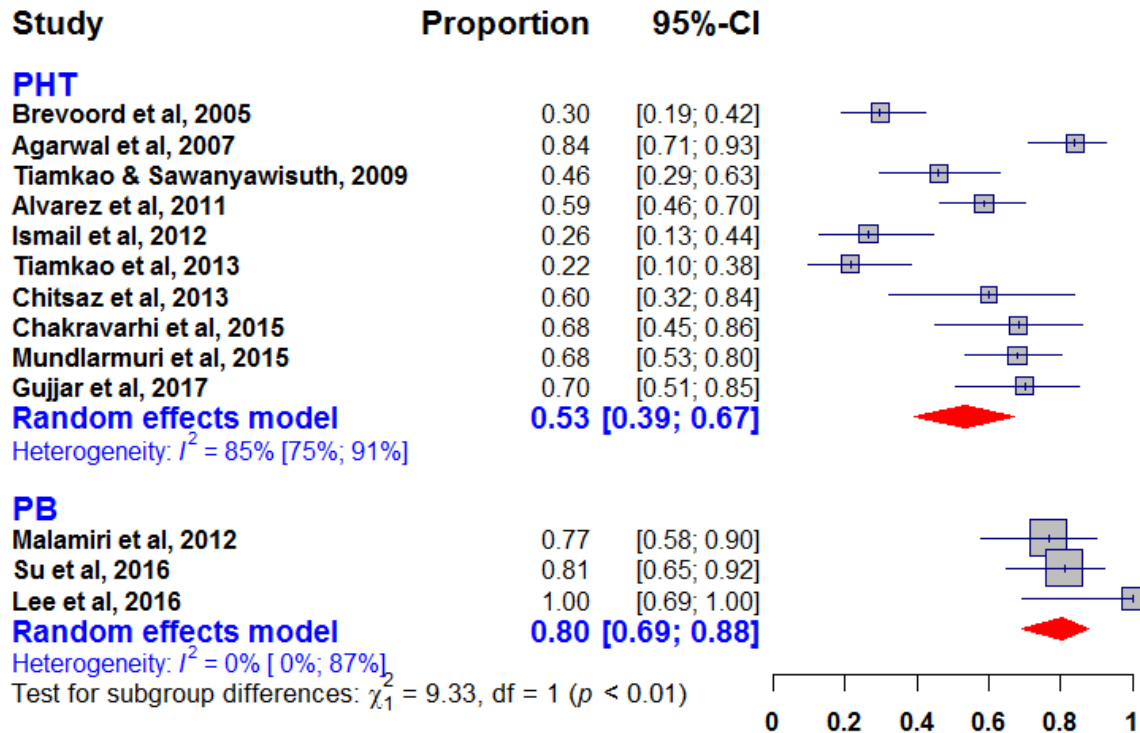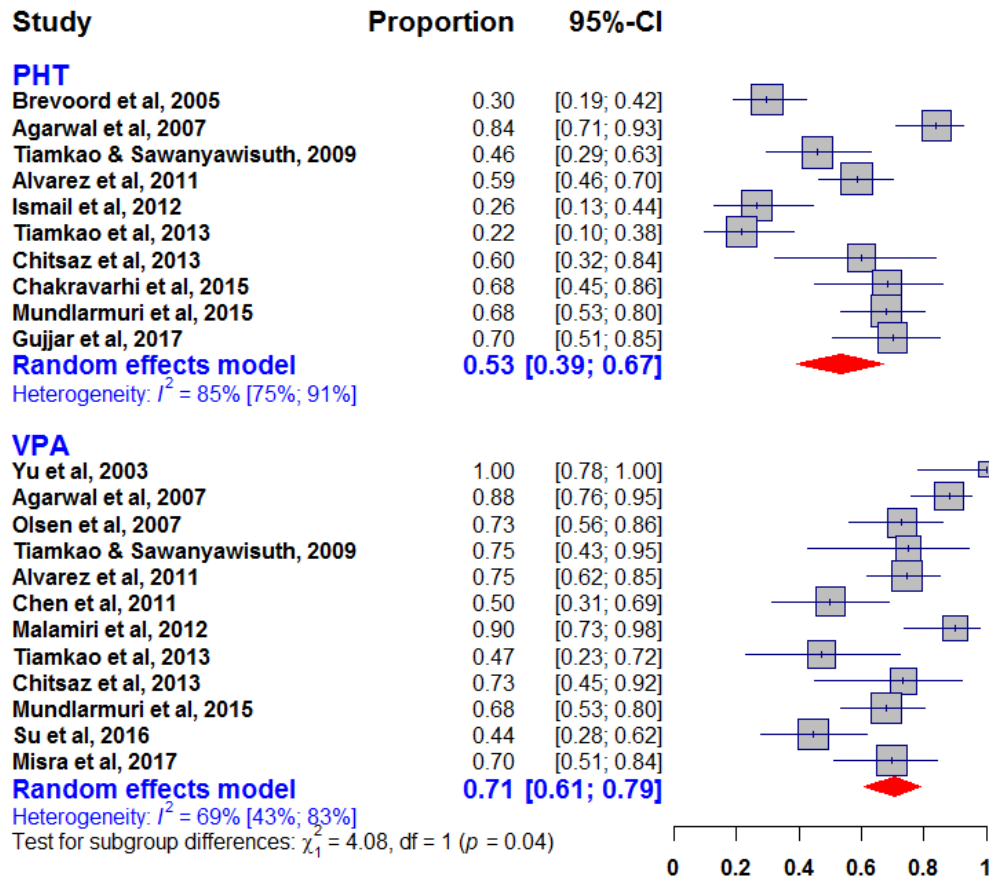# File e-1: PAIRWISE COMPARISONS
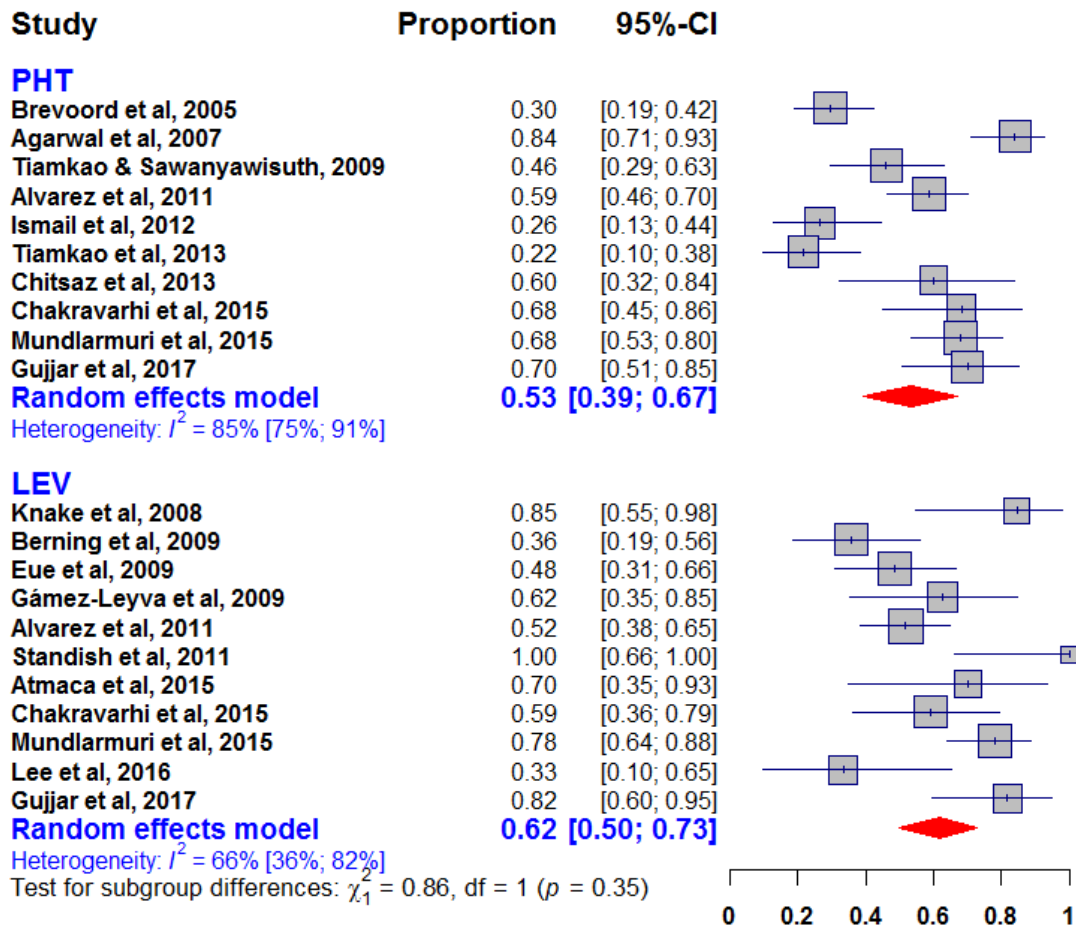
Phenytoin (PHT) versus phenobarbital (PB). PB was more effective than PHT [0.8 (95% CI: 0.69-0.88) versus 0.53 (95% CI: 0.39-0.67), $p = 0.002254324$].

Study	Proportion	95%-CI
PHT		
Brevoord et al, 2005	0.30	[0.19; 0.42]
Agarwal et al, 2007	0.84	[0.71; 0.93]
Tiamkao & Sawanyawisuth, 2009	0.46	[0.29; 0.63]
Alvarez et al, 2011	0.59	[0.46; 0.70]
Ismail et al, 2012	0.26	[0.13; 0.44]
Tiamkao et al, 2013	0.22	[0.10; 0.38]
Chitsaz et al, 2013	0.60	[0.32; 0.84]
Chakravarhi et al, 2015	0.68	[0.45; 0.86]
Mundlarmuri et al, 2015	0.68	[0.53; 0.80]
Gujjar et al, 2017	0.70	[0.51; 0.85]
Random effects model	**0.53**	**[0.39; 0.67]**
Heterogeneity: $I^2 = 85\%$ [75%; 91%]		
PB		
Malamiri et al, 2012	0.77	[0.58; 0.90]
Su et al, 2016	0.81	[0.65; 0.92]
Lee et al, 2016	1.00	[0.69; 1.00]
Random effects model	**0.80**	**[0.69; 0.88]**
Heterogeneity: $I^2 = 0\%$ [0%; 87%]		

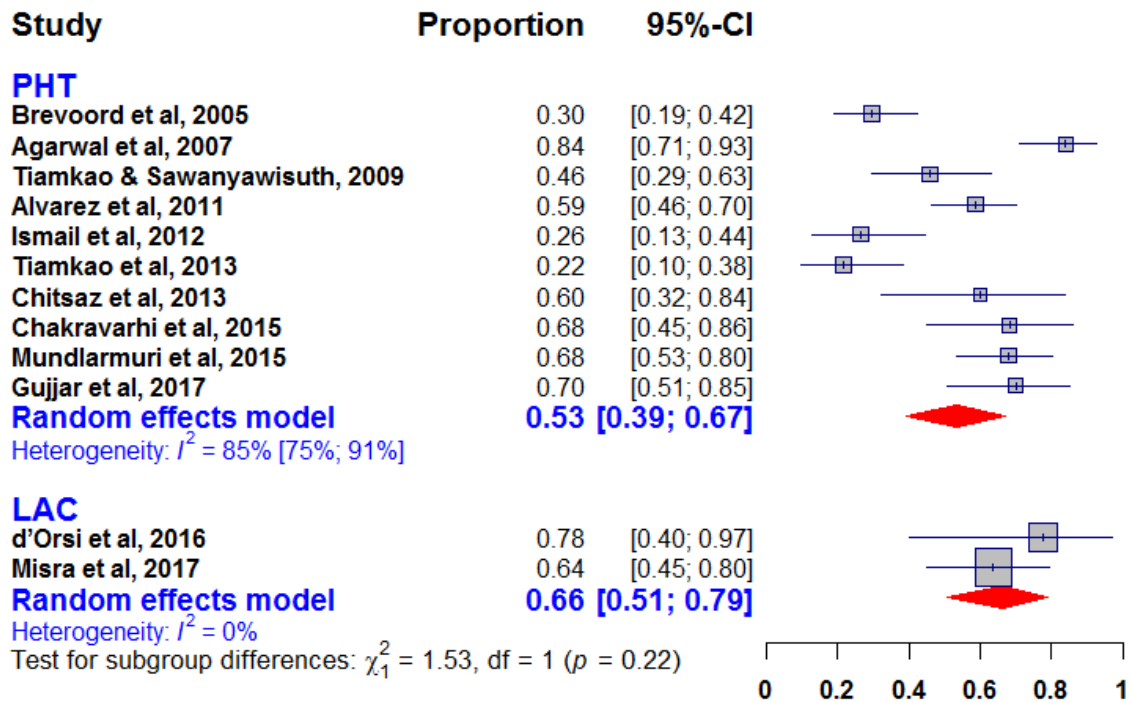Test for subgroup differences: $\chi^2_1 = 9.33$, df = 1 ($p < 0.01$)

Phenytoin (PHT) versus valproate (VPA). VPA was more effective than PHT [0.71 (95% CI: 0.61-0.79) versus 0.53 (95% CI: 0.39-0.67), *p* = 0.04339366].

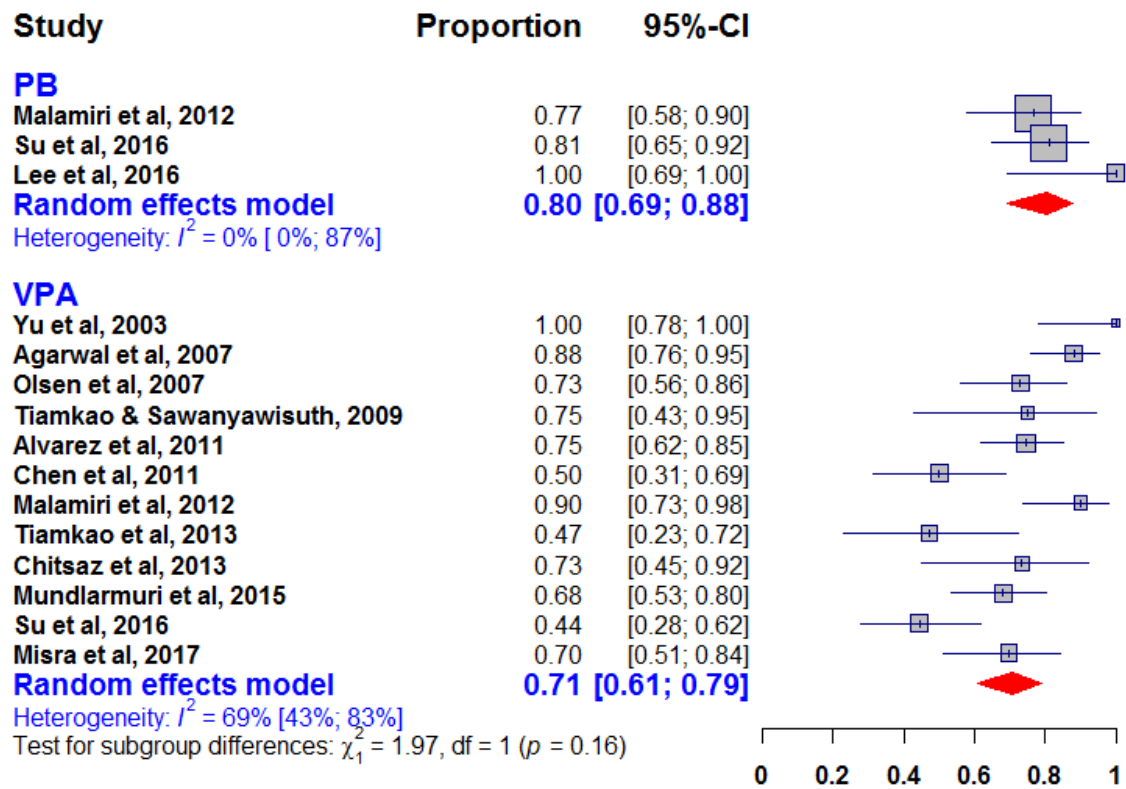| Study	Proportion	95%-CI
PHT		
Brevoord et al, 2005	0.30	[0.19; 0.42]
Agarwal et al, 2007	0.84	[0.71; 0.93]
Tiamkao & Sawanyawisuth, 2009	0.46	[0.29; 0.63]
Alvarez et al, 2011	0.59	[0.46; 0.70]
Ismail et al, 2012	0.26	[0.13; 0.44]
Tiamkao et al, 2013	0.22	[0.10; 0.38]
Chitsaz et al, 2013	0.60	[0.32; 0.84]
Chakravarhi et al, 2015	0.68	[0.45; 0.86]
Mundlarmuri et al, 2015	0.68	[0.53; 0.80]
Gujjar et al, 2017	0.70	[0.51; 0.85]
Random effects model	**0.53 [0.39; 0.67]**	
Heterogeneity: I^2 = 85% [75%; 91%]		
VPA		
Yu et al, 2003	1.00	[0.78; 1.00]
Agarwal et al, 2007	0.88	[0.76; 0.95]
Olsen et al, 2007	0.73	[0.56; 0.86]
Tiamkao & Sawanyawisuth, 2009	0.75	[0.43; 0.95]
Alvarez et al, 2011	0.75	[0.62; 0.85]
Chen et al, 2011	0.50	[0.31; 0.69]
Malamiri et al, 2012	0.90	[0.73; 0.98]
Tiamkao et al, 2013	0.47	[0.23; 0.72]
Chitsaz et al, 2013	0.73	[0.45; 0.92]
Mundlarmuri et al, 2015	0.68	[0.53; 0.80]
Su et al, 2016	0.44	[0.28; 0.62]
Misra et al, 2017	0.70	[0.51; 0.84]
Random effects model	**0.71 [0.61; 0.79]**	
Heterogeneity: I^2 = 69% [43%; 83%]		
Test for subgroup differences: χ^2_1 = 4.08, df = 1 (*p* = 0.04)		

Phenytoin (PHT) versus levetiracetam (LEV). There were no statistically significant differences in effectiveness between PHT and LEV [0.53 (95% CI: 0.39-0.67) versus 0.62 (95% CI: 0.5-0.73), $p = 0.3537387$].

Study	Proportion	95%-CI
PHT		
Brevoord et al, 2005	0.30	[0.19; 0.42]
Agarwal et al, 2007	0.84	[0.71; 0.93]
Tiamkao & Sawanyawisuth, 2009	0.46	[0.29; 0.63]
Alvarez et al, 2011	0.59	[0.46; 0.70]
Ismail et al, 2012	0.26	[0.13; 0.44]
Tiamkao et al, 2013	0.22	[0.10; 0.38]
Chitsaz et al, 2013	0.60	[0.32; 0.84]
Chakravarhi et al, 2015	0.68	[0.45; 0.86]
Mundlarmuri et al, 2015	0.68	[0.53; 0.80]
Gujjar et al, 2017	0.70	[0.51; 0.85]
Random effects model	**0.53**	**[0.39; 0.67]**
Heterogeneity: $I^2 = 85\%$ [75%; 91%]		
LEV		
Knake et al, 2008	0.85	[0.55; 0.98]
Berning et al, 2009	0.36	[0.19; 0.56]
Eue et al, 2009	0.48	[0.31; 0.66]
Gámez-Leyva et al, 2009	0.62	[0.35; 0.85]
Alvarez et al, 2011	0.52	[0.38; 0.65]
Standish et al, 2011	1.00	[0.66; 1.00]
Atmaca et al, 2015	0.70	[0.35; 0.93]
Chakravarhi et al, 2015	0.59	[0.36; 0.79]
Mundlarmuri et al, 2015	0.78	[0.64; 0.88]
Lee et al, 2016	0.33	[0.10; 0.65]
Gujjar et al, 2017	0.82	[0.60; 0.95]
Random effects model	**0.62**	**[0.50; 0.73]**
Heterogeneity: $I^2 = 66\%$ [36%; 82%]		

Test for subgroup differences: $\chi_1^2 = 0.86$, df = 1 ($p = 0.35$)

0   0.2   0.4   0.6   0.8   1

Phenytoin (PHT) versus lacosamide (LAC). There were no statistically significant differences in effectiveness between PHT and LAC [0.53 (95% CI: 0.39-0.67) versus 0.66 (95% CI: 0.51-0.79), *p* = 0.2161124].

| Study	Proportion	95%-CI
PHT		
Brevoord et al, 2005	0.30	[0.19; 0.42]
Agarwal et al, 2007	0.84	[0.71; 0.93]
Tiamkao & Sawanyawisuth, 2009	0.46	[0.29; 0.63]
Alvarez et al, 2011	0.59	[0.46; 0.70]
Ismail et al, 2012	0.26	[0.13; 0.44]
Tiamkao et al, 2013	0.22	[0.10; 0.38]
Chitsaz et al, 2013	0.60	[0.32; 0.84]
Chakravarhi et al, 2015	0.68	[0.45; 0.86]
Mundlarmuri et al, 2015	0.68	[0.53; 0.80]
Gujjar et al, 2017	0.70	[0.51; 0.85]
Random effects model	**0.53 [0.39; 0.67]**	
Heterogeneity: I^2 = 85% [75%; 91%]		
LAC		
d'Orsi et al, 2016	0.78	[0.40; 0.97]
Misra et al, 2017	0.64	[0.45; 0.80]
Random effects model	**0.66 [0.51; 0.79]**	
Heterogeneity: I^2 = 0%		
Test for subgroup differences: χ^2_1 = 1.53, df = 1 (*p* = 0.22)		

Phenobarbital (PB) versus valproate (VPA). There were no statistically significant differences in effectiveness between PB and VPA [0.8 (95% CI: 0.69-0.88) versus 0.71 (95% CI: 0.61-0.79), *p* = 0.1604479].

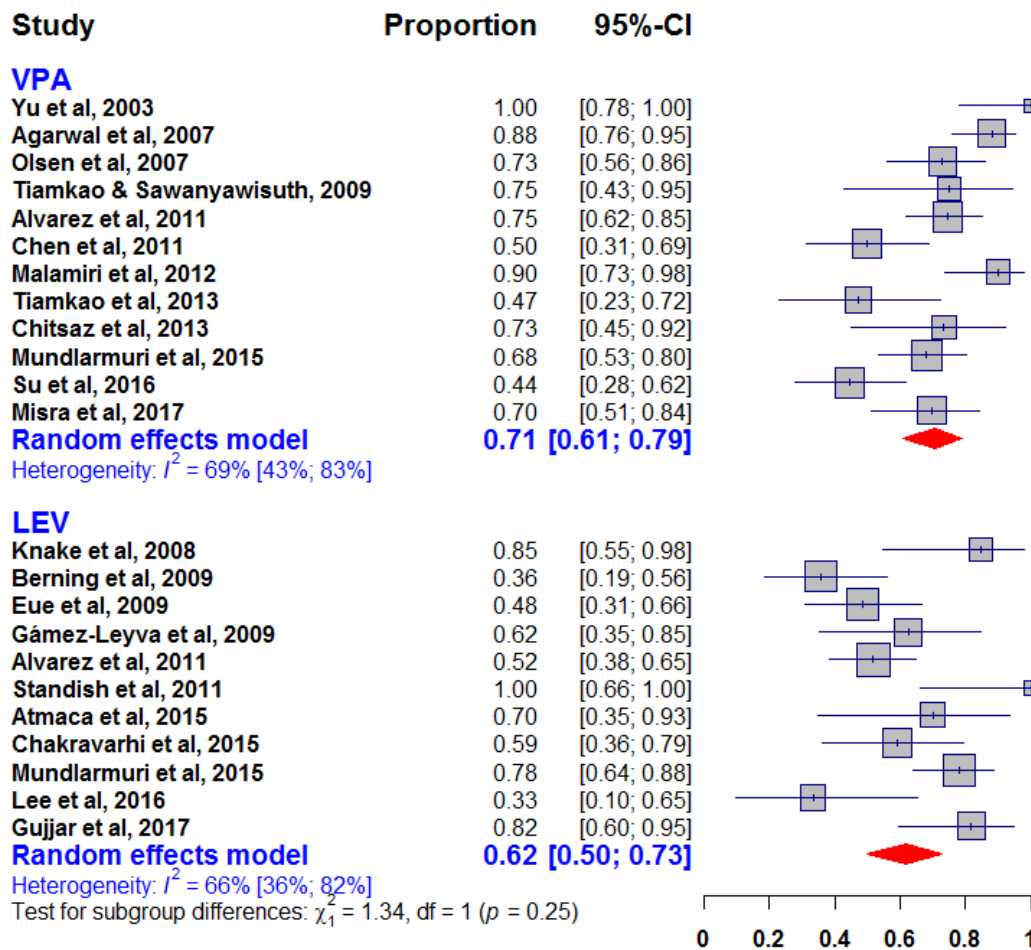| Study	Proportion	95%-CI	
PB			
Malamiri et al, 2012	0.77	[0.58; 0.90]	
Su et al, 2016	0.81	[0.65; 0.92]	
Lee et al, 2016	1.00	[0.69; 1.00]	
Random effects model	**0.80**	**[0.69; 0.88]**	
Heterogeneity: $I^2 = 0\%$ [0%; 87%]			
VPA			
Yu et al, 2003	1.00	[0.78; 1.00]	
Agarwal et al, 2007	0.88	[0.76; 0.95]	
Olsen et al, 2007	0.73	[0.56; 0.86]	
Tiamkao & Sawanyawisuth, 2009	0.75	[0.43; 0.95]	
Alvarez et al, 2011	0.75	[0.62; 0.85]	
Chen et al, 2011	0.50	[0.31; 0.69]	
Malamiri et al, 2012	0.90	[0.73; 0.98]	
Tiamkao et al, 2013	0.47	[0.23; 0.72]	
Chitsaz et al, 2013	0.73	[0.45; 0.92]	
Mundlarmuri et al, 2015	0.68	[0.53; 0.80]	
Su et al, 2016	0.44	[0.28; 0.62]	
Misra et al, 2017	0.70	[0.51; 0.84]	
Random effects model	**0.71**	**[0.61; 0.79]**	
Heterogeneity: $I^2 = 69\%$ [43%; 83%]			
Test for subgroup differences: $\chi_1^2 = 1.97$, df = 1 ($p = 0.16$)			

Phenobarbital (PB) versus levetiracetam (LEV). PB was more effective than LEV [0.8 (95% CI: 0.69-0.88) versus 0.62 (95% CI: 0.5-0.73, $p = 0.01816672$].
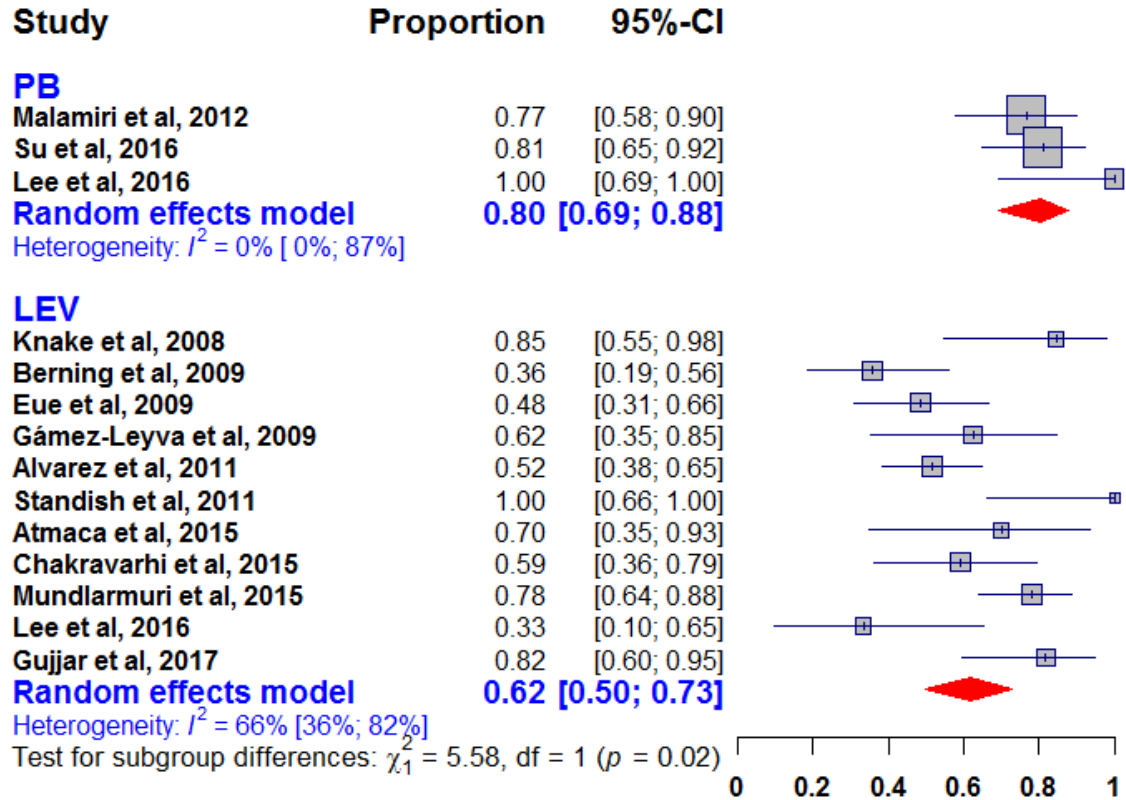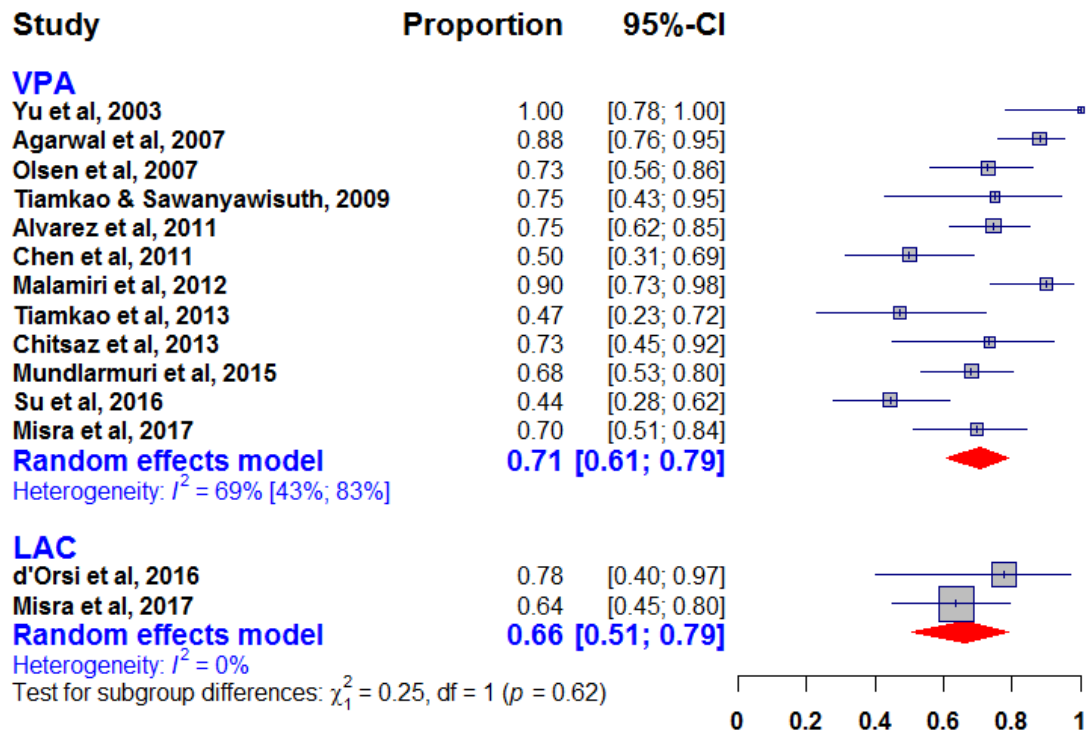
__Phenobarbital (PB) versus lacosamide (LAC).__ There were no statistically significant differences in effectiveness between PB and VPA [0.8 (95% CI: 0.69-0.88) versus 0.66 (95% CI: 0.51-0.79), *p* = 0.1035499].
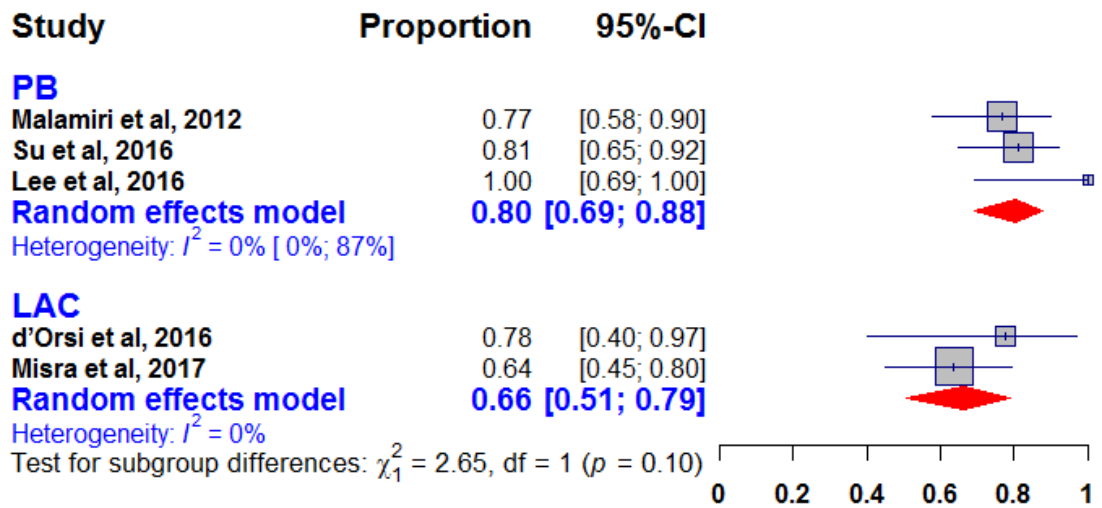
Valproate (VPA) versus levetiracetam (LEV). There were no statistically significant differences in effectiveness between VPA and LEV [0.71 (95% CI: 0.61-0.79) versus 0.62 (95% CI: 0.5-0.73), *p* = 0.247034].

Study	Proportion	95%-CI
VPA		
Yu et al, 2003	1.00	[0.78; 1.00]
Agarwal et al, 2007	0.88	[0.76; 0.95]
Olsen et al, 2007	0.73	[0.56; 0.86]
Tiamkao & Sawanyawisuth, 2009	0.75	[0.43; 0.95]
Alvarez et al, 2011	0.75	[0.62; 0.85]
Chen et al, 2011	0.50	[0.31; 0.69]
Malamiri et al, 2012	0.90	[0.73; 0.98]
Tiamkao et al, 2013	0.47	[0.23; 0.72]
Chitsaz et al, 2013	0.73	[0.45; 0.92]
Mundlarmuri et al, 2015	0.68	[0.53; 0.80]
Su et al, 2016	0.44	[0.28; 0.62]
Misra et al, 2017	0.70	[0.51; 0.84]
Random effects model	**0.71 [0.61; 0.79]**	
Heterogeneity: I^2 = 69% [43%; 83%]		
LEV		
Knake et al, 2008	0.85	[0.55; 0.98]
Berning et al, 2009	0.36	[0.19; 0.56]
Eue et al, 2009	0.48	[0.31; 0.66]
Gámez-Leyva et al, 2009	0.62	[0.35; 0.85]
Alvarez et al, 2011	0.52	[0.38; 0.65]
Standish et al, 2011	1.00	[0.66; 1.00]
Atmaca et al, 2015	0.70	[0.35; 0.93]
Chakravarhi et al, 2015	0.59	[0.36; 0.79]
Mundlarmuri et al, 2015	0.78	[0.64; 0.88]
Lee et al, 2016	0.33	[0.10; 0.65]
Gujjar et al, 2017	0.82	[0.60; 0.95]
Random effects model	**0.62 [0.50; 0.73]**	
Heterogeneity: I^2 = 66% [36%; 82%]		
Test for subgroup differences: χ_1^2 = 1.34, df = 1 (*p* = 0.25)		

__Valproate (VPA) versus lacosamide (LAC).__ There were no statistically significant differences in effectiveness between VPA and LAC [0.71 (95% CI: 0.61-0.79) versus 0.66 (95% CI: 0.51-0.79), *p* = 0.6170751].

Levetiracetam (LEV) versus lacosamide (LAC). There were no statistically significant differences in effectiveness between LEV and LAC [0.62 (95% CI: 0.5-0.73) versus 0.66 (95% CI: 0.51-0.79), *p* = 0.6467674].