

ABSTRAK

Stimulasi Musik Mozart, Pop, dan Religi Selama Kebuntingan Menyebabkan Perbedaan Jumlah Sel Glia (Astrosit, Oligodendrosit, Mikroglia) di *Cerebrum* dan *Cerebellum Rattus norvegicus* Baru Lahir

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Latar Belakang: Sel glia menjadi penyumbang separuh dari volume otak, pengontrol pembentukan sinaps, dan berperan pada aktivitas saraf. Stimulasi menggunakan musik termasuk komponen penting untuk perkembangan janin prenatal. Musik pop dan religi adalah jenis musik yang mudah didengar dan diterima masyarakat Indonesia. Musik yang sering didengar akan mempengaruhi bagian otak tertentu.

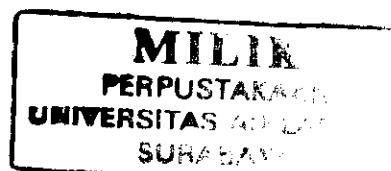
Tujuan: Menganalisis pengaruh paparan musik Mozart, pop dan religi selama kebuntingan terhadap jumlah sel glia (astrosit, oligodendrosit, mikroglia) di *cerebrum* dan *cerebellum Rattus norvegicus* baru lahir.

Metode: Penelitian ini menggunakan hewan coba *Rattus norvegicus*. Kelompok dibagi menjadi empat sesuai perlakuan yakni diberikan paparan musik Mozart, pop, religi dan tanpa musik, durasi 60 menit dengan intensitas 65dB saat kebuntingan hari ke-10 selama 9 hari dalam kotak kedap suara dengan jarak kandang dan speaker 25 cm. Pada kebuntingan hari ke-19 dikorbankan, diambil 3 otak anak tikus, dibuat preparat dengan pewarnaan *Hematoxylin-Eosin* pembacaan pada 5 lapangan pandang dan pembesaran 400x.

Hasil: Didapatkan perbedaan jumlah sel glia (astrosit, oligodendrosit, mikroglia) *cerebrum Rattus norvegicus* baru lahir antar kelompok. Musik Mozart (astrosit $8,00 \pm 2,94$; oligodendrosit $10,43 \pm 2,63$; mikroglia $11,14 \pm 1,67$) paling tinggi dibandingkan kelompok pop, religi dan tanpa musik dengan Jumlah sel glia *Cerebellum Rattus norvegicus* baru lahir musik Mozart (astrosit $12,00 \pm 1,73$; oligodendrosit $13,14 \pm 1,77$; mikroglia $11,00 \pm 1,15$) paling tinggi dibandingkan kelompok pop, religi dan tanpa musik. Terdapat perbedaan bermakna jumlah sel glia (astrosit, oligodendrosit, mikroglia) di *cerebrum* dan *cerebellum* antara kelompok musik Mozart dibandingkan musik pop dan religi dengan nilai $p < 0,005$.

Kesimpulan: Jumlah sel glia (astrosit, oligodendrosit, mikroglia) pada *cerebrum* dan *cerebellum Rattus norvegicus* baru lahir kelompok musik Mozart lebih tinggi dibandingkan kelompok musik pop, religi dan tanpa musik.

Kata Kunci: Mozart, pop, religi, glia, astrosit, oligodendrosit, mikroglia



ABSTRACT

Mozart, Pop, Religi Music Exposure During Pregnancy Cause Difference in The Number of Glial (Astrocyt, Oligodendrocyt, Microglia) *Cerebrum* and *Cerebellum* Offsprings *Rattus norvegicus*

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Background: Glial cells make up half of the brain volume, control synapses formation, and facilitate neuronal activity. Music stimulation is an important component of prenatal fetal development. Pop and religious music are both easy to listen and accepted by the Indonesian people. Music that frequently heard may affect certain parts of the brain.

Objective: To analyze the effect of Mozart, pop, and religious music exposure during pregnancy on the number of glial cells (astrocyt, oligodendrocyt, microglial) in the *cerebrum* and *cerebellum* offspring *Rattus norvegicus*.

Methods: This study uses *Rattus norvegicus* as a test animal. Subjects were divided into four groups treatment namely Mozart, pop, religious, and without music exposure, with 60 minutes duration, 65dB intensity, initiated on the 10th day of pregnancy for 9 days in a soundproof chamber with the distance between speaker and cage 25cm. On the 19th day, 3 brain offsprings were chosen to be preparations were made, glial cells were counted using *hematoxylin-eosin* staining in 5 fields of view and 400 magnification strength.

Results: Different *cerebrum* glial cells (astrocyte, oligodendrocyte, microglial) number were observed between groups of the newly born *Rattus norvegicus*. Mozart music group (astrocyte 8,00±2,94; oligodendrocyte 10,43±2,63; microglial 11,14±1,67) was the highest compared to pop, religious, and without music exposure groups. The number of *cerebellum* glial cells of *Rattus norvegicus* newborn of Mozart music group (astrocyte 12,00±1,73; oligodendrocyte 13,14±1,77; microglial 11,00±1,15) was the highest compared to pop, religious, and without music exposure. There were significant differences of glial cells (astrocyte, oligodendrocyte, microglial) number in the *cerebrum* and *cerebellum* between Mozart group compared with pop and religious music groups with *p value* <0,005.

Conclusion: The number of glial cells (astrocyte, oligodendrocyte, microglial) in the *cerebrum* and *cerebellum* offspring *Rattus norvegicus* was in the Mozart group higher than pop, religious, and without music exposure groups.

Keywords: Mozart, pop, religious, glial, astrocyte, oligodendrocyte, microglial

