

How Do Singers in Higher Education Perceive the Impact of the Menstrual Cycle on Voice?

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Introduction

Anecdotally, the concept of “period voice” has long been widely discussed among female singers. This research set out to investigate vocalist experiences of how the menstrual cycle can impact the singing voice. The perceived impact of hormonal changes on vocal ability, vocal production, and overall performance was examined using a two-pronged approach:

- 1) Part 1 used an anonymous online questionnaire to directly capture participants’ personal perceptions of hormonal changes on their own voice.
- 2) Part 2 used *Voice Vista* electroglottographic (EGG) software to perform spectrogram analysis on weekly vocal recordings across the menstrual cycle for several participants.

Key Phases of the Menstrual Cycle

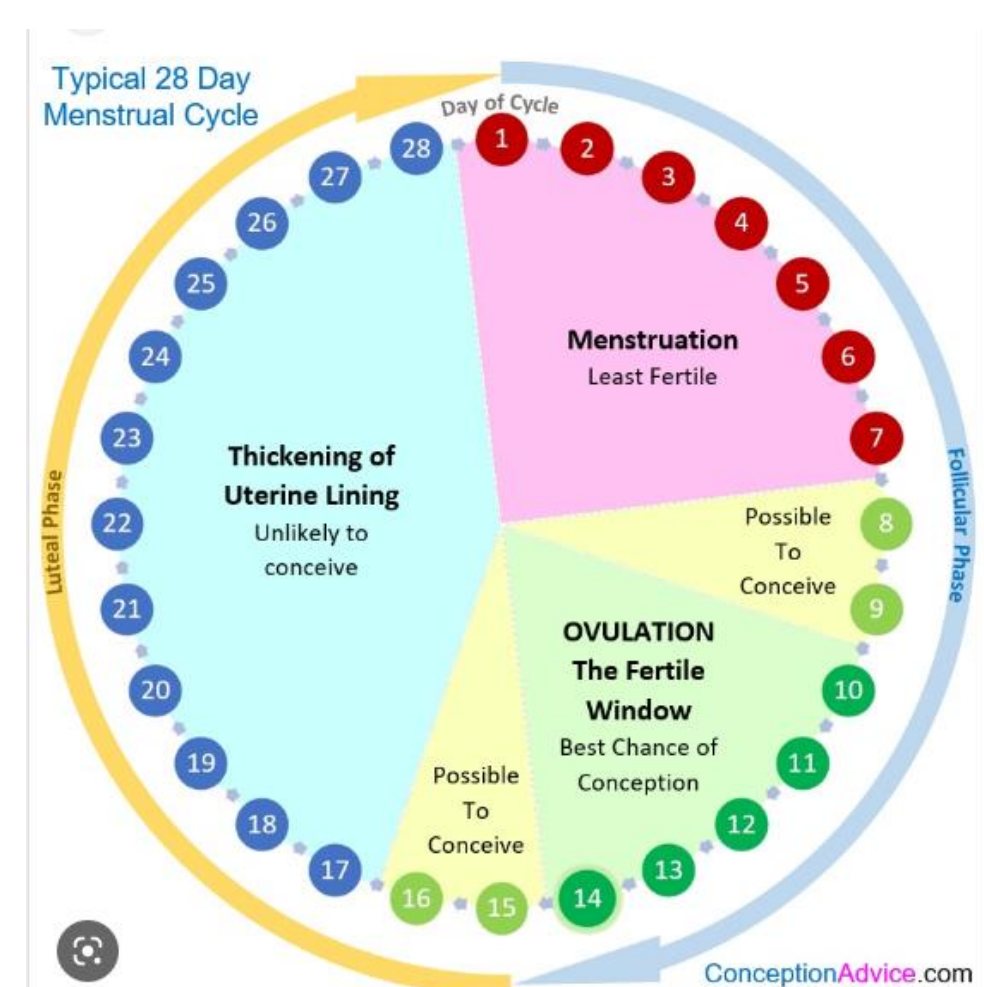


Figure 1: Typical 28-Day Menstrual Cycle [1]

Recruitment/Participants

At the outset, all participants (female, aged 18 years or older) were drawn from the student population of a higher education vocal performance course in a university in the Republic of Ireland. This selection criterion was put in place in order to ensure a similar level of vocal understanding among the participants, as well as a common trait of singing on a regular basis. For logistical reasons, recruitment was restricted to enrolled members of the BA Voice in UL to guarantee usual physical proximity to UL that would reasonably facilitate attendance at the IWA for the Part 2 vocal recordings, where required. Upon collating a list of those participants who expressed an interest and provided the appropriate consent, this pool of participants was reduced further to only those who had confirmed a regular menstrual cycle.



Methods

Part 1 | Questionnaires

Following an extensive literature review, which informed the content and scope of the questions, the questionnaire was created and distributed to the target population. This questionnaire served two purposes:

1. To gather primary evidence from singers in higher education with regard to how they perceive the impact of the menstrual cycle on the voice
2. To collect expressions of interest (via Questions 19 and 20) from those participants who would be willing to provide vocal recordings through the stages of the menstrual cycle, for analysis within Part 2 of the research.

Part 2 | Voice Assessments

For each eligible participant, weekly recordings were collected across the different stages of the menstrual cycle. These were then assessed and analysed, in order to allow for any changes occurring throughout the cycle stages to be compared and documented. Frequencies, spectrum intensity, timbre, pitch etc. were compared across the various cycle stages. To achieve this, EGG (a low-cost, non-invasive technology for measuring changes of relative vocal fold contact area during laryngeal voice production) was used.

Conclusions

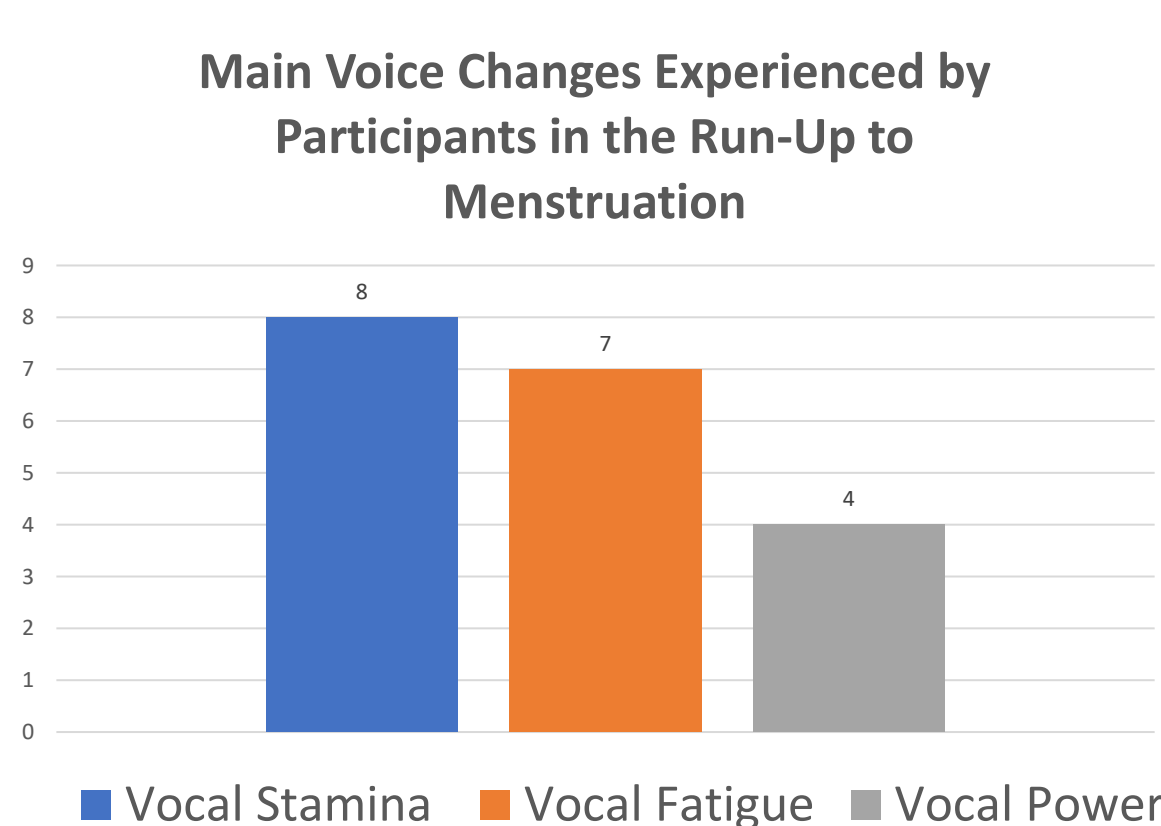
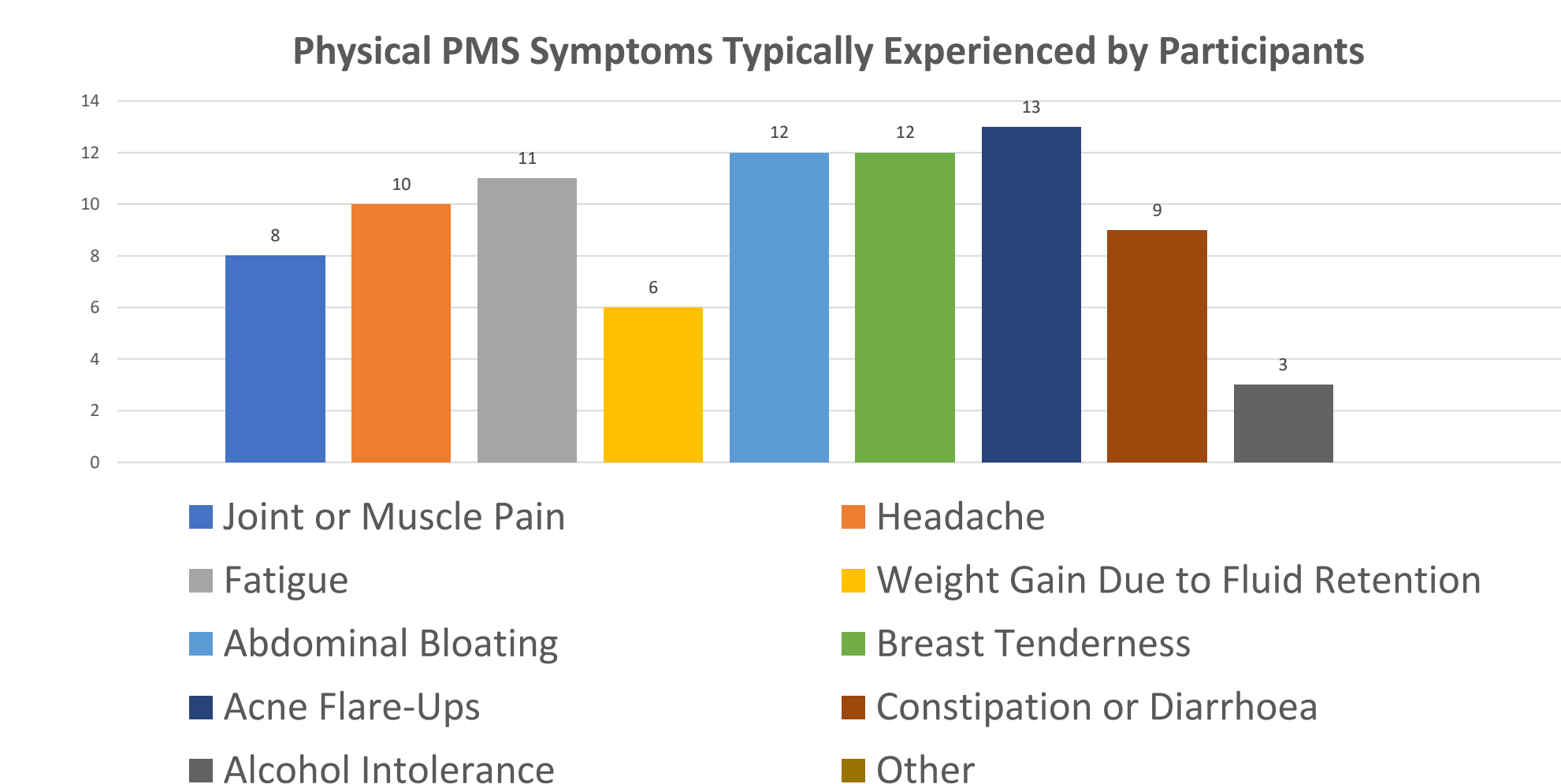
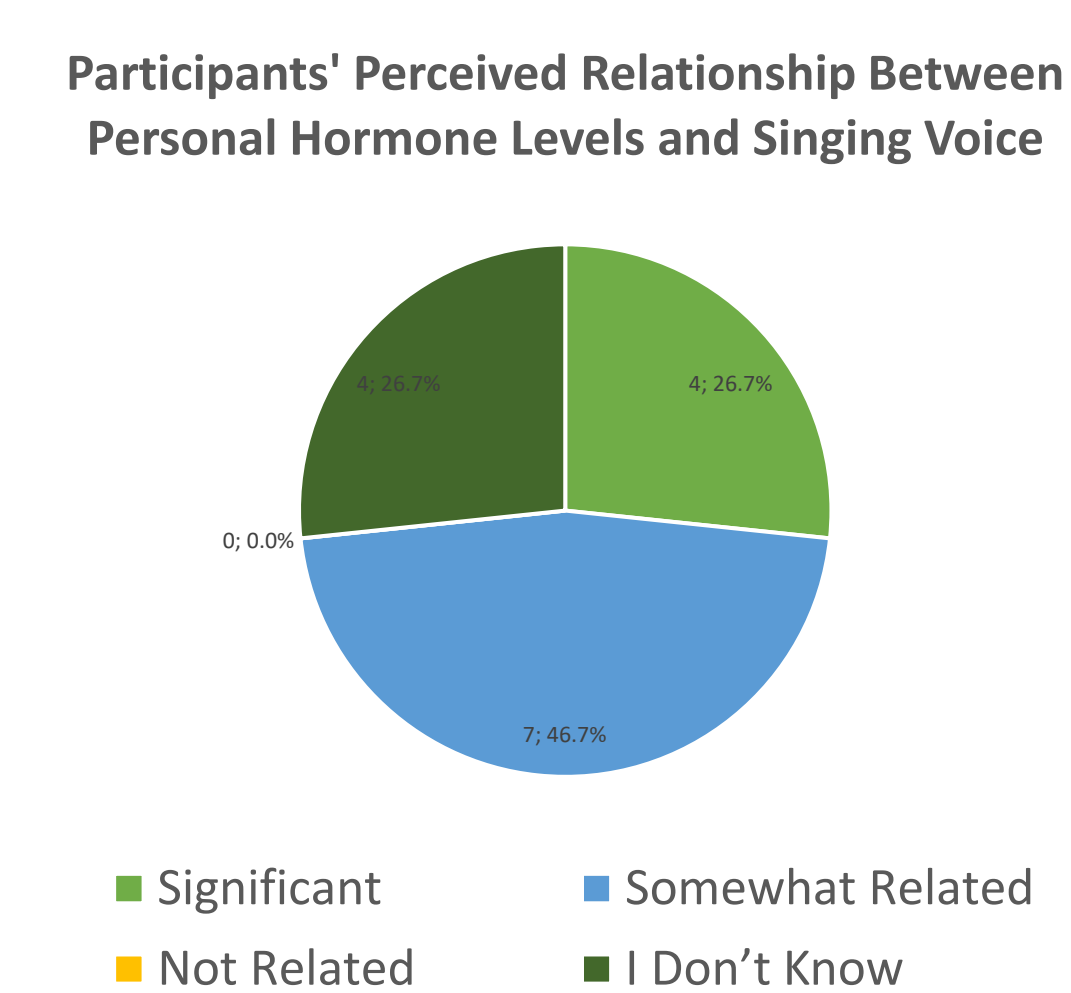
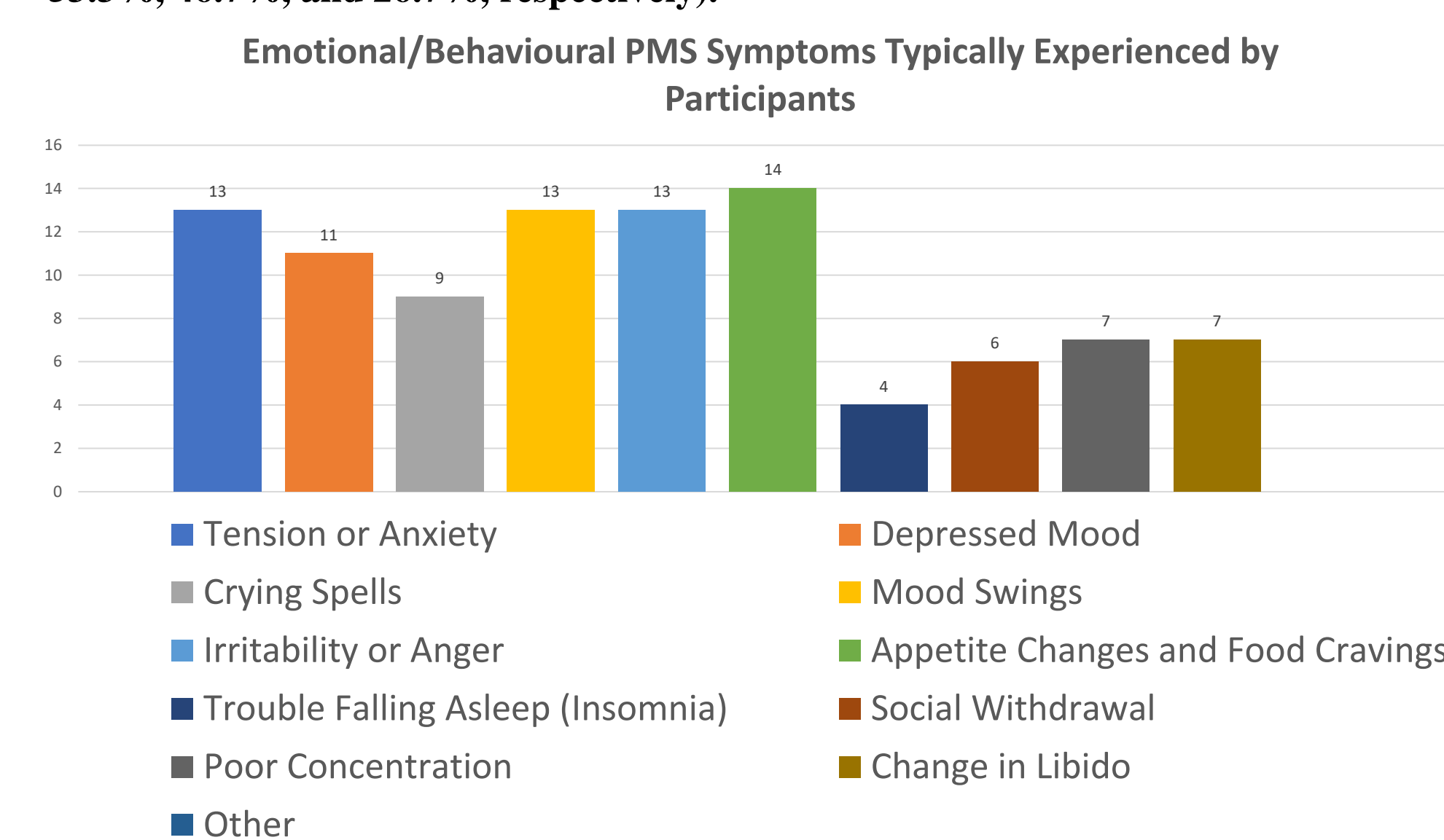
During Part 1 (i.e., the questionnaire phase), when asked for open feedback on any voice changes experienced in the run-up to menstruation, responses were received as outlined in the word bubble below. The principal vocal changes reported by participants as typical in the run-up to menstruation were loss of vocal stamina, vocal fatigue, and loss of vocal power (reported by 53.3%, 46.7%, and 26.7%, respectively).



The Part 2 EGG analysis will not be complete until the end of April but is expected to offer more insight into the impact of the menstrual cycle on vocal ability, vocal production, and overall performance.

Results

For Part 1 (i.e., data collection via online questionnaire) 73.4% of questionnaire respondents asserted that the link between their personal hormone levels and their singing voice was either significantly related (26.7%) or somewhat related (46.7%). The principal vocal changes reported by participants as typical in the run-up to menstruation were loss of vocal stamina, vocal fatigue, and loss of vocal power (reported by 53.3%, 46.7%, and 26.7%, respectively).



The Part 2 portion of the study (i.e., EGG analysis of weekly vocal recordings across the menstrual cycle) is currently ongoing and will be reported on by the end of April.

Future Research

I would be interested in extending this research further to include an in-depth analysis of the potential effects of hormonal contraception and/or the menopause on the female singing voice.

References

[1] Conception Advice website | <https://www.conceptionadvice.com/menstrual-cycle-calendar-phases/> [accessed: 05/MAR/2023]

Acknowledgments

I would like to sincerely thank Dr. Hannah Fahey for supervising this project and providing me with ongoing guidance, encouragement, and the benefit of her experience along the way. I'd also like to give a special mention to my past vocal coach/musical theatre lecturer, Ms. Hollie O'Donoghue, since a conversation with her last year piqued my interest and inspired my choice of FYP topic. Finally, I'd like to thank all the singers who kindly contributed by giving so generously of their time and voices to enable me to research this area.