Knowledge, attitudes and practices relating to fertility among nurses working in primary health care

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KEY WORDS
practice nurses, primary health care, health promotion, fertility, reproductive health

ABSTRACT

Objective
To explore knowledge, attitudes and practice relating to factors that affect fertility among nurses working in general practice and other primary health care settings.

Design
Anonymous online survey.

Setting
Primary care.

Subjects
Members of the Australian Primary Health Care Nurses Association (APNA). Main outcome measures: Fertility-related knowledge, attitudes and practice.

Results
102 individuals completed the survey. More than half overestimated the age when male and female fertility declines and the chance of women conceiving with IVF. Most knew that smoking affects a man's sperm but only one quarter that smoking halves a woman's fertility. The majority recognised obesity and STI's as detrimental for fertility and agreed that educating patients about fertility is part of primary health care nurses' role to ask people of reproductive age about their reproductive life plan and alert them to the factors that influence fertility. The most commonly cited barrier for discussing fertility with patients was perceived lack of knowledge about the subject.

Conclusion
This study identified opportunities and barriers for nurses working in primary health care to proactively discuss fertility and the factors that influence the chance of conceiving with their patients. Appropriate educational resources to improve knowledge and support from general practitioners (GPs) can enable nurses working in general practice and other primary health care settings to provide effective fertility related education as part of their role as health promoters.

INTRODUCTION

Most people want and expect to have children some time in their life (Holton et al 2011a; Langdridge et al 2005). For some, life circumstances beyond their personal control such as the lack of a partner, chronic illness or infertility, prevent them from realising this life goal (Holton et al 2011b). For others however, potentially modifiable factors reduce their chance of having children or the number of children they wished to have. These include parental age, body weight, tobacco use, and knowledge about the time in the menstrual cycle when a woman is able to conceive (Homan et al 2007; Wilcox et al 1995).

Female fertility starts to decline around age 32 and the decline becomes more rapid after age 35. Between the ages of 30 and 40 the monthly chance of conception for women decreases from 20% to 5% (Cooke and Nelson 2011). Male age also influences fertility; a study of more than 8,000 pregnancies found that, after adjusting for female age, conception during a 12-month period was 30% less likely for men over the age of 40 compared with men younger than 30 years (Hassan and Killick 2003). The common belief that assisted reproductive technology (ART) treatment such as in-vitro fertilization (IVF) can overcome age-related infertility is erroneous. In 2012 in Australia and New Zealand the chance of a live birth per initiated treatment cycle decreased from 24.8% for women aged between 30 and 34 years to 6.1% for those aged between 40 and 44 years (Macaldowie et al 2014).

The negative impact on fertility and reproductive outcomes of parental obesity and tobacco use is also well documented (Lane et al 2014; Homan et al 2007). Conversely, knowledge about the fertile time in the menstrual cycle and timing intercourse to coincide with this increases the chance of and reduces the time to pregnancy (Stanford 2015).

Studies of people's knowledge about factors that influence fertility consistently point to considerable knowledge gaps (Bunting et al 2013; Hammarberg et al 2013). It has been suggested that GPs should promote knowledge about the impact on fertility of age and lifestyle factors (RACGP 2012; Chapman et al 2006). However, barriers, including time constrains, can prevent GPs from proactively discussing reproductive planning with their patients (Mazza et al 2013). More than 60% of Australia's general practices employ one or more Practice Nurses and their role includes health promotion and lifestyle education (APNA). As experts in preventive care, nurses working in general practice and other primary health care settings are well placed to promote awareness about factors that influence fertility to help people of reproductive age achieve their reproductive goals. However, it is not known whether nurses working in primary health care have sufficient knowledge about fertility or believe that it is part of their role to discuss fertility with their patients.

'Your Fertility' is a national, public education program to improve knowledge about factors that affect fertility and pregnancy health to allow people to make timely and informed decisions about childbearing. It is funded by the Australian Government Department of Health and the Victorian Department of Health and Human Services (Your Fertility). One of the aims of the program is to support primary health care professionals with educational resources to help them discuss reproductive life planning and fertility with their patients.

To inform the development of resources for nurses in primary health care the aim of this study was to establish what nurses working in general practice and other primary health care settings know about factors that influence fertility; whether and under what circumstances they talk to patients about fertility and reproductive life planning; and what resources might help them start a conversation about fertility with their patients.

METHOD

The study was approved by Monash University Human Research Ethics Committee.

Study population

This was an anonymous online survey. An invitation to take part in the study and a link to the survey was advertised in the Australian Primary Health Care Nurses Association's (APNA) e-newsletter in October and November 2014.

Material

The study-specific questionnaire included demographic characteristics and fixed-choice response questions gauging: knowledge about factors that influence male and female fertility; attitudes about the role of nurses in fertility health promotion; and practice relating to fertility health promotion.

Data management and analysis

Data were analysed in SPSS for Windows v 20 using descriptive statistics and Student's t-test to test for differences between group means. Participants' correct responses to the 13 knowledge questions were added to produce a score with a possible range of 0 to 13. Mean scores were compared between: age-groups (<45 versus ≥ 45 years); geographic location (urban versus regional/rural/remote); and type of organisation (general practice versus all others).

FINDINGS

The survey was completed by 102 respondents. Their characteristics are shown in table 1.

Table 1: Characteristics of respondents (*n=102*)

Characteristic	No (%)
Female	100 (98)
Male	2 (2)
Age group	
<35 years	19 (19)
35-44 years	20 (20)
45-54 years	35 (34)
55-64 years	26 (26)
65 years or older	2 (2)
Current professional qualification	
Registered nurse/Registered midwife	82 (81)
Enrolled nurse	7 (7)
Nurse practitioner	1 (1)
Other	12 (12)
Practicing state	
ACT	2 (2)
NSW	42 (41)
Qld	10 (10)
SA	2 (2)
Tas	3 (3)
Vic	42 (41)
WA	1 (1)
Practicing setting	
Urban	46 (45)
Regional/Rural	53 (52)
Remote	3 (3)
Type of organisation	
General practice	77 (76)
Community controlled health services	15 (15)
Other	10 (10)

Responses to the knowledge questions are displayed in table 2. The mean score for correct answers to the 13 questions was 7.2. More than 1 in 5 respondents (22%) scored <6, 75% scored between 6 and 10, and only 3% scored >10. There were no statistically significant differences in knowledge scores relating to respondents' age, geographical location or the type of organisation they worked in. More than half of the respondents overestimated or were unaware of the age when female and male fertility start to decline. Most respondents knew that smoking affects a man's sperm but only one quarter correctly identified that smoking halves a woman's fertility. Obesity and sexually transmitted infection (STIs) were recognised by almost all respondents as detrimental for fertility. While only just over half of the respondents were aware that having irregular menstrual cycles reduces a woman's fertility, more than three quarters correctly identified the fertile window in the menstrual cycle. A majority of respondents overestimated or stated that they did not know the chance of a live birth after one IVF treatment cycle.

Table 2: Respondents' fertility-related knowledge

Question (bold denotes correct answer)	N (%)
How would you rate your knowledge about factors that influence fertility	
Confident/fairly confident I know what I need to know	19 (19)
I wish I knew more/I know very little	83 (81)
At what age does female fertility start to decline	
<30 years	8 (8)
30-34 years	**35 (34)**
≥ 35 years/ Age doesn't matter/Don't know	59 (58)
At what age does male fertility start to decline	
< 40 years	19 (19)
40-44 years	**18 (18)**
≥ 45 years/Age doesn't matter/Don't know	65 (64)
Does smoking cigarettes reduce a woman's fertility	
No/ Not if she smokes <10 cigarettes per day	3 (3)
Yes, smoking reduces fertility by 10%	74 (73)
Yes smoking halves the chance of pregnancy	**25 (24)**
Does passive smoking reduce a woman's fertility	
No/Don't know	28 (27)
Yes, a bit	37 (36)
Yes as much as active smoking	**37 (36)**
Does smoking affect a man's fertility	
No/Don't know	11 (11)
Yes smoking affects a man's sperm	**91 (89)**
Does obesity reduce a woman's fertility	
No/Maybe	6 (6)
Yes	**96 (94)**
Does obesity affect a man's fertility	
No/Maybe/Don't know	26 (25)
Yes	**76 (75)**
Can STIs affect a woman's fertility	
No/Maybe	3 (3)
Yes	**99 (97)**
Can STIs affect a man's fertility	
No/Maybe/Don't know	17 (17)
Yes	**85 (83)**
Does having irregular cycles (>6 weeks between periods) reduce a woman's fertility	
No/Maybe/Don't know	49 (48)
Yes	**53 (52)**

If a woman has 28 day cycles, when is she most likely to conceive	
Day 1-5	2 (2)
Day 6-10	2 (2)
Day 11-15	**77 (75)**
Day 16-20	15 (15)
Day 21-25	2 (2)
It can happen any time	2 (2)
Don't know	2 (2)
What is the chance of having a baby with IVF after one treatment cycle for women aged less than 35 years	
35%/45%/Don't know	73 (72)
15%	14 (14)
25%	**15 (15)**
What is the chance of having a baby with IVF after one treatment cycle for women aged between 40 and 44 years	
18%/27%/35%/Don't know	57 (56)
9%	15 (15)
7%	**30 (29)**

Respondents' attitudes towards nurses working in primary health care engaging in fertility health promotion are shown in table 3. Almost universally respondents agreed that it is part of their role to ask people of reproductive age about their reproductive life plan and alert them to the factors that influence fertility. The most commonly cited barrier for discussing fertility with patients was perceived lack of knowledge about the subject.

Table 3: Respondents' attitudes towards providing fertility education

Question	N (%)*
Is it the role of nurses to ask people of reproductive age about their 'reproductive life plan'?	
Yes	75 (75)
Yes, but only if the patient brings up the subject	17 (17)
No/Don't know	8 (8)
Is it the role of nurses to discuss factors that affect fertility with people of reproductive age?	
Yes	48 (48)
Yes, if the patient brings up the subject	46 (46)
No/Don't know	6 (6)
In your view, what are the barriers for discussing fertility with patients?#	
Lack of knowledge	65 (64)
Time constraints	53 (52)
Difficult to bring up unless asked	35 (34)
Not part of Nurses' role	8 (8)

*Not all participants responded to all questions, percentages are of those who responded

More than one could be endorsed

Less than one third of respondents stated they felt confident about their level of knowledge about fertility. In spite of this, almost half discussed fertility with patients in their daily practice, either routinely or opportunistically when consulted about reproductive health matters (table 4). Almost all respondents agreed access to fertility related information would enhance their confidence about talking to patients about fertility. Fact sheets to give to patients and a trustworthy website to refer them to for more information were resources most respondents believed would help them talk to patients about fertility in their daily practice.

Table 4: Respondents' fertility health promotion practices

Question	N (%) *
In your daily practice, do you bring up the subject of fertility with patients?	
Routinely	3 (3)
Opportunistically when consulted about reproductive health matters	42 (45)
Only when patients ask for advice	58 (52)
Do you feel confident in your level of knowledge about fertility to bring up the subject with patients?	
Yes	28 (30)
No/Don't know	65 (70)
Would access to more information about fertility make you more confident to talk to patients about fertility?	
Yes	87 (94)
Which of the following resource would help you talk to patients about fertility?#	
Webinar (live, interactive internet-based information session)	34 (33)
Information session in Podcast format	25 (25)
Fact sheets to give to patients	85 (83)
Trustworthy website to refer patients to	73 (72)

*Not all participants responded to all questions, percentages are of those who responded

More than one could be endorsed

DISCUSSION

This study identified opportunities and barriers for nurses working in primary health care to proactively discuss fertility and the factors that influence the chance of conceiving with their patients. Opportunities include the findings that most respondents believed it is part of their role to educate people about fertility and almost half do this in their daily practice. This suggests it is feasible to expect nurses working in general practice and other primary health care settings to incorporate fertility education in their health promotion repertoire. Obvious barriers are the apparent existing knowledge gaps and the self-reported lack of knowledge and confidence about discussing fertility with patients.

The most concerning knowledge gaps relate to the impact of age on fertility. Firstly, more than half of respondents overestimated or were unaware of the age when male and female fertility declines. Secondly, the majority of respondents overrated the chance of younger and older women giving birth as a result of one IVF treatment cycle. Perceptions that the reproductive life-span is becoming longer and that IVF can overcome age-related infertility are reinforced by media reports of women (often celebrities) having 'miracle babies' late in life. The reality is that the chance of having a baby with IVF after age 40 is minuscule (Macaldowie et al 2014).

Keleher et al (2007) assert there is insufficient information about the scope of general practice nurses' practice and its outcomes and argue for an 'educational framework to advance nurses' skills and knowledge' (p108). Such a framework should include education about fertility, the role of lifestyle factors in reproductive outcomes, and the limitations of reproductive technologies such as IVF in overcoming age-related infertility. This would provide nurses with the knowledge they need to talk confidently about fertility-related matters and discuss reproductive life planning with their patients.

APNA recently developed a 'Family Planning Decision Support Tool' with funding from the Australia Government Department of Health to assist primary health care nurses in their consultations with patients to promote effective family planning throughout reproductive life (APNA). This tool includes comprehensive information about the factors that influence fertility and what to discuss with women and men who attend for a preconception health check. While this is a step in the right direction, fertility-related information and advice should also

be offered to people who are not currently planning pregnancy but may wish to have children in the future to allow them to make informed decisions about how they prepare for and time childbearing.

This study has strengths and limitations. There is no way of knowing if respondents were representative of all nurses working in primary health care. However, they included people from all Australian states and territories (except Northern Territory) who were diverse in terms of age, and the settings and types of organisation they worked in. Online surveys do not allow detailed exploration but they are a feasible tool for research questions which require broad, summary, information relating to a particular matter in groups with specific characteristics. They are cheap to undertake, easy for respondents to complete, and likely to generate honest responses when they are anonymous.

The findings of this study have informed the development of resources to help nurses working in primary health care settings discuss modifiable factors that influence fertility with their patients. These are housed on the 'Your Fertility' website and include educational webinars, videos, podcasts and factsheets; a Think GP module; links to relevant clinical guidelines; and factsheets for lay audiences that can be downloaded and shared with patients (Your Fertility). Future initiatives will target specific knowledge gaps identified in this study and through collaboration with APNA these will be disseminated to nurses in general practice and other primary health care settings throughout Australia.

As experts in preventive care, nurses working in primary health care are well placed to promote awareness about factors that influence fertility and reproductive life planning to help people achieve their reproductive goals. With access to educational resources and support from GPs it is feasible to expect nurses to incorporate fertility education in their health promotion repertoire.

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