



Association of 3rd trimester 2D and Doppler ultrasound exposure and left-handedness

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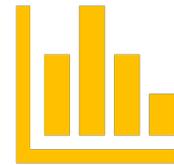
Content



1) Introducton



**2) Materal &
Methods**

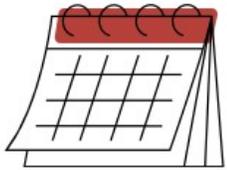


3) Results



4) Concluson

Material & Method



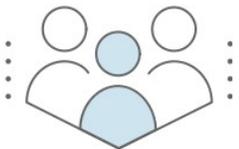
September-December 2023

- our questionnaire were filled between these dates via online platforms



4 Questions

- Edinburgh Questionnaire



43 Participants

Control and Study Groups

Inclusion criterias to control group

Having been exposed to ultrasound and 2D doppler for more than 60 minutes during the 3.trimester

Absence of congenital and genetic anomalies in the baby

Not having a condition that will affect neurological development, such as postnatal asphyxia bleeding, etc.

The child who will participate in the survey has completed 24 ± 3 months as of November 2023

Inclusion criterias to study group

Children of mothers who have had routine pregnancy check-up during pregnancy without external ultrasound exposure who have completed 24 ± 3 months as of July 2023

Edinburgh Questionnaire

Edinburgh Handedness Inventory - Short Form

Please indicate your preferences in the use of hands in the following activities or objects:

| | Always right | Usually right | Both equally | Usually left | Always left |
|------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Writing | <input type="checkbox"/> |
| Throwing | <input type="checkbox"/> |
| Toothbrush | <input type="checkbox"/> |
| Spoon | <input type="checkbox"/> |

Scoring:

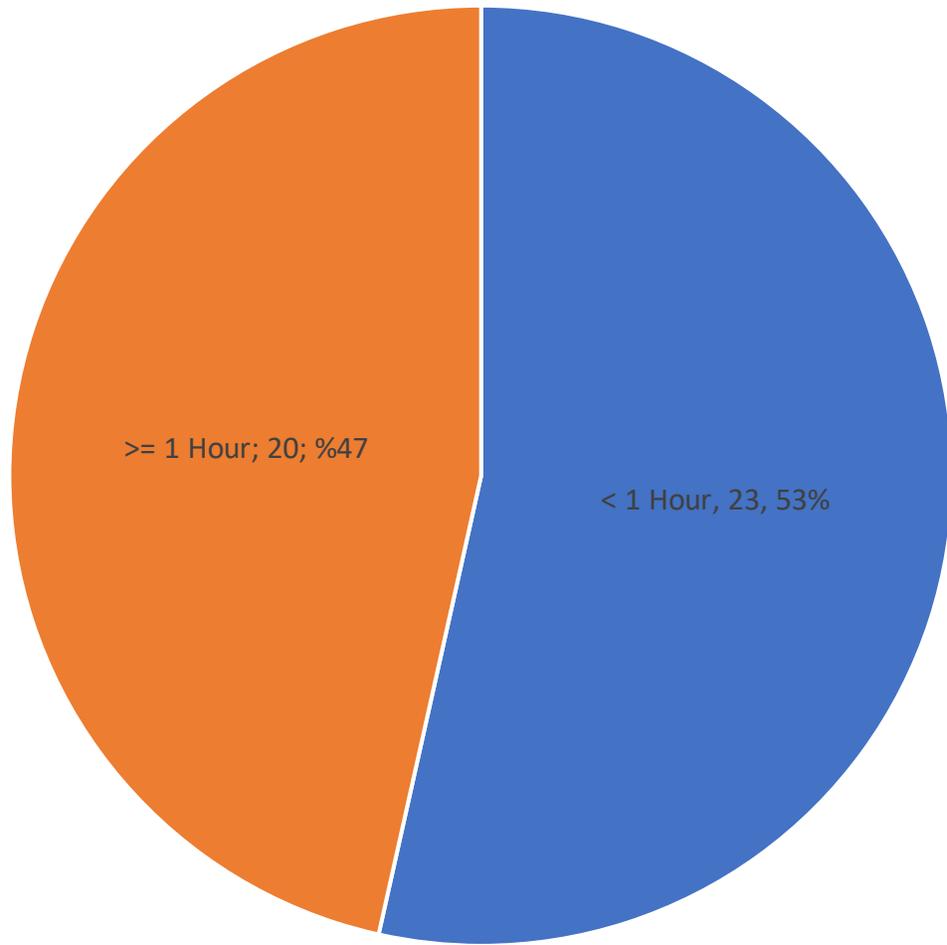
For each item: Always right = 100; Usually right = 50; Both equally = 0; Usually left = -50; Always left = -100

To calculate the Laterality Quotient add the scores for the four items in the scale and divide this by four:

| | |
|---------------------------------|----------------------|
| Writing score | <input type="text"/> |
| Throwing score | <input type="text"/> |
| Toothbrush score | <input type="text"/> |
| Spoon score | <input type="text"/> |
| Total | <input type="text"/> |
| Total ÷ 4 (Laterality Quotient) | <input type="text"/> |

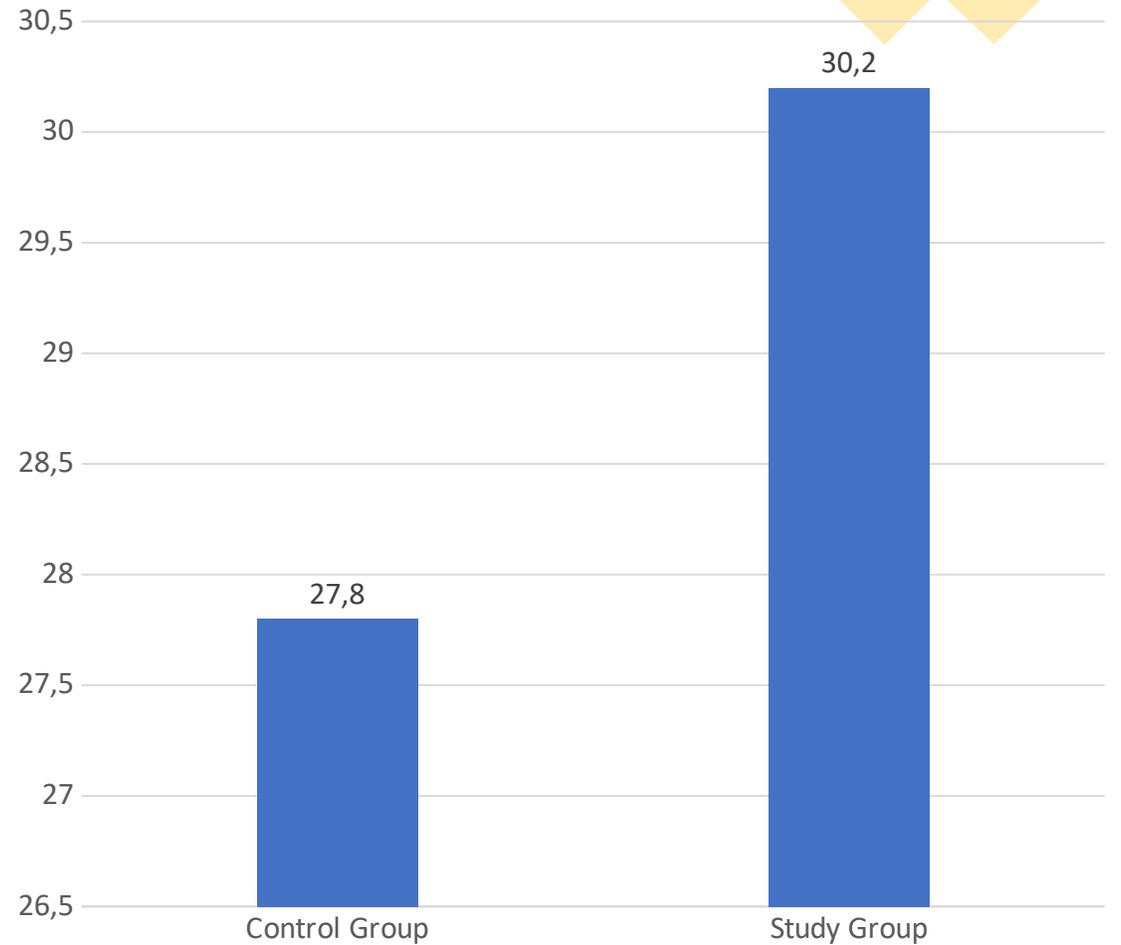
| Classification: | Laterality Quotient score: |
|-----------------|----------------------------|
| Left handers | -100 to -61 |
| Mixed handers | -60 to 60 |
| Right handers | 61 to 100 |

Number of Patients



■ < 1 Hour ■ >= 1 Hour

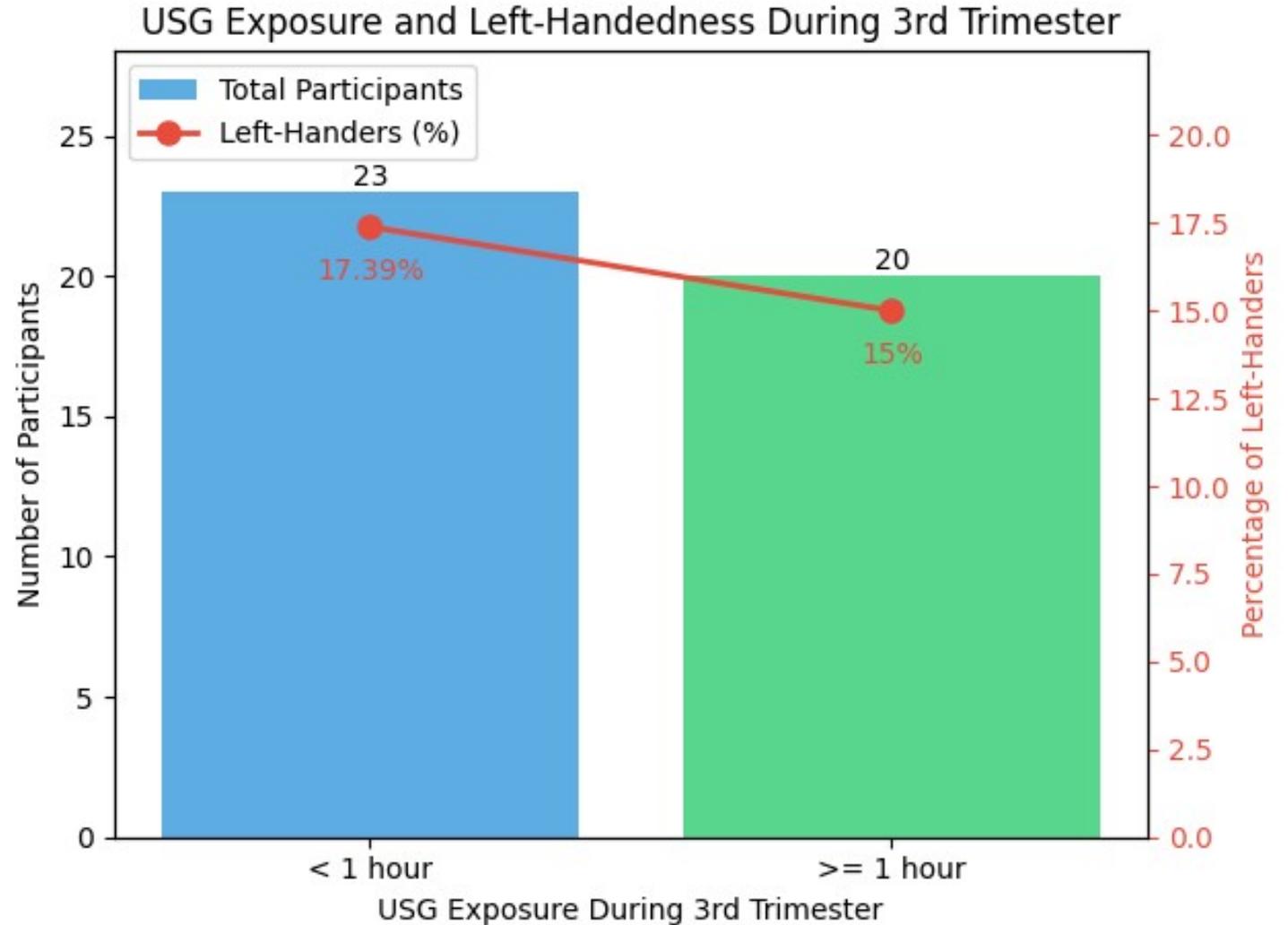
Average mos



■ Series 1

Results

- The total number of participants who met the conditions for participation was 43. While the number of participants who had USG exposure for less than 1 hour during the 3rd trimester was 23 (53.48%), according to the inventory, the number of left-handers among these participants was 4 (17.39%), while the number of participants with a total USG exposure of 1 hour or more during the 3rd trimester was observed as 20 (46.42%) and according to the inventory, the number of left-handed participants was 3 (15%).



Conclusion

In this retrospective cohort study depending on the duration of USG exposure, a group with a history of USG exposure of less than 1 hour in the 3rd trimester was compared with a group with a history of ultrasound exposure of 1 hour or more, it was observed that prenatal USG exposure did not create a statistically significant difference in left-handedness ($p > 0.375$).

Our results need to be confirmed by further survey studies.

Referances

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- 4. Feucht U, Hlongwane T, Vannevel V, Mulol H, Botha T, Pattinson R. Identifying the High-Risk Fetus in the Low-Risk Mother Using Fetal Doppler Screening. *Glob Health Sci Pract*. 2022;10(3):e2100692. Published 2022 Jun 29. doi:10.9745/GHSP-D-21-00692
- 5. Kieler H, Cnattingius S, Haglund B, Palmgren J, Axelsson O. Sinistrality--a side-effect of prenatal sonography: a comparative study of young men. *Epidemiology*. 2001 Nov;12(6):618-23. doi: 10.1097/00001648-200111000-00007. PMID: 11679787.
- 6. Kieler H, Axelsson O, Haglund B, Nilsson S, Salvesen KA. Routine ultrasound screening in pregnancy and the children's subsequent handedness. *Early Hum Dev*. 1998 Jan 9;50(2):233-45. doi: 10.1016/s0378-3782(97)00097-2. PMID: 9483394.



- Any questions / contributions?
- Thank You for Attention

