

COVID-19 Vaccination and Menstrual Issues - A Survey

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ABSTRACT

The present study was aimed to assess the menstrual issues post COVID 19 vaccination.

The objectives of the study were to assess the menstrual issues post COVID 19 vaccination & to find the association between menstrual issues and socio demographic variables. The study was conducted among 100 female participants who were vaccinated against COVID 19, using purposive sampling method.

The present study showed that 88% had taken Covishield and 12 % had taken Covaxin. Majority that is 68% of the female participants belonged to the age group of 18-26 years, 63 % were Hindus and 65% belonged to nuclear family. In terms of the educational status 55% were graduates and 49% were studying. Majority that is 67% had their first menstrual period at the age of 13-15 years and 91% had no menstrual problem before Covid 19 vaccination. Distribution of 88 female participants according to Covishield vaccine and the menstrual issues revealed that 14% had missed periods, 10 % had bleeding or spotting in between periods, 13 % had menstrual bleeding lasting long, 58 % had menstrual cramps, 18% had heavy periods, 24% had breast tenderness, 39% had abdominal bloating, 27% had extreme tiredness, 11% had constipation and 47% had mood swings.

Distribution of 12 female participants according to Covaxin vaccine and the menstrual issues revealed that 33% had missed periods, 25% had bleeding or spotting in between periods, 08% had menstrual bleeding lasting long, 50% had menstrual cramps, 17% had heavy periods, 33% had breast tenderness, 33% had abdominal bloating, 67% had extreme tiredness, 25% had constipation and 58% had mood swings.

Distribution of female participants aged <20 years who were vaccinated with Covishield/ Covaxin revealed that none of the participants in

this age group reported any menstrual issues except one person who had extreme tiredness after Covaxin. Chi-Square test or proportion test no possible for both Covishield and Covaxin in age group <20 as observed frequencies do not match requirements of the test.

Distribution of female participants aged 20 -29 years who were vaccinated with Covishield/ Covaxin revealed that for Covishield the proportion test for menstrual cramps revealed $Z=0.426$ (not significant, ' $p>0.05$ '), abdominal bloating $Z=7.249$ (significant, ' $p<0.01$ ') and mood swing $Z=2.558$ (significant, ' $p<0.01$ '). For Covaxin Chi square or proportion test not possible in age group 20 - 29 years as observed frequencies do not match requirements of the test.

Distribution of female participants aged 30-39 years who were vaccinated with Covishield/ Covaxin revealed that for Covishield the proportion test for breast tenderness revealed $Z=0.343$ (not significant, ' $p>0.05$ '). Chi square test & proportion test for missed bleeding, periods lasting long, and cramps is not possible as the observed frequencies do not match requirements of the test. For Covaxin Chi square or proportion test not possible in age group 30 - 39 years as observed frequencies do not match requirements of the test.

Distribution of female participants aged 40-49 years who were vaccinated with Covishield, majority had menstrual issues and those who were vaccinated with Covaxin 50% had no menstrual issues. Chi -Square test or proportion test no possible for both Covishield and Covaxin in age group 40-49 years as observed frequencies do not match requirements of the test.

Only one female participant aged 50 years and above was vaccinated with Covishield and she had menstrual issues before vaccination

too. Therefore statistical analysis possible in this case.

A quantitative non- experimental survey approach was chosen for the study. Menstrual issues post COVID 19 vaccination was assessed using a structured questionnaire.

Key words: COVID 19, vaccination, Covishield, Covaxin, menstrual issues.

INTRODUCTION

COVID-19 pandemic has become a global issue calling for emergency interventions. To fight this deadly disease, it is necessary to prepare the immune system & train it to develop the body's natural defences, in the form of vaccines, which destroys the viruses when one is exposed to it and thereby preventing the illness. Vaccines can play a vital role in changing the foreseeable future.

WHO states that as of 18 February 2021, at least seven different vaccines across three platforms have been rolled out in countries. At the same time, more than 200 additional vaccine candidates are in development, of which more than 60 are in clinical development.

In India the Central Drug Standards Control Organization (CDSCO) has granted emergency use authorization to two vaccines namely Covishield and Covaxin. These vaccines were provided on priority to the health care and frontline workers, which was later extended to 45 and above and now 18 and above.

Although COVID-19 has been proved to be safe, some individuals could develop common side effects like mild fever, pain, etc. Not much is known, but reports of COVID-19 vaccines causing irregular bleeding have been anecdotal. And it is hard to draw any direct links to the vaccine since changes could be the result of other factors including stress, diet, and exercise habits.

Therefore this study is focused to identify the impact of both the COVID-19 vaccines, Covishield and Covaxin on menstrual health leading to menstrual issues such as missed period, bleeding or spotting

between periods, menstrual bleeding lasting long, menstrual cramps, heavy periods, breast tenderness, abdominal bloating, extreme tiredness, constipation, mood swings, etc.

MATERIALS & METHODS

Survey approach is used to identify the impact of both the COVID-19 vaccines, Covishield and Covaxin on menstrual health. The study is conducted on female samples who had taken COVID-19 vaccination and who were in the reproductive age. Purposive sampling technique was found to be appropriate to select the female samples. The sample size for this study was 100 female participants who fulfilled the inclusion criteria.

The tool used for this study was a Google form which consisted of questions on Socio demographic data of the female participant's age, religion, type of family, educational status, occupation, age at first menstrual period, menstrual problems before COVID-19 vaccination and the type of vaccination taken. Structured questionnaire consisting 10 questions was used to assess any menstrual issues after the vaccination. The informed consent was taken from all the female samples who agreed to participate in the study. Data analysis was done on the basis of descriptive and inferential statistics.

RESULTS

The results of the study are presented under following headings.

Section1: Demographic data of female participants.

Section 2: Type of vaccine taken by the female participants.

Section 3: Impact of both Covishield and Covaxin on menstrual health.

Section 1: Demographic data of female participants.

Table 1: Distribution of female participants according to age
N = 100

Age	Frequency	Percentage
18 – 26 years	68	68
27 – 35 years	14	14
36 – 44 years	12	12
45 – 53 years	06	06

Table 1 shows that 68% were in the age group of 18-26, 14% were in the age group of 27-35 years, 12% were in the age group of 36-44 years and 06 % were in the age group of 45-53 years

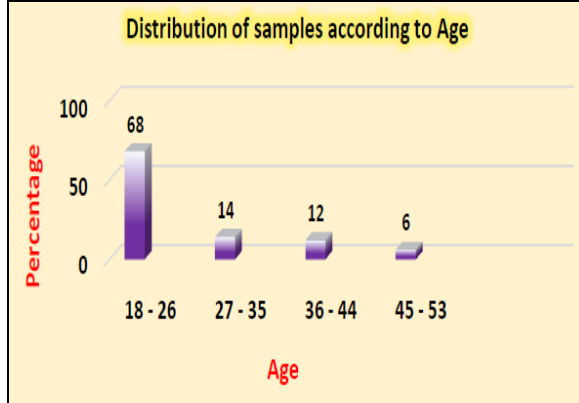


Table 2: Distribution of subjects according to religion N = 100

Religion	Frequency	Percentage
Hindu	63	63%
Muslim	17	17%
Christian	20	20%
Others	0	0

Table 2 shows that 63% of female subjects were in Hindu, 17% were Muslim and 20% were Christians.

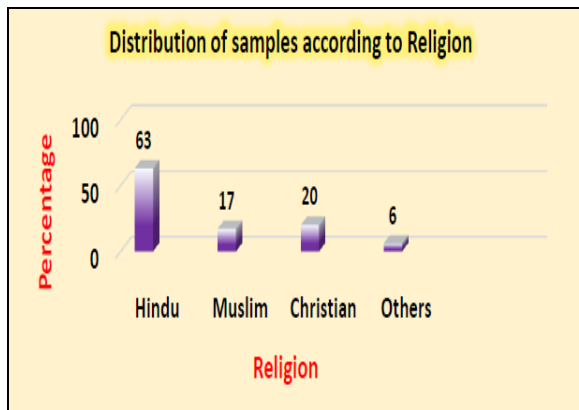


Table 3: Distribution of subjects according to type of family N = 100

Type of family	Frequency	Percentage
Nuclear family	65	65
Joint family	31	31
Extended	04	04

Table 3 shows that 65% of female participants belonged to nuclear 31% belonged to joint family and 04% belonged to extended family.

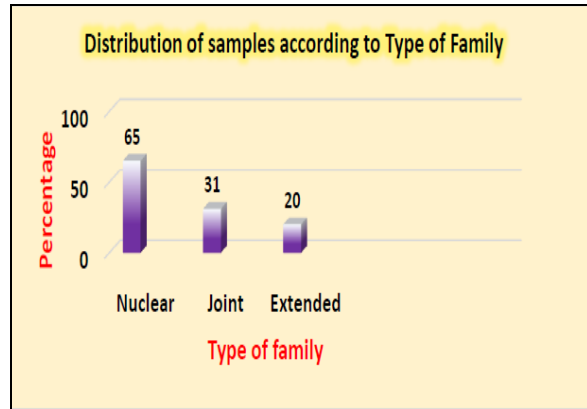


Table 4: Distribution of female subjects according to educational status N = 100

Educational status	Frequency	Percentage
No formal education	03	03
Primary Education	01	01
Secondary Education	02	02
Pre University	39	39
Graduation	55	55

Table 4 shows that 03% of female participants had no formal education, 01% had primary education, 02% had secondary education, 39% had Pre university education and 55% had a degree.

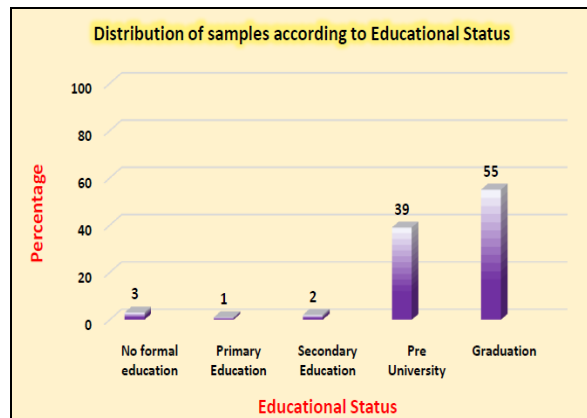


Table 5: Distribution of female subjects according to occupational status N = 100

Occupational Status	Frequency	Percentage
Home maker	07	07
Government employee	05	05
Private employee	39	39
Self employed	00	00
Studying	49	49

Table 5 shows that 07% of female participants were homemakers, 05% were government employees, 39% were private employees, none were self-employed and 49% were studying.

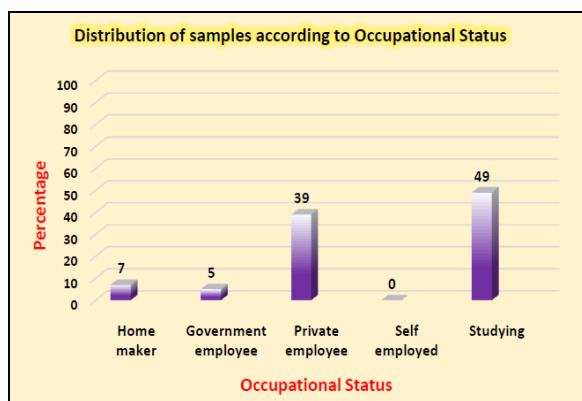


Table 6: Distribution of female subjects according to age at first menstrual period N = 100

Age at first menstrual period	Frequency	Percentage
10 – 12	24	24
13 – 15	67	67
16 - 18	09	09

Table 6 shows that 24% of female participants had the first menstrual period at 10-12 years, 67% at 13-15 years and 09% at 16-18 years.

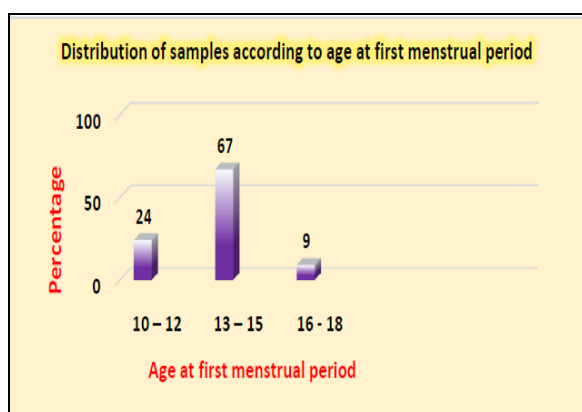


Table 7: Distribution of female subjects according to any menstrual problem before COVID-19 vaccination N = 100

Menstrual problem before COVID – 19 vaccination	Frequency	Percentage
Yes	09	09
No	91	91

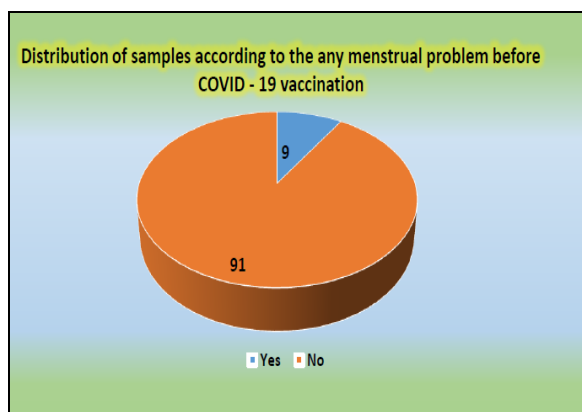


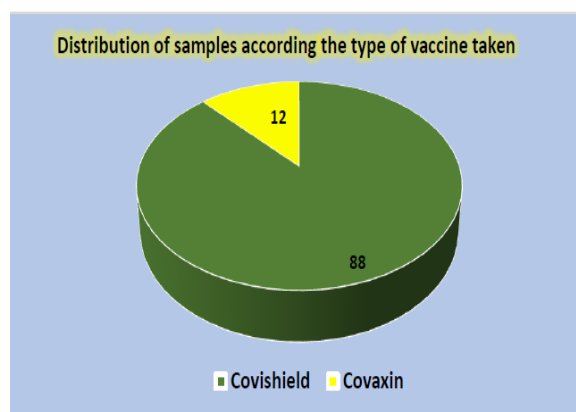
Table 7 shows that 09% of female participants had menstrual problem before COVID-19 vaccination and 91% had no menstrual problem.

Section 2: Type of vaccine taken by female participants

Table 8: Distribution of female participants according to the type of vaccine taken N = 100

Type of the Vaccine	Frequency	Percentage
Covishield	88	88
Covaxin	12	12

Table 8 shows that 88% of female participants had taken Covishield and 12 % had taken Covaxin



Section 3: Impact of both Covishield and Covaxin on menstrual health

Table 9: Distribution of female participants according to Covishield vaccine and the menstrual issues N = 88

Menstrual issues	Covishield			
	Yes	%	No	%
1. Missed Period	12	14	76	86
2. Bleeding or spotting in between periods	09	10	79	90
3. Menstrual bleeding lasting long	11	13	77	87
4. Menstrual cramps	51	58	37	42
5. Heavy periods	16	18	72	82
6. Breast tenderness	21	24	67	76
7. Abdominal bloating	34	39	54	61
8. Extreme tiredness	24	27	64	73
9. Constipation	10	11	78	89
10. Mood swing	41	47	47	53

Table 9 shows the distribution of female participants according to Covishield vaccine and the menstrual issues it was found that 14% had missed periods, 10 % had bleeding or spotting in between periods, 13 % had menstrual bleeding lasting long, 58 % had menstrual cramps, 18% had heavy

periods, 24% had breast tenderness, 39% tiredness, 11% had constipation and 47% had abdominal bloating, 27% had extreme had mood swings.

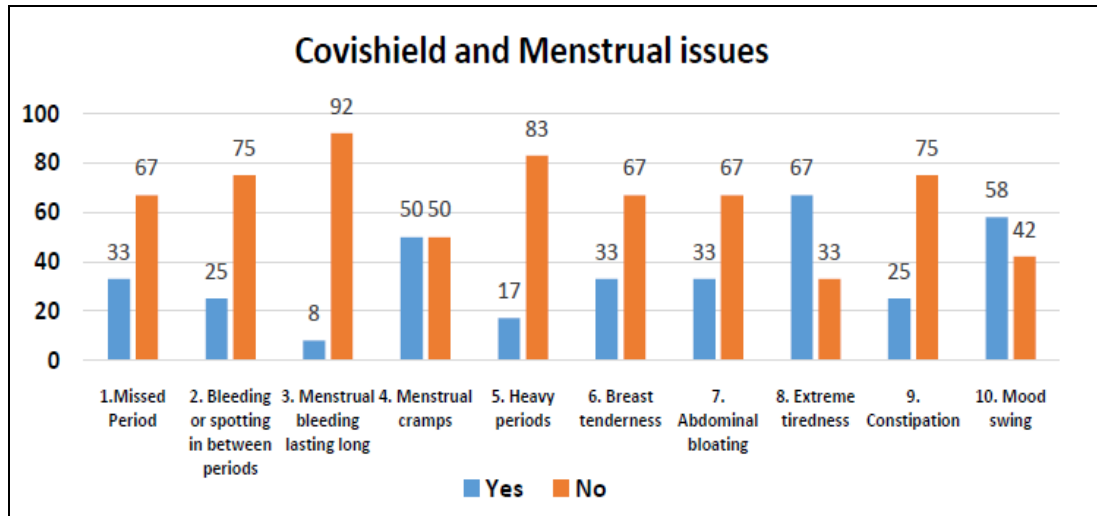


Table 10: Distribution of female participants according to Covaxin vaccine and the menstrual issues N = 12

Menstrual issues	Covaxin			
	Yes	%	No	%
1. Missed Period	04	33	08	67
2. Bleeding or spotting in between periods	03	25	09	75
3. Menstrual bleeding lasting long	01	08	11	92
4. Menstrual cramps	06	50	06	50
5. Heavy periods	02	17	10	83
6. Breast tenderness	04	33	08	67
7. Abdominal bloating	04	33	08	67
8. Extreme tiredness	08	67	04	33
9. Constipation	03	25	09	75
10. Mood swing	07	58	05	42

Table 10 shows the distribution of female participants according to Covaxin vaccine and the menstrual issues and it was found that 33% had missed periods, 25% had bleeding or spotting in between periods, 08% had menstrual bleeding lasting long,

50% had menstrual cramps, 17% had heavy periods, 33% had breast tenderness, 33% had abdominal bloating, 67% had extreme tiredness, 25% had constipation and 58% had mood swings.

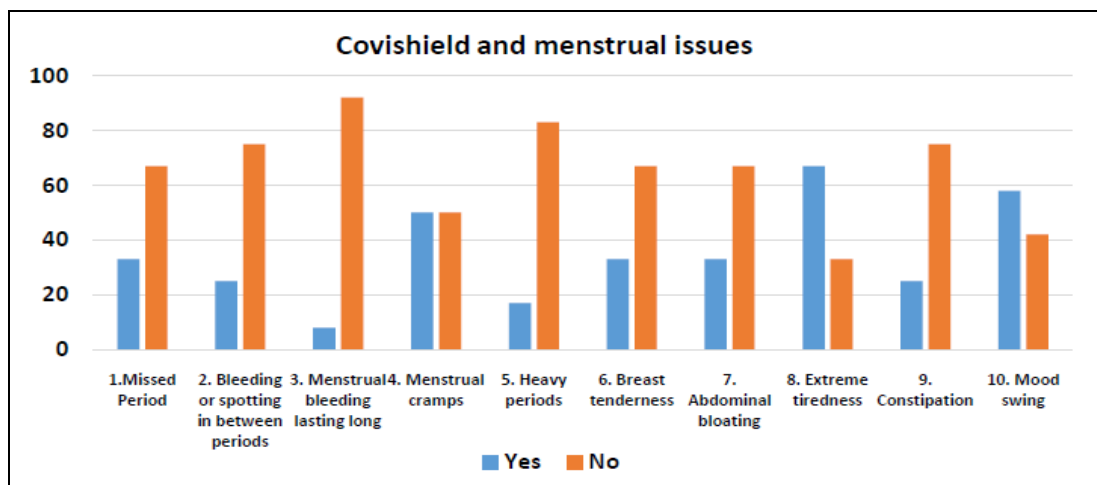


Table 11 shows distribution of female participants aged <20 years who were vaccinated with Covishield/Covaxin and it was found the none of the participants in this age group reported any menstrual issues except one person who had extreme

tiredness after Covaxin. Chi – Square test or proportion test no possible for both Covishield and Covaxin in age group < 20 as observed frequencies do not match requirements of the test.

Table 11: Distribution of female participants aged <20 years who were vaccinated with Covishield/Covaxin and the menstrual issues

Menstrual issues	Covishield (N = 16)				Covaxin (N = 05)			
	Yes	%	No	%	Yes	%	No	%
1.Missed Period	00	00	16	100	00	00	05	100
2. Bleeding or spotting in between periods	00	00	16	100	00	00	05	100
3. Menstrual bleeding lasting long	00	00	16	100	00	00	05	100
4. Menstrual cramps	00	00	16	100	00	00	05	100
5. Heavy periods	00	00	16	100	00	00	05	100
6. Breast tenderness	00	00	16	100	00	00	05	100
7. Abdominal bloating	00	00	16	100	00	00	05	100
8. Extreme tiredness	00	00	16	100	01	20	04	80
9. Constipation	00	00	16	100	00	00	05	100
10. Mood swing	00	00	16	100	00	00	05	100

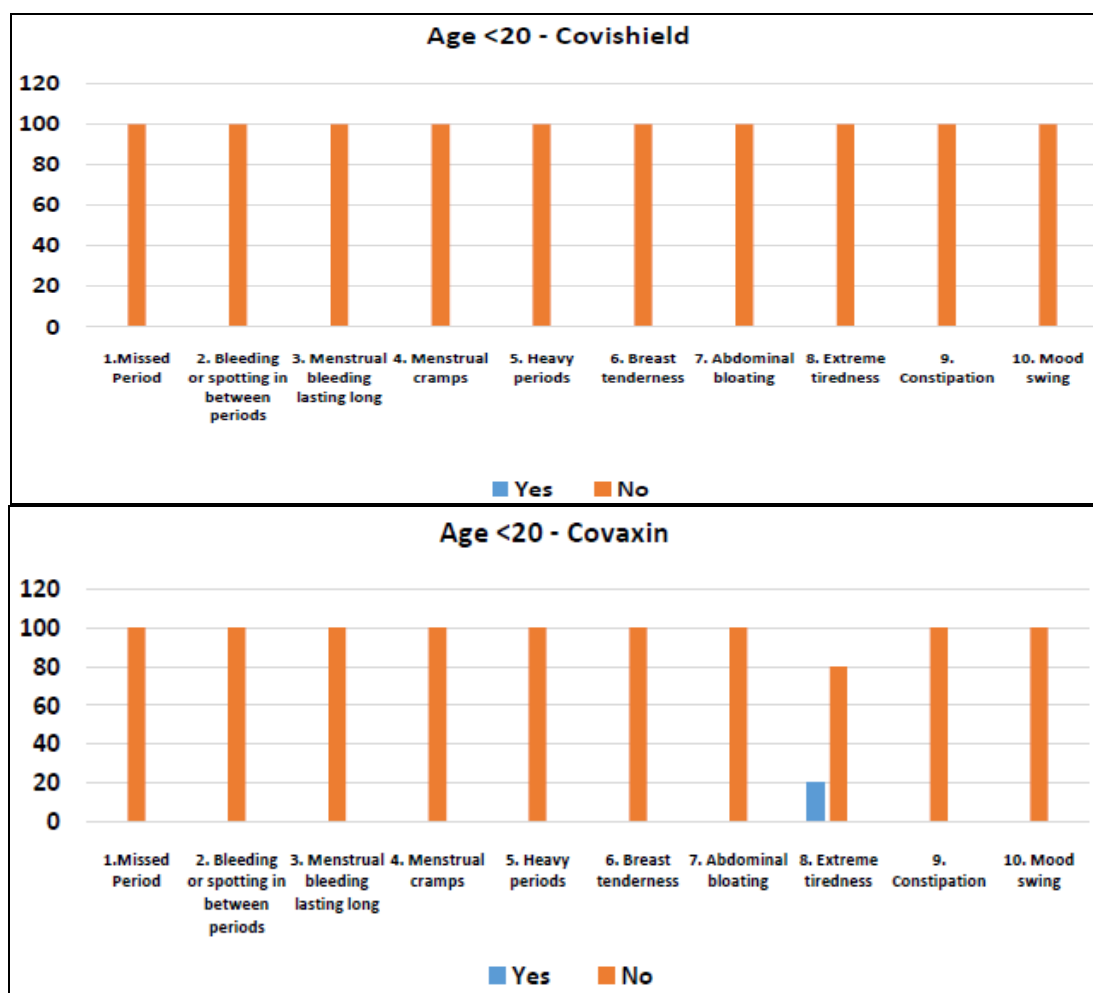


Table 12 shows distribution of female participants aged 20 -29 years who were vaccinated with Covishield/Covaxin and it was found that for Covishield the proportion test for menstrual cramps revealed Z=0.426 (not significant, ‘p’

>0.05), abdominal bloating Z=7.249 (significant, ‘p’ < 0.01) and mood swing Z = 2.558 (significant, ‘p’ < 0.01)

For Covaxin Chi square or proportion test not possible in age group 20-

29 years as observed frequencies do not match requirements of the test.

Table 12: Distribution of female participants aged 20-29 years who were vaccinated with Covishield/Covaxin and the menstrual issues

Menstrual issues	Covishield (N = 44)				Covaxin (N = 04)			
	Yes	%	No	%	Yes	%	No	%
1.Missed Period	00	00	44	100	01	25	03	75
2. Bleeding or spotting in between periods	00	00	44	100	00	00	04	100
3. Menstrual bleeding lasting long	00	00	44	100	00	00	04	100
4. Menstrual cramps	21	48	23	52	03	75	01	25
5. Heavy periods	00	00	44	100	00	00	04	100
6. Breast tenderness	00	00	44	100	01	25	03	75
7. Abdominal bloating	05	11	39	89	01	25	03	75
8. Extreme tiredness	00	00	44	100	00	00	04	100
9. Constipation	00	00	44	100	00	00	04	100
10. Mood swing	16	36	28	64	00	00	04	100

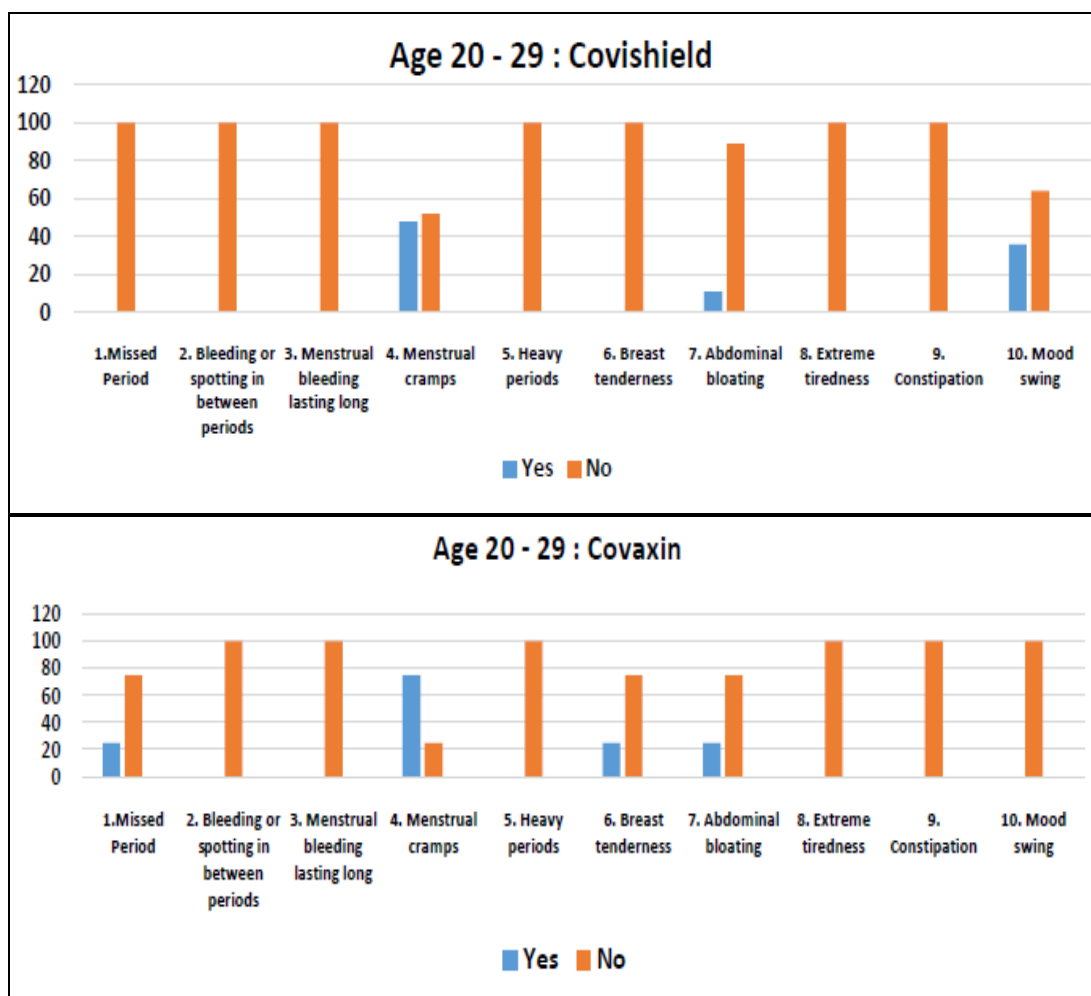


Table 13: Distribution of female participants aged 30-39 years who were vaccinated with Covishield/Covaxin and the menstrual issues.

Menstrual issues	Covishield (N = 17)				Covaxin (N = 01)			
	Yes	%	No	%	Yes	%	No	%
1.Missed Period	02	12	15	88	01	100	00	00
2. Bleeding or spotting in between periods	00	00	17	100	01	100	00	00
3. Menstrual bleeding lasting long	02	12	15	88	00	00	01	100
4. Menstrual cramps	17	100	00	00	01	100	00	00
5. Heavy periods	05	29	12	71	00	00	01	100
6. Breast tenderness	08	47	09	53	01	100	00	00
7. Abdominal bloating	17	100	00	00	01	100	00	00
8. Extreme tiredness	16	94	01	06	01	100	00	00
9. Constipation	00	00	17	100	01	100	00	00
10. Mood swing	17	100	00	00	01	100	00	00

Table 13 shows distribution of female participants aged 30-39 years who were vaccinated with Covishield/Covaxin and it was found for Covishield the proportion test for breast tenderness revealed $Z = 0.343$ (not significant, 'p' >0.05). Chi square test & proportion test for missed bleeding, periods lasting long, and

cramps is not possible as the observed frequencies do not match requirements of the test.

For Covaxin Chi square or proportion test not possible in age group 30-39 years as observed frequencies do not match requirements of the test.

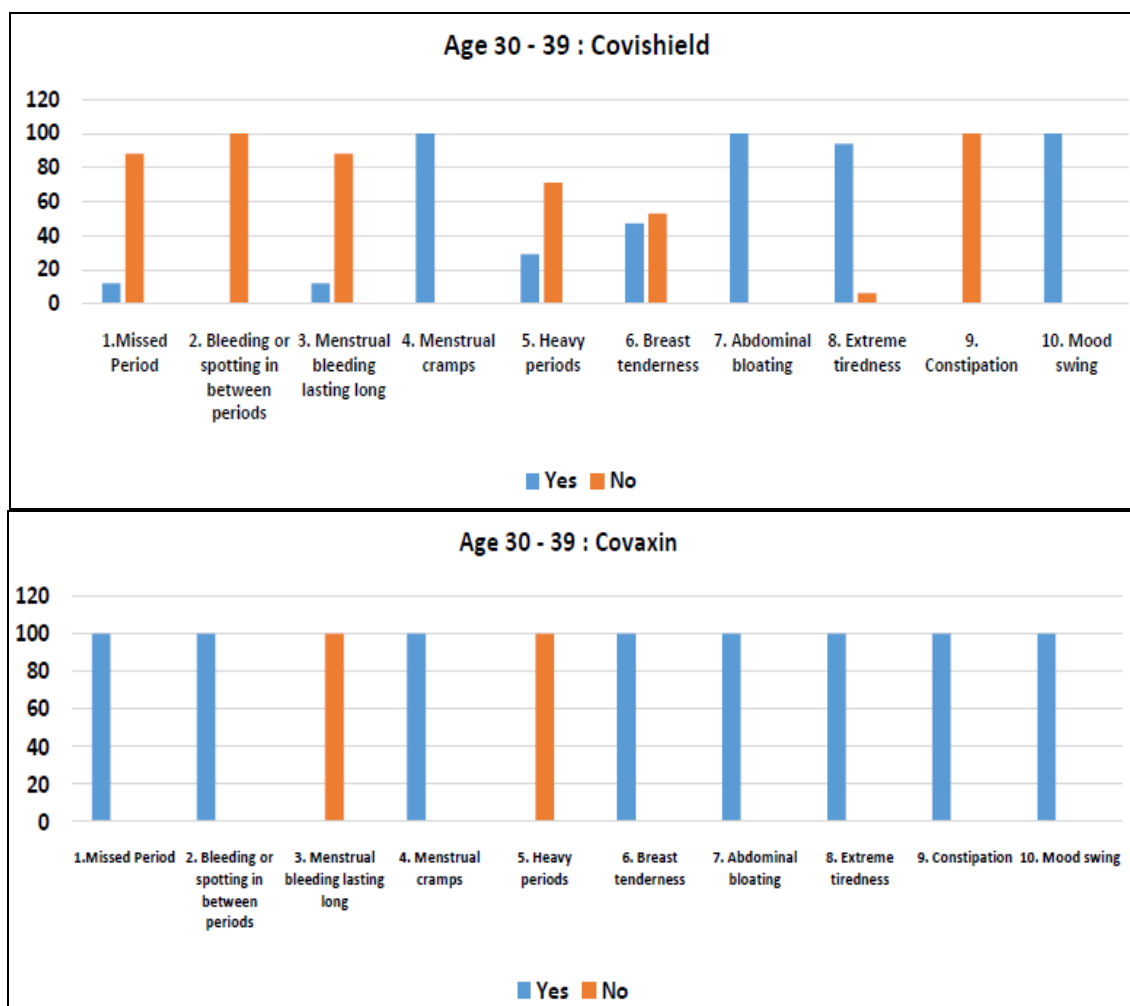


Table 14: Distribution of female participants aged 40 -49 years who were vaccinated with Covishield/Covaxin and the menstrual issues.

Menstrual issues	Covishield (N = 10)				Covaxin (N = 02)			
	Yes	%	No	%	Yes	%	No	%
1. Missed Period	10	100	00	00	02	100	00	00
2. Bleeding or spotting in between periods	09	90	01	10	02	100	00	00
3. Menstrual bleeding lasting long	10	100	00	00	01	50	01	50
4. Menstrual cramps	10	100	00	00	02	100	00	00
5. Heavy periods	10	100	00	00	02	100	00	00
6. Breast tenderness	10	100	00	00	02	100	00	00
7. Abdominal bloating	10	100	00	00	02	100	00	00
8. Extreme tiredness	10	100	00	00	02	100	00	00
9. Constipation	09	90	01	10	02	100	00	00
10. Mood swing	10	100	00	00	02	100	00	00

Table 14 shows distribution of female participants aged 40-49 years who

were vaccinated with Covishield, majority had menstrual issues and those who were

vaccinated with Covaxin 50% had no menstrual issues. Chi-Square test or proportion test no possible for both

Covishield and Covaxin in age group 40-49 years as observed frequencies do not match requirements of the test.

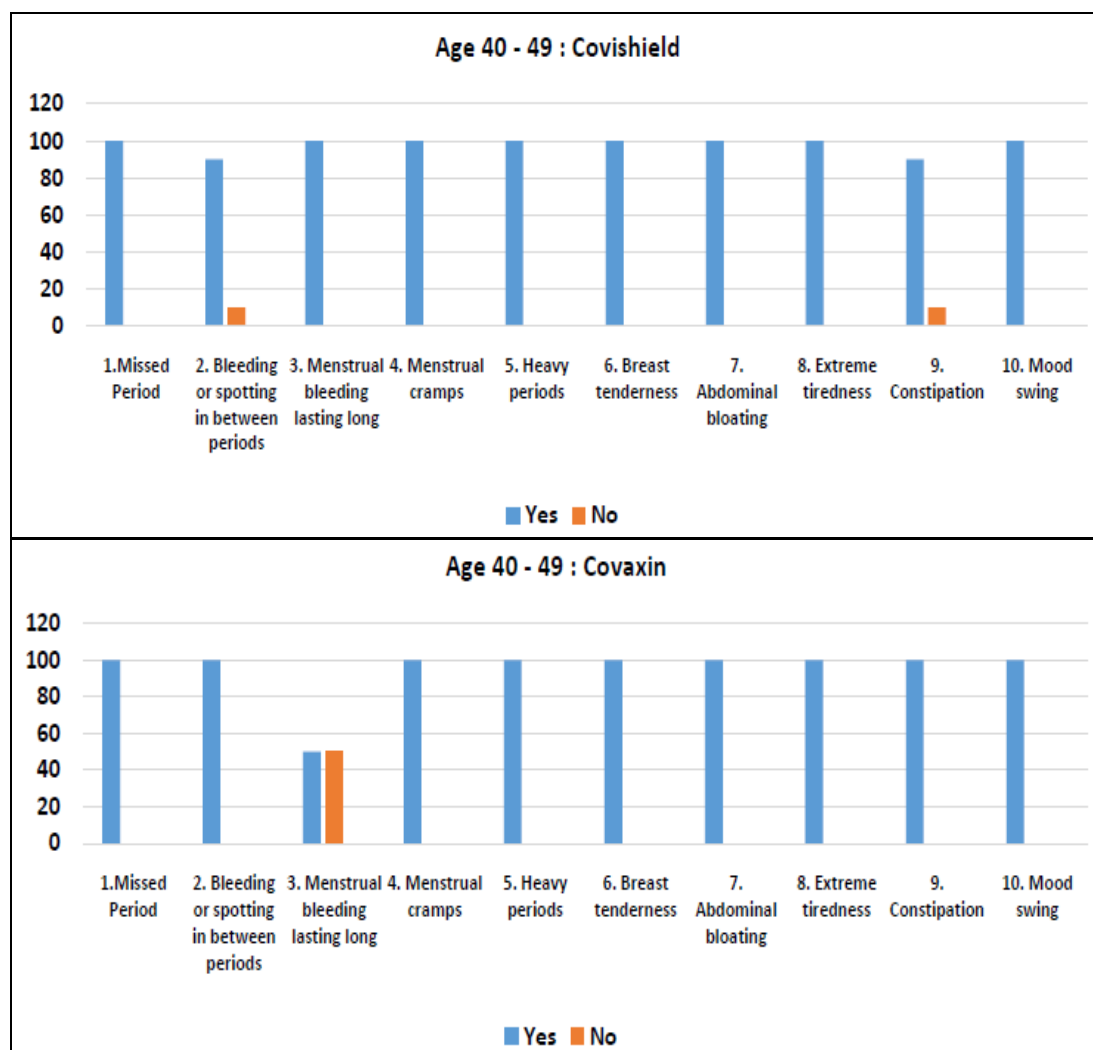
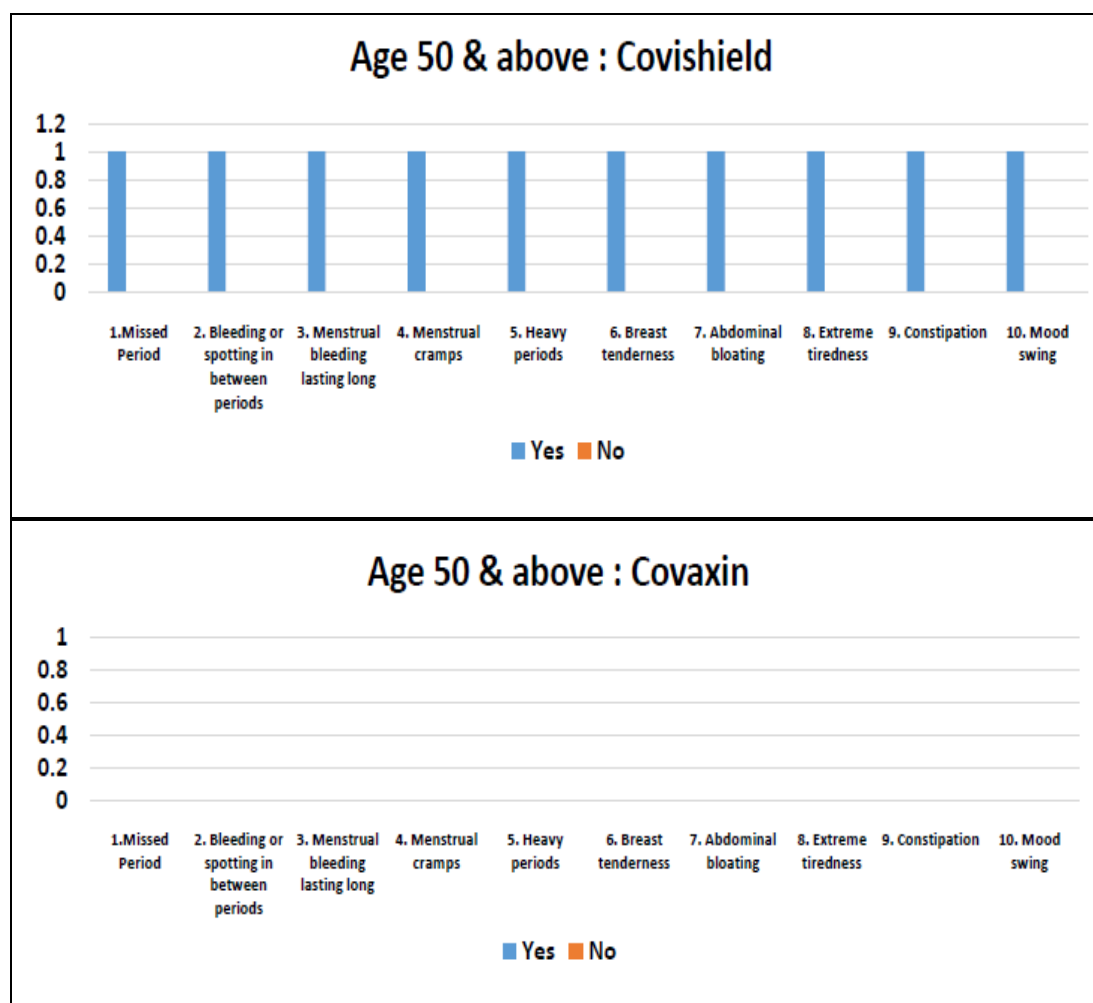


Table 15: Distribution of female participants aged 50 years and above who were vaccinated with Covishield/Covaxin and the menstrual issues.

Menstrual issues	Covishield (N = 1)				Covaxin (N = 00)			
	Yes	%	No	%	Yes	%	No	%
1. Missed Period	01	100	00	00	00	00	00	00
2. Bleeding or spotting in between periods	01	100	01	10	00	00	00	00
3. Menstrual bleeding lasting long	01	100	00	00	00	00	00	00
4. Menstrual cramps	01	100	00	00	00	00	00	00
5. Heavy periods	01	100	00	00	00	00	00	00
6. Breast tenderness	01	100	00	00	00	00	00	00
7. Abdominal bloating	01	100	00	00	00	00	00	00
8. Extreme tiredness	01	100	00	00	00	00	00	00
9. Constipation	01	100	01	10	00	00	00	00
10. Mood swing	01	100	00	00	00	00	00	00

Table 15 shows that only one female participant aged 50 years and above was vaccinated with Covishield and she had

menstrual issues before vaccination too. Therefore statistical analysis possible in this case.



DISCUSSION

The present study showed that 88% had taken Covishield and 12% had taken Covaxin. Majority that is 68% of the female participants belonged to the age group of 18-26 years, 63% were Hindus and 65% belonged to nuclear family. In terms of the educational status 55% were graduates and 49% were studying. Majority that is 67% had their first menstrual period at the age of 13-15 years and 91% had no menstrual problem before Covid 19 vaccination.

Distribution of 88 female participants according to Covishield vaccine and the menstrual issues revealed that 14% had missed periods, 10 % had bleeding or spotting in between periods, 13% had menstrual bleeding lasting long, 58 % had menstrual cramps, 18% had heavy periods, 24% had breast tenderness, 39% had abdominal bloating, 27% had extreme tiredness, 11% had constipation and 47%

had mood swings. Distribution of 12 female participants according to Covaxin vaccine and the menstrual issues revealed that 33% had missed periods, 25% had bleeding or spotting in between periods, 08% had menstrual bleeding lasting long, 50% had menstrual cramps, 17% had heavy periods, 33% had breast tenderness, 33% had abdominal bloating, 67% had extreme tiredness, 25% had constipation and 58% had mood swings.

Distribution of female participants aged <20 years who were vaccinated with Covishield/Covaxin revealed that none of the participants in this age group reported any menstrual issues except one person who had extreme tiredness after Covaxin. Chi-Square test or proportion test no possible for both Covishield and Covaxin in age group <20 as observed frequencies do not match requirements of the test.

Distribution of female participants aged 20 -29 years who were vaccinated with Covishield/Covaxin revealed that for Covishield the proportion test for menstrual cramps revealed $Z=0.426$ (not significant, 'p' >0.05), abdominal bloating $Z=7.249$ (significant, 'p' < 0.01) and mood swing $Z=2.558$ (significant, 'p' <0.01) For Covaxin Chi square or proportion test not possible in age group 20-29 years as observed frequencies do not match requirements of the test.

Distribution of female participants aged 30-39 years who were vaccinated with Covishield/Covaxin revealed that for Covishield the proportion test for breast tenderness revealed $Z=0.343$ (not significant, 'p' >0.05). Chi square test & proportion test for missed bleeding, periods lasting long, and cramps is not possible as the observed frequencies do not match requirements of the test. For Covaxin Chi square or proportion test not possible in age group 30-39 years as observed frequencies do not match requirements of the test.

Distribution of female participants aged 40-49 years who were vaccinated with Covishield, majority had menstrual issues and those who were vaccinated with Covaxin 50% had no menstrual issues. Chi-Square test or proportion test no possible for both Covishield and Covaxin in age group 40-49 years as observed frequencies do not match requirements of the test.

Only one female participant aged 50 years and above was vaccinated with Covishield and she had menstrual issues before vaccination too. Therefore statistical analysis possible in this case.

CONCLUSION

Any vaccine has its own effects and side effects and so is the vaccination against Covid-19 too. As the present study had disproportionate sample size, inference could not be possible. Hence it is unclear if Covid-19 vaccination led to menstrual issues. Further studies on these issues with greater sample size could help us to understand the effect of Covid-19 vaccination on menstrual issues.

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Conflict of Interest: None

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Ethical Approval: Approved

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