ranged from 161 to 590 women. Our review studies included both women with initial treatment with IVF cycles and women in later cycles, evaluating the association of adherence to the Mediterranean Diet before ART therapy, with intermediate outcomes (number and quality of eggs at retrieval, number and quality of embryos, embryo transfer, implantation) and the final results of Assisted Reproduction. The main characteristics of the studies in the present literature review are summarized in Table 1.

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Table 1. The included studies of the review and their key characteristics.

First Author (year)	Country	Study Design	Sample size and characteristics	ART protocol	Method of Evaluation of the Mediterranean Diet	Duration of the Study and Follow – up period	Results	Mediterranean Diet and ART association	Confounders
Vujkovic et al. (2010) [41]	Netherlands	Prospective Cohort	IVF/ICSI treatment at a university IVF clinic, median age of women ≈35 years, median BMI ≈23 kg/m 2	Not clarified	- 195-questions about foods in a FFQ analyzed in terms of main components to identify dietary patterns – The evaluation of following the Mediterranean Dietary Pattern was done with a score of 0-8	- Conducted from September 2004 to January 2007 - Preconception diet of the previous 4 weeks - Follow-up after ART not clarified	- Biochemical pregnancy (+urinary β-hCG 15 days after ovulation) - Quality of Embryos on the 3rd day	- High adherence to the Mediterranean Diet led to an increase in the probability of pregnancy by 1.4 times although not statistically significant (OR 1.4, 95% CI 1.0-1.9) – No correlation found between embryo quality and Mediterranean Diet	- BMI, smoking, alcohol, IVF / ICSI therapy, ovarian stimulation protocol
Twigt et al. (2012) [42]	Netherlands	Prospective Cohort	199 women undergoing 1st IVF/ICSI cycle at a university IVF clinic	Not clarified	- 6 questions about the frequency of intake of fruits, vegetables, meat, fish, whole grain products and fatty foods. –Preconception nutritional risk score [Preconception dietary risk (PDR) score] with higher score = better diet quality	- Conducted from October 2007 to October 2010 – Pre-Conception Diet - Follow-up after ART not clarified	- Pregnancy Development (Ultrasound Detection of Fetal Heart Rate at the 10th week of gestation)	- 1 unit increase in PDR score increased the odds of pregnancy progression by 1.65 (aOR 1.65, 95% CI 1.08–2.52)	- Woman's Age, Smoking, Partner's PDR Score, Couple's BMI, ART Treatment Indication

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Karayiannis et al. (2018) [43]	Greece	Prospective Cohort	244 non-obese women aged 22-41 years with BMI<30kg/m2undergoing 1 IVF cycle (ICSI) in a private IVF clinic. Mainly infertile couples of male etiology	GnR H agonist protocol - rFSH and/or hMG at a max combined dose of 450 IU /day	- 76-point Mediterranean Diet score from 0-55 that assessed intake of foods from 10 food groups	-Held from 2013 to 2016 - Pre-conception diet - Follow-up after ART not clarified	- Oocytes retrieved, mature oocytes, fertilisation rate, embryo quality at day 3, clinical pregnancy, live births (8,9)	- Clinical Pregnancy: 50% in the upper tertile (MedDietScore ≥36, n =86) vs. 29% in the lower tertile (MedDietScore ≤30, n =79), p =0.01 – Live births: 49% in upper tertile vs. 27% in lower tertile, p =0.01 - Differences in clinical pregnancy and live births were found only in women <35 years of age - No significant differences were found in the other results	- Age, Ovarian Stimulation Protocol, BMI, Physical Activity, Stress, Infertility Diagnosis, Caloric Intake, Supplement Use
Gaskins et al. (2019) [44]	USA	Prospective Cohort	357 women aged 31-39 years and BMI: 21-28 who- underwent a total of 608 cycles of ART treatment	Multiple Protocols	- Mediterranean Diet Score from 0-55 which assessed intake of foods from 11 food groups	- Evaluation of data from 2007 to 2017 - Pre-conception diet - Women were followed for 1 (55%), 2 (26%), 3 (13%9, or 4-6 cycles of ART (5%)	- Live births - Clinical Pregnancy	- The Mediterranean Diet was found to improve live birth rates above the first quartile of adherence (0.44, 95% CI: 0.39-0.49, p <0.05) while in the first quartile: (0.31, 95% CI: 0.25–0.39, p < 0.05) - However, there was no further improvement in live birth rates above the second quartile	- Age, BMI, Caloric Intake, Physical Activity, Smoking, Infertility Diagnosis, Previous Pregnancies, Training, Dietary Supplements

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							- No significant correlation was noted with clinical pregnancy rates	
Ricci et al. (2019) [45]	Italy	Prospective Cohort	474 women aged 23-40 years, with BMI: 18.3-26.3, treated with an IVF cycle in an Italian IVF clinic	Not clarified	- Mediterranean Diet Score from 0-9 that assessed intake of 9 food groups, via 78-questions of food frequency in a certified FFQ	- Held from September 2014 to December 2016 - Pre-conception diet - Follow-up after ART not clarified	- Retrieved Eggs, Quality and Number of Embryos on Day 2/3, Embryo Transfer, Clinical Pregnancy, Live Births	- No significant association of the Mediterranean Diet Score with oocyte count, embryo quality, clinical pregnancy or live births emerged - Minimally lower risk of failure to achieve clinical pregnancy for intermediate Mediterranean Diet Score in women >35 years (aRR 0.84, 95% CI 0.71–1.00, $p < 0.05$) with no associated increase in live birth rates	- Age, Physical Activity, BMI, Smoking, Daily Caloric Intake, Previous ART Cycles
Sun et al. (2019) [46]	China	Prospective Cohort	590 infertile women aged 28-35.5 years undergoing IVF treatment	- Long GnRH agonist or antagonist protocol	- Mediterranean Diet Score from 0-8 that assessed the intake of 8 food groups (alcohol removed), via a 69-question food frequency non-validated FFQ	- Held from September 2016 to December 2017 - Pre-conception diet - Follow-up only for Embryo Transfer	- Retrieved Eggs, Number of Embryos, Quality of Embryos on Day 3, Clinical Pregnancy, Implantation	- Higher Mediterranean Diet Score led to an increase in the number of available embryos (8.4 ±5.26 vs. 7.4 ±4.71, $p = 0.028$) - No significant differences emerged in the other results under examination	- Age, Infertility diagnosis, BMI, basal FSH, Duration and dose of Gonadotropins
Noli et al. (2023) [47]	Italy	Cross - Sectional	296 infertile women aged 19-39 years, with normal BMI and ovarian reserve,	- Long-acting GnRH	- Mediterranean Diet Score from 0-9 that assessed intake of 9	- Held from September 2014 to February 2019 - Pre-conception diet	- Unexpected poor ovarian response after	- Low Mediterranean Diet Score led to an increased risk of Unexpected poor response,	- Age, BMI, Smoking, Endometriosis,

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	undergoing IVF treatment	agonist or antagonist protocol - Initial dose of gonadotropins 150-225 IU /day	food groups, via 78-questions of food frequency in a certified FFQ	- No follow-up was performed after ART, as a cross-sectional study that is a snapshot of data in a specific time period	stimulation (≤3 mature eggs in ovulation)	statistically significant association especially for the middle tertile of the Mediterranean Diet Score versus the lower tertile: aOR 0.29 (95% CI 0.11–0.76) - For middle and upper tertile women combined vs. lower: aOR 0.34 (95% CI 0.14–0.82)	Caloric intake, Alcohol, Caffeine

ART: Assisted Reproduction Techniques, ICSI: Intra-cytoplasmic sperm inclusion, IVF: In-vitro Fertilization, FFQ: Food Frequency Questionnaire, OR: Odds Ratio, aOR: advance Odds Ratio, RR: Relative Risk, CI: Confidence Interval.

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3.2. Evaluation of Adherence/Following of the Mediterranean Diet

The assessment of adherence/following of the Mediterranean Diet in the included studies was carried out through food frequency questionnaires (FFQ – Food Frequency Questionnaire) which include a calibration - score for the degree of adherence to the Mediterranean Diet. Higher FFQ scores were associated with more faithful adherence to the Mediterranean Diet before ART treatment. Twigt et al. [42] used a 6-food group questionnaire in the form of "YES or NO" in response to their consumption, which was based on the National Dutch Dietary Guidelines [48], but this modified questionnaire had not been previously validated and evaluated. The studies of Karayiannis et al. [43] and Gaskins et al. [44] used the MedDietScore [48] with a scale of 0-55, while the studies of Ricci et al. [45] and Sun et al. [46] used a variant of the MDS with a scale of 0–9 [1]. Vujkovic et al. [41] used a FFQ with analysis based on main dietary characteristics to infer adherence to certain dietary patterns, including the Mediterranean Diet, with a score of 0–8. Finally, Noli et al. [47] used a validated and recognised 78-food groups and items FFQ [49]. The individual FFQs showed great heterogeneity among themselves, which makes their comparison very difficult and challenging. Indicatively, the agreement rate of MedDietScore [48] and of MDS [1] is about 65% [50].

3.3. ART Protocols

The ART protocols followed varied among the studies in this review, including GnRH agonists and antagonists, as well as other hormonal adjuvant regimens, based on the experience and region of each IVF center.

3.4. Results - Associations of the Mediterranean Diet and ART Outcomes

The association and role of the Mediterranean Diet with Assisted Reproduction for each of the 7 studies is summarized below and aggregated in Table 2:

1) The study of Vujkovic et al. (2010) [41] found that higher adherence to a Mediterranean Diet among couples undergoing IVF/ICSI was associated with increased odds of clinical pregnancy (OR 1.4, 95% CI 1.0–1.9). However, adherence to the Mediterranean Diet was not associated with embryo quality.
2) The study of Twigt et al. (2012) [42] reported that each one-unit increase in the mother's preconception nutritional risk score assessing adherence to the Dutch Dietary Guidelines [50] was associated with a 65% increase in the likelihood of ongoing pregnancy – pregnancy progression (Ultrasound detection heart rate at 10 weeks of gestation) after a 1st ART cycle.
3) The study of Karayiannis et al. (2018) [43] observed that higher Mediterranean Diet scores were associated with increased clinical pregnancy rates (RR 1.98, 95% CI 1.05-3.78) and live birth rates (RR 2.64, 95% CI 1.37-5.07) among women under 35 years of age undergoing their 1st cycle of in vitro fertilization. No associations were observed between the Mediterranean Diet and the number of eggs or the quality of the embryos.
4) The study of Gaskins et al. (2019) [44] found that the Mediterranean Diet was associated with improvement in live birth rates above the first quartile of adherence (0.44, 95% CI: 0.39-0.49, $p < 0.05$), versus the first quartile: (0.31, 95% CI: 0.25-0.39, $p < 0.05$). However, there was no further improvement in live birth rates above the second quartile. No significant correlation was noted with clinical pregnancy rates.
5) The study of Ricci et al. (2019) [45] reported no significant associations between Mediterranean Diet adherence score and oocyte number, embryo quality, clinical pregnancy, or live birth rates among women undergoing IVF. A marginally lower risk of failure to achieve clinical pregnancy for the intermediate Mediterranean Diet Score in women >35 years was noted (aRR 0.84, 95% CI 0.71–1.00, $p < 0.05$) with no associated increase in live birth rates.
6) The study of Sun et al. (2019) [46] found that higher Mediterranean Diet scores were associated with increased number of fetuses ($p=0.028$). However, no associations were observed for oocyte number, embryo quality, clinical pregnancy or live birth rates.

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7) Finally, Noli et al. (2023) [47] found that lower scores in adherence to the Mediterranean Diet were associated with an increased risk of unexpected poor ovarian response (aOR 0.29, 95% CI 0.11–0.76).

Table 2. The Clinical Correlation of the Mediterranean Diet with Assisted Reproduction.

Study	Number/Quality of Oocytes	Number/Quality of Embryos	Clinical Pregnancy	Live Births
Vujkovic et al. (2010) [41]	No correlation	No correlation	OR 1.4, 95% CI 1.0–1.9	Not evaluated
Twigt et al. (2012) [42]	Not evaluated	Not evaluated	65% increase in ongoing pregnancy with 1 unit increase in nutrition score	Not evaluated
Karayiannis et al. (2018) [43]	No correlation	No correlation	RR 1.98, 95% CI 1.05-3.78	RR 2.64, 95% CI 1.37-5.07
Gaskins et al. (2019) [44]	Not evaluated	Not evaluated	Improvement in live births above the first quartile following the Mediterranean Diet	Not evaluated
Ricci et al. (2019) [45]	No correlation	No correlation	No correlation	No correlation
Sun et al. (2019) [46]	No correlation	Increased number with higher nutrition score (p=0.028)	No correlation	Not evaluated
Noli et al. (2023) [47]	Increased poor response with lower nutrition score	Not evaluated	Not evaluated	Not evaluated

In all studies, the results were statistically processed for potential confounders, which are referred for each study in Table 1.

4. Discussion

This literature review aimed to investigate the role of compliance with the Mediterranean Diet in Assisted Reproduction. More specifically, the contribution of adherence to the Mediterranean Diet to the period before treatment with ART cycles, to the intermediate components of Assisted Reproduction Techniques, as well as to the final outcome, i.e., pregnancy (biochemical or clinical) and live births [8,9]. This review is one of the few that approaches the Mediterranean Diet as an indivisible food pattern and does not focus on individual foods and elements included in it, but on their synergistic action and interaction to improve the results of Assisted Reproduction.

Thus, the 7 included studies [41–47], which are probably the only original research studies that have investigated the association of pre-treatment adherence to the Mediterranean Diet with treatment with ART cycles, lead to ambiguous conclusions, with an overall positive sign. In total, the findings of the studies indicated a modest improvement in clinical pregnancy rates and live births [41,43,44] when there was a higher score in adherence to the Mediterranean Diet, but this association was not linear nor proportional [44,47]. This practically indicates the existence of a threshold (cut-off point) of compliance – score above which no additional benefits are observed in the results of Assisted Reproduction, with a more faithful adherence to the Mediterranean Diet. In contrast, in the interim results of ART, only the study by Sun et al. (2019) [46] found that higher Mediterranean Diet scores

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were associated with increased number of fetuses (p=0.028). Noli et al. [47] pointed out in their cross-sectional study that reduced adherence to the Mediterranean Diet led to a poor response to ovarian stimulation and a reduced number of eggs per ovulation (≤3 mature eggs per ovulation). Taking into consideration the above, leads to the conclusion that the action of the Mediterranean Diet lies in optimizing the receptivity of the endometrium [41], implantation, in smooth placentation and later in the support and development of pregnancy due to its high nutritional value [51–53]. Possible components in the mechanism of these beneficial effects are the anti-inflammatory [36] and antioxidant properties [32–36] of plant foods, plant fibers and unsaturated fatty acids ω3 and ω6 of the Mediterranean Diet [1–3,13,32–36,54–56] which favor the development of an appropriate endometrial microenvironment.

However, the positive effect of the Mediterranean Diet on the final outcome of Assisted Reproduction was not shown by all the studies and in fact some found the absence of a statistically significant correlation [45,46]. These differences can be attributed to the heterogeneity in the size of the studies, to the individual characteristics of the examined infertile women, to the ability to limit errors from confounders and in particular to the great heterogeneity in the methods of evaluating the adherence to the Mediterranean Diet, as their final calibration, indicatively, it was based on 6 to 195 different food items and groups.

4.1. Potential Applications

Although the results so far are conflicting and do not demonstrate a clear and catalytic effect of the Mediterranean Diet on Assisted Reproductive Techniques [8,9] and its outcome, it is a fact that the Mediterranean Diet is the most popular beneficial dietary pattern for human health and fertility promotion [5,13,38,55,56]. It is therefore considered appropriate to properly inform infertile couples who resort to assisted reproduction methods about the possible beneficial actions of the Mediterranean Diet and to encourage them to comply with it, but also to participate in relevant research programs with the aim of improving the existing knowledge arsenal against Infertility and the progress of IVF science. Clinicians of Assisted Reproduction can integrate pre-treatment nutritional counseling to prospective infertile couples and recommend the Mediterranean Diet as the preferable one, after the patients' dietary habits have been previously examined and evaluated with valid and certified questionnaires (FFQs). Optimizing candidates' adherence to the Mediterranean Diet and its outcomes in ART cycles can be supported by the provision of individualized dietary plans (adapted to the Mediterranean Diet standards) by appropriate nutritionists, based on personal preferences, cultural background, as well as possible appropriate dietary restrictions (diabetic patients for instance). Decision-making on the part of patient-candidates needs to be based on full information about the possible benefits of the Mediterranean Diet on their reproductive potential but also about the limitations that are set, so that the goals remain at realistic levels.

4.2. Limitations and Areas for Future Research

It is particularly important to mention the limitations of the present literature review, so that its findings can be interpreted in an appropriate context and at the same time to highlight possible gaps in the scientific knowledge and the opportunities for further research. In particular, out of the total of 7 studies, 6 were cohort studies, while 1 was a cross-sectional study (Noli et al.) [47], which indicates from their nature the impossibility of drawing safe conclusions about the real causal relationship of the Mediterranean Diet and its possible extensions to intermediate and final results of Assisted Reproduction Techniques. All existing studies examine the Mediterranean Diet before ART treatment and not during pregnancy, although its value during pregnancy has been previously demonstrated by multiple studies. Furthermore, the studies also showed heterogeneity in the ART protocol followed, based on the experience of each IVF center and its location. The review did not focus on the effect of the Mediterranean Diet on the sperm parameters of infertile men, which is now well known to have multiple benefits [13–22,38,57–61]. This poses a further important limitation as male infertility is considered to contribute equally to the infertility of reproductive age couples [62], a fact that must be taken into consideration in the interpretation of the results. This literature review

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focuses only on infertile couples seeking childbearing through ART and therefore any beneficial effects of the Mediterranean Diet shown by the studies mentioned should not be generalized to other couples and women of reproductive age seeking pregnancy through natural conception, although other studies support their existence [18–20,23–28,63–68]. An important limitation is posed by the fact that the FFQs were based on the personal recall from memory of the examined women, which involves a high risk of recall bias.

In this light, it seems appropriate and particularly beneficial for the Science of Reproductive Medicine and especially for the field of Assisted Reproduction, to organize research groups to further investigate the role of the proven beneficial in multiple aspects of Human Health, Mediterranean Diet in Assisted Reproduction Techniques. In order to draw safer conclusions in this regard, it becomes necessary to conduct randomized clinical trials (RCTs), ideally multicenter, with a larger number of participating couples, both women and men with infertility. It is suggested that they should be followed for a defined short but inferentially short period of time, e.g., 6 months as in the PREPARE study [69], which increases the potential for follow-up and compliance. It is highly important to develop objective and standardized ways of assessing adherence to the Mediterranean diet with possible monitoring by research teams and specialized nutritionists at regular intervals, in a hybrid manner, by phone and face-to-face meetings. This will significantly reduce multiple confounding factors that arise both due to the heterogeneity of existing FFQs and errors arising from recall from memory [70].

5. Conclusions

In conclusion, it appears that the Mediterranean Diet is an excellent dietary pattern that promotes Health and Fertility and possibly higher adherence to it may result in improved parameters of Assisted Reproduction, especially Clinical Pregnancy and Live and Viable Child Births. However, further rigorous research by organizing Randomized Clinical Trials is deemed imperative to concretize and weigh its contribution to Assisted Reproduction and to formulate appropriate Public Health Policies and guidelines for the concerned couples whose goal of creating a family with children is challenged by the Infertility they face.

Supplementary Materials: Not applicable.

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