

# Stress Management and In Vitro Fertilization (IVF): A Pilot Randomized Controlled Trial

## Supplementary Materials

### Supplementary Material of “Material and Method”

#### Registration

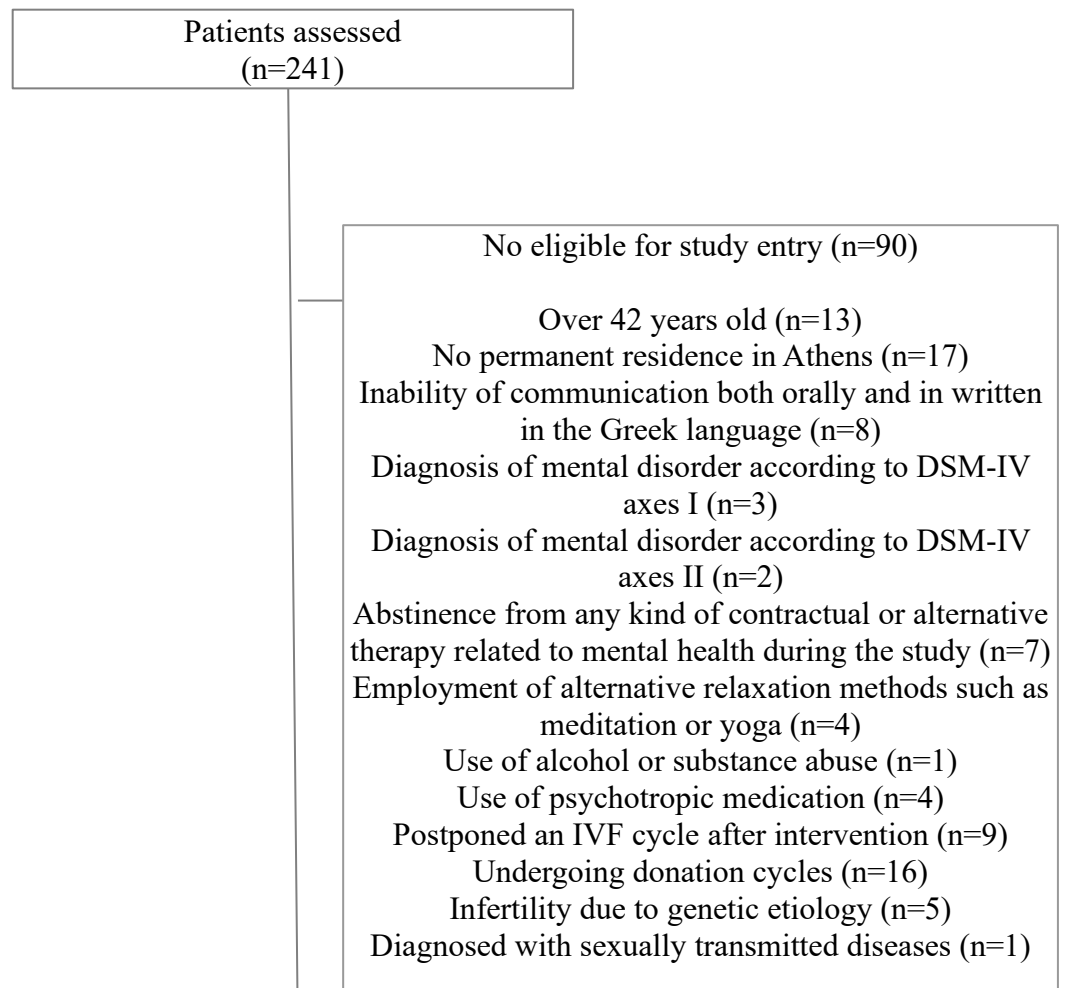
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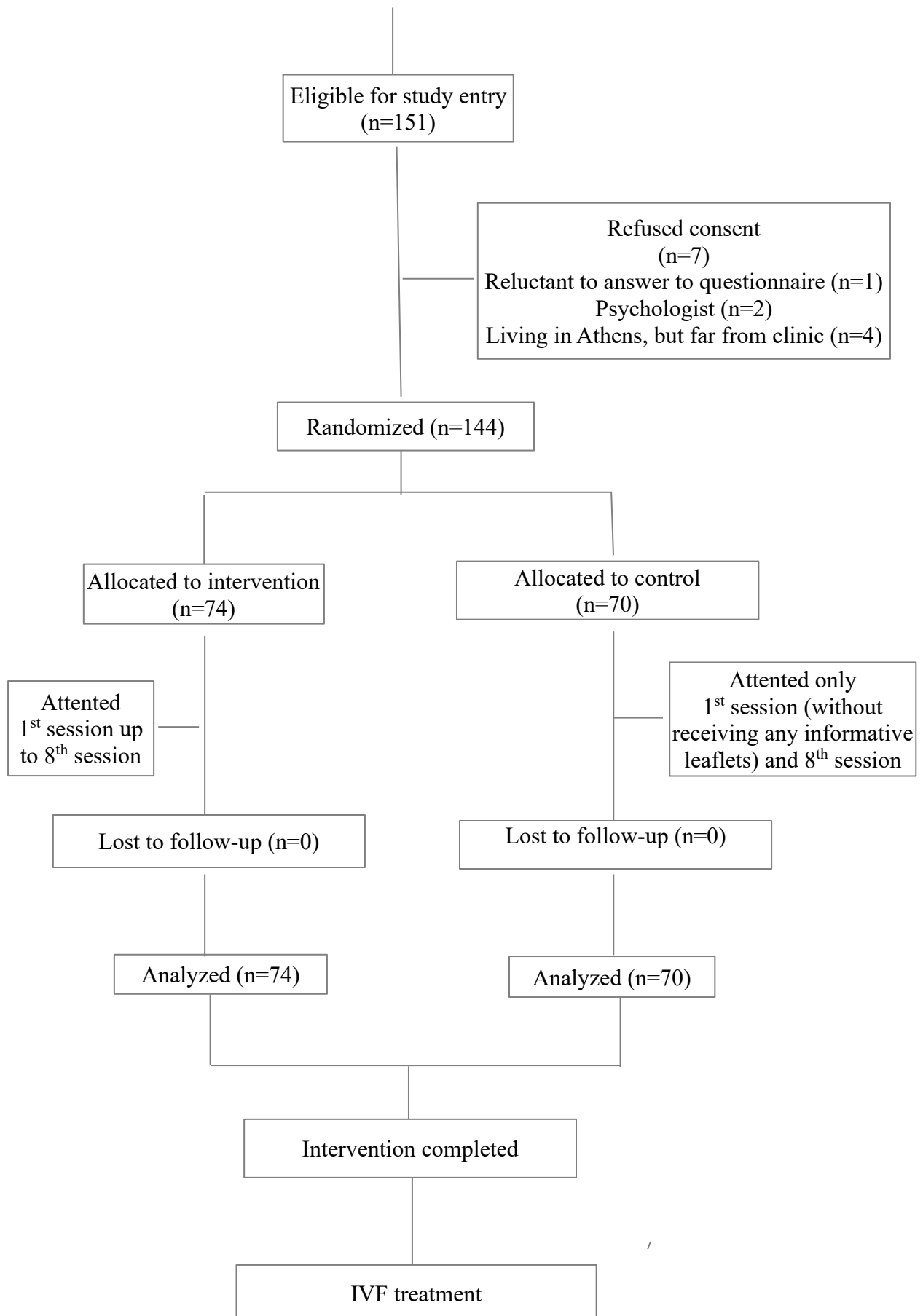
The protocol of this Pilot Randomized Trial (PRT) compiled according to National Ethics Committee, as provided in Ministerial Decision G5a/59676/21.11.2016 Government Gazette 4131/B/22.12.2016 for clinical trials conducted in humans, and submitted on early 2015 to:

- a. Medical School, National and Kapodistrian University of Athens (PRT License Number: 1415018280)
- b. Second Department of Obstetrics and Gynecology “Aretaieio Hospital”, National and Kapodistrian University of Athens (PRT License Number: B-95/05-03-2015)
- c. National Data Protection (PRT License Number: 1528-ΓΝ/ΕΞ/792-2/07-07-2015)
- d. IVF Unit and Legal Department of “Genesis Athens Clinic” (PRT License Number: 74/10-6-2015)

The study is peer reviewed and has been approved by the Executive Committee of the Medical School, National and Kapodistrian University of Athens.

#### Flow Chart





## IVF Treatment

The inclusion and exclusion criteria of the study were strict and specifically the inclusion criteria of “consent to initiation of an IVF cycle” was crucial in order to not have any dropouts at follow-up. As a result, all the participants after completing the intervention continued to an IVF treatment with a common IVF protocol-GnHR Antagonist, which is based on the comparable efficacy and higher safety than other IVF protocols [1]. According with European Society of Human Reproduction and Embryology Guidelines [1, 2, 3, 4], the IVF treatment is a complex process combining clinical work and laboratory procedures. Treating infertility with IVF involves different steps, including hormonal stimulation, monitoring of the ovarian response, oocyte pick-up (OPU), fertilization, embryo development, possible cryopreservation and intrauterine embryo transfer (ET) [4]. As a consequence, the IVF treatment is a dynamic and individual procedure depending on many factors at any step and for that reason the main research question of this study was whether the intervention can improve the mental health of participants before the IVF treatment and secondarily whether the clinical pregnancy rates can be raised after attending the intervention.

## Supplementary Material of “Results”

### Background of the participants

The demographics and clinical characteristics for all study groups are presented in table 1. The mean age of women was 36.6 years (SD=4.9) in the control group and 36.7 years (SD=3.8) in the intervention group. Patients of both control and intervention groups were similar regarding their demographics and clinical characteristics.

Table 1. Demographics and clinical characteristics of the two study groups

	Group		P
	Control (N=70)	Intervention (N=74)	
	N (%)	N (%)	
Age, mean (SD)	36.6 (4.9)	36.7 (3.8)	0.843‡
Partner's age, mean (SD)	40.1 (5.8)	39.7 (4.9)	0.671‡
Years of marriage, mean (SD)	3.4 (3.2)	4.3 (3.2)	0.121‡
Years of trying, mean (SD)	3.8 (3.3)	4.0 (3.0)	0.744‡
Family situation			
Unmarried	9 (12.9)	5 (6.8)	0.217+
Married	61 (87.1)	69 (93.2)	
Number of children			
0	68 (97.1)	74 (100.0)	0.235++
2	2 (2.9)	0 (0.0)	
Smoker	16 (22.9)	17 (23.0)	0.987+
Pregnancy in the past	28 (40.0)	34 (45.9)	0.471+
IVF in the past	26 (37.1)	30 (40.5)	0.676+
Number of IVFs in the past, median (IQR)	0 (0 - 2)	0 (0 - 3)	0.239‡‡
IUI in the past	27 (38.6)	25 (34.2)	0.591+
Number of IUIs in the past, median (IQR)	0 (0 - 2)	0 (0 - 1)	0.520‡‡
Cause			
Inexplicable Infertility	15 (21.7)	23 (31.1)	0.206+

Fallopian Tube Factor	4 (5.8)	6 (8.1)	0.747++
Male factor	35 (50.7)	21 (28.4)	0.006+
Endometriosis	6 (8.7)	10 (13.5)	0.361+
Recurrent Miscarriage	2 (2.9)	1 (1.4)	0.609++
Polycystic Ovary Syndrome	2 (2.9)	3 (4.1)	1.000++
Menopause	1 (1.4)	1 (1.4)	1.000++
Age	14 (20.3)	12 (16.2)	0.528+
Genetics	0 (0.0)	2 (2.7)	0.497++

+Pearson's  $\chi^2$  test; ++Fisher's exact test; ‡Student's t-test; ‡‡Mann-Whitney test

## References

1. The ESHRE Guideline Group on Ovarian Stimulation, Bosch E, Broer S, Griesinger G, Grynberg M, Humaidan P, Kolibianakis E, Kunicki M, La Marca A, Lainas G, Le Clef N, Massin N, Mastenbroek S, Polyzos N, Sunkara SK, Timeva T, Töyli M, Urbancsek J, Vermeulen N, Broekmans F. ESHRE guideline: ovarian stimulation for IVF/ICSI<sup>†</sup>. *Human Reproduction Open* 2020, 2020: hoaa009. doi.org/10.1093/hropen/hoaa009.
2. The ESHRE Working Group on Ultrasound in ART, D'Angelo A, Panayotidis C, Amso N, Marci R, Matorras R, Onofriescu M, Turp AB, Vandekerckhove F, Veleva Z, Vermeulen N, Vlasisavljevic V. Recommendations for good practice in ultrasound: oocyte pick up. *Human Reproduction Open* 2019, 2019: hoz025. doi.org/10.1093/hropen/hoz025.
3. ESHRE Guideline Group on Good Practice in IVF Labs. De los Santos MJ, Apter S, Coticchio G, Debrock S, Lundin K, Plancha C, Prados F, Rienzi L, Verheyen G, Woodward B, Vermeulen N. Revised guidelines for good practice in IVF laboratories (2015). *Human Reproduction* 2016, 31: 685–686. doi.org/10.1093/humrep/dew016.
4. ESHRE Clinic PI Working Group, Vlasisavljevic V, Apter S, Capalbo A, D'Angelo A, Gianaroli L, Griesinger G, Kolibianakis EM, Lainas G, Mardesic T, Motrenko T, Pelkonen S, Romualdi D, Vermeulen N, Tilleman K. The Maribor consensus: report of an expert meeting on the development of performance indicators for clinical practice in ART. *Human Reproduction Open* 2021, 2021: hoab022, doi.org/10.1093/hropen/hoab022.