International Journal of Reproduction, Contraception, Obstetrics and Gynecology
*Howard N et al. Int J Reprod Contracept Obstet Gynecol. 2025 Jul;14(7):2083-2094*
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20251952

**Original Research Article**

# Knowledge, attitudes, and practices regarding emergency contraception pills among adult students within the college of medical sciences, University of Guyana, from August to September 2024

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**Received:** 20 April 2025
**Revised:** 15 June 2025
**Accepted:** 16 June 2025

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## ABSTRACT

**Background:** Emergency contraceptive pills (ECPs), commonly known as the morning-after pill, are used to prevent unplanned pregnancy after unprotected intercourse, sexual assault, or failure of regular contraception. This study aimed to assess the knowledge, attitudes, and practices of ECPs among adult students from the College of Medical Sciences (CoMS).
**Methods:** A cross-sectional descriptive study was conducted at the University of Guyana, Turkeyen Campus, between August and September 2024. Data was collected through a structured electronic questionnaire and analyzed using descriptive methods, and the chi-square test for statistical significance.
**Results:** Out of 321 respondents, 76.1% were females and 23.6% were males, with a mean age of 23 years. 57% were from region 4, and 69.8% were Christians. The study found that the majority of students (86.6%) had adequate overall knowledge about ECPs, but there were notable gaps in understanding specific aspects, including mechanisms of action, side effects, and optimal timeframe for use. The study also found that attitudes toward ECPs were mixed, with a significant proportion of students holding negative attitudes (51.7%). However, the majority of students (95.5%) reported that ECPs were easy/very easy to obtain, and most students reported that they were somewhat effective (68.8%).
**Conclusions:** This study highlights the importance of targeted educational interventions to address knowledge gaps and misconceptions regarding ECPs. The findings have implications for the development of comprehensive sexual health education programs and policies aimed at promoting safe sexual practices and reproductive health among university students in Guyana.

**Keywords:** Emergency contraception pills, Reproductive health, University students, Sexual health education

## INTRODUCTION

Guyana, the only English-speaking South American Country, is a culturally diverse nation with a population comprising East Indians (40%), Afro-Guyanese (30%), mixed-race individuals (20%), Amerindians (9.5%), and Chinese or European descent (0.5%). The religious composition of Guyana is predominantly Christian (64%),

followed by Hindu (25%) and Muslim (7%) communities, with smaller groups of Rastafarians, Bahais, Afro-descendant Faithists, and Areruya (< 1%).[1]

While the unintended pregnancy rate has declined by 28%, as seen in Figure 1 from 1990-1194 to 2015-2019, unwanted pregnancies remain a major public health concern in Guyana, especially in low-resource settings where limited EC knowledge exacerbates the issue.[2]

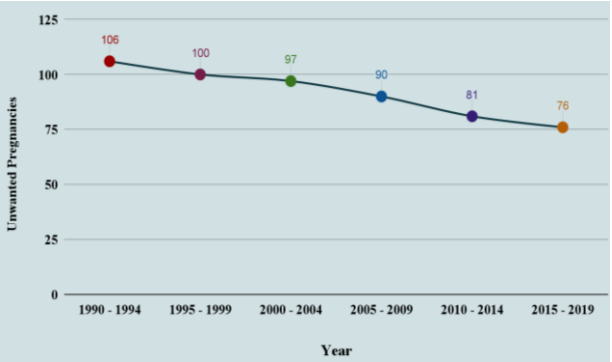


**Figure 1: Average annual no. of unwanted pregnancies per 1,000 women aged 15-49 in Guyana.**

ECPs are available OTC in Guyana, which theoretically enhances accessibility. However, despite being OTC, the lack of awareness and misinformation hinders effective use, increasing the risk of unplanned pregnancies, particularly among sexually active university students.[3-5] Studies indicate that a large percentage of sexually active university students are at risk of unplanned pregnancies due to inadequate knowledge about ECPs, impacting their education and future opportunities.

The University of Guyana, established in 1963, serves as a key educational institution in region 4 attracting a diverse student body. This environment provides an opportunity to examine factors influencing perceptions and use of ECPs among adult students, particularly within the College of Medical Sciences, which plays a vital role in training future healthcare professionals.

This study aims to assess the awareness and knowledge of emergency contraception pills among adult students at the University of Guyana, Turkeyen Campus. It will explore their attitudes, including perceptions of safety, ethical concerns, and societal acceptance. Additionally, it will examine practices related to ECP use, focusing on accessibility, frequency, and influencing factors. The findings will be evaluated to develop recommendations for improving ECP awareness among college adult students.

## METHODS

### *Study design, setting, and period*

This research employed a descriptive, cross-sectional design to evaluate the knowledge, attitudes, and practices (KAP) regarding emergency contraception pills (ECPs) among adult students in the College of Medical Sciences (CoMS) at the University of Guyana, Turkeyen Campus from 05th August to 31st September 2024.

### *Selection criteria*

This study will include adult students (aged 18 and older) registered for the academic year 2024 from the CoMS.

### *Procedure*

The researchers sought ethical clearance from the University of Guyana's (UG) Internal Review Board (IRB), the Ministry of Health's IRB. After obtaining ethical clearance, the researchers gained permission from the Vice Chancellor and Dean, seeking permission to use the students of the College of Medical Sciences (CoMS) to participate in the study.

Class representatives from each programme year were contacted via email to assist with the sharing of the survey link with their peers.

The survey consisted of 52 questions across six sections, addressing socio-demographic information, knowledge, attitudes, and practices related to emergency contraceptive pills (ECPs), as well as sexual behaviour. A pilot test identified necessary revisions. Knowledge of emergency contraceptive pills (ECPs) was assessed using 11 questions: 10 multiple-choice and one Likert scale question. Correct answers received a score of one, and Likert responses ranged from zero (I don't know) to four (very effective). Scores out of 14 were converted into percentages, with >50% considered adequate knowledge. Attitudes towards ECPs were evaluated through nine questions, including multiple-choice and Likert scale questions. Scores out of 24 were categorised, with 12-24 indicating positive attitudes and 0-11 indicating negative attitudes towards ECPs. Practices were evaluated by asking participants whether they or their partners used ECPs. Knowledge and attitude scores were classified as either adequate/inadequate or positive/negative.

The survey was administered electronically using the Google Forms platform. The link to the survey was distributed via multiple channels to ensure broad reach and participation.

The survey link was sent directly to the email addresses of CoMS students.

The survey link was shared on social media platforms affiliated with the university to reach students who actively engage in these communities.

The survey link was posted in virtual learning environments such as the university's learning management system to reach students during their online academic activities.

Class representatives were requested to share the survey link with their peers.

To ensure the security and exclusivity of the survey, it was email-locked, meaning only individuals with a listed university email address will be granted access to participate.

Participants were presented with an electronic consent form before commencing the questionnaire. This form included an introduction to the study's purpose, the voluntary nature of participation, and assurances of confidentiality of their responses. Participants must agree to the consent form to proceed with the survey.

### *Ethical approval*

The researchers gained clearance from the UG internal review board and the Ministry of Health IRB before data collection.

### *Statistical analysis*

Data were cleaned and analysed using SPSS version 26. Descriptive statistics, including frequencies, crosstabs, chi-square tests, means, and confidence intervals, were used. Bi-variate correlation was used to assess the correlation between knowledge, attitude, and practices of ECPs.

## RESULTS

### *Characteristics of the study participants*

A total of 323 participants completed the online questionnaire, with 321 meeting the eligibility criteria for participation. The general characteristics of the participants are summarised in Table 1. Among the 321 participants, 76.1% were females. The mean age was 23 years, with the minimum and maximum ages of 18 and 50, respectively, SD (4.645) CI (22.9:23.9). The majority of the participants (43%) were in the age group of 22-25 years. 46.7% of the sample was single. The majority of the participants were from region 4, with the remainder representing various other regions (1, 2, 3, 5, 6, 7, and 8). The majority of the students were Christians (69.8%) and belonged to the Bachelor of Medicine and Bachelor of Surgery (MBBS) department (52.3%), with the fewest coming from the Graduate School (2.2%). Most of the students were in their second year of their program. The most common ethnicity among the participants was African. None of the participants had reached menopause, and the majority had a self-reported normal body mass index (BMI).

### *Knowledge of ECPs*

Knowledge of emergency contraception, including ECPs, was assessed through participants' responses to 11 close-ended questions, as depicted in Table 2.

**Table 1: Demographics of participants.**

| Characteristic | Female (n=245) | Male (n=76) | Total (n=321) | P value |
|---|---|---|---|---|
| **Mean age (range)** | 23 (22–25) | 23 (22–25) | 23 (22–25) | - |
| **Age group (in years)** | **N (%)** | **N (%)** | **N (%)** | |
| 18–21 | 94 (29.3) | 26 (8.1) | 120 (37.4) | 0.445 |
| 22–25 | 105 (32.7) | 33 (10.3) | 138 (43.0) | |
| 26–29 | 22 (6.9) | 12 (3.7) | 34 (10.6) | |
| 30–33 | 15 (4.7) | 2 (0.6) | 17 (5.3) | |
| 34 and over | 9 (2.8) | 3 (0.9) | 12 (3.7) | |
| **Ethnicity** | | | | |
| Mixed | 78 (24.3) | 24 (7.5) | 102 (31.8) | 0.093 |
| African | 93 (29.0) | 22 (6.9) | 115 (35.8) | |
| East Indian | 64 (19.9) | 30 (9.3) | 94 (29.3) | |
| Amerindian | 9 (2.8) | 0 (0.0) | 9 (2.8) | |
| Others | 1 (0.3) | 0 (0.0) | 1 (0.3) | |
| **Relationship status** | | | | |
| Single | 107 (33.5) | 42 (13.2) | 149 (46.7) | 0.056 |
| Dating | 98 (30.7) | 21 (6.6) | 119 (37.3) | |
| Common-law union | 10 (3.1) | 3 (0.9) | 13 (4.1) | |
| Prefer not to say | 13 (4.1) | 4 (1.3) | 17 (5.3) | |
| Married | 17 (5.3) | 4 (1.3) | 21 (6.6) | |
| **Region** | | | | |
| Region 1 | 19 (5.9) | 4 (1.2) | 23 (7.2) | 0.793 |
| Region 2 | 13 (4.0) | 4 (1.2) | 17 (5.3) | |

Continued.

| Characteristic | Female (n=245) | Male (n=76) | Total (n=321) | P value |
|---|---|---|---|---|
| Region 3 | 32 (10.0) | 11 (3.4) | 43 (13.4) | |
| Region 4 | 136 (42.4) | 47 (14.6) | 183 (57.0) | |
| Region 5 | 14 (4.4) | 4 (1.2) | 18 (5.6) | |
| Region 6 | 22 (6.9) | 6 (1.9) | 28 (8.7) | |
| Region 7 | 7 (2.2) | 0 (0.0) | 7 (2.2) | |
| Region 8 | 2 (0.6) | 0 (0.0) | 2 (0.6) | |
| Other | 0 (0.0) | 0 (0.0) | 0 (0.0) | |
| **Religion** | | | | |
| Christianity | 183 (57.0) | 41 (12.8) | 224 (69.8) | |
| Islam | 18 (5.6) | 4 (1.2) | 22 (6.9) | <0.001* |
| Hinduism | 26 (8.1) | 22 (6.9) | 48 (15.0) | |
| None | 18 (5.6) | 9 (2.8) | 27 (8.4) | |
| **Highest level of previous study** | | | | |
| Bachelor's | 122 (38.0) | 29 (9.0) | 151 (47.0) | |
| Associate's | 78 (24.3) | 29 (9.0) | 107 (33.3) | 0.504 |
| CSEC certification | 39 (12.1) | 15 (4.7) | 54 (16.8) | |
| Diploma | 2 (0.6) | 1 (0.3) | 3 (0.9) | |
| Master's | 4 (1.2) | 2 (0.6) | 6 (1.9) | |
| **Department** | | | | |
| Medicine | 123 (38.3) | 45 (14.0) | 168 (52.3) | |
| Allied health | 43 (13.4) | 7 (2.2) | 50 (15.6) | |
| Pharmacy | 42 (13.1) | 11 (3.4) | 53 (16.5) | 0.088 |
| Dentistry | 22 (6.9) | 10 (3.1) | 32 (10.0) | |
| Nursing | 11 (3.4) | 0 (0.0) | 11 (3.4) | |
| Graduate school | 4 (1.2) | 3 (0.9) | 7 (2.2) | |
| **Year of study** | | | | |
| Year 1 | 44 (13.7) | 16 (5.0) | 60 (18.7) | |
| Year 2 | 61 (19.0) | 15 (4.7) | 76 (23.7) | |
| Year 3 | 59 (18.4) | 16 (5.0) | 75 (23.4) | 0.433 |
| Year 4 | 54 (16.8) | 15 (4.7) | 69 (21.5) | |
| Year 5 | 27 (8.4) | 14 (4.4) | 41 (12.8) | |
| Achieved menopause | 0 (0.0) | Not applicable | 0 (0.0) | - |
| **Self-reported BMI** | | | | |
| Normal | 136 (42.4) | 54 (16.8) | 190 (59.2) | |
| Underweight | 24 (7.5) | 3 (0.9) | 27 (8.4) | 0.076 |
| Overweight | 70 (21.8) | 17 (5.3) | 87 (27.1) | |
| Obese | 15 (4.7) | 2 (0.6) | 17 (5.3) | |
| **Number of children** | | | | |
| 0 | 216 (67.3) | 68 (21.2) | 284 (88.5) | |
| 1 | 14 (4.4) | 6 (1.9) | 20 (6.2) | |
| 2 | 9 (2.8) | 2 (0.6) | 11 (3.4) | 0.645 |
| 3 | 5 (1.6) | 0 (0.0) | 5 (1.6) | |
| 4 | 1 (0.3) | 0 (0.0) | 1 (0.3) | |
| **Coitarche (First sexual experience)** | | | | |
| Under 16 | 11 (3.4) | 9 (2.8) | 20 (6.2) | |
| 16–18 | 59 (18.3) | 22 (6.8) | 81 (25.2) | 0.082 |
| 18 and above | 70 (21.7) | 23 (7.1) | 93 (29.0) | |

* Significant at the p-value < 0.05 level using the chi-square test. ↓ Excluded from analysis

Awareness of ECPs was high, with 94.4% recognizing their existence, though 55.5% only identified Levonorgestrel (Plan B One-Step) as an emergency contraceptive. Females demonstrated higher knowledge, with 31.1% recognizing multiple options like levonorgestrel, copper T IUD, and ulipristal. However, 9.6% were either uncertain or misinformed about available emergency contraceptive methods.

**Table 2: Knowledge assessment responses.**

| Question | Option | Female (n=245) N (%) | Male (n=76) N (%) | Total (n=321) N (%) |
|---|---|---|---|---|
| **Average lifespan of sperm cells after ejaculation** | 5 days | 135 (42.1) | 41 (12.8) | 176 (54.8) |
| | 1 day | 13 (4.0) | 8 (2.5) | 21 (6.5) |
| | 3 days | 70 (21.8) | 19 (5.9) | 89 (27.7) |
| | 10 days | 6 (1.9) | 1 (0.3) | 7 (2.2) |
| | I don't know | 21 (6.5) | 7 (2.2) | 28 (8.7) |
| **Emergency contraception methods** | Levonorgestrel | 144 (44.9) | 34 (10.6) | 178 (55.5) |
| | Copper T | 5 (1.6) | 3 (0.9) | 8 (2.5) |
| | Ulipristal | 1 (0.3) | 3 (0.9) | 4 (1.2) |
| | All of the above | 72 (22.4) | 28 (8.7) | 100 (31.1) |
| | None of the above | 1 (0.3) | 0 (0.0) | 1 (0.3) |
| | I don't know | 22 (6.9) | 8 (2.5) | 30 (9.3) |
| **Awareness of emergency contraceptive pills** | Yes | 233 (72.6) | 70 (21.8) | 303 (94.4) |
| | No | 12 (3.7) | 6 (1.9) | 18 (5.6) |
| **Mechanism of action of EC pills** | Prevent ovulation | 160 (49.8) | 44 (13.7) | 204 (63.6) |
| | Terminate pregnancy | 4 (1.2) | 4 (1.2) | 8 (2.5) |
| | Thicken cervical mucus | 39 (12.1) | 8 (2.5) | 47 (14.6) |
| | All of the above | 11 (3.4) | 7 (2.2) | 18 (5.6) |
| | None of the above | 3 (0.9) | 0 (0.0) | 3 (0.9) |
| | I don't know | 28 (8.7) | 13 (4.0) | 41 (12.8) |
| **Perceived side effects of EC pills** | Yes | 230 (71.7) | 70 (21.8) | 300 (93.5) |
| | No | 2 (0.6) | 4 (1.2) | 6 (1.9) |
| | I don't know | 13 (4.0) | 2 (0.6) | 15 (4.7) |
| **Possible side effects of EC pills** | Nausea and vomiting | 35 (10.9) | 10 (3.1) | 45 (14.0) |
| | Irregular vaginal bleeding | 33 (10.3) | 10 (3.1) | 43 (13.4) |
| | Decreased fertility | 8 (2.5) | 5 (1.6) | 13 (4.0) |
| | Fatigue | 3 (0.9) | 1 (0.3) | 4 (1.2) |
| | All of the above | 146 (45.5) | 43 (13.4) | 189 (58.9) |
| | I don't know | 19 (5.9) | 6 (1.9) | 25 (7.8) |
| | None of the above | 1 (0.3) | 1 (0.3) | 2 (0.6) |
| **Timeframe for using EC pills** | 72 hours | 184 (57.5) | 48 (15.0) | 232 (72.5) |
| | 24 hours | 31 (9.7) | 14 (4.4) | 45 (14.1) |
| | 2 hours | 0 (0.0) | 1 (0.3) | 1 (0.3) |
| | 48 hours | 14 (4.4) | 5 (1.6) | 19 (5.9) |
| | 200 hours | 0 (0.0) | 1 (0.3) | 1 (0.3) |
| | I don't know | 16 (5.0) | 6 (1.9) | 22 (6.9) |
| **Effectiveness based on timing** | True | 7 (2.2) | 4 (1.3) | 11 (3.5) |
| | False | 217 (68.2) | 66 (20.8) | 283 (89.0) |
| | I don't know | 18 (5.7) | 6 (1.9) | 24 (7.5) |
| **Perceived effectiveness of EC pills** | Very effective | 50 (15.6) | 21 (6.5) | 71 (22.1) |
| | Somewhat effective | 174 (54.2) | 47 (14.6) | 221 (68.8) |
| | Very ineffective | 11 (3.4) | 4 (1.2) | 15 (4.7) |
| | Somewhat ineffective | 10 (3.1) | 4 (1.2) | 14 (4.4) |
| **Age restrictions in Guyana** | Yes | 47 (14.6) | 18 (5.6) | 65 (20.2) |
| | No | 66 (20.6) | 16 (5.0) | 82 (25.5) |
| | I don't know | 132 (41.1) | 42 (13.1) | 174 (54.2) |
| **Prescription requirement** | Yes | 9 (2.8) | 6 (1.9) | 15 (4.7) |
| | No | 200 (62.3) | 53 (16.5) | 253 (78.8) |
| | I don't know | 36 (11.2) | 17 (5.3) | 53 (16.5) |

Regarding the mechanism of action, 63.6% knew they delay or prevent ovulation, with females being more informed. Most participants (93.5%) were aware of potential side effects such as nausea and irregular bleeding, though a small percentage were uncertain or unaware.

When asked about the timing of ECP use, 72.5% correctly identified that ECPs should be taken within 72 hours of unprotected sex, although some were unsure about this time frame. A large majority (89.9%) understood that ECPs remain effective after 72 hours, though a minority believed effectiveness decreases after this period.

**Table 3: Attitude towards ECPs.**

| Variable | Category | Positive N (%) | Negative N (%) | P value |
|---|---|---|---|---|
| **Gender** | Female | 118 (76.1) | 127 (76.5) | 0.006 |
| | Male | 37 (23.9) | 39 (23.5) | |
| **Age group (in years)** | 18–21 | 56 (36.1) | 64 (38.6) | 0.626 |
| | 22–25 | 65 (41.9) | 73 (44.0) | |
| | 26–29 | 16 (10.3) | 18 (10.8) | |
| | 30–33 | 10 (6.5) | 7 (4.2) | |
| | 34 and over | 1 (5.2) | 4 (2.4) | |
| **Ethnicity** | Mixed | 53 (34.2) | 49 (29.5) | 0.492 |
| | African | 49 (31.6) | 66 (39.8) | |
| | East Indian | 47 (30.3) | 47 (28.3) | |
| | Indigenous | 5 (3.2) | 4 (2.4) | |
| | Portuguese | 1 (0.6) | 0 (0.0) | |
| **Relationship status** | Single | 76 (49.0) | 73 (44.0) | 0.666 |
| | Dating | 57 (36.8) | 62 (37.3) | |
| | Common-law union | 6 (3.9) | 7 (4.2) | |
| | Prefer not to say | 8 (5.2) | 9 (5.4) | |
| | Married | 8 (5.2) | 13 (7.8) | |
| **Region** | Region 1 | 9 (5.8) | 14 (8.4) | 0.715 |
| | Region 2 | 7 (4.5) | 10 (6.0) | |
| | Region 3 | 20 (12.9) | 23 (13.9) | |
| | Region 4 | 87 (56.1) | 96 (57.8) | |
| | Region 5 | 10 (6.5) | 8 (4.8) | |
| | Region 6 | 18 (11.6) | 10 (6.0) | |
| | Region 7 | 3 (1.9) | 4 (2.4) | |
| | Region 8 | 1 (0.6) | 1 (0.6) | |
| | Other | 0 (0.0) | 0 (0.0) | |
| **Religion** | Christianity | 110 (71.0) | 114 (68.7) | 0.713 |
| | Islam | 8 (5.2) | 14 (8.4) | |
| | Hinduism | 24 (15.5) | 24 (14.5) | |
| | None | 13 (8.4) | 14 (8.4) | |
| **Highest level of previous study** | Bachelor's degree | 74 (47.7) | 77 (46.4) | 0.636 |
| | Associate's degree | 54 (34.8) | 53 (31.9) | |
| | CSEC certification | 22 (14.2) | 32 (19.3) | |
| | Diploma | 1 (0.6) | 2 (1.2) | |
| | Master's degree | 4 (2.6) | 2 (1.2) | |
| **Department** | School of medicine | 82 (52.9) | 86 (51.8) | 0.636 |
| | Allied health | 27 (17.4) | 23 (13.9) | |
| | Pharmacy | 26 (16.8) | 27 (16.3) | |
| | Dentistry | 11 (7.1) | 21 (12.7) | |
| | Nursing | 5 (3.2) | 6 (3.6) | |
| | Graduate school | 4 (2.6) | 3 (1.8) | |
| **Year of study** | Year 1 | 33 (21.3) | 27 (16.3) | 0.255 |
| | Year 2 | 33 (21.3) | 43 (25.9) | |
| | Year 3 | 36 (23.2) | 39 (23.5) | |
| | Year 4 | 38 (24.5) | 31 (18.7) | |
| | Year 5 | 15 (9.7) | 26 (15.7) | |

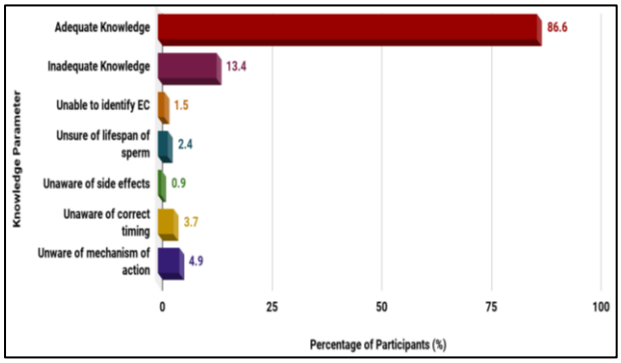


**Figure 2: Knowledge of ECPs.**

Perceptions of ECP effectiveness varied: 22.1% of students believed ECPs were highly effective, with a higher belief among females (34.6%) compared to males (14.2%). About 38.5% considered them somewhat effective, 12.3% viewed them as ineffective, and 27.1% were unsure.

In terms of access, only 20.2% of participants believed there were age restrictions for purchasing ECPs in Guyana, while more than half were unsure. A majority (72.6%) thought that ECPs are available over the counter without a prescription.

In Figure 2, 86% of participants demonstrated adequate knowledge of ECPs, while 13.6% showed inadequate understanding. The odds ratio indicated that females have slightly lower odds (0.76 times) of having inadequate knowledge compared to males, but this is not statistically significant, since the p-value was found to be 0.404 (greater than 0.05). Thus, there is no significant association between gender and knowledge adequacy in this sample. However, despite the adequate knowledge overall, the findings revealed gender disparities in knowledge about ECPs. Across most domains, females had a better understanding of ECPs than males, especially in areas like the lifespan of sperm cells, the timeframe for ECP use, and awareness of side effects. Nevertheless, overall knowledge was still moderate to low in critical areas like the mechanism of action and perceived effectiveness.

### *Attitudes toward ECPs*

This study explored participants' attitudes toward emergency contraception use with key findings presented in Table 3. Gender played a notable role, as 76.1% of participants with positive attitudes were female, while 76.5% of those with negative attitudes were also female. However, age had no significant effect, with most participants in both attitude groups falling within the 18-25 age range.

Ethnicity had no significant effect on attitudes. In the positive attitude group, 34.2% were of mixed ethnicity, 31.6% African, 30.3% East Indian, and smaller proportions identified as Indigenous or Portuguese. The negative attitude group followed a similar pattern. Relationship status also did not play a significant role, with singles making up 49.0% of the positive group and 44.0% of the negative group.

When considering regional differences, the results indicate that participants from various regions expressed similar attitudes towards ECPs. Participants in both the positive (56.1%) and negative (57.8%) attitude groups resided in region 4, with smaller percentages represented in other regions. Although slight differences were observed in some regions, such as Region 1 and Region 3.

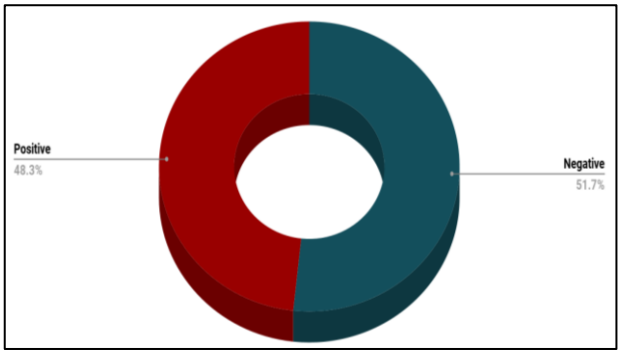


**Figure 3: Attitude towards ECPs.**

Religion also did not influence attitudes, as Christians made up the largest proportion in both positive (71.0%) and negative (68.7%) groups, followed by smaller percentages of Muslims, Hindus, and those without a religion.

Educational background showed no impact, as roughly similar proportions of participants held a Bachelor's or Associate's degree in both groups. Academic department and year of study were also not significant factors, with the majority of participants (52.9% and 51.8%) in the positive and negative attitude groups, respectively, coming from the School of Medicine and being in their third or fourth year of study. Overall, factors like ethnicity, relationship status, region, religion, education, and academic background did not significantly influence participants' attitudes.

In Figure 3, 48.3% of participants had a positive attitude towards ECPs, while the remaining 51.7% of participants had a negative attitude. The findings reveal that gender is the only significant variable affecting participants' attitudes toward ECPs, with 76% females having a slightly higher proportion of positive attitudes compared to males.

**Table 4: Practices related to ECPs.**

| Question | Response | Female (n=245) | Male (n=76) | Total (n=321) |
|---|---|---|---|---|
| | | N (%) | N (%) | N (%) |
| **Unprotected sex** | Sometimes | 108 (33.6) | 41 (12.8) | 149 (46.4) |
| | Never | 109 (34.0) | 30 (9.3) | 139 (43.3) |
| | Always | 28 (8.7) | 5 (1.6) | 33 (10.3) |
| **Preferred method of contraception** | Oral contraceptive pills | 46 (14.4) | 8 (2.5) | 54 (16.9) |
| | Condoms | 119 (37.2) | 53 (16.6) | 172 (53.8) |
| | Depot injection | 7 (2.2) | 3 (0.9) | 10 (3.1) |
| | Subdermal implant | 13 (4.1) | 2 (0.6) | 15 (4.7) |
| | Copper IUD | 6 (1.9) | 7 (2.2) | 14 (4.1) |
| | Hormonal IUD | 0 (0.0) | 2 (0.6) | 2 (0.6) |
| | Rhythm/calendar | 28 (8.8) | 7 (2.2) | 35 (10.9) |
| | Withdrawal | 57 (17.8) | 21 (6.6) | 78 (24.4) |
| | Abstinence | 101 (31.6) | 17 (5.3) | 118 (36.9) |
| | Morning after pill | 58 (18.1) | 10 (3.1) | 68 (21.3) |
| | Other | 9 (2.8) | 1 (0.3) | 10 (3.1) |
| **ECP use (self or partner)** | No | 131 (40.8) | 67 (20.9) | 198 (61.7) |
| | Yes | 114 (35.5) | 9 (2.8) | 123 (38.3) |
| **Frequency of ECP use** | Always | 7 (3.9) | 1 (0.6) | 8 (4.4) |
| | Frequently | 1 (0.6) | 1 (0.6) | 2 (1.1) |
| | Occasionally | 8 (4.4) | 0 (0.0) | 8 (4.4) |
| | Rarely | 77 (42.5) | 9 (5.0) | 86 (47.5) |
| | Never | 42 (23.2) | 18 (9.9) | 60 (33.1) |
| | Other | 17 (9.4) | 0 (0.0) | 17 (9.4) |
| **Type of ECP used** | Levonorgestrel | 101 (77.1) | 10 (7.6) | 111 (84.7) |
| | Ulipristal | 3 (2.3) | 1 (0.8) | 4 (3.1) |
| | I don't know | 8 (6.1) | 7 (5.3) | 15 (11.5) |
| | Other | 1 (0.8) | 0 (0.0) | 1 (0.8) |
| **First time aware of ECP** | >5 years ago | 60 (40.8) | 12 (8.2) | 72 (49.0) |
| | 1–5 years ago | 51 (34.7) | 7 (4.8) | 58 (39.5) |
| | 6–11 months ago | 6 (4.1) | 1 (0.7) | 7 (4.8) |
| | <6 months | 7 (4.8) | 3 (2.0) | 10 (6.8) |
| **Who purchased the ECP** | Spouse/partner | 59 (45.4) | 3 (2.3) | 62 (47.7) |
| | Self | 48 (36.9) | 10 (7.7) | 58 (44.6) |
| | Female friend | 3 (2.3) | 3 (2.3) | 6 (4.6) |
| | Family member | 1 (0.8) | 0 (0.0) | 1 (0.8) |
| | Other | 2 (1.5) | 1 (0.8) | 3 (2.3) |
| **Reason for using ECP** | Withdrawal failure | 32 (25.0) | 5 (3.9) | 37 (28.9) |
| | No contraception | 21 (16.4) | 1 (0.8) | 22 (17.2) |
| | Condom broke/slipped | 20 (15.6) | 6 (4.7) | 26 (20.3) |
| | Rape/sexual assault | 3 (3.1) | 0 (0.0) | 3 (3.1) |
| | After all unprotected sex | 35 (27.3) | 3 (2.3) | 38 (29.7) |
| **Place of procurement** | Pharmacy | 98 (76.0) | 15 (11.6) | 113 (87.6) |
| | Sexual partner | 11 (8.5) | 1 (0.8) | 12 (9.3) |
| | Friend | 3 (2.3) | 1 (0.8) | 4 (3.1) |
| **Who recommended ECP** | Sexual partner | 24 (18.3) | 4 (3.1) | 28 (21.4) |
| | Friend | 10 (7.6) | 2 (1.5) | 12 (9.2) |
| | Social media | 1 (0.8) | 0 (0.0) | 1 (0.8) |
| | Doctor/pharmacist | 7 (5.3) | 4 (3.1) | 11 (8.4) |
| | Self-knowledge | 69 (52.7) | 6 (4.6) | 75 (57.3) |
| | Family | 3 (2.3) | 0 (0.0) | 3 (2.3) |
| | Other | 1 (0.8) | 0 (0.0) | 1 (0.8) |
| **Ease of procurement** | Very Easy | 69 (51.5) | 10 (7.5) | 79 (59.0) |
| | Easy | 43 (32.1) | 5 (3.7) | 48 (35.8) |

Continued.

| Question | Response | Female (n=245) | Male (n=76) | Total (n=321) |
|---|---|---|---|---|
| | | N (%) | N (%) | N (%) |
| | Somewhat difficult | 3 (2.2) | 2 (1.5) | 5 (3.7) |
| | Very difficult | 1 (0.7) | 1 (0.7) | 2 (1.5) |
| **Whether ECPs are effective** | Yes | 105 (78.9) | 14 (10.5) | 119 (89.5) |
| | No | 10 (7.5) | 4 (3.0) | 14 (10.5) |
| **Whether ECPs are too expensive** | No | 117 (36.4) | 30 (9.3) | 147 (45.8) |
| | Yes | 5 (1.6) | 3 (0.9) | 8 (2.5) |
| | Not applicable | 123 (38.3) | 43 (13.4) | 166 (51.7) |
| **Unplanned pregnancy (females only)** | No | 206 (64.2) | 16 (5.0) | 222 (69.2) |
| | Yes | 39 (12.1) | 1 (0.3) | 40 (12.5) |
| | Not applicable | 0 (0.0) | 59 (18.4) | 59 (18.4) |
| **Reason for unplanned pregnancy** | Contraceptive failure | 16 (41.0) | 1 (2.6) | 17 (43.6) |
| | Forgot contraception | 11 (28.2) | 1 (2.6) | 12 (30.8) |
| | Forgot ECP | 11 (28.2) | 1 (2.6) | 12 (30.8) |
| | Partner pressure | 5 (12.8) | 1 (2.6) | 6 (15.4) |
| | Other | 2 (5.1) | 0 (0.0) | 2 (5.1) |
| **Action for unplanned pregnancy** | Continue to delivery | 21 (6.5) | 1 (0.3) | 22 (6.8) |
| | Abortion | 6 (1.9) | 0 (0.0) | 6 (1.9) |
| | Miscarriage | 11 (3.4) | 0 (0.0) | 11 (3.4) |
| | None | 0 (0.0) | 1 (0.3) | 1 (0.3) |
| **Number of induced abortions** | 0 | 234 (72.9) | 11 (3.4) | 245 (76.3) |
| | 1 | 6 (1.9) | 0 (0.0) | 6 (1.9) |
| | 2 | 2 (0.6) | 0 (0.0) | 2 (0.6) |
| | 3 | 3 (0.9) | 0 (0.0) | 3 (0.9) |
| | Not applicable | 0 (0.0) | 65 (20.2) | 65 (20.2) |

***ECPs practices***

The results highlight patterns in contraceptive practices and emergency contraceptive pill (ECP) use among the study participants, as shown in Table 4.

The majority (46.7%) of participants reported initiating sexual activity between ages 17 and 21, 34.3% being females and 12.3% being males. A smaller proportion (11.7%) initiated sex before age 16, and 11.3% reported never having had sex.

With respect to contraceptive practices, 46.4% of participants reported engaging in unprotected sex occasionally, with a higher rate among females (33.6%) compared to males (12.8%). Additionally, 10.3% of respondents always had unprotected sex.

Regarding preferred contraceptive methods, condoms were the most preferred method (53.8%), followed by abstinence (36.9%) and the withdrawal method (24.4%). Oral contraceptives were used by 16.9% of participants. Lesser-used methods included the rhythm/calendar method (10.9% overall), subdermal implants (4.7%), depot injections (3.1%), and non-hormonal IUDs (4.1%). ECP use was reported by 38.3%, with females making up the bulk of this group (35.5%).

When purchasing ECPs, 47.7% reported that their spouse or sexual partner was responsible for buying the pills, while 44.6% purchased them themselves. Pharmacies were the primary location for procurement, as reported by 87.6% of participants. Additionally, 89.5% of respondents confirmed that ECPs had always been effective in preventing pregnancy in their personal or sexual relationships.

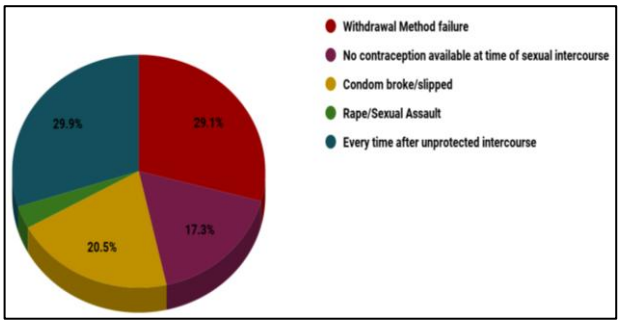


**Figure 4: Reasons for using ECPs.**

Regarding awareness, 49.0% of respondents reported learning about ECPs more than five years ago, 39.5% within the last one to five years, 4.8% between 6 months to one year, and finally 6.8% became cognizant within the last 6 months.

Unplanned pregnancies were reported by 12.5% of participants, with contraceptive failure cited as the leading cause (43.6%), followed by unprotected intercourse due to forgetting to use contraceptives (30.8%), or emergency contraception (30.8%), or due to pressure from a partner (15.4%).

Among those who experienced an unplanned pregnancy, 6.8% continued the pregnancy to delivery, while 1.9% sought an abortion, and 3.4% reported a spontaneous miscarriage.

In Figure 4, the most common reason for using ECPs was every time after unprotected intercourse (29.9%) followed by failure of the withdrawal method of contraception (29.1%). Only 3.2% of participants reported rape or sexual assault.

## DISCUSSION

### *Knowledge of ECPs*

Despite the generally high level of knowledge, gaps remain in understanding EC methods, sperm cell longevity, side effects, the correct timing for use, and the mechanism of action. A study conducted in Jamaica and Barbados found that healthcare professionals lacked knowledge about the timing of use, side effects, and perceived mechanisms of action of ECPs.[6]

Similarly, in Cameroon, 76.7% of university students incorrectly identify the appropriate timing for ECP use, and 71.8% could not correctly identify the pills themselves.[7,8] These knowledge gaps underscore the need for targeted educational interventions, such as specialised workshops, conferences, lectures, and curriculum updates to improve sexual health and contraceptive education.

### *Usage trends and reliance on ECPs*

In addition, the use of ECPs among students within the CoMS is notably higher (38.2%) than in similar studies from Jamaica (10%) and Cameroon (7.4%), thereby suggesting increased reliance on ECPs for pregnancy prevention.[7,8]

To give some context, our population is using ECPs three times more than in Jamaica and five times more than in Cameroon. Furthermore, the frequent use of ECPs after unprotected intercourse points to a lack of consistent contraceptive use, particularly among students who rely on ECPs as a primary option rather than a backup. Similarly, this pattern is also observed in Jamaica, where 35% of students used ECPs after condom failure and 30% due to withdrawal method failure.[8]

### *Attitude towards ECPs*

The more positive attitudes toward ECPs among female participants align with findings from studies conducted in Nigeria and Vientiane City, Laos. In these studies, women who are the primary users of contraceptives tended to be more informed and open to using emergency contraception.[9,10] This was influenced by reproductive health policies that focus on women, leading to more favourable views toward ECPs.

In contrast, studies from Saudi Arabia and Sub-Saharan Africa have shown that factors such as religion, ethnicity, and region play a role in shaping men's attitudes toward ECPs. However, our study found no such correlation between these factors and participants' attitudes.[11,12]

Female participants make up the majority of users and non-users of ECPs. A similar finding was seen in a study conducted in the USA.[13] Additionally, some participants also cited contraceptive unavailability (17.9%) and rape or sexual assault (3.3%) as reasons for ECPs use.

While many studies overlook rape, they shed light on ECP access in such contexts. A Princeton survey found 91% participants support the use of ECPs in rape cases, emphasizing context's influence on attitudes, indicating that the circumstances surrounding ECP use significantly affect attitudes, highlighting a stronger emphasis on preventing pregnancy following sexual assault.[14]

### *Access and availability*

Our study found that sexual partners often facilitate indirect access to ECPs outside of region 4, a pattern also observed in Ghana.[15]

Additionally, levonorgestrel was the most commonly used ECP, due to its wide availability in pharmacies, a trend also noted in Thailand, where levonorgestrel is the primary ECP available over the counter.[16]

### *Barrier to ECP use*

Although cost was not a major barrier, with only 3.3% citing it as an issue, perceived side effects discouraged participants from using ECPs frequently.[17] Similar concerns were documented in Cameroon, Korea, and South Africa, where concerns about side effects, often fueled by misinformation, limit ECP usage.[18]

This study underscores the importance of comprehensive sexual health education to address misconceptions, particularly regarding side effects and optimal usage, while also considering religious and cultural sensitivities to reduce stigma around emergency contraception.

### *Limitations of study*

This study is not without limitations. Firstly, the sample was drawn from one faculty within a single university, which may limit the generalizability of the findings to other populations, particularly those in different geographic regions or cultural settings. Furthermore, the

self-reported nature of the data introduces the possibility of recall bias or social desirability bias, especially concerning sensitive topics such as sexual practices and contraceptive use. Moreover, although efforts were made to follow up with non-respondents, several persons within various departments did not respond, leading to a non-response bias. Additionally, while the study focused on knowledge, attitudes, and practices toward ECPs, it did not explore other long-term contraceptive methods in detail, which could provide a more holistic understanding of students' contraceptive behaviours. Furthermore, we could not determine whether the study participants who used emergency contraceptive pills (ECPs) started doing so before or after experiencing an unwanted pregnancy or abortion.

## CONCLUSION

This study highlights the complex interplay between knowledge, attitudes, and practices toward emergency contraception among university students. While awareness of ECPs is high, misconceptions and barriers to correct usage persist. Educational initiatives that address these gaps, alongside culturally sensitive campaigns, are essential to improving contraceptive practices and reducing the incidence of unplanned pregnancies among university students. The findings emphasise the need for further research and targeted interventions to promote safe sexual health behaviours.

### *Recommendations*

The findings from this study will offer actionable insights to inform public health strategies and improve reproductive health outcomes. One key strategy is increasing awareness through health promotion activities to educate the population on emergency contraception. Additionally, integrating this topic into the existing academic curriculum for students at the College of Medical Sciences, as well as within sex education programs, can help spread essential knowledge. This study also aims to contribute to the development of support groups for victims of sexual assault or individuals with unwanted pregnancies, particularly for vulnerable communities, including underage females in Guyana. Modifications to public health policies in Guyana, such as the Medical Termination of Pregnancy Act, the Strategic Health Plan for Guyana, and PAHO and AIDS Policies, are recommended to better align with the findings. This study may also contribute to similar research being conducted at other academic institutions in Guyana, providing valuable data to expand the understanding of reproductive health. Finally, an online survey tool would be used to collect anonymous feedback, which encourages participants to provide more honest and sensitive responses compared to in-person interviews, reducing hesitancy in sharing personal details.

## ACKNOWLEDGEMENTS

Authors would like to thank the following persons: Research participants within the College of Medical Sciences at the University of Guyana for providing valuable feedback. Faculty members of the University of Guyana for their continuous guidance throughout the completion of this research. Chief Medical Officer - Dr Narine Singh and the Ministry of Health for providing local data to be included into our study. Dean of the College of Medical Sciences at the University of Guyana - Dr Cecil Boston.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Howard N, Sukdeo NA, Bess TD, Mentore TRA, Gobin L, Stewart JS. Knowledge, attitudes, and practices regarding emergency contraception pills among adult students within the college of medical sciences, University of Guyana, from August to September 2024. Int J Reprod Contracept Obstet Gynecol 2025;14: 2083-94.