

## Supplementary Material

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**Figure S7:** Funnel plot of comparison: irritability/agitation, fixed effects model.

**Figure S8:** Funnel plot of comparison: discontinuation of treatment due to ADR, fixed effects model.

Table S1: Search strategies.

Database	Search Strategy	Results
PubMed	("levetiracetam"[MeSH Terms] OR "levetiracetam"[All Fields]) AND ("migrain"[All Fields] OR "migraine disorders"[MeSH Terms] OR ("migraine"[All Fields] AND "disorders"[All Fields]) OR "migraine disorders"[All Fields] OR "migraine"[All Fields] OR "migraines"[All Fields] OR "migraine s"[All Fields] OR "migrainous"[All Fields] OR "migrainers"[All Fields] OR "migrainous"[All Fields])	76

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Fields] OR ("headache"[MeSH Terms] OR "headache"[All Fields] OR "headaches"[All Fields] OR "headache s"[All Fields])) AND ("prevention and control"[MeSH Subheading] OR ("prevention"[All Fields] AND "control"[All Fields]) OR "prevention and control"[All Fields] OR "prophylaxis"[All Fields] OR "prophylaxies"[All Fields] OR "prophylaxy"[All Fields] OR ("prevent"[All Fields] OR "preventability"[All Fields] OR "preventable"[All Fields] OR "preventative"[All Fields] OR "preventatively"[All Fields] OR "preventatives"[All Fields] OR "prevented"[All Fields] OR "preventing"[All Fields] OR "prevention and control"[MeSH Subheading] OR ("prevention"[All Fields] AND "control"[All Fields]) OR "prevention and control"[All Fields] OR "prevention"[All Fields] OR "prevention s"[All Fields] OR "preventions"[All Fields] OR "preventive"[All Fields] OR "preventively"[All Fields] OR "preventives"[All Fields] OR "prevents"[All Fields]))

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Web of Science TS=(levetiracetam AND (migrain OR migraine disorders OR (migraine AND disorders) OR headache OR headaches) AND (prevention OR (prevention AND control) OR prophylaxis OR prophylaxies OR prophylaxy

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OR prevent OR preventability OR preventable OR  
preventative OR preventatively OR preventatives OR  
prevented OR preventing))

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Embase ('levetiracetam'/exp OR levetiracetam) AND ((migrain OR 568  
'migraine'/exp OR migraine) AND ('disorders'/exp OR  
disorders) OR (('migraine'/exp OR migraine) AND  
(('disorders'/exp OR disorders))) OR 'headache'/exp  
OR headache OR 'headaches'/exp OR headaches) AND  
(('prevention'/exp OR prevention OR (('prevention'/exp OR  
prevention) AND ('control'/exp OR control)) OR  
'prophylaxis'/exp OR prophylaxis OR prophylaxies OR  
prophylaxy OR prevent OR preventability OR preventable  
OR preventative OR preventatively OR preventatives OR  
prevented OR preventing)

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Cochrane (levetiracetam AND (migrain OR migraine disorders OR 57  
Library (migraine AND disorders) OR headache OR headaches)  
AND (prevention OR (prevention AND control) OR  
prophylaxis OR prophylaxies OR prophylaxy OR prevent  
OR preventability OR preventable OR preventative OR  
preventatively OR preventatives OR prevented OR  
preventing))

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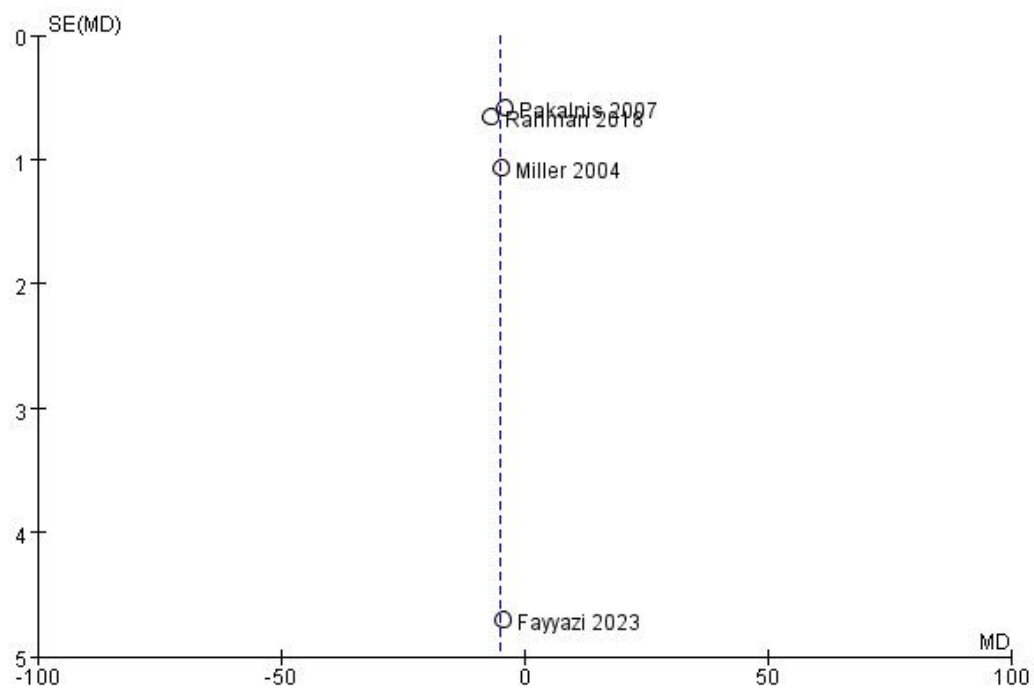


Figure S1: Funnel plot of monthly headache frequency, random effects model.

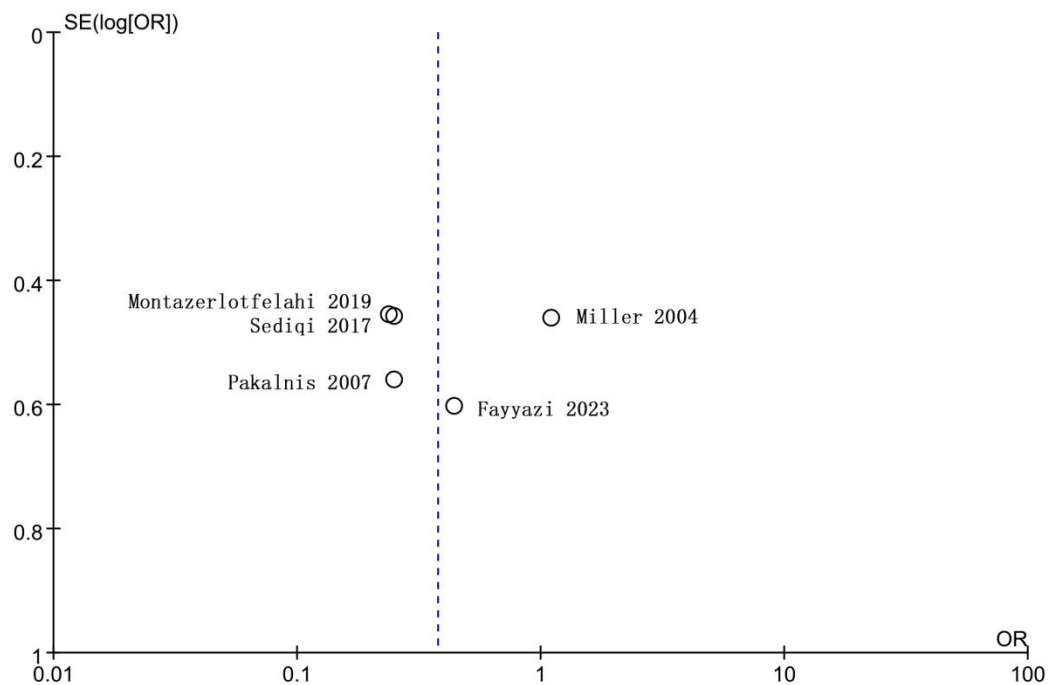


Figure S2: Funnel plot of the incidence rate of headache free, random effects model.

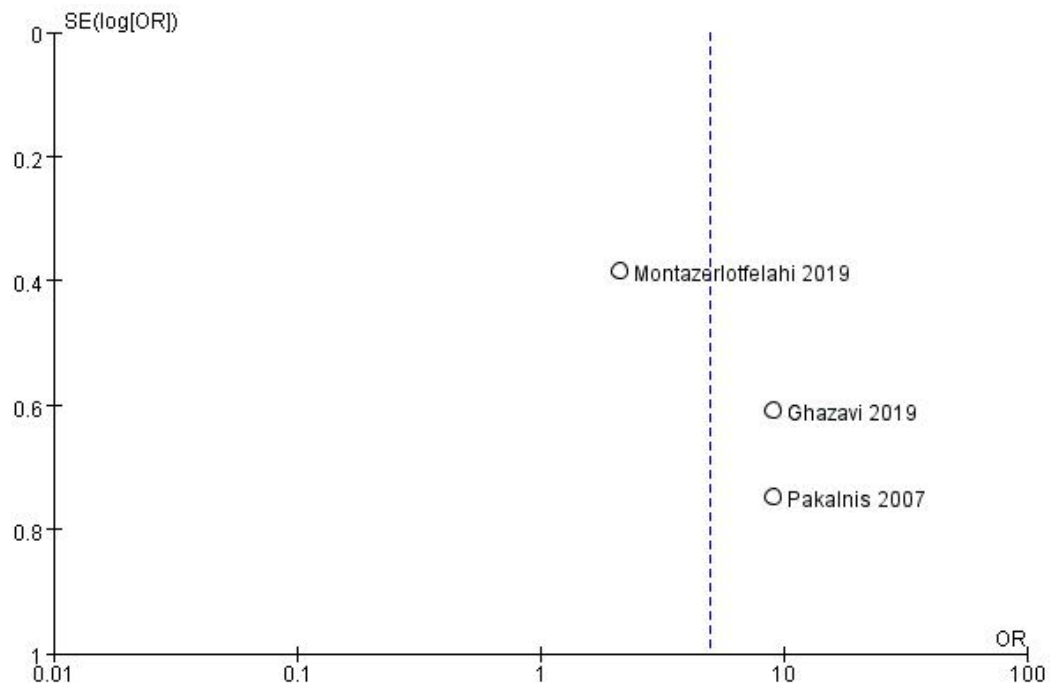


Figure S3: Funnel plot of the incidence rate of headache frequency reduction greater than 50% in monthly, random effects model.

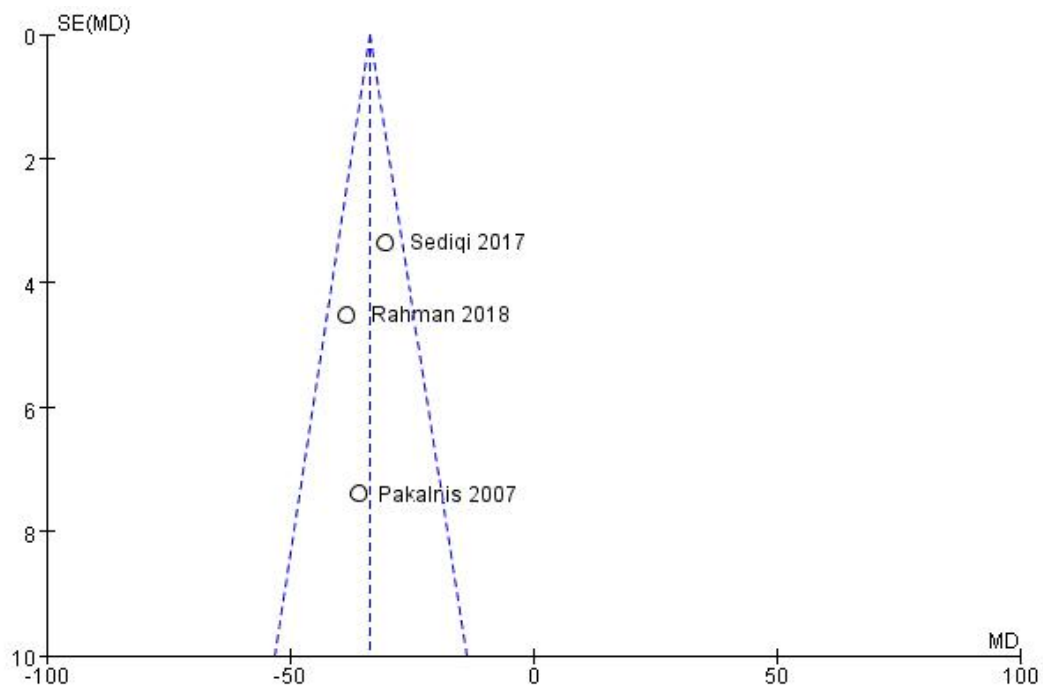


Figure S4: Funnel plot of PedMIDAS, fixed effects model.

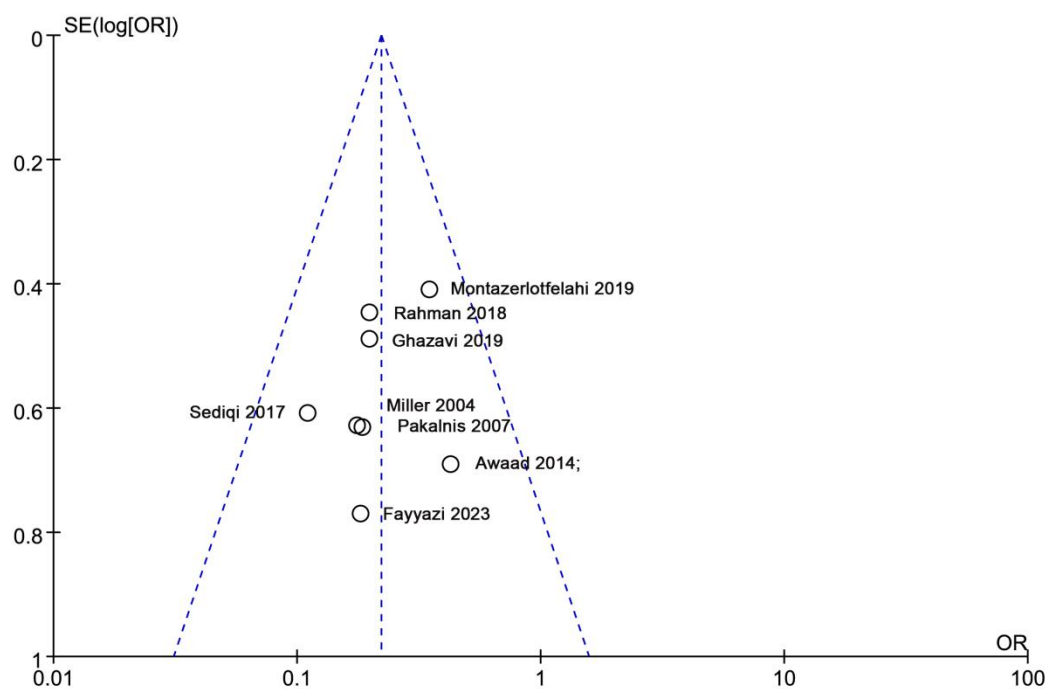


Figure S5: Funnel plot of the incidence rate of ADRs, fixed effects model.

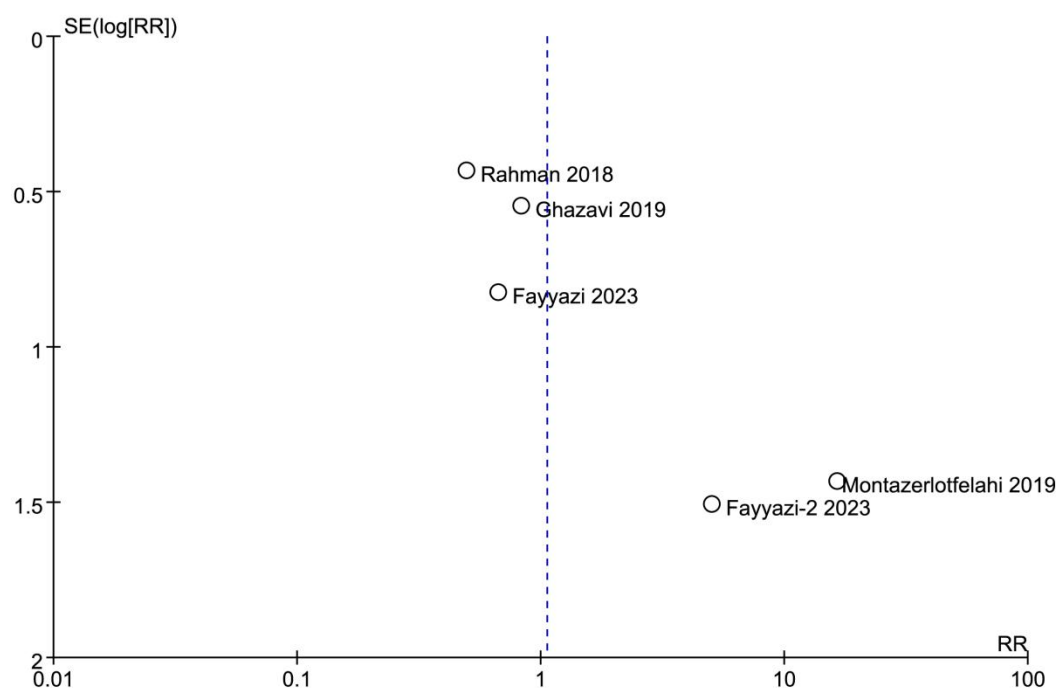


Figure S6: Funnel plot of the risk ratio of ADRs between LEV and placebo or other drugs, random effects model. Note: The control group for Fayyazi 2023 was sodium valproate. The control group for Fayyazi-2 2023 was propranolol.

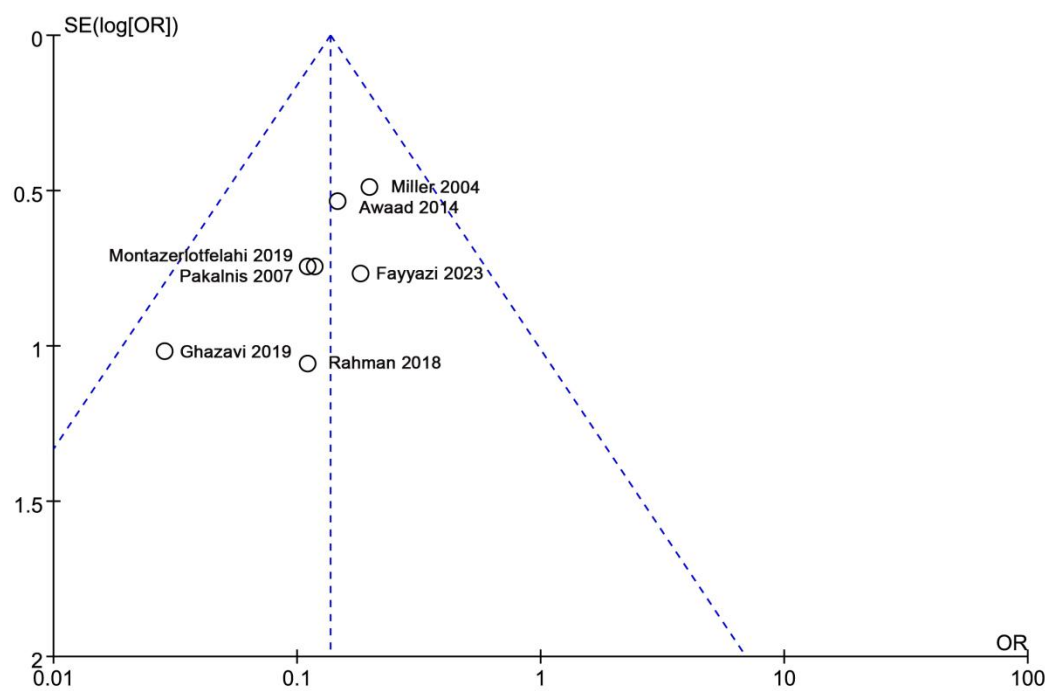


Figure S7: Funnel plot of the incidence rate of irritability/agitation, fixed effects model.

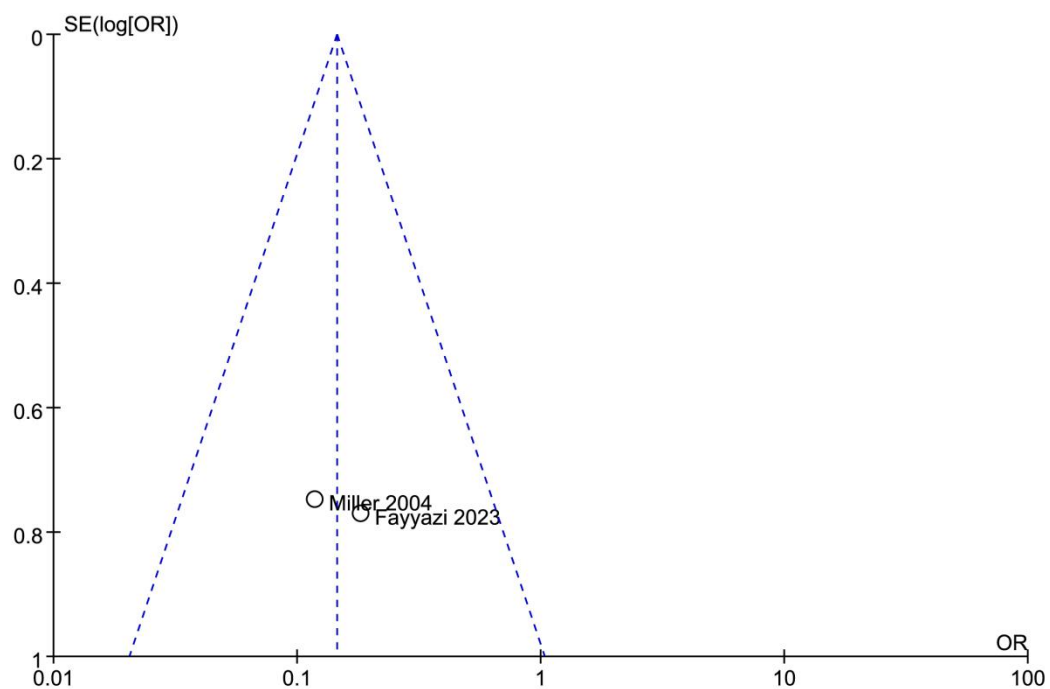


Figure S8: Funnel plot of the incidence rate of discontinued treatment, fixed effects model.