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**P-072 Collecting semen samples at home for fertility assessment has a positive effect on sperm quality**

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**Study question:** Does site of semen collection (home/clinic) affect semen parameters?

**Summary answer:** Semen collection is superior when performed at home as compared with at a clinic in terms of sample volume, sperm concentration, and total sperm count.

**What is known already:** In fertility clinics the standard approach to semen collection for diagnostic analysis and use in ART involves a private room close to the andrological/embryological laboratory. In fact, WHO recommends that semen samples should be collected at clinic to avoid fluctuations in temperature and to control the time between collection and processing. On the other hand, today - due to the COVID-19 pandemic - semen collection at home is widely advised to reduce the time of stay of patients at clinic. There are still no firm conclusions whether collecting semen at home has any influence on sperm quality and reproductive competence.

**Study design, size, duration:** This retrospective longitudinal cohort study performed at a tertiary level public fertility center included 8634 semen samples from 5880 men undergoing fertility assessment from 2015 to 2021: 5530 samples were collected at clinic from 3773 men, and 3104 at home from 2107 men. For a subgroup analysis comparing clinic to home collection within the same patient, we included 1260 samples from 428 men. Possible effect of seasonal variation on semen parameters was also investigated.

**Participants/materials, setting, methods:** The impact of sample collection site on endpoints (semen volume, concentration, motility) was evaluated using a generalized linear model for repeated measures in which the following covariates were included: age, BMI, days of sexual abstinence, smoke habit. Paired comparisons between home- and clinic-collected samples within individuals were made by paired t-test or Wilcoxon signed rank test, as appropriate. The effect of seasonality on sperm parameters was investigated plotting the time series of differences between samples.

**Main results and the role of chance:** Samples collected at home had significantly higher semen volume ( $p = 0.016$ ), sperm concentration ( $p < 0.0001$ ), and total sperm count ( $p < 0.0001$ ) respect to samples collected at clinic. The abstinence period, known to potentially influence these parameters, was similar for all patients. There was no difference in sperm motility. Paired comparisons of semen characteristics in the 428 patients with home-collected ( $n = 583$ ) and clinic-collected ( $n = 677$ ) samples confirmed the aforementioned results. The semen sample collections were distributed among all months over 5 years: regarding seasonal variations in semen quality, we did not find any evidence of variations of sample parameters by month.

**Limitations, reasons for caution:** Some weaknesses should be considered: i) only men undergoing fertility check-up were assessed and it remains to be validated whether our conclusions are applicable to men attempting

pregnancy by ART; ii) we did not measure type and degree of psychological stress that may have affected the men in our study.

**Wider implications of the findings:** Our observation of decrease in semen quality of clinic-collected samples may be the result of an acute psychological stress experienced by patients, as suggested by previous reports. Thus, when possible, semen collection at home should be encourage at least for men who undergo fertility assessment.

**Trial registration number:** not applicable