

Reproductive advice - finding the Yin and Yang

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Abstract

In Ireland, fertility education is modestly provided in schools and primary care and HSE-approved contraception advice is not balanced by general and in particular adult life fertility advice when discussing contraceptive methods¹. The primary aim of this quality improvement project (QIP) is to address the gap in fertility education provided alongside contraception advice. Through literature review and focus group discussion, this QIP introduces the "*Your guide to Fertility*" booklet which complements the HSE "*Your Guide to Contraception*" and provides comprehensive advice and basic information on female and male reproduction, ideal age for establishing a family, how a pregnancy establishes, certain cause for infertility and potential therapies if infertility diagnosed. We propose a plan-do-study-act cycle approach, with HSE deployment of this fertility booklet to services that provide contraception, and fertility services. Assessment of the booklets efficacy can then be assessed through patient satisfaction questionnaires.

Introduction

The total fertility rate in Ireland is now 1.5, which is well below the replacement rate of 2.1 children per woman, required for sustaining a steady population^{1,2}. The average age of first time mothers is currently 31.6 years, and is steadily increasing in Ireland over the past few decades². At present, fertility education is modestly provided in schools and contraception advice is not balanced by practical fertility advice when contraception is offered. Furthermore, the reality of a reproductive window between 13 and 43 years old and peak fertility between 25 and 35 years old is not discussed with women receiving contraception. The HSE has prepared and disseminated an excellent "*Your Guide to contraception*" leaflet to all women and men that wish to understand what contraceptive avenues are available. No such leaflet exists for fertility education.

A contraception consultation presents the ideal opportunity to discuss both the contraceptive spectrum and the reality of finite family building opportunities for women in particular, alongside child health and pregnancy risk with advancing parental age. Through this quality

improvement project, our aim was to create a patient information booklet to be used at the time of contraceptive advice detailing both aspects of human reproduction: the prevention of a pregnancy and education on when is the ideal interval to establish a family as well as a comparison between female and male fertility.

Study Design and Methods

This quality improvement project follows a development-focused descriptive design, taking place over a 3-month period in a tertiary Fertility Hub in Ireland. Initially, focus group discussions identified education gaps in fertility advice. Content areas for an advice booklet were identified and included female and male reproduction, ideal age for establishing a family, how a pregnancy establishes, certain cause for infertility and potential therapies if infertility diagnosed. The *“Your Guide to Fertility”* was then developed through literature review, tailoring language to ensure accessibility to the general public with infographics and plain English. Finally, clinical accuracy was ensured through peer review by fertility specialists at the tertiary referral centre.

Findings/Results

Qualitative research has shown that most men and women with infertility have a poor understanding of human biological reproductive processes⁴. In 2018, a study presented at the 53rd BT Young Scientist and Technology Exhibition in Ireland, entitled *“Insight from a New Generation – Fertility Issues”* examined awareness of factors that affect fertility and concluded that peers lacked understanding. Specifically, 79% of participants were unaware that an oocyte can live for only 24 hours after ovulation, and 54% were unaware of the optimum time to conceive. Evidence suggests that the most important educational needs are a familiarity with fertility and its associated factors, pre-pregnancy actions to take, and methods of targeting sexual activity to promote pregnancy, as well as the ability to recognize infertility and understand its definition, causes, and treatment options⁵.

The *“Your Guide to Fertility”* leaflet (Figure 1) was designed to complement the HSE *“Your Guide to Contraception”* and additionally presents in an easily understood form basic information on female and male reproduction, ideal age for establishing a family, how a pregnancy establishes, certain cause for infertility and potential therapies if infertility diagnosed. Foremost, it equips women and men with basic knowledge on the dual aspect of reproduction, the needed contraception and the potential future desire to establish a family, at the optimal time for the woman and the child to be.

Conclusions

The present initiative details a new concept addressing human reproduction from the two perspectives of contraceptive advice when indicated and fertility advice to prevent involuntary infertility. We believe that it is crucial that both are performed at the same time as the two sides of a medical care coin. Both contraception and fertility education resources can contribute to improving reproductive literacy, empowering individuals and couples to make informed reproductive decisions, and ultimately reduce the incidence of undesired pregnancies but also infertility and need for expensive fertility treatments, not to mention the emotional and social stigma associated with infertility⁶. This patient information leaflet was designed to complement the HSE *“Your Guide to Contraception”* allowing primary care physicians and fertility doctors to detail both aspects, contraception and future fertility. We propose a ‘next step’, in HSE deployment of *the “Your Guide to Fertility”* to services that provide contraception, and fertility services. Assessment of leaflet efficacy can then be assessed through patient satisfaction questionnaires.

Declarations of Conflicts of Interest:

None declared.

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Your Guide to Fertility

Time to take control!

Having your own children might never have crossed your mind or it might be something you think about every day! Either way, knowledge is power and this booklet will empower you in understanding your fertility.

Many people think that getting pregnant happens quickly, but it's not always that easy. Nevertheless, contraception is important when you are not planning on becoming pregnant.

Between the age of 25 and 35, a woman has the best chance of pregnancy. As a woman gets older, the risk of miscarriage and risk to the mother or child increases. It is also important to know that a man's age and health effects the ability to get pregnant, and the health of the child.

This booklet will provide you with all the facts you need to know about your fertility.

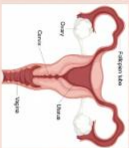
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The Basics

In order to understand your fertility, it is important to understand how conception occurs.

Female Reproductive System

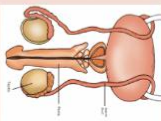


Once a woman reaches puberty, ovaries release one egg every month. If the egg is fertilised by a sperm as it travels through the fallopian tube, then a pregnancy should occur. If the egg is not fertilised, the lining of the womb is shed during your period.

The average menstrual cycle is 28 days, starting with the first day of a period and ending with the first day of the next period. The average woman ovulates in the middle of her cycle. You are most likely to get pregnant if you have unprotected sex a few days before ovulation or during ovulation.

A woman is born with all of her eggs, and about a thousand eggs are lost every month after puberty. On average the menstrual cycle and a woman's ability to get pregnant stops around the age of 51 years.

Male Reproductive System



Once a male reaches puberty, the testes start making testosterone and sperm.

The testes store this sperm until sexual intercourse. During sexual intercourse, sperm leave the testes and travel through the sperm duct in a protective fluid called semen. This semen leaves the penis after ejaculation, and is released into the vagina of the woman during sexual intercourse. The sperm then swim through the womb and if an egg is present in the fallopian tube, fertilisation may occur.

Whilst it is true that the fertile years of a man are longer than those of a woman, the quantity and quality of the sperm start to decline after the age of 35.

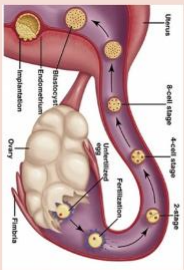
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Fertilisation and early pregnancy

Within 24 hours of ovulation, if unprotected sexual intercourse has occurred, one sperm may fertilise the egg.

About 6 days after fertilisation – the fertilised egg (embryo) travels through the fallopian tube implants (attaches) into a woman's uterine lining.

Around Day 21 – if conception and implantation occurred during a menstrual cycle, a pregnancy has been achieved.



Planning and trying to conceive

About 80% of couples will become pregnant within 12 months of trying, provided the female partner is less than 40 years old, they do not use contraception and have regular sexual intercourse.

Of those that do not conceive in the first year, approximately half will go on to do so within the second year.

In order to ensure you have the best chance of pregnancy we advise the following for you and your partner:

- ⊗ Unprotected sexual intercourse every 2-3 days around the time of ovulation
- ⊗ Planning a pregnancy between 25 and 35 years old if you are a woman
- ⊗ Maintaining a healthy weight
- ⊗ Taking a multivitamin (with folic acid and vitamin D) for at least 3 months before trying
- ⊗ Not smoking or using recreational drugs
- ⊗ Reviewed by your GP for ongoing medical conditions and medication to ensure pregnancy is safe
- ⊗ Getting an STI check
- ⊗ Ensuring you are in a good state of mental health

4

When to consider seeing a doctor

As previously mentioned approximately 90% of couples will become pregnant within 2 years of unprotected sexual intercourse. However, there are some people who may have difficulties becoming pregnant.

If you or your partner have any of the following, we advise seeking fertility advice before you start trying, or if six months of trying for a pregnancy has failed.

Female factors

- ⊗ Irregular or no periods
- ⊗ Age over 35 years
- ⊗ Painful intercourse
- ⊗ Symptoms of PCOS – obesity, acne, irregular periods, abnormal hair growth
- ⊗ Symptoms of endometriosis – painful periods, painful sexual intercourse, pain during bowel movements
- ⊗ Symptoms of thyroid disease – overweight, low energy, low mood, cold intolerance
- ⊗ Symptoms of overactive thyroid – underweight, anxiety, heat intolerance
- ⊗ Symptoms of high prolactin – headaches, milky discharge from nipples, vision problems
- ⊗ Symptoms of menopause or early menopause in your family
- ⊗ History of cancer, chemotherapy or radiotherapy
- ⊗ History of abdominal surgery or infection, such as appendicitis or *glistis* disease

Male factors

- ⊗ Premature ejaculation
- ⊗ Impotence
- ⊗ Painful intercourse
- ⊗ Unable to feel both testicles, or the presence of a lump in the testicles
- ⊗ History of testicular disease
- ⊗ Presence of breast tissue
- ⊗ Under or over active thyroid (symptoms mentioned previously)
- ⊗ History of mumps as a child
- ⊗ History of trauma to the testicles
- ⊗ History of undescended testes
- ⊗ History of cryptic (hidden) in the family
- ⊗ History of chronic medical condition
- ⊗ History of cancer, chemotherapy or radiotherapy

5

Figure 1.