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Cover Page Footnote

We would like to thank from Safe Food who gave us advice in how best to conduct a survey for our research. We would also like to show our gratitude to anyone who took part in our trial survey and gave us feedback to improve the survey. We would also like to give special thanks to for her expertise and guidance throughout the entire process in carrying out this survey and composing this research paper.

An Investigation into the Prevalence of Use and Availability of Information on Contraception for Female Third Level Students aged 18-24

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ABSTRACT

Introduction: The purpose of this investigation was to find out the number of female students in third-level institutions who use different types of contraception as well as their opinions on contraception, including cost and the availability and adequacy of information about female birth control options available in second and third level institutions. For females to make an informed decision on whether contraception should be availed of and what type of contraception should be used, education is necessary, and this study aimed to assess the student's knowledge of contraception and to identify if improvements need to be made to contraception education for female students. The secondary aim of this study was to assess the knowledge of the participants on the relationship between the use of contraception and sexually transmitted diseases (STDs).

Materials and Methods: An online survey was created using Google Forms which was distributed to undergraduate third level female students over the age of 18. All gathered data was analysed using Microsoft Excel.

Results: The majority (69.6%) of the surveyed population (n=115) was sexually active and used contraception with the most common form being a combination of the contraceptive pill and condoms. More than half (53.05%) of the survey participants believe there is not enough information available to them in their third level institutions while 50% of the females that do not use any form of contraception agree that sufficient information is provided in third level institutions.

Discussion: This survey highlighted important issues such as the lack of information provided in both post-primary and third level settings. A more open discussion about contraception should be made available to young women, especially in colleges, as it could encourage more females to use contraception and show that there are options, other than condoms, which are most mentioned by colleges, but are one of the least effective forms.

KEYWORDS: Contraception, injectable contraception, birth control pill, bar, patch, condom, abstinence, sexually transmitted infection (STI)/sexually transmitted disease (STD), intermenstrual spotting.

INTRODUCTION

There are many forms of female contraception available including the birth control pill, the patch, injectable contraception, intrauterine device (IUD), vaginal ring, diaphragm and the emergency contraceptive pill. However, contraception is not only used for pregnancy prevention. Contraceptive methods may also be used by women for a variety of reasons such as to reduce cramps or menstrual pain, to regulate the menstrual cycle, for the treatment of acne and for the treatment of endometriosis. Along with the benefits of contraception, a female taking contraception can also experience side effects such as headaches, breakthrough bleeding, mood swings and weight gain. Severe and rare side effects of contraception including blood clots can also occur. Venous thromboembolism is the most well-known side effect associated with the pill (Liao and Dollin, 2012).

The sale of non-prescription contraceptives was approved in Ireland in February, 1985 with the pill being fully legalised without discrimination in 1993. A survey conducted in 2014 determined that a third of Irish women aged between 18-45 years old did not use contraception. Ireland was reported in this study as having the fourth lowest contraception use of the 28 EU member states (O'Doherty, 2014). When contraceptive users were asked what type of contraception they used, it was discovered that the most common form was the pill, followed by condoms.

For females to make an informed decision on whether contraception should be availed of and what type of contraception should be used, educational interventions are necessary. A new short course for social, personal and health education (SPHE), with learning outcomes in the area of relationship and sexuality education (RSE), was introduced in 2015 in Ireland as part of junior cycle developments and the new curriculum area of wellbeing. Since 2003, the provision of the equivalent of one class period per week (or 70 hours per annum) of SPHE is mandatory for all junior cycle students and it is required that RSE is taught as an integral component of SPHE. In 2011, a new curriculum framework for senior cycle SPHE was published; it is built around five areas of learning, one of which is RSE. Two reports by the Department of Education and Skills (DES) Inspectorate focus on SPHE in primary and post-primary schools and address issues relating to the implementation of RSE. They concluded that there were "evident weaknesses in programme planning for senior cycle RSE in 62% of the schools inspected" and "significant variation in the quality of provision for RSE for senior cycle students" (Keating *et al.*, 2018).

The primary aims of this study were to investigate the use of different types of contraception among female undergraduate third level students and to determine their views on contraception including cost and whether there was enough information about contraception in second level and third level institutions for these students. The secondary aim of this study was to assess the knowledge of the participants on the relationship between the use of contraception and sexually transmitted diseases (STDs)

MATERIALS AND METHODS

Survey Design and Distribution

An online survey was conducted on female third level students aged 18-24 using Google Forms. An introduction to the survey included information about the survey's creators and its aims, informing candidates the survey was voluntary and anonymous and that any personal data obtained will only be retained throughout the timeframe of the survey and will be disposed of when no longer needed. The survey was available to complete from February 19 - March 6, 2020. Email addresses of the survey creators were also included if candidates had any queries.

The survey comprised 21 multiple choice questions divided into four main sections including introductory questions, questions for those that use contraception, questions for those that do not use

contraception and general questions regarding contraception. Introductory questions included obtaining the survey candidate's consent to participate in the survey and agreeing that they were over the age of 18, as well as questions on the survey participant's age, sexual activity, and contraception usage. Questions for those who use contraception included what type of contraception they used and their reason for choosing that method of contraception, if they researched the best form of contraception and where they got the information about the best form of contraception for them, and how much they spend on contraception each month. Questions for those who do not use contraception included what the main reason was for choosing not to use contraception and whether they would consider using contraception in the future. General questions regarding contraception included whether the survey candidate believed there was enough information available about contraception in secondary school and college, if they felt comfortable talking about contraception with friends, if they knew what forms of contraception protect you from STDs and if they believed contraception was affordable. The survey was advertised using the social media platforms Instagram, Snapchat and Facebook.

Survey Analysis

The results of the survey were organised into graphs and tables using Microsoft Word and Microsoft Excel.

RESULTS

Survey Participation

A total of 115 valid responses were obtained to the survey. The survey initially targeted all female third level students however, the demographic trend was towards a younger population with all 115 survey respondents being third-level undergraduate students between the ages of 18-24.

This stacked bar graph ion figure 1 shows that of the 115 female undergraduate students 78.3% between the ages 18-24 were sexually active. Of the sexually active population, 69.6% used contraception and 8.7% did not. The percentage of female undergraduate students between the ages of 18-24 that were not sexually active was 21.7%. Of this population 9.6% used contraception and 12.1% did not. A total of 79.1% of the survey population were contraception users.

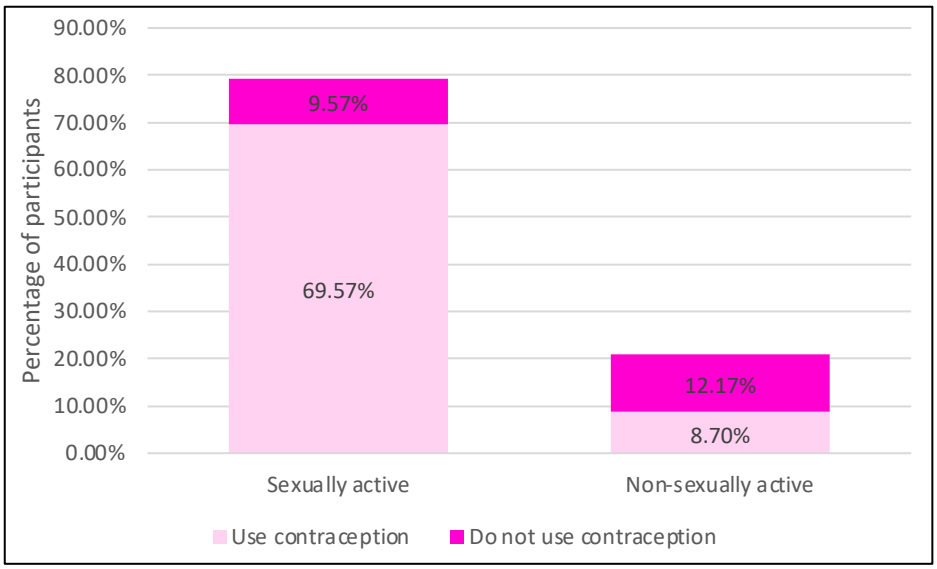

Figure 1: Percentage of female undergraduates aged between 18-24 who are sexually/non-sexually active and whether they use contraception.

Reasons for Contraceptive Use

Table 1 shows the responses from the 79.1% of the surveyed population (91 out of 115) who were contraception users and their reasons for using contraceptives. Reasons for use included pregnancy prevention (85.7%), alleviating dysmenorrhea (30.8%), to regularise menstrual cycle (30.8%), STD prevention (22%), to reduce acne (19.8%), managing polycystic ovary syndrome (2.2%) and to relieve migraines (1.1%). Respondents had the liberty to select multiple reasons for using contraception.

Table 1: The frequency of 91 females aged between 18-24 years old that use contraception, and are either sexually active, non-sexually active, or chose not to answer and the reasons why these individuals use contraception. Respondents had the option to choose multiple reasons.

Reasons to use contraception	**Individuals that use contraception (n=91)**		
	Frequency of participants who are sexually active (n=80)	Frequency of participants who are not sexually active (n=10)	Frequency of participants who chose not to answer if they are sexually active (n=1)
Pregnancy prevention	75	4	-
Alleviating dysmenorrhoea	23	5	-
Regularise menstrual cycle	24	4	1
STD prevention	20	-	-
To reduce acne	16	2	-
Management of polycystic ovary syndrome (PCOS)	1	1	-
Migraine relief	-	1	-

The remaining 20.9% (N=24) of the survey population were non-contraception users. Reasons for choosing not to use contraception included personal choice (41.7%), the side effects/health risks (33.3%), previous negative experience (20.8%), same sex relationship (12.5%), lack of information availability (8.3%), not sexually active (8.3%) and religious beliefs (4.2%). Respondents had the liberty to select multiple reasons for not using contraception (Table 2).

Table 2: The frequency of 24 females that are aged between 18-24 years old that do not use contraception and are sexually and non-sexually active and the reasons for why these individuals chose to not use contraception. Respondents had the option to choose multiple reasons.

Reasons to not use contraception	Individuals that do not use contraception (n=24)	
	Frequency of participants who are sexually active (n=10)	Frequency of participants who are not sexually active (n=14)
Personal choice	4	6
Side effects/health risks	5	3
Previous negative experience	3	2
Same sex relationship	2	1
Lack of available information	2	-
No longer sexually active	-	2
Religious beliefs	-	1

Forms of Contraceptives Used

For those participants who used contraception and are sexually active, as seen in Figure 2, 42% avail of the pill and condom together, 26% use the pill only and 18% use condoms only. This is followed by 9% of the population using the bar, 4% using the coil and lastly 1% avail of the injection method for contraception. For those participants who used contraception and are not sexually active, 17% use the pill and condom together, 75% use the pill only and 8% use condom only.

Of contraception users, 65.9% of participants researched the best form of contraception available to them, while 34.1% did not. The most popular way of obtaining information regarding contraception was through doctors or healthcare professionals (81.3%), followed by the internet (60.9%), friends or family (45.3%), books/leaflets (12.5%) and the least common was college or school (6.3%).

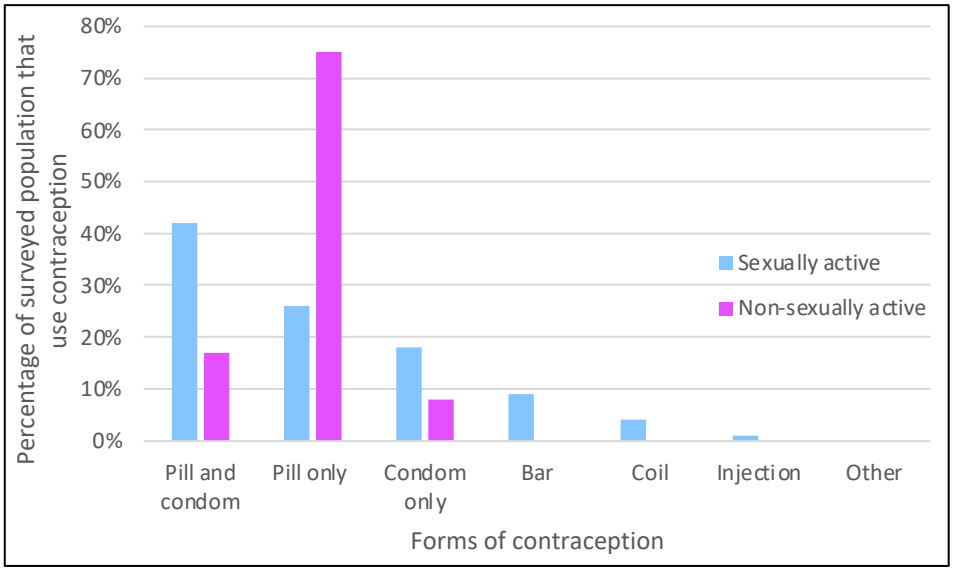

Figure 2: The forms of contraception used among sexually active and non-sexually active surveyed participants.

Cost of Contraceptives

For females who were contraceptive users (n=91), 41.7% believed that contraception was affordable and 37.4% believed it was not. For females who were non-contraceptive users (n=24), 7.8% thought it was affordable while 13% thought it was not (figure 3).

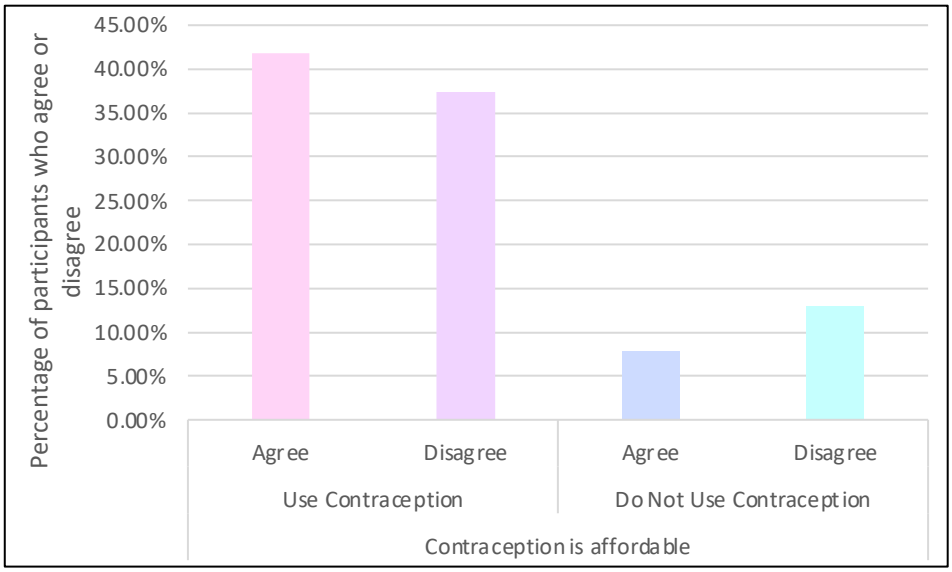

Figure 3: Opinions of 115 female college students on the affordability of contraception.

Availability of Information on Contraceptives

For those that use contraception, the majority (54.9%) believed not enough information about contraception is provided in third level institutions, 36.3% found the information to be adequate and 8.8% neither agree nor disagree. Conversely, the majority of those that do not use contraception (50%) believe enough information about contraception is provided in third level institutions, 45.8% feel there is not enough available information and 4.2% neither agree nor disagree (figure 4A).

The majority of both those who use contraception and those who do not believe enough information is provided about contraception in the secondary school setting (80.2% and 83.3%, respectively). For those that use contraception only 12.1% agree that adequate information is available in secondary education, while 6.6% neither agree nor disagree. For those that do not use contraception, 16.6% believe sufficient information was provided in secondary schools and 4.2% neither agree nor disagree (Figure 4B).

When asked about the knowledge of the forms of contraception that protect against STDs, the vast majority (77 out of 115) correctly answered condoms and abstinence. However, the second highest vote (33 out of 115) was for condoms only, followed by 3 of the 115 choosing abstinence only and one vote each for patch only, coil only, bar only, pill only and pill and condom.

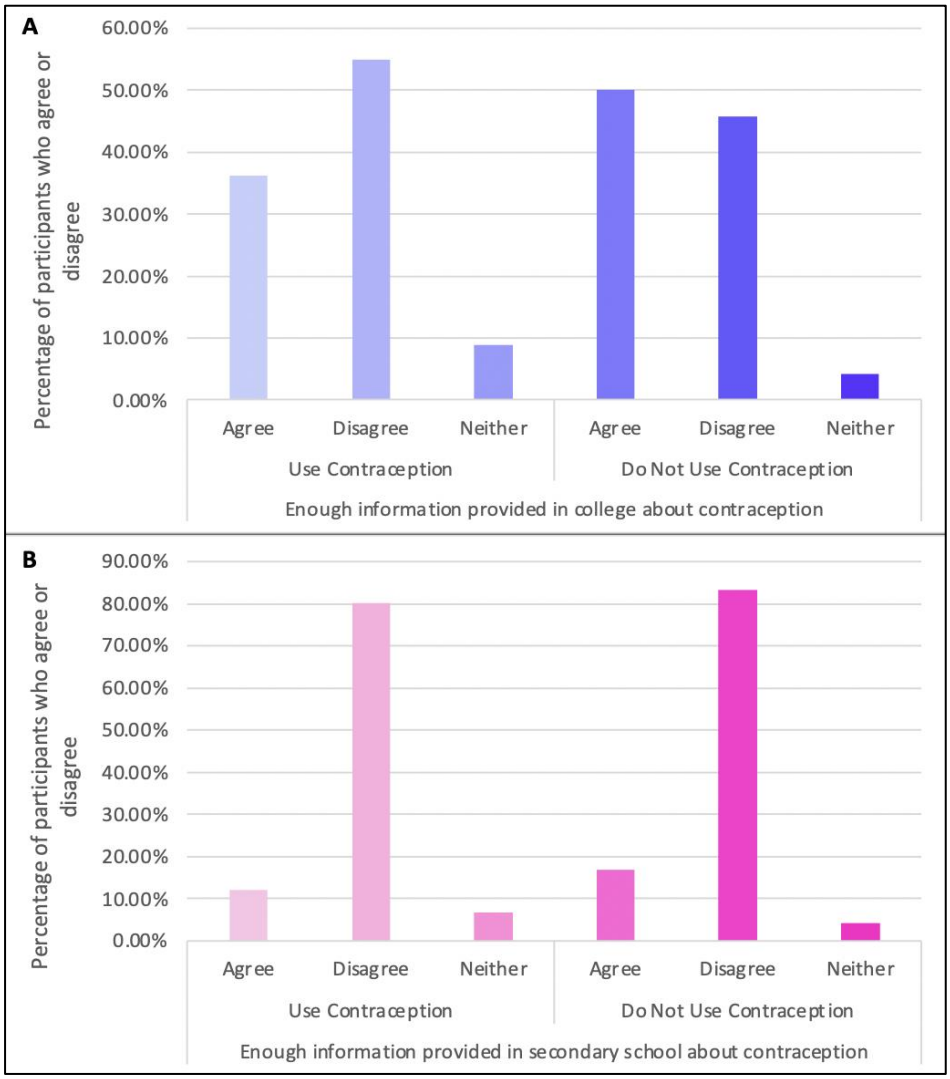

Figure 4: Opinions of surveyed third level female students who use contraception (n=91) and those that do not (n=24) regarding the information available about contraception in a) colleges and b) secondary schools.

DISCUSSION AND CONCLUSION

The purpose of this survey was to investigate the usage and views of female undergraduate students between the ages of 18-24 that avail of contraception. The survey also gathered information on this population's knowledge of the type of contraception that protects against STDs. Providing comprehensive, objective information equips female students to make educated choices regarding their sexual health and overall wellbeing. Participants of this survey included 115 female undergraduate students between the ages of 18-24 years old. The method of surveying involved an online anonymous survey that was sent out via email to female third level college students and on a variety of social media platforms. An online survey was used instead of a face-to-face survey because it was thought that survey participants would be more willing to divulge personal information regarding their sexual activity and use of contraception through an online forum. This survey strategy is corroborated by Duffy *et al.* (2005) who concluded that face-to-face respondents were more susceptible to social desirability bias due to the presence of an interviewer.

To establish the prevalence of use of contraception, survey participants were asked if they used contraception and if they were sexually active. As seen in Figure 1, most of the participants were

sexually active and use contraception. Interestingly this was followed by those who were not sexually active but use contraception, pointing to the variety of reasons for the of use contraception. Of the participants that were not sexually active, the majority did not use contraception. These results signify that there are third level female students that do not protect themselves from sexually transmitted diseases (STDs) or unplanned pregnancies.

For those participants who use contraception and are sexually active, as seen in Figure 2, the most popular form of contraception was the pill and condom (42%). Use of both the pill and condoms is a good option since barrier methods of birth control, such as the condom or diaphragm, have been proven to be less effective at preventing pregnancy when used as the sole form of contraception (Colquitt and Martin, 2017). With typical use, condoms are 82% effective and protect against sexually transmitted infections, which hormonal contraception does not provide. However, 40% of sexually active survey participants do not use a barrier form of contraception which leaves them susceptible to contracting sexually transmitted infections. This result could mean that these sexually active participants are not educated on the benefit of condoms for preventing sexually transmitted infections.

For non-sexually active survey participants who use contraception, the pill was the most used form of contraception (75%), followed by using pill and condom together (17%) and condom only (8%). A possible explanation for non-sexually active survey participants using condoms as a form of contraception could be that they were sexually active in the past but are no longer sexually active and used condoms in the past when sexually active. Another explanation for these results could be that these survey participants did not fully understand the survey question.

The incidence of use of all other contraceptive forms is very low with only about 14% of the females that use birth control using forms such as the bar or coil. These types of contraceptives, known as long-active reversible contraceptive (LARC) methods, were found to be more than 99% effective at preventing pregnancy (Winner *et al.,* 2012). These findings correspond to a similar study conducted in the United States on contraception use conducted by Huber and Ersek (2009) which found that the most common form of contraception used by female university students was oral contraceptives and male condoms.. The combined use of the contraceptive pill and condom has increased substantially since then among survey participants in this study. out study concurs with a recent study that identified unmarried women of child bearing age (15-49 years old) relied more heavily on short term acting contraceptives such as the pill and condom rather than long acting methods such as IUD or sterilisation (Nations, 2019).

Pregnancy prevention (85.7%) appeared to be the most prevalent reason for contraceptive use, followed by easing of period cramps (30.8%) and regularising the menstrual cycle (30.8%). Under the other category, participants included migraine prevention and polycystic ovary syndrome as reasons for contraception use. This highlights the multiple additional reasons, not based on sexual activity, for using contraception. In contrast, when non-contraception users were asked their reasons for choosing not to use contraception, the individual's personal choice (41.7%) was the leading reason. Many also choose not to use contraception due to the side effects or health risks (33.3%), previous negative experience (20.8%), same sex relationship (12.5%), not sexually active (8.3%) and religious beliefs (4.2%). It was determined that 8.3% of candidates choose not to use contraception due to the lack of knowledge available to them.

Figure 3 depicts the views of the participants on the perceived affordability of contraception. For those that use contraception, 41.7% thought contraception was affordable and 37.4% thought it was not. For participants who do not use contraception, 7.8% thought it was affordable and 13% thought it was not. This is an interesting outcome since those who actually use contraception do not think that it costs too much. This could be a misconception of non-contraceptive users that may be a result of the lack of reliable information. However, an Irish survey conducted by the Central Statistics Office in 2010 found that 18% of respondents had an issue with contraception cost. The impact of contraception costs can be seen in a Spanish study investigating the use of oral contraceptives by women between the ages of 15-30. This study revealed a decrease in the use of the pill from 14.4% in 2006 to 10.2% in 2012 (Carrasco-

Garrido *et al.*, 2016). One of the major contributing factors to this reduction observed by the authors was the economic recession, highlighting that the cost of contraception can impact its prevalence in a population. It is important to note that due to a recent recommendation of the Report of the Joint Committee on the Eighth Amendment of the Constitution, free contraception will be made available for women aged 17-25 from August 2022.

Survey candidates were also asked about their views on the availability of information about contraception in third level institutions and secondary schools. In Figure 4, 54.9% of candidates who use contraception believe not enough information in third level institutions about contraception is available to them. However, interestingly, half of those who do not use contraception agree there is an adequate amount of information provided to students in college about female contraception. An overwhelming majority of both populations think there was not enough information given to them about contraception in secondary school with 80.2% of contraception users and 83.3% of non-contraception users having this opinion. In a study by Young *et al.* (2018), it was determined that 25.7% of Irish boys and 21.2% of girls between the age of 15–18 years were sexually initiated. These findings highlight the need for education and the availability of information about contraception in secondary schools. A survey carried out in Brazil, concluded that the knowledge of contraceptive methods was low in both private and public school students (Martins *et al.*, 2006). These findings highlight the need for education and the availability of information about contraception in secondary schools.

The 115 survey candidates were also tested on their knowledge of contraception in the survey. Participants were asked to choose which form of contraception protected them from sexually transmitted diseases (STDs). Although the majority chose the correct answer, four participants that answered this question thought incorrectly that pill, bar, patch, or coil usage could prevent STDs,. Only condoms or abstinence can effectively protect against STDs. This demonstrated a lack of knowledge around the use of contraception and could explain why some of the 40% of sexually active survey participants in Figure 2, are not using a barrier form of contraception. In a 2014 survey it was determined that young adults (20-29 years) represented 59.1% of STI notifications in Ireland in 2012. The population surveyed were 56.1% female and 78.1% undergraduates and the survey concluded that young people do not always have the information to take responsibility for their sexual health *(Lally et al.*, 2015).

Based on the results of this snapshot survey a higher response rate from non-contraceptive users would have provided more accurate results in relation to whether enough information is available in college for female students. Also, survey candidates who do not use contraception could have been given the answer option of contraception being unaffordable for the reason they do not use contraception. This additional question could establish if the affordability of contraception was a deterrent for some of the 20.8% of survey participants who do not use contraception. Another possible reason for survey candidates thinking that contraception was not affordable could be due to lack of information available to them. The last part of the questionnaire was a feedback section. The respondents believed the survey highlighted important issues such as lack of information provided in both post-primary and third level settings and that a more open discussion about contraception should be made available to students and young women.

In conclusion, the main findings of this study were that female undergraduate students aged between 18-24 believe there is not enough information about contraception available to them in secondary schools and third level institutions. This was supported by the findings that colleges and schools were the least popular sources of information on contraception and some survey candidates did not use contraception because there is not enough information available to them. This resulted in some participants not knowing what forms of contraception protected them from STDs and could be the reason why some of the 40% of sexually active survey participants do not use a barrier form of contraception. Two thirds of female students that currently do not use contraceptives would be willing to start using contraception in the future. Therefore, recommendations could be made to secondary schools and third level institutions to improve the information they give their students about contraception in order to support female student wellbeing and compensate for these deficiencies. Such

recommendations could include enacting more relevant public health initiatives especially during sexual health awareness and guidance week.

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We would like to thank from *Safe Food* who gave us advice in how best to conduct a survey for our research. We would also like to show our gratitude to anyone who took part in our trial survey and gave us feedback to improve the survey. We would also like to give special thanks to Dr. Brigid Lucey for her expertise and guidance throughout the entire process in carrying out this survey and composing this research paper.

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