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# Menstrual synchrony-a questionnaire-based cross-sectional study among girls living in a hostel

**D. Rock Britto, K. Karthikeyan, A. M. Shagirunisha Rizvana*, Daphy Andrea, R. Bruntha, K. S. Chithruba**

Department of Community Medicine, Dhanalakshmi Srinivasan Medical College and Hospital, Perambalur, Tamil Nadu, India

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***Correspondence:**
Dr. A. M. Shagirunisha Rizvana,
E-mail: shagirunisha.1993@gmail.com



## ABSTRACT

**Background:** Menstrual synchrony is also known as the Mc Clintock effect when a person who attained menarche come in physical contact with another person who menstruates, the pheromones influence each other so that eventually, the monthly cycles lineup. To assess the synchrony (frequency of coincidence) of menstrual cycles among hostel girls.
**Methods:** A cross-sectional study was conducted among 121 hostel girls in Tamil Nadu during February 2019. A semi-structured questionnaire was used to collect the data participant's age, synchronization of the menstrual cycle, the experience of synchrony common among roommates /friends other than roommates, regularity of periods, number of days of bleeding, intake of pills to delay/regularize periods, coinciding symptoms during menses. The data collected was entered in Microsoft excel and analysed using SPSS version 16 software. The descriptive analysis was analysed using frequencies, mean, standard deviation and proportions.
**Results:** Among 121 hostel girls, the mean (SD) age was 20.20 (1.31) years. The 86 (71.1%) girls get their menses during the same time. The 58.7% experience synchrony more common among roommates whereas 41.3% experience it with friends other than roommates.
**Conclusions:** High proportion of the participants reported menstrual synchrony among them. Future research is needed to prove these hypotheses under the influence of pheromones. This paves the way to study the role of pheromones in other physiological mechanisms.

**Keywords:** Menstrual synchrony, Mc Clintock effect, Pheromones, Menstrual cycle, Roommates

## INTRODUCTION

Period syncing is also known as "menstrual synchrony" and "the McClintock effect." It's based on the theory that when a person who attained menarche come in physical contact with another person who menstruates, the pheromones influence each other so that eventually, the monthly cycles lineup.[1] Exposure to pheromones is said to be one of the main factors contributing to menstrual synchrony. Pheromones are airborne chemical signals which impact the behaviour of the receiving individual that act like hormones outside the body of the secreting individual.[2] Pheromones are generally utilised in extremely low dosages for the mating population of insects. Mammalian and reptile pheromones have also been isolated. Human pheromones are undetectable. Scientists have discovered specific chemical reactions linked to the human reproductive cycle, but they have yet to discover any major human attractants.[3] Pheromones act on an ovarian cycle that accelerates or delay the surge of luteinizing hormone and thereby shorten or lengthen the cycles.[4]

Also, various biological factors are known to influence menstrual cycles and ovulation in humans such as prolonged and intensive breastfeeding, loss of body fat

below certain levels, psychological stress, and ingestion or injection of hormones. Menstrual synchrony was first demonstrated in 1971by Martha McClintock. A psychologist observed that during her undergraduate days in an all-female dorm at the university of Chicago, close friends get their menstrual cycle at the same time.[5] In 1980, the first replica of McClintock's study was noted in a university of Scotland by Graham and McGrew among 18 pairs of close friends. Also, in 1980, Russell et al. study reveal that five women experience menstrual synchrony with an unknown donor after being treated over four menstrual cycles.[6]

In 1986 Preti et al reported that a sample of 10 women had noted a decrease in the difference between menses onsets and the applications of the donor's axillary secretions.[7] At Yokohama city university Japanese researchers, led by Kazuyuki Shinohara, also found that women who are having their cycle release compounds that when inhaled by other women impact the frequency of luteinizing hormone which aids in controlling the timing of ovulation and cycle length.[8] Pfaff in 1980, Jarett in 1984, Wilson in 1991 did not find menstrual synchrony in samples of between pairs and groups of participants. There are studies for and against the occurrence of menstrual synchrony.[2]

### *Objective*

Objectives of the study were to assess the synchrony (frequency of coincidence) of menstrual cycles among hostel girls.

## METHODS

After obtaining informed consent and approval from the ethical committee, a questionnaire-based cross-sectional study was conducted during February 2019 in a girls' hostel at Dhanalakshmi Srinivasan medical college and hospital, Tamil Nadu among 135 girls who were hostellers living together in close proximity. Among them, 121 responded to the study by filling out the questionnaire. The data was collected from study participants through convenient sampling.

A semi-structured questionnaire was used to collect the data on the age of the participant, synchronization of the menstrual cycle, the experience of synchrony concerning menstrual cycle, episodes of synchrony in past 6 months, experience of synchrony common among roommates /friends other than roommates, regularity of periods, number of days of bleeding, intake of pills to delay/ regularize periods, coinciding symptoms during menses.

### *Statistical analysis*

The data collected was entered in Microsoft excel and analysed using SPSS version 16 software. The descriptive analysis was analysed using frequencies, mean, standard deviation and proportions.

## RESULTS

Among 121 girls, a maximum of 37.2% were about 21 years and the least of 0.8% were 17 years (Figure 1). The mean (SD) age was 20.20 (1.31) years. The 86 (71.1%) girls get their menses during the same time whereas 35 (28.9%) did not experience their menses at the same time (Figure 2). A maximum of 34.7% frequently experienced the synchrony in all the cycles, 0.8% did not experience the synchrony at all (Figure 3). Maximum of 37% experience 4 cycles of menstrual synchrony and the least of 3% experience 1 cycle of menstrual synchrony in the past 6 months.

The 58.7% experience synchrony more common among roommates whereas 41.3% experience it with friends other than roommates (Figure 4). A maximum of 84.3% had regular cycles, 15.7% had an irregularity in their cycles (Figure 5). The maximum percentage of the number of days of bleeding varies between 4 to 5 days. Nearly 95% of them did not take any pills to delay/regularize their cycles. Common symptoms reported by the participants were stomach pain/cramps, leg pain, fatigue ness, bloating.

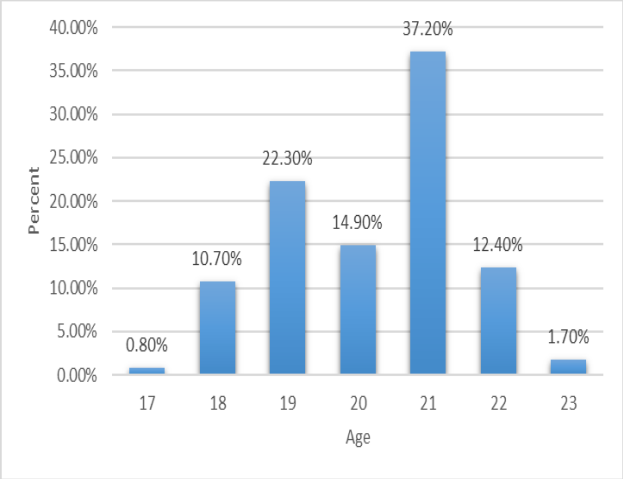


**Figure 1: Age of the participant, (n=121).**

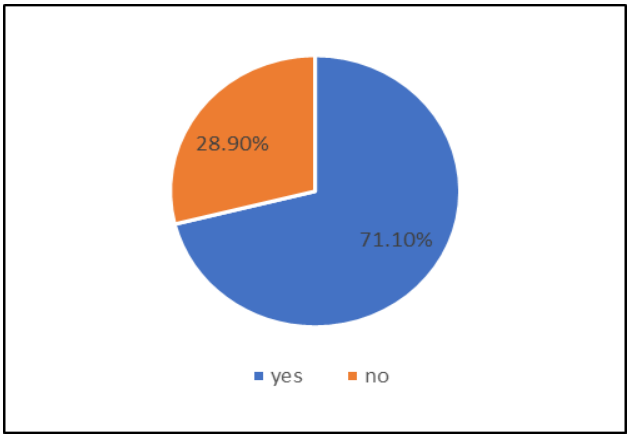


**Figure 2: Synchronization of the menstrual cycle with people living in close proximity, (n=121).**

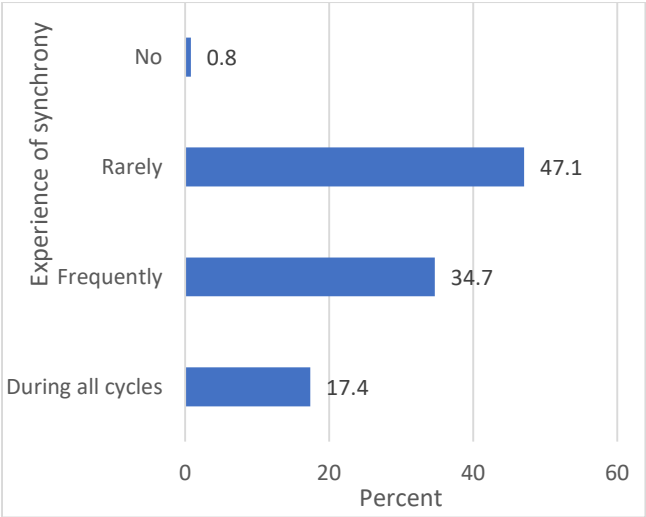


**Figure 3: Experience of synchrony to the menstrual cycle in the past 6 months, (n=121).**

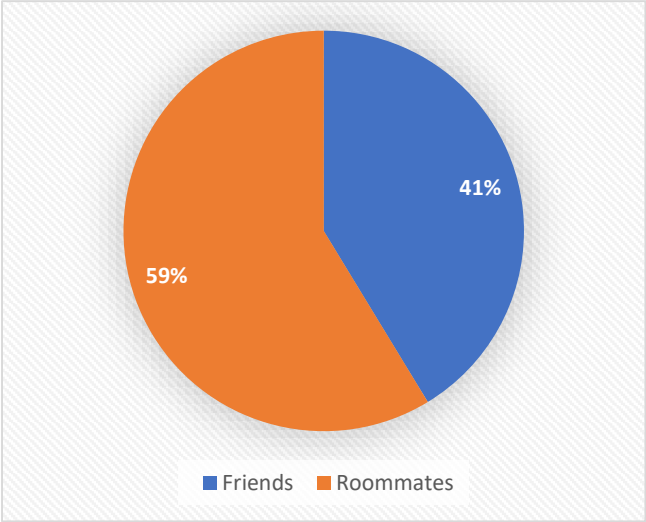


**Figure 4: Experience of synchrony common among roommates/ friends other than roommates, (n=121).**

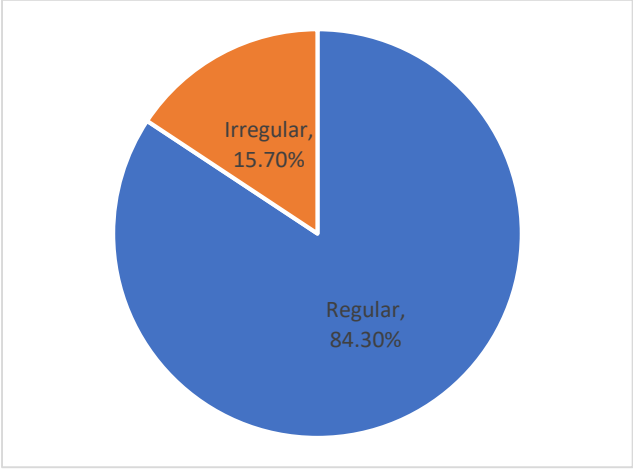


**Figure 5: Regularity of periods among participants, (n=121).**

## DISCUSSION

In our study, 121 hostel girls have participated in the age group of 17-23 years. In which 86 (71.1%) hostels girls experience synchronization of the menstrual cycle with people living in close proximity. Similar studies done by Graham and Mcgrew among 79 female undergraduates, aged 17-21 years, living in residence halls on the campus of a small university in central Scotland showed that lack of synchrony noted in close friendship.[6] A study done by Abbink among Suri girls in Ethiopia showed that menstrual synchrony is an artefact.[9]

A qualitative study was done by Fahs among 20 women (mean age=35.35, SD=12.01) living in a large Southwestern U.S. city, reported that occurrence of menstrual synchrony for themselves (90%) and other women (95%).[10] In our study, a maximum of 34.7% frequently experienced synchrony in all the cycles and also reported that synchrony was noted from roommates (59%) than friends other than roommates (41%). A study was conducted as a systematic review on menstrual synchrony by Weller et al showed that synchrony was found for roommates and best friends (there was no difference between roommates and friends), but not for mothers-daughters.[4,10]

Some themes advocate that women adhere to menstrual synchrony as a means of bonding with one another and engaging in telepathic communication.[12] Menstrual synchrony, on the other hand, can help women break free from these stereotypes by imagining, for example, that women's closeness is positive, that women have different or telepathic relationships with one another, or that women's anger is now not only legitimate but also real, funny, and energetic when experienced in a group of menstruating women.[10]

In our study, 84.3% had a regular cycle and menstrual flow varies between 4 to 5 days. A study done in Igbo population in 12 randomly selected rural communities of Ebonyi state showed that mean menstrual flow and cycle length about 3.3 days and 29.7 days respectively. Only 10.2% had a menstrual cycle length of 28 days.[13] They also referred to that cycle irregularity is recognized as an essential component preventing it which is due to an incomplete feature of the hypothalamus pituitary-gonadal axis. When statistical techniques are taken into account, there is scant empirical evidence that the phenomenon of menstrual synchrony exists at all.

The previous reviews have been virtually based totally on methodological artefacts which resulted from methodological blunders therefore there used to be a failure in discovering the synchrony.[12] Whether or not Menstrual synchrony truly exists is still an open question. Many studies such as McClintock reveals that it is due to pheromones. Few studies, for example, a study by Weller reported that menstrual synchrony is just an artefactual

from our study we imply that menstrual synchrony is not a myth.[1,11,14]

Our study's strength is that it is the first of its kind in India to look into menstrual synchrony. The study's limitations, the fact that it was a cross-sectional study, and the fact that the duration of exposure was not recorded are all factors to consider. This study was conducted only among hostel mates, not among other menstruating women (sisters, mother, relatives). It will provide significant proof of the influence of pheromones on menstrual synchronisation if we investigate other menstruation women.

## CONCLUSION

Nearly More than half of our study participants reported menstrual synchrony among them. So, the menstrual synchrony cannot be only an artefact or myth but also a fact. More research project is needed to study more about the pheromonal influence not only on menstrual synchrony but also on other physiological mechanisms.

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