OMFG:! Obstacles and **M**isconceptions of birth control **F**orming **G**rim rates of unintended pregnancy

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National surveys have reported that 51% of pregnancies are unintentionally conceived each year, with part of this statistic reflecting women who were taking at least one form of contraception at the time of the unplanned pregnancy (UP). This statistic is reflected in both Australian and American studies(1, 2). Improving accessibility and education of contraception, for both women of reproductive age (RA) and healthcare providers, is essential in preventing UP. Many contraceptive methods are available to women in developed countries; however, short-term, user dependent options such as the combined oral contraceptive pill (COCP), condoms and withdrawal, remain the most common choices of contraception by women of RA.(3) Although popular, these methods exemplify the biggest disparities between typical and perfect use rates.(3, 4) On the other hand, birth control methods which demonstrate the lowest disparity are long-acting reversible contraceptive (LARC, for example levonorgestrel intrauterine system, copper intrauterine device and the implant) all of which are non-user dependent contraceptives. Although benefits of LARCs are notable, studies have shown despite high rates of contraceptive use, choice of birth control may be limited by socioeconomic status, accessibility, education and perception of contraceptive efficacy by the patient and healthcare professional.(5) This paper explores the impact that education and low socioeconomic status has on the perception of efficacy and accessibility of contraceptive methods, as well as how these factors dictate the rate of UP in Australia and the USA. Literature is limited on women's reproductive experiences, contraceptive practices and health, and therefore this unmet need in research is imperative to remedy this major societal challenge.

Education on consistent and effective use of contraception does not begin and end in the general practice setting. Instead, it is a delicate web of general practice, patient attitudes towards birth control, knowledge, skills and exposure to a wide variety of sources including web-based material, friends and/or family and healthcare services. The most common explanation for UP is the misuse of contraceptives. Individuals often do not know what options are available, how to access them, and lack skills required to effectively use different

types of contraception.(6, 7) These reasons outline the most basic requirements for effective use of birth control and reflect a major discontent with the current provision of contraceptive methods in Australia and the US.(8, 9) This discontent and insufficient knowledge could likely influence misconceptions, such as distrust in methods available and resultant adverse side effects, such as cancer, if used. Misconceptions often correlate with inadequate use; therefore, increasing the rates of UP. A national survey commissioned by Marie Stopes International reported 51% of women experience UP in Australia annually. What was thought-provoking about this report was that 60% of these women were taking some form of contraception and 20% taking more than one; the most common method was COCP (43%).(2) These numbers elucidate to one of the most common barriers to contraception; its perceived effectiveness on preventing pregnancies. Similarly, Finer(1) identified a notable shift from intended to UP, between 2001 and 2008 in the US, which was prevalent amongst 51% of American women. The increase in UP resulted from less use of effective contraception and socioeconomic status, which impacted a woman's accessibility to and knowledge of contraceptives available.

It is clear there has been a shift in priorities in western societies in which women plan pregnancy later in life. This change in fertility desire has been influenced by economic indicators, such as the high cost of having children, affordability in housing and low job security. These reasons elevate the desire for women to build a career, which takes time. This has had an impact on the form of contraceptive thought to be most suitable for women of RA in western societies. The expectation is that the utilisation of LARC methods is the most effective way to prevent pregnancy. Despite this, studies indicate that there is a low uptake of LARC in western societies because of the spread of individual's negative experiences. Furthermore, inconsistent knowledge amongst healthcare professionals is also a factor.(10, 11) This may explain why the rate of UP remains above 50%, even though contraceptives are available in developed countries. Therefore, if individuals believed the "substantial risks" of contraception outweigh the benefits, this "barrier" will continue to influence a low uptake of effective contraception by women of RA.(6, 7) Healthcare professionals play an important role in providing women with a primary source of information and advice regarding contraceptive options. However, a study conducted in Australia identified an unpalatable number of healthcare providers felt hesitant discussing sex-related topics and also feared causing offense to patients.(12) It is clear that clinicians would benefit from additional training regarding contraceptives and how to approach the subject in clinic, the result of which would encourage constructive discussion and an opportunity to inform and educate women on the different contraceptives available. In the current environment, however, misinformation and/or the neglect of clinicians to discuss the benefits of contraception is likely to play a role in shaping the high rates of UP in Australia and America.

It's unacceptable that 51% of women experience unplanned pregnancy, in developed nations.

Studies have shown that women of RA and healthcare providers house misconceptions stemming from limited and often misconstrued information. For example, Küçük(13) conducted a descriptive and cross-sectional study of 418 women, of RA in Turkey. He found that 45.2% of the participants believed the COCP caused weight gain and hirsutism; another 7.9% believed that COCP caused cancer.(13) This study highlights very real misconceptions of oral contraceptive methods which have, unfortunately, been adopted by this cohort of reproductive women. Women who are ill-informed and fear the use of birth control are highly likely to stray from the use of LARC due to its more 'invasive' application.(7) A qualitative study conducted in Australia, explored the views of the subdermal implant by women of RA. It was found that the majority of women whom had never used the device had negative perceptions.(15) This demonstrates how lack of knowledge and preconceived notions can negatively sway a woman's view regarding effective LARC. Hence, these attitudes could resort to the use of less-effective methods with higher failure rates such as condoms and withdrawal, resulting in increases in UP. One study conducted in Israel queried teenage COCP users and non-users (n=254) regarding 10 common misconceptions(16) and explored the beliefs of the Israeli physicians to understand the role healthcare professionals play in potentially conveying misconceptions of birth control based on individual beliefs. Hamani(16) found the majority of teenagers demonstrated incorrect perceptions regarding oral contraception, with a concerning number of physicians also sharing inaccurate beliefs. This is in accord with Küçük(13) and clearly shows that misconceptions do exist, regarding contraceptive risks and there is a lag in the accurate knowledge and training of healthcare providers. These are important studies to consider as they also provide sound evidence that women of RA are generally ill-informed due to the negative experiences of friends and/or family and lack proper education from healthcare advisors. Even though both the studies(13, 16) used focus groups, which was not representative of the population, the data provides compelling evidence that people house misconceptions of contraception. Further research is necessary of a more diverse population of women who experience varying sociocultural factors, such as one's religious impact on choice of contraception.

Parities between low socioeconomic status and an increased risk of UP has been shown to be prevalent in both Australia and America. The burden of UP on society includes public health problems relating to poor maternal and child outcomes, increased rates of abortion and dependency on welfare schemes.(17) Affluent women are more likely to have access to more-effective forms of contraception. This is given their financial security, which in turn affords them the ability to utilise healthcare services. This also allows affluent women to have access to resources needed to deal with the consequences of UP.(14) Iseyemi(17) and Dehlendorf(18) concluded with similar findings which found that despite introducing interventions such as the Affordable Care Act in America, with intentions to combat the financial burden of obtaining reliable contraceptive methods, the expansion of the Medicaid legislation left many individuals uninsured with limited access to contraception. The study

conducted by Iseyemi(17) is an impressive source due to its all-or-nothing approach through investigating a number of factors; for example, socioeconomic status, reproductive characteristics and contraceptive choice, and their influence on the risk of UP. Not only does it provide a diverse and unique approach to developing a broader understanding of the grim rates of UP in America, its prospective data also adds merit to the research.

Contraception empowers women and affords them the ability to have control over their future. It is imperative that research be conducted to understand why effective contraceptive options have limited access and prohibitive costs in America. Studies have found that in developed countries such as the Netherlands and Denmark, the positive change in the values of family planning and acceptance of sexuality, have allowed these countries to achieve easy access and inexpensive or free contraception; greatly reducing abortion rates.(19) Research conducted by Dodge(20) examined the differences in sexual health behaviours and choices made by college students in the Netherlands and the US. Data demonstrated embracement of sexuality, in the education system and socially, and government supporting access to healthcare services, predisposed the cohort of college pupils from the Netherlands to lower rates of UP and abortion.(20) In accord, a Denmark study demonstrated contraception was accessible and attainable for young Danish women; 85% were prescribed some form of contraception by the age of 20.(19) However, the data from Løkkegaard(19) study lacks merit in that the prescription of contraception does not correlate directly with contraceptive use. As a result, this study discredits the association between contraceptive use and its impact on the rates of UP.

Despite the lingering evidence of patriarchy in today's society, with a tremendous amount of research regarding women's reproductive health amusingly being conducted by men, the reality is that contraception predominantly targets a woman's body; physically and psychologically. This, therefore, grants women the right to feel safe and in control of their reproductive experiences and health. ***It is unacceptable that 51% of women experience UP, in Australia and America.*** It is clear that there are gaps in the healthcare system, limiting accessibility to effective contraception. Contraception is an essential health service which, by simply having access to, should reduce the number of UP experienced. Future research should investigate the impact of supplying LARC, free-of-charge, to women of low socioeconomic status, to eliminate the barrier; that is accessibility and improve awareness of the 'real' risks of different types of contraception to woman and healthcare providers to ameliorate misconceptions. This research could be fundamental in identifying the means to reduce the number of women who experience an unintentional pregnancy in Australia and overseas.

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