

TRENDS IN MALE INFERTILITY IN THE IRISH SUBFERTILE POPULATION FROM 1990-2020

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INFERTILITY IS THE INABILITY TO CONCEIVE AFTER A MINIMUM OF 12 MONTHS UNPROTECTED SEXUAL INTERCOURSE

DECLINING SPERM COUNT WORLDWIDE

- 50-60% decline between 1973 and 2011 amongst men from North America, Europe, Australia and New Zealand (Levine et al. 2017)
- Overall, 32.5% decrease in mean sperm concentration in European males over the past 50 years (Sengupta et al. 2017)
- Overall, 73% decrease in mean sperm concentration in African males over the past 50 years (Sengupta et al. 2017)
- Decrease in sperm concentration in Chinese males over the last 40 years (Lv et al. 2021)

Levine, H. et al. (2017) 'Temporal trends in sperm count: A systematic review and meta-regression analysis', *Human Reproduction Update*, 23(6). doi: 10.1093/humupd/dmx022.
Lv, M. Q. et al. (2021) 'Temporal trends in semen concentration and count among 327 373 Chinese healthy men from 1981 to 2019: a systematic review', *Human reproduction (Oxford, England)*, 36(7). doi: 10.1093/humrep/deab124.
Sengupta, P. et al. (2017) 'Evidence for decreasing sperm count in african population from 1965 to 2015', *African Health Sciences*, 17(2). doi: 10.4314/ahs.v17i2.16.
Sengupta, P. et al. (2018) 'Decline in sperm count in European men during the past 50 years', *Human and Experimental Toxicology*, 37(3). doi: 10.1177/0960327117703690.

OBJECTIVE: TO DETERMINE THE TRENDS IN SPERM ANALYSIS DATA FROM THE YEARS 1990, 2000, 2010 AND 2020 IN THE IRISH SUBFERTILE POPULATION

METHODOLOGY

Collection of semen analysis data from the study population

- Volume
- pH
- Motility
- Sperm count
- Morphology (2010 & 2020 only)

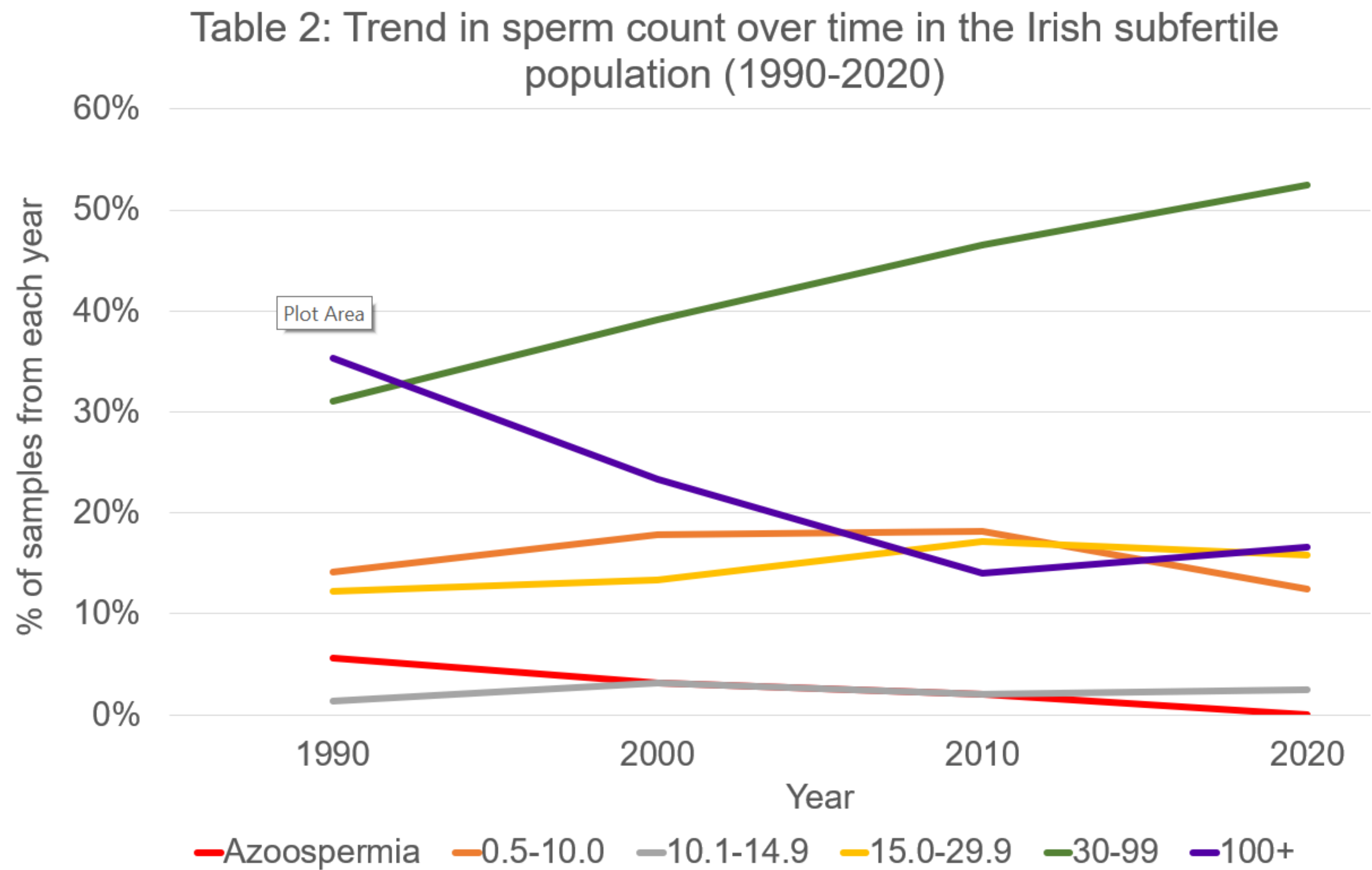
Year	n
1990	212
2000	381
2010	200
2020	120

Table 1: total number of samples from each year

Population: males presenting to the Coombe Women and Infants' University Hospital with their partners for fertility testing (subfertile population)

RESULTS

1. There is a decrease over time of samples with a sperm count of over 100 million per millilitre

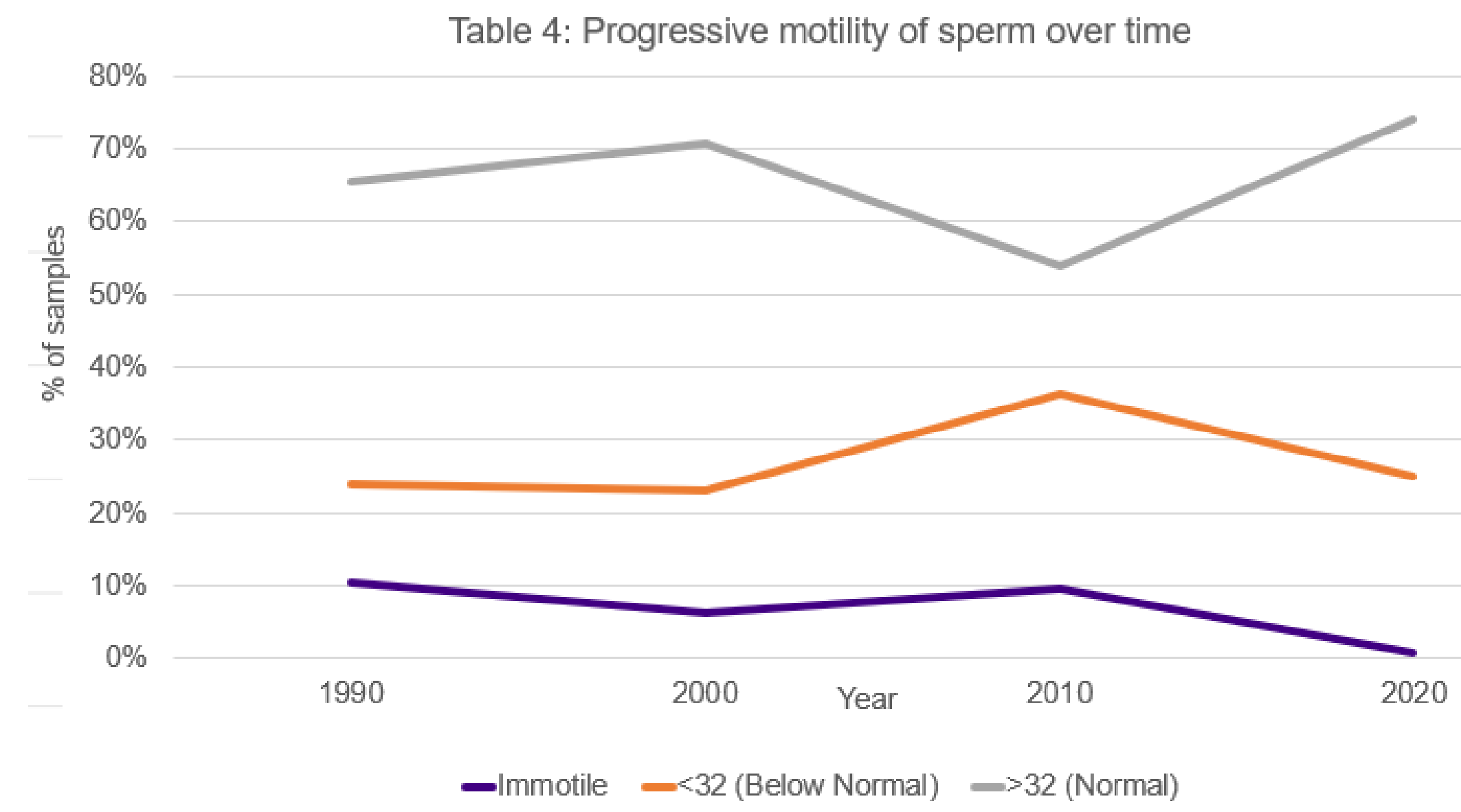


2. There is an increase in samples that have a reduced percentage of normal morphology

Year	Samples where normal morphology <4%
2010	19.5% (n=194)
2020	37.5% (n=120)

Table 3: samples that had less than 4% normal morphology from the years 2010 and 2020

3. Progressive motility of sperm stayed consistent over time



DISCUSSION

The declining sperm count could be due to various factors such as patient age, BMI, smoking status, alcohol intake and socioeconomic status. Further research could compare this data with sperm analysis results to study correlation and potential causality. Additionally, having collected data from only four years is a limitation. Improving on this would involve collecting data from every year in the named time period to strengthen results.