*Age*

Supplement Figure 1. Forest plot for pooling adjusted odds ratio of age
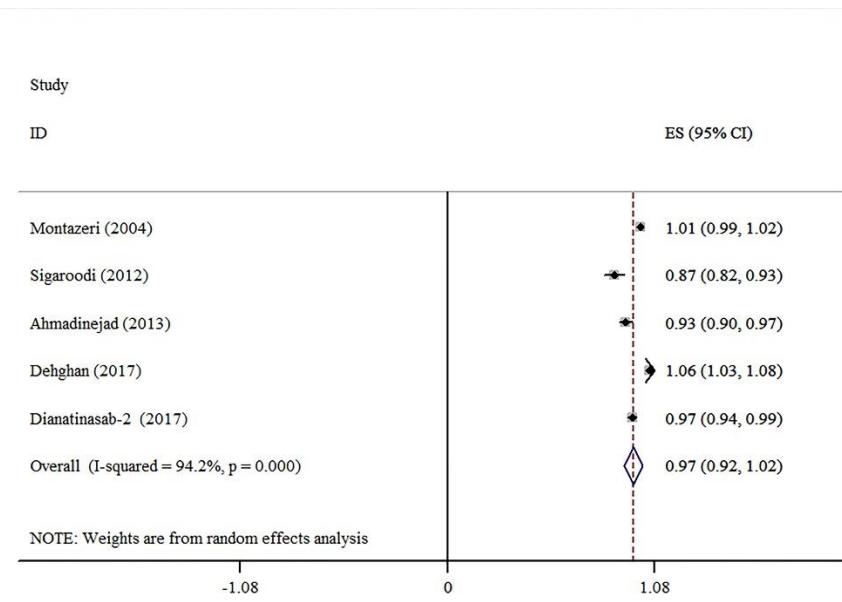

Supplement Figure 2. Forest plot for pooling odds ratio of age

Family history
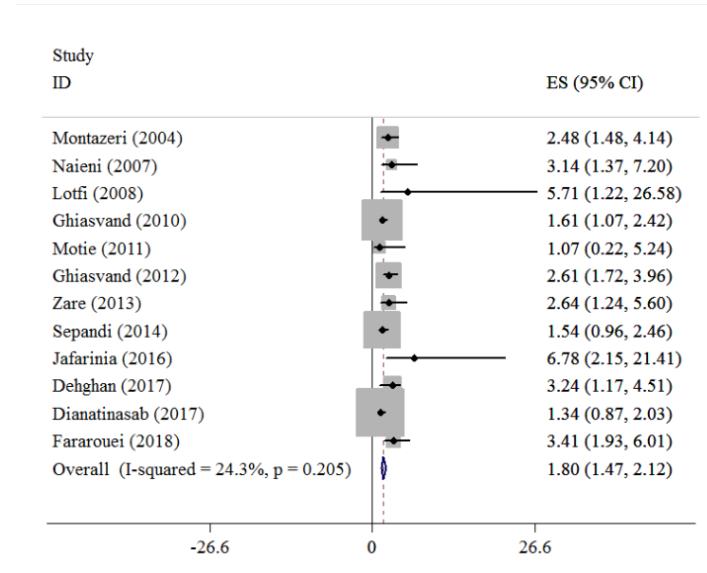
Supplement Figure 3. Forest plot for pooling adjusted odds ratio of family history
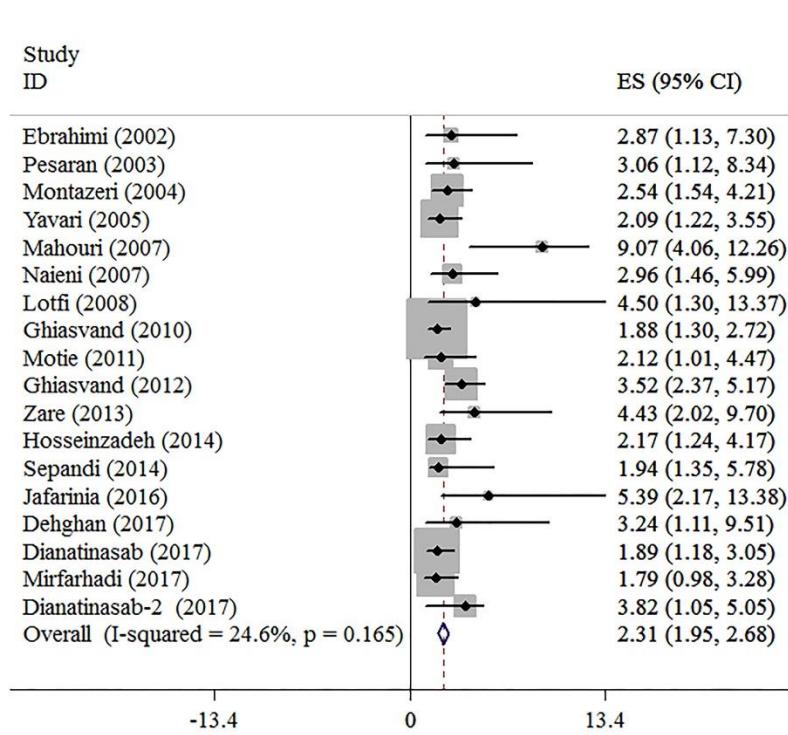
Supplement Figure 4. Forest plot for pooling odds ratio of family history

Menarche age

Study

ID   ES (95% CI)

Montazeri (2004)   0.85 (0.75, 0.95)

Naieni (2007)   3.98 (2.96, 6.91)

Overall (I-squared = 89.6%, p = 0.002)   2.25 (-0.80, 5.30)

NOTE: Weights are from random effects analysis

-6.91   0   6.91
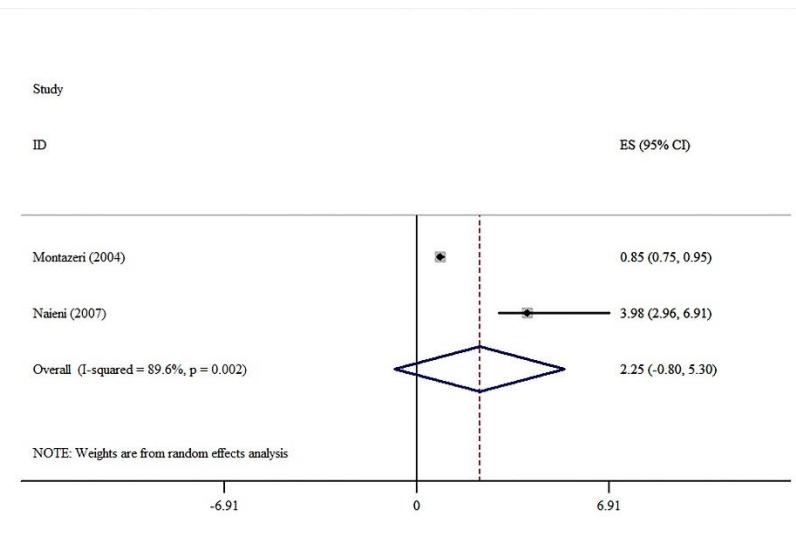
Supplement Figure 5. Forest plot for pooling adjusted odds ratio of menarche age

Menarche age
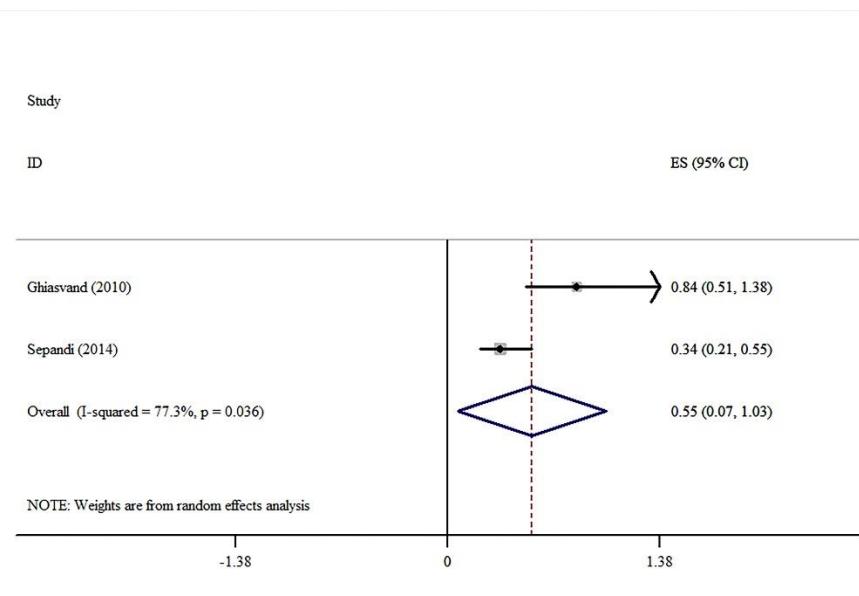
*Supplement Figure 6. Forest plot for pooling adjusted odds ratio of menarche age between 12 to 15 years*
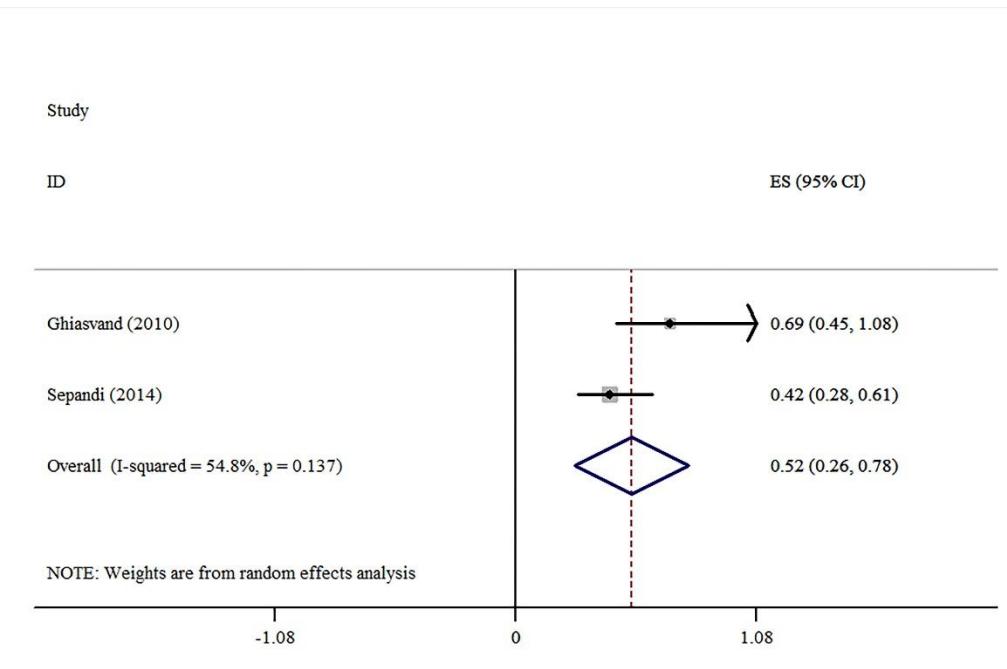
Supplement Figure 7. Forest plot for pooling odds ratio of menarche age between 12 to 15 years

Menarche age

Study		
ID		ES (95% CI)
Yavari (2005)		1.32 (0.20, 2.10)
Lotfi (2008)		16.89 (3.71, 88.42)
Ghiasvand (2012)		1.80 (1.07, 3.02)
Hosseinzadeh (2014)		2.50 (1.34, 4.67)
Veisy (2015)		0.20 (0.11, 0.52)
Overall (I-squared = 81.4%, p = 0.000)		1.31 (0.23, 2.40)

NOTE: Weights are from random effects analysis

-88.4   0   88.4
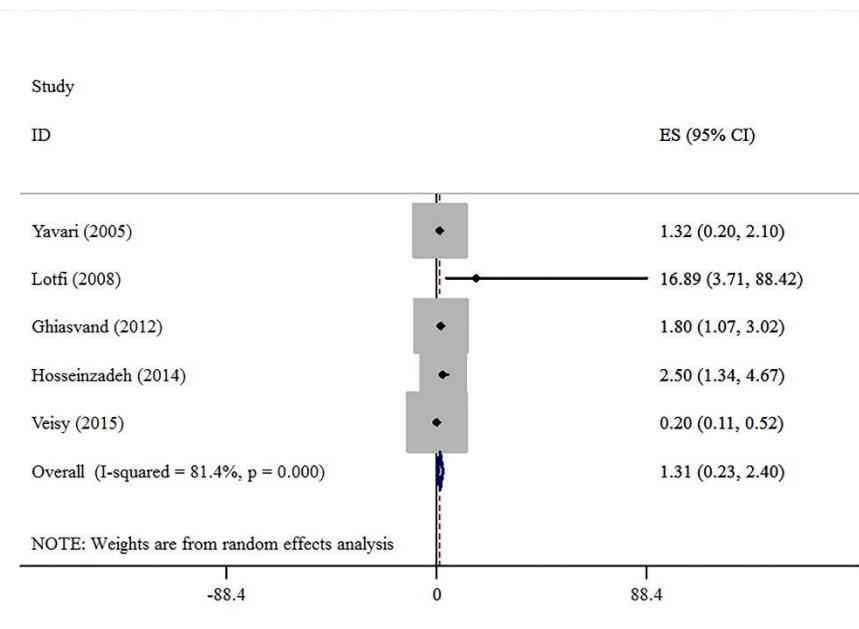
Supplement Figure 8. Forest plot for pooling odds ratio of menarche age less than 12 years

Study		
ID		ES (95% CI)
Yavari (2005)		1.08 (0.90, 1.67)
Lotfi (2008)		3.31 (1.31, 8.46)
Hajian-tilaki (2010)		0.93 (0.72, 3.20)
Hosseinzadeh (2014)		1.19 (0.62, 1.97)
Veisy (2015)		1.30 (0.71, 1.49)
Overall (I-squared = 0.0%, p = 0.710)		1.19 (0.94, 1.44)

-8.46   0   8.46
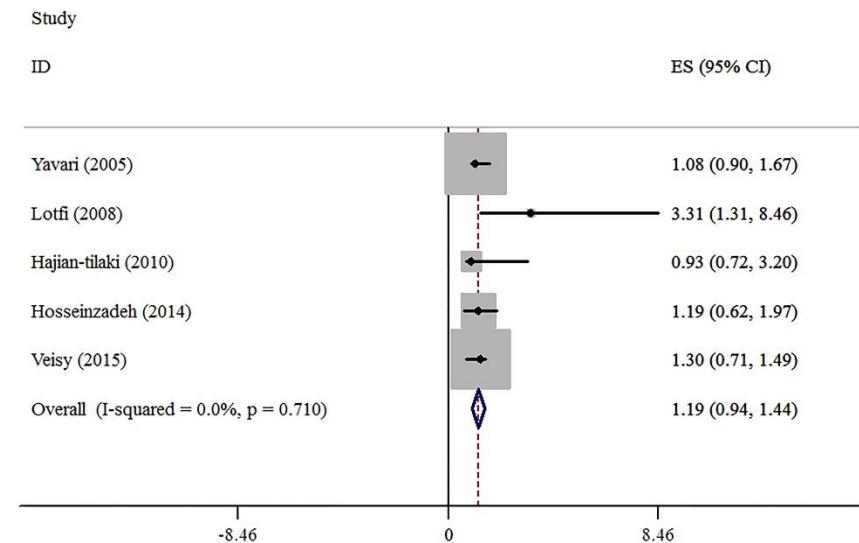
Supplement Figure 9. Forest plot for pooling odds ratio of menarche age less than 13 years

Menarche age

| Study ID		ES (95% CI)
Yavari (2005)		1.05 (0.70, 1.63)
Lotfi (2008)		2.90 (1.20, 6.70)
Hajian-tilaki (2010)		1.38 (0.67, 2.84)
Hosseinzadeh (2014)		0.59 (0.32, 1.08)
Veisy (2015)		1.10 (0.74, 1.62)
Overall (I-squared = 38.6%, p = 0.164)		0.91 (0.68, 1.15)
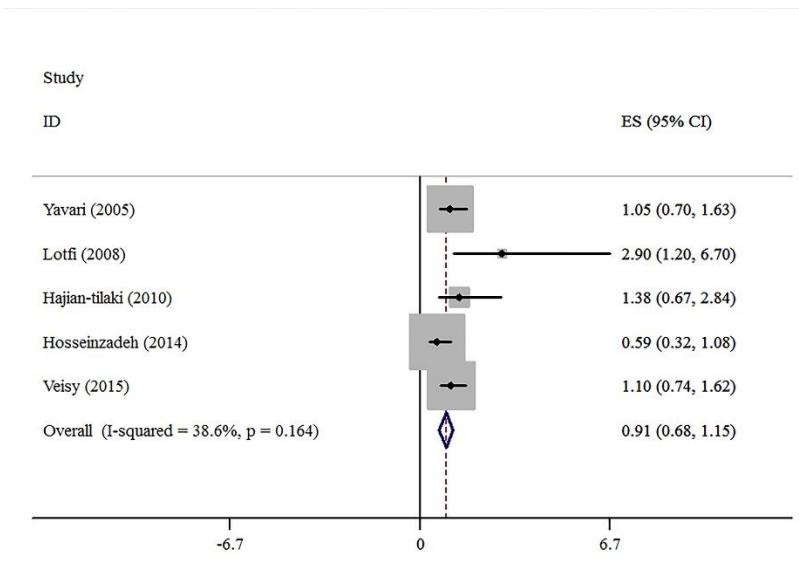
Supplement Figure 10. Forest plot for pooling odds ratio of menarche age less than 14 years

Menarche age
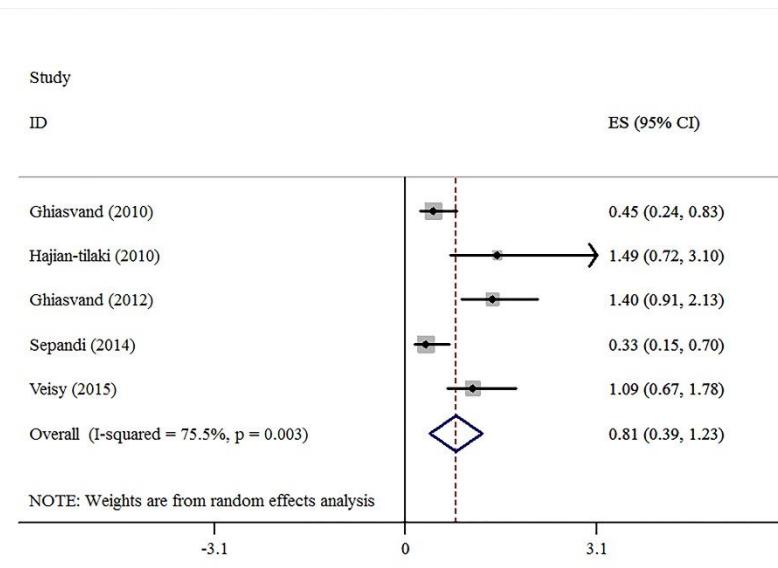
*Supplement Figure 11. Forest plot for pooling odds ratio of menarche age more than 15 years*
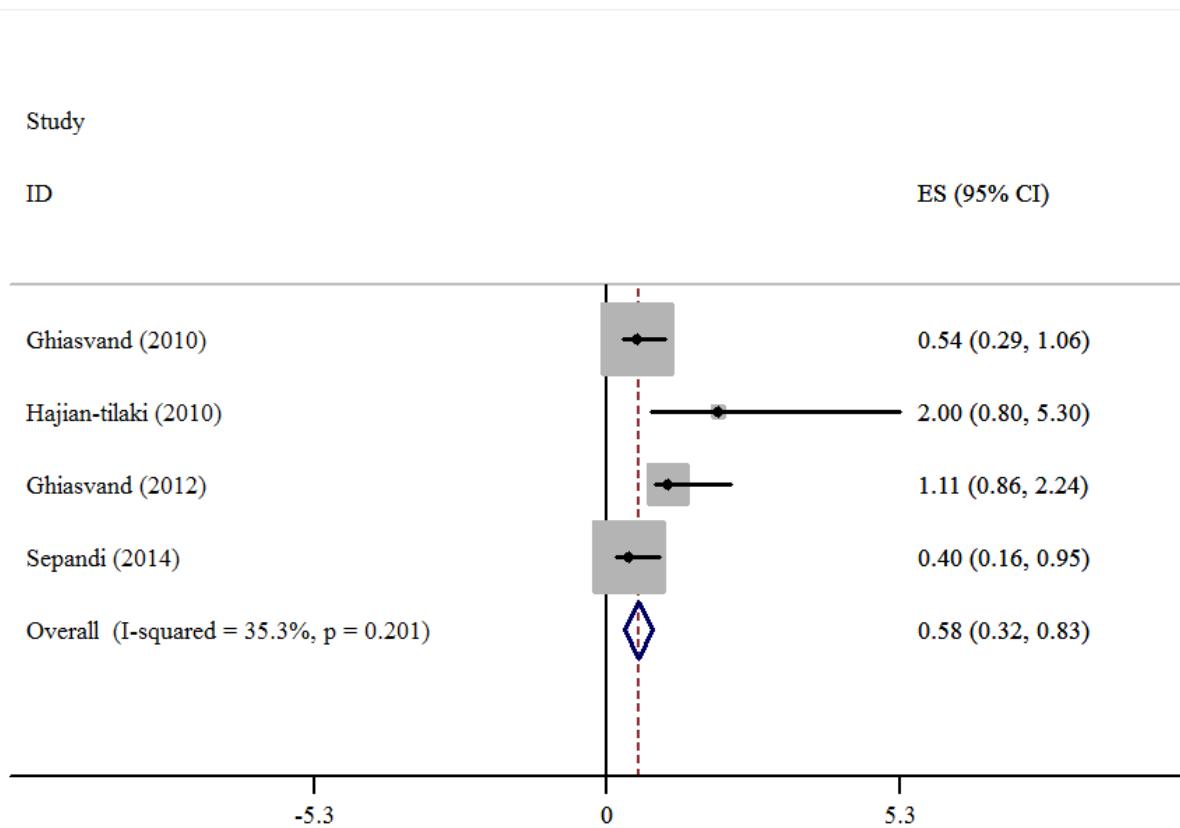
Supplementary Figure 12. Forest plot for pooling adjusted odds ratio of menarche age more than 15 years

Body mass index

Study
ID   ES (95% CI)

Naieni (2007)   1.02 (1.01, 1.03)

Dianatinasab (2017)   1.07 (1.02, 1.11)

Overall (I-squared = 77.9%, p = 0.034)   1.04 (0.99, 1.09)

NOTE: Weights are from random effects analysis

-1.11   0   1.11
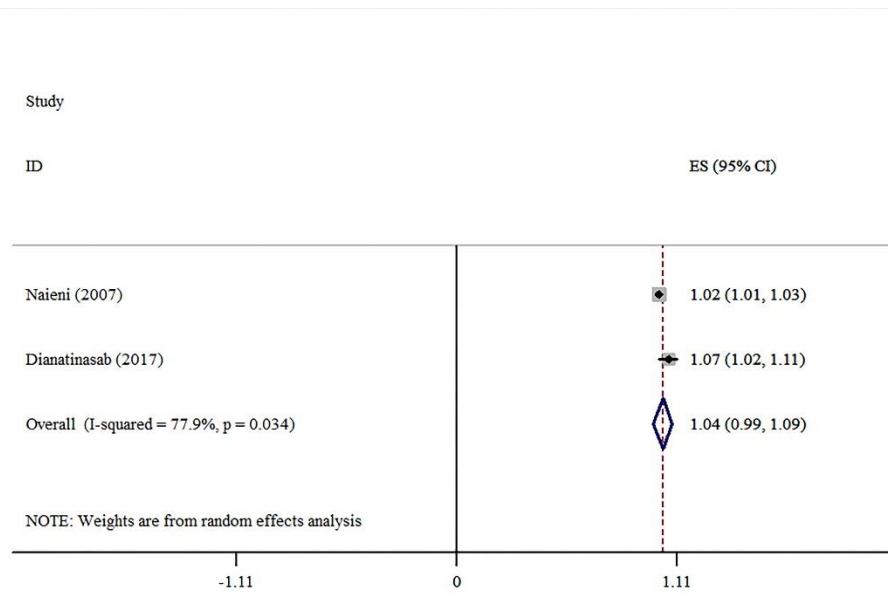
Supplement Figure 13. Forest plot for pooling adjusted odds ratio of body mass index

Study
ID   ES (95% CI)

Naieni (2007)   1.01 (0.99, 1.02)

Hosseinzadeh (2014)   1.20 (0.67, 2.14)

Dianatinasab (2017)   1.04 (1.03, 1.07)

Overall (I-squared = 65.3%, p = 0.056)   1.02 (1.00, 1.05)

NOTE: Weights are from random effects analysis

-2.14   0   2.14
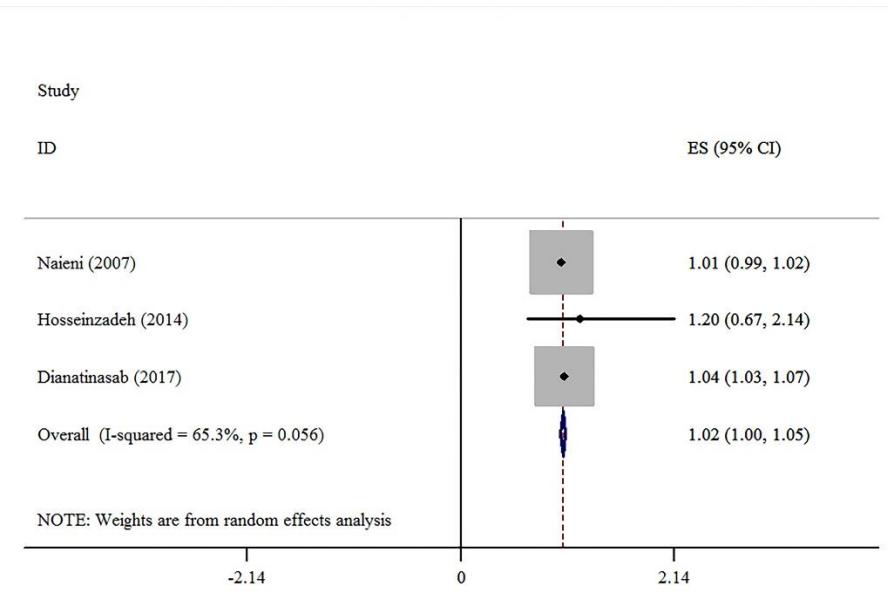
Supplement Figure 14. Forest plot for pooling odds ratio of body mass index

Body mass index
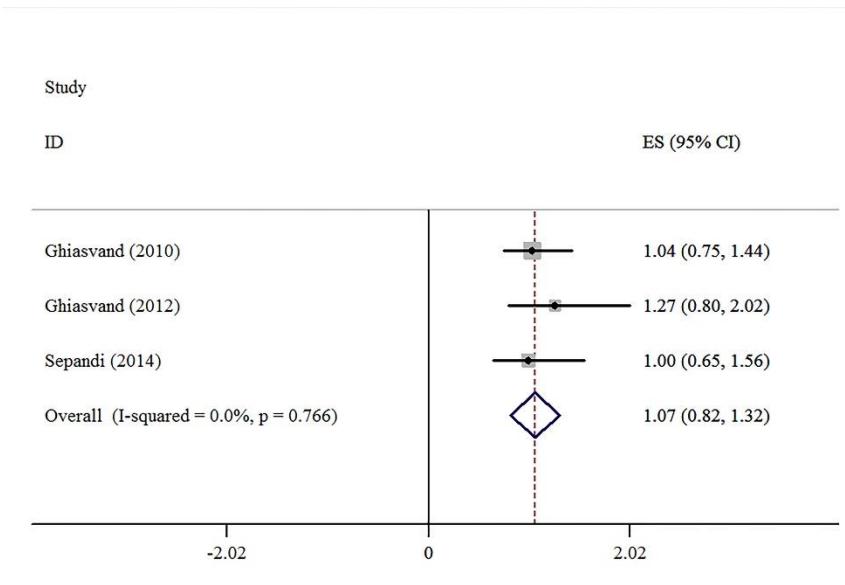
*Supplement Figure 15. Forest plot for pooling adjusted odds ratio of body mass index between 25-29.9*
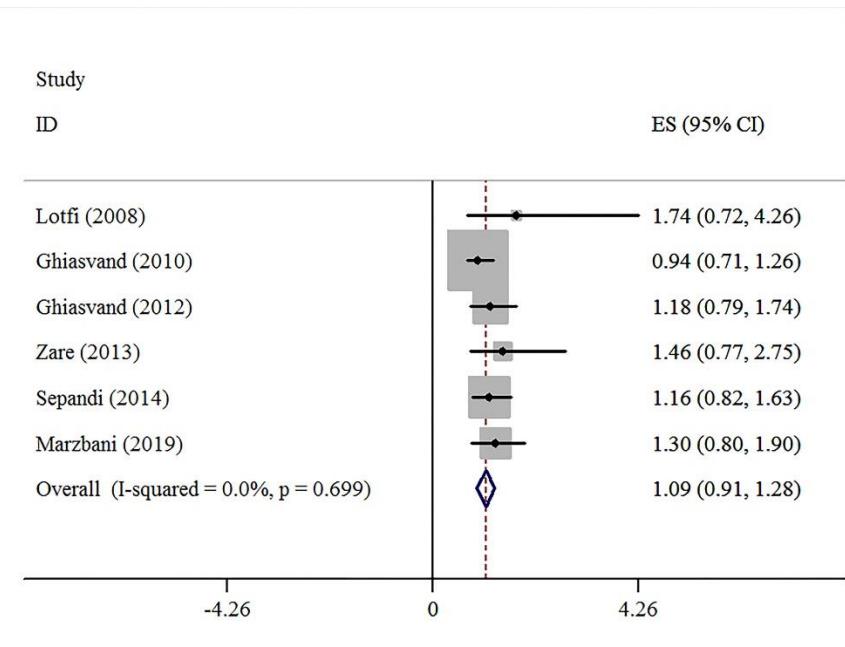
Supplement Figure 16. Forest plot for pooling odds ratio of body mass index between 25-29.9

Body mass index

Study
ID   ES (95% CI)

Ghiasvand (2010)   1.20 (0.84, 1.72)

Ghiasvand (2012)   1.21 (0.73, 1.99)

Sepandi (2014)   1.24 (0.78, 1.98)

Overall (I-squared = 0.0%, p = 0.994)   1.21 (0.90, 1.52)

            -1.99   0   1.99
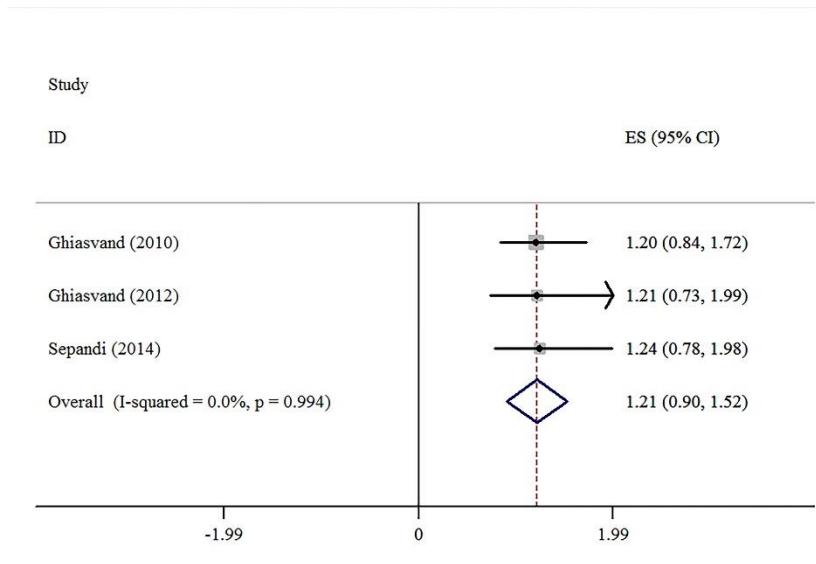
Supplement Figure 17. Forest plot for pooling adjusted odds ratio of body mass index more than 30

Study
ID   ES (95% CI)

Lotfi (2008)   4.76 (1.94, 11.74)

Ghiasvand (2010)   1.03 (0.74, 1.42)

Ghiasvand (2012)   1.25 (0.81, 1.91)

Zare (2013)   0.97 (0.50, 1.88)

Sepandi (2014)   1.40 (0.97, 2.03)

Overall (I-squared = 0.0%, p = 0.433)   1.15 (0.91, 1.39)

   -11.7   0   11.7
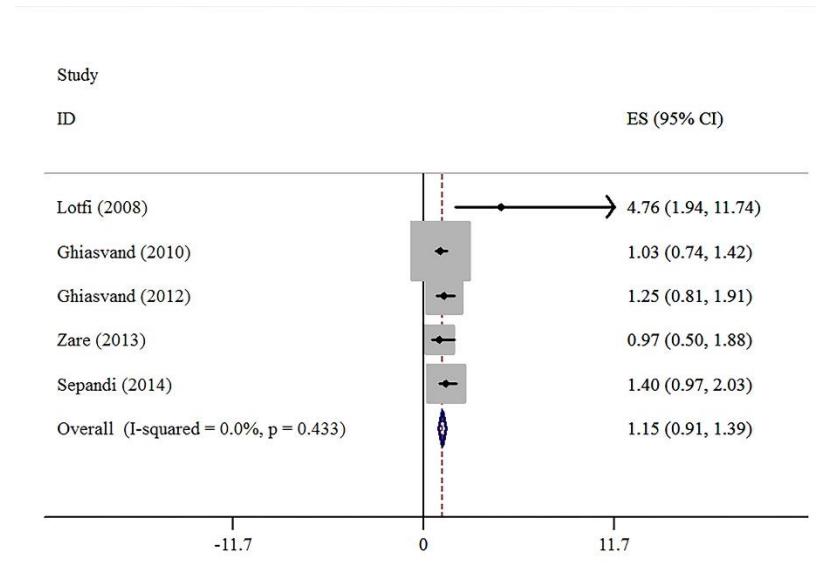
Supplement Figure 18. Forest plot for pooling odds ratio of body mass index more than 30

Relationship status
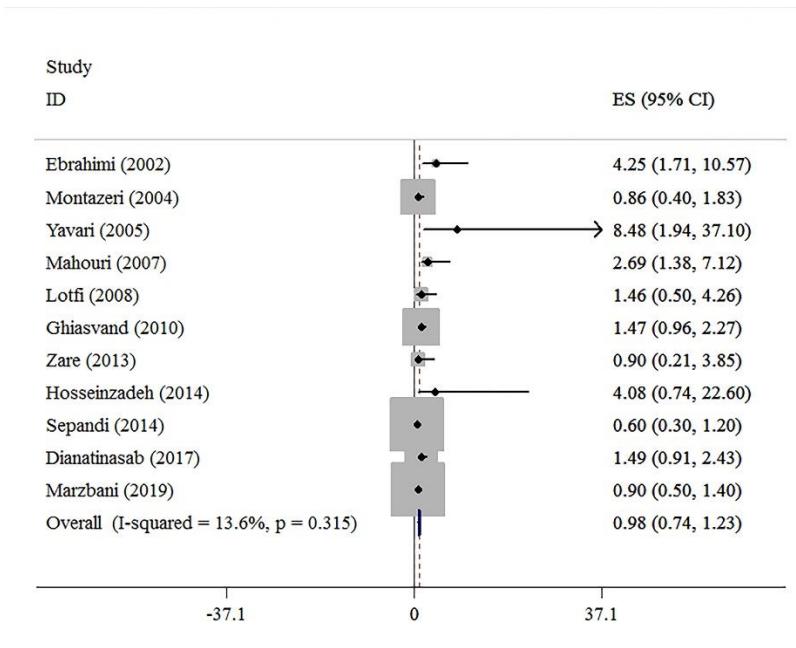
Supplement Figure 19. Forest plot for pooling odds ratio of single relationship status
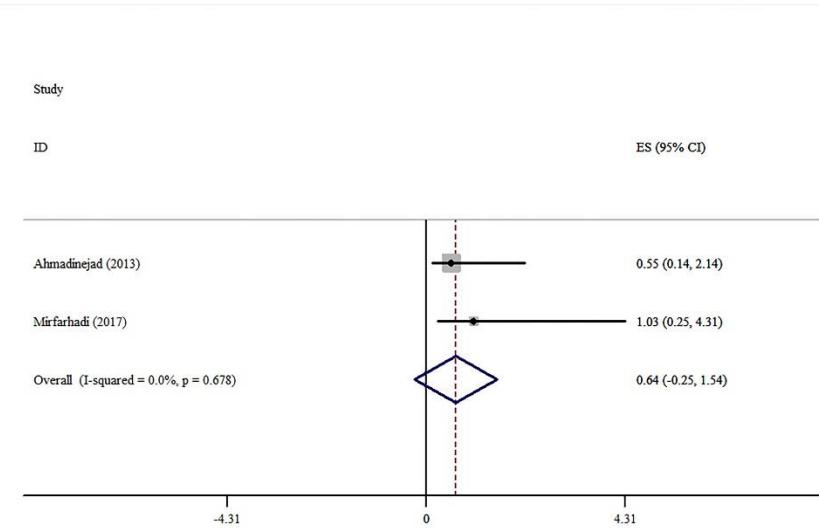
Supplement Figure 20. Forest plot for pooling odds ratio of married relationship status

Relationship status

Study ID		ES (95% CI)
Ebrahimi (2002)		1.68 (1.05, 2.68)
Montazeri (2004)		1.46 (0.88, 2.41)
Mahouri (2007)		1.43 (0.88, 3.76)
Ghiasvand (2010)		1.20 (0.74, 1.94)
Zare (2013)		0.83 (0.47, 1.47)
Mirfarhadi (2017)		1.33 (0.25, 3.26)
Marzbani (2019)		0.90 (0.40, 2.00)
Overall (I-squared = 0.0%, p = 0.619)		1.15 (0.87, 1.43)
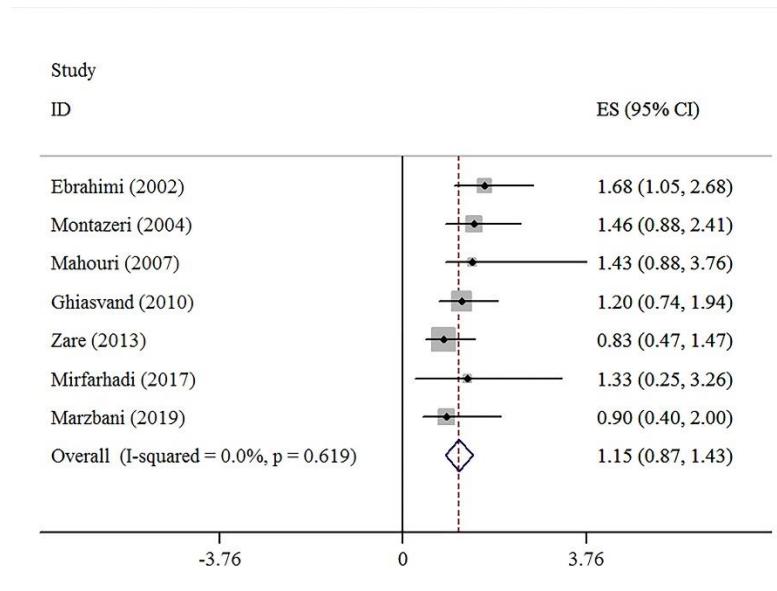
Supplement Figure 21. Forest plot for pooling odds ratio of divorced relationship status

Education Level

Study
ID | ES (95% CI)

Naieni (2007) | 1.54 (0.93, 2.57)
Ghiasvand (2010) | 1.45 (0.97, 2.16)
Ghiasvand (2012) | 1.33 (0.83, 2.29)
Zare (2013) | 0.58 (0.25, 1.35)
Hosseinzadeh (2014) | 2.29 (1.13, 4.64)
Fararouei (2018) | 1.51 (0.86, 2.67)
Marzbani (2019) | 2.20 (1.20, 4.00)
Overall (I-squared = 40.6%, p = 0.121) | 1.26 (0.96, 1.55)

-4.64   0   4.64
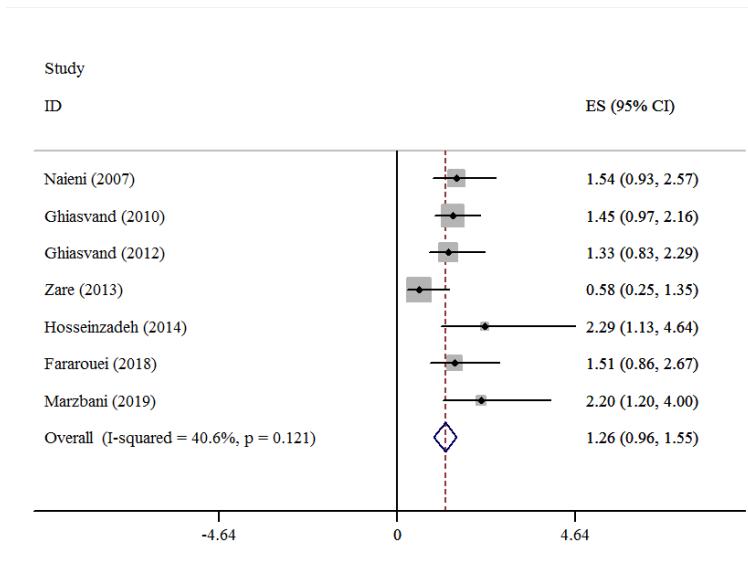
Supplement Figure 22. Forest plot for pooling odds ratio of basic education level

Study
ID | ES (95% CI)

Naieni (2007) | 4.70 (1.71, 12.88)
Ghiasvand (2010) | 1.38 (0.66, 2.88)
Hajian-tilaki (2011) | 0.10 (0.03, 0.33)
Ghiasvand (2012) | 1.50 (0.64, 3.48)
Zare (2013) | 0.89 (0.44, 1.83)
Hosseinzadeh (2014) | 3.24 (1.06, 9.98)
Sepandi (2014) | 0.75 (0.31, 1.83)
Dianatinasab (2017) | 0.42 (0.24, 0.73)
Marzbani (2019) | 2.80 (1.30, 5.90)
Overall (I-squared = 69.7%, p = 0.001) | 0.71 (0.31, 1.11)

NOTE: Weights are from random effects analysis

-12.9   0   12.9
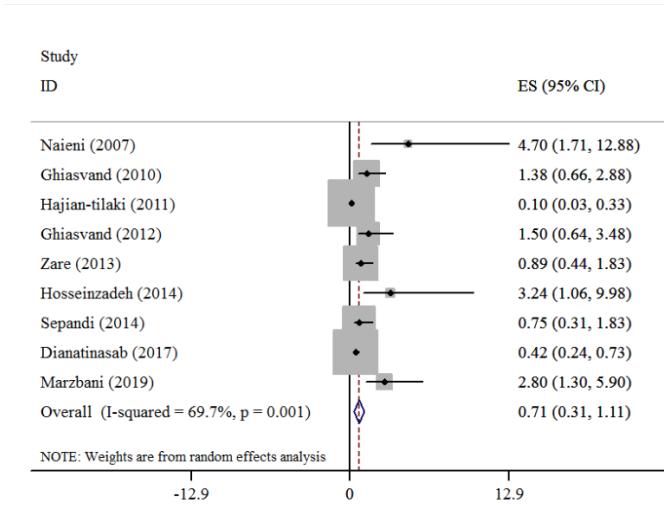
Supplement Figure 123. Forest plot for pooling odds ratio of academic education level

Stress conditions

Study

ID   ES (95% CI)

Hosseinzadeh (2014)   3.05 (1.74, 5.36)

Jafarinia (2016)   4.86 (2.46, 9.59)

Dianatinasab (2017)   2.40 (1.62, 3.56)

Overall (I-squared = 0.0%, p = 0.384)   2.67 (1.84, 3.50)

-9.59   0   9.59
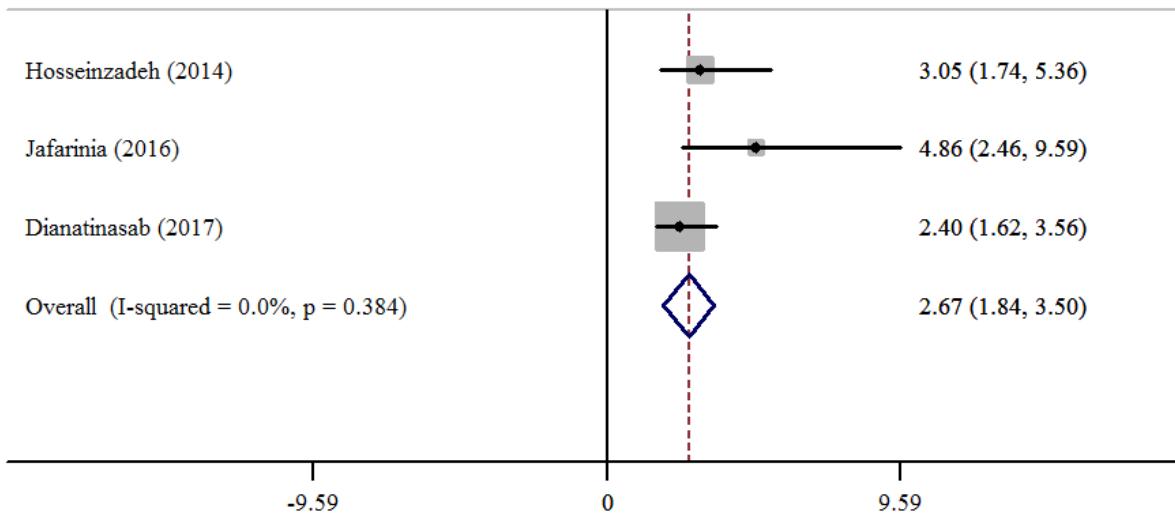
Supplementary Figure 24. Forest plot for pooling adjusted odds ratio of stress conditions experience

Smoking status

Study
ID   ES (95% CI)

Ahmadinejad (2013)   0.77 (0.28, 2.08)

Dianatinasab (2017)   2.02 (1.22, 3.34)

Fararouei (2018)   2.48 (1.56, 3.96)

Overall (I-squared = 66.3%, p = 0.051)   1.70 (0.66, 2.74)

NOTE: Weights are from random effects analysis

            -3.96   0   3.96
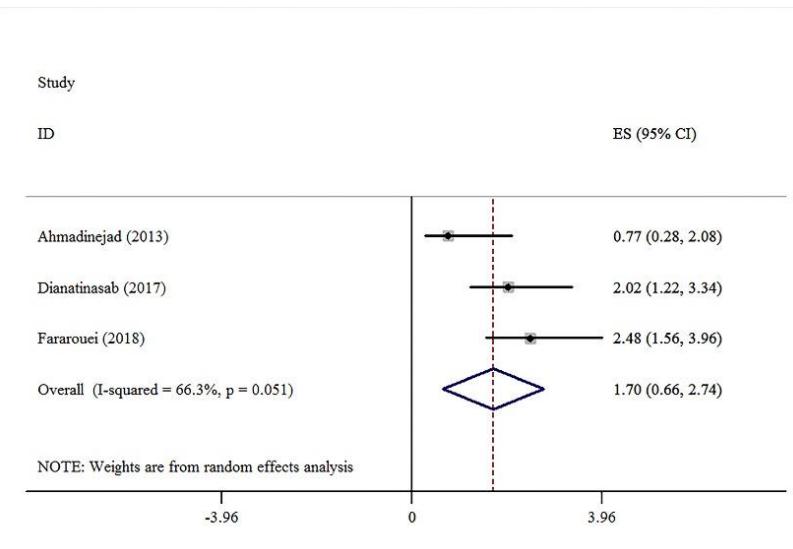
Supplement Figure 135. Forest plot for pooling adjusted odds ratio of active smokers

Study
ID   ES (95% CI)

Mahouri (2007)   1.13 (0.58, 2.16)

Naieni (2007)   1.01 (0.97, 1.04)

Hosseinzadeh (2014)   2.54 (0.67, 9.63)

Dianatinasab (2017)   2.08 (1.39, 3.11)

Dianatinasab-2 (2017)   2.23 (1.37, 3.62)

Overall (I-squared = 63.5%, p = 0.027)   1.49 (0.89, 2.08)

NOTE: Weights are from random effects analysis

   -9.63   0   9.63
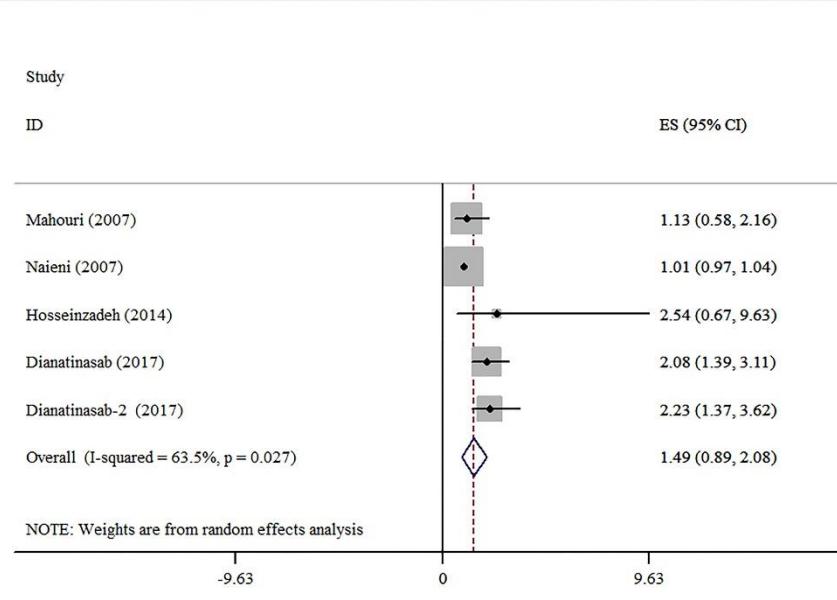
Supplement Figure 146. Forest plot for pooling odds ratio of active smokers

Smoking status
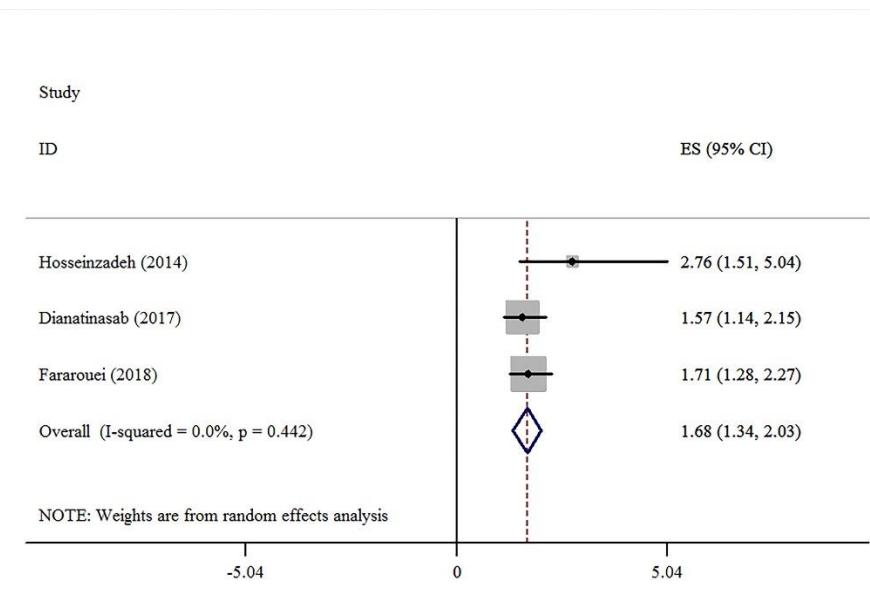
Supplement Figure 157. Forest plot for pooling adjusted odds ratio of passive smokers
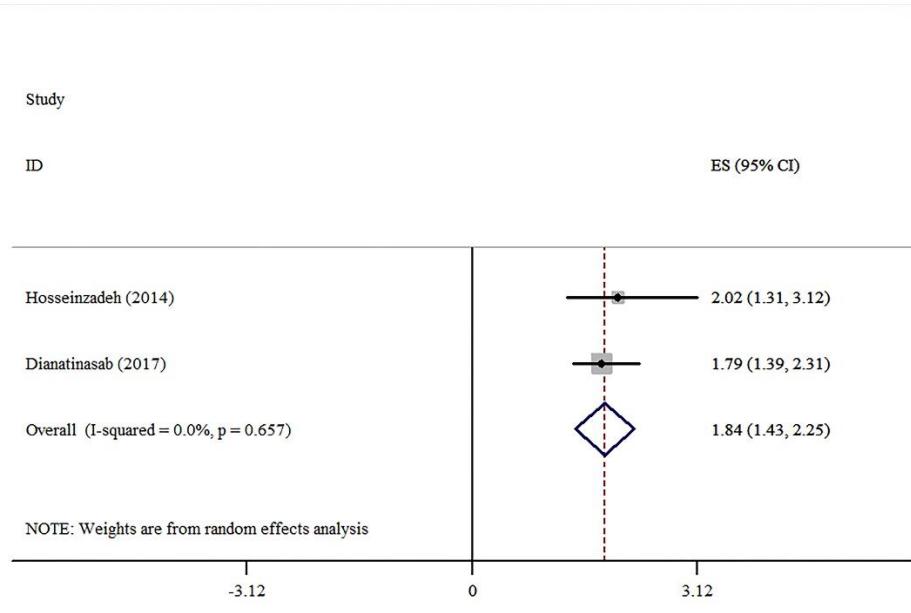

Supplement Figure 168. Forest plot for pooling odds ratio of passive smokers

Daily exercise

Study ID — ES (95% CI)

Jafarinia (2016) — 0.61 (0.21, 1.77)

Dianatinasab (2017) — 0.54 (0.39, 0.75)

Fararouei (2018) — 0.68 (0.47, 0.98)

Overall (I-squared = 0.0%, p = 0.678) — 0.59 (0.44, 0.73)

-1.77   0   1.77
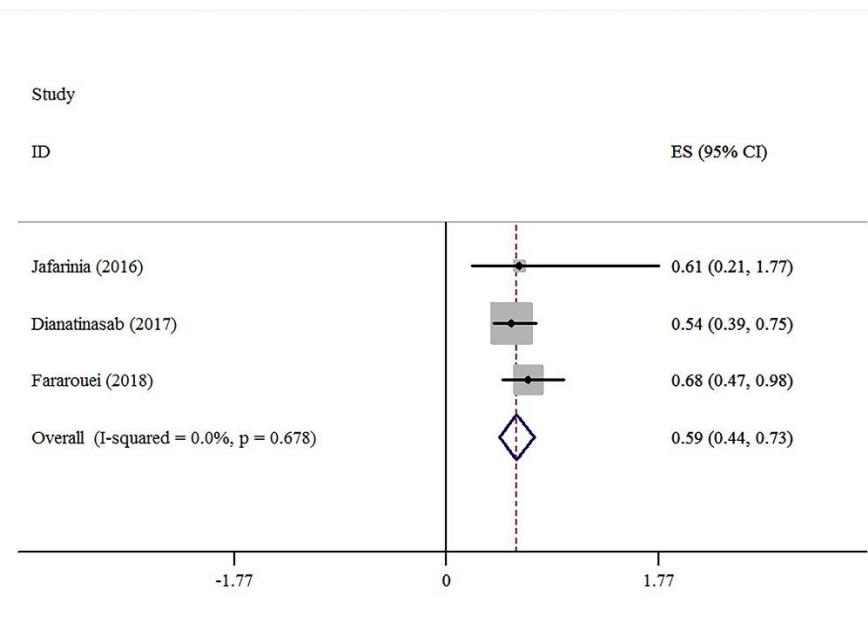
Supplement Figure 179. Forest plot for pooling adjusted odds ratio of daily exercise

Study ID — ES (95% CI)

Lotfi (2008) — 3.62 (1.63, 8.15)

Jafarinia (2016) — 0.34 (0.14, 0.79)

Dianatinasab (2017) — 0.59 (0.46, 0.77)

Dianatinasab-2 (2017) — 0.10 (0.01, 0.67)

Overall (I-squared = 73.5%, p = 0.010) — 0.40 (0.05, 0.75)

NOTE: Weights are from random effects analysis

-8.15   0   8.15
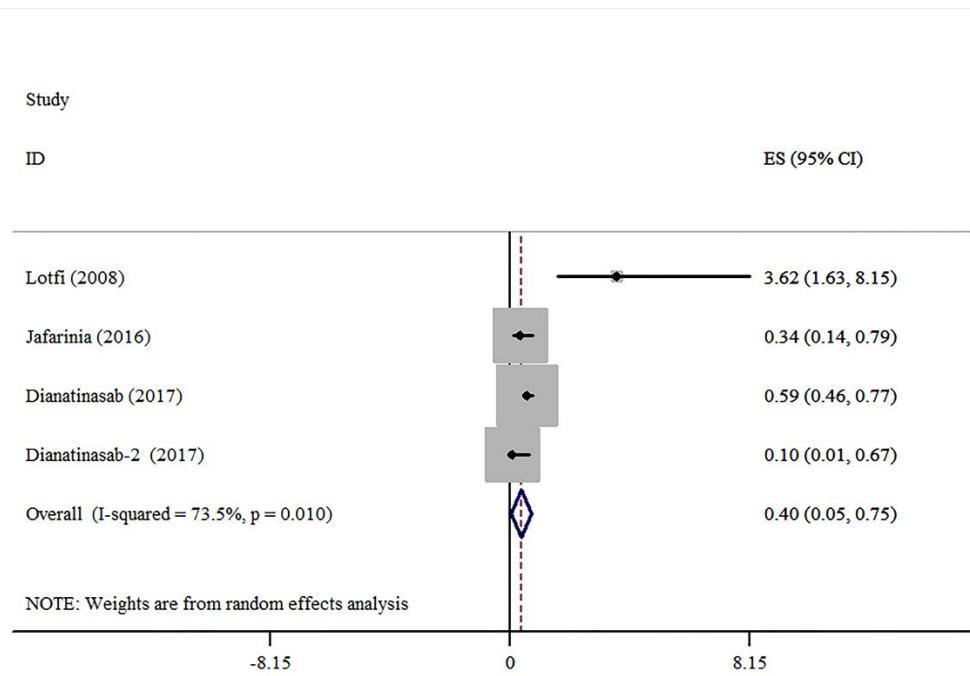
Supplement Figure 30. Forest plot for pooling odds ratio of daily exercise

Hormone receptor status

Study
ID   ES (95% CI)

Kaviani (2013)   1.90 (1.05, 3.41)

Vahid (2018)   1.86 (1.43, 2.43)

Overall (I-squared = 0.0%, p = 0.956)   1.87 (1.41, 2.33)

-3.41   0   3.41
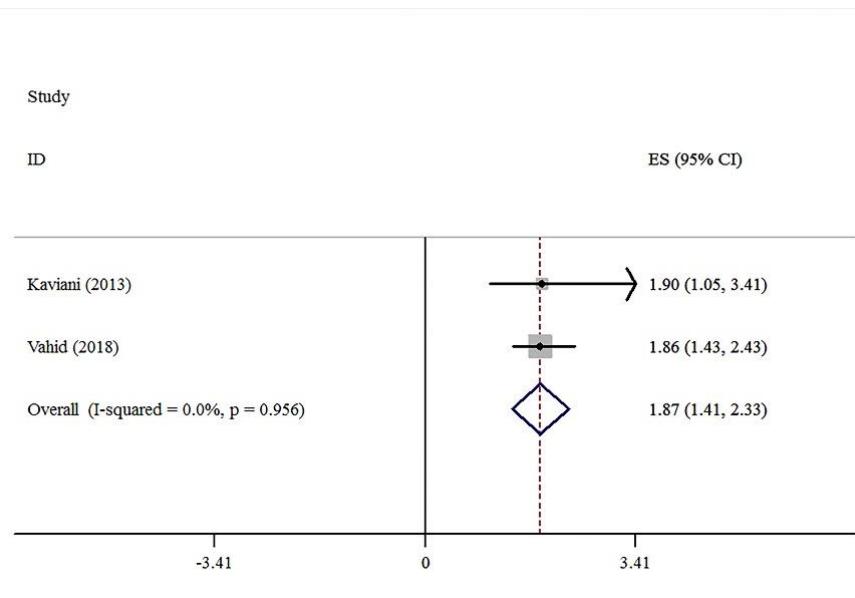
Supplement Figure 31. Forest plot for pooling odds ratio of ER positive status

Study
ID   ES (95% CI)

Kaviani (2013)   1.70 (0.97, 2.99)

Vahid (2018)   1.87 (1.41, 2.43)

Overall (I-squared = 0.0%, p = 0.770)   1.84 (1.38, 2.29)

-2.99   0   2.99
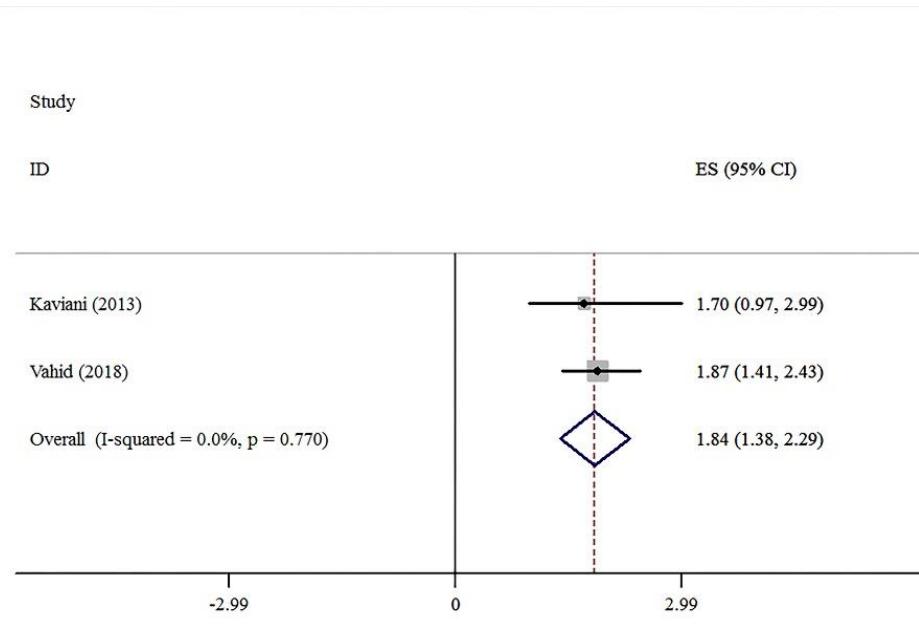
Supplement Figure 32. Forest plot for pooling odds ratio of PR positive status

Menopausal status

Study ID		ES (95% CI)
Yavari (2005)		3.59 (2.36, 5.47)
Naieni (2007)		4.18 (2.54, 6.88)
Hajian-tilaki (2010)		0.60 (0.28, 1.30)
Ahmadinejad (2013)		0.43 (0.15, 1.23)
Zare (2013)		1.23 (0.71, 2.14)
Tazhibi (2014)		1.26 (1.11, 2.12)
Hosseinzadeh (2014)		2.54 (1.41, 4.59)
Sepandi (2014)		1.14 (0.71, 1.83)
Dianatinasab (2017)		1.03 (0.72, 1.48)
Overall (I-squared = 73.9%, p = 0.000)		1.29 (0.84, 1.74)

NOTE: Weights are from random effects analysis

-6.88   0   6.88
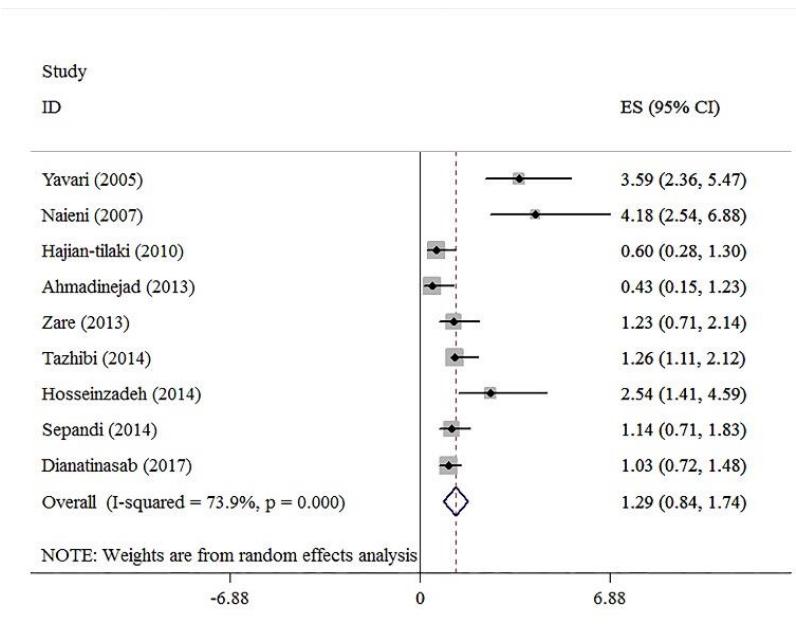
Supplement Figure 33. Forest plot for pooling adjusted odds ratio of menopausal status

Study ID		ES (95% CI)
Ebrahimi (2002)		1.40 (0.97, 2.03)
Montazeri (2004)		0.89 (0.24, 1.74)
Yavari (2005)		2.97 (2.09, 4.20)
Mahouri (2007)		0.95 (0.43, 2.28)
Naieni (2007)		3.29 (2.14, 5.08)
Lotfi (2008)		2.40 (1.21, 4.79)
Hajian-tilaki (2010)		0.75 (0.46, 1.22)
Ahmadinejad (2013)		0.29 (0.15, 0.57)
Zare (2013)		1.70 (1.22, 2.38)
Hosseinzadeh (2014)		1.48 (0.98, 2.22)
Sepandi (2014)		3.15 (2.35, 4.21)
Dianatinasab (2017)		1.10 (0.85, 1.40)
Overall (I-squared = 88.9%, p = 0.000)		1.53 (1.06, 1.99)

NOTE: Weights are from random effects analysis

-5.08   0   5.08

Supplement Figure 34. Forest plot for pooling odds ratio of menopausal status

Hormone replacement therapy

Study
ID

ES (95% CI)

Mahouri (2007) 1.09 (0.53, 1.82)

Zare (2013) 6.36 (3.59, 11.28)

Hosseinzadeh (2014) 1.15 (0.47, 2.81)

Jafarinia (2016) 5.64 (1.55, 20.43)

Overall (I-squared = 61.9%, p = 0.049) 1.80 (0.36, 3.23)

NOTE: Weights are from random effects analysis

-20.4 0 20.4
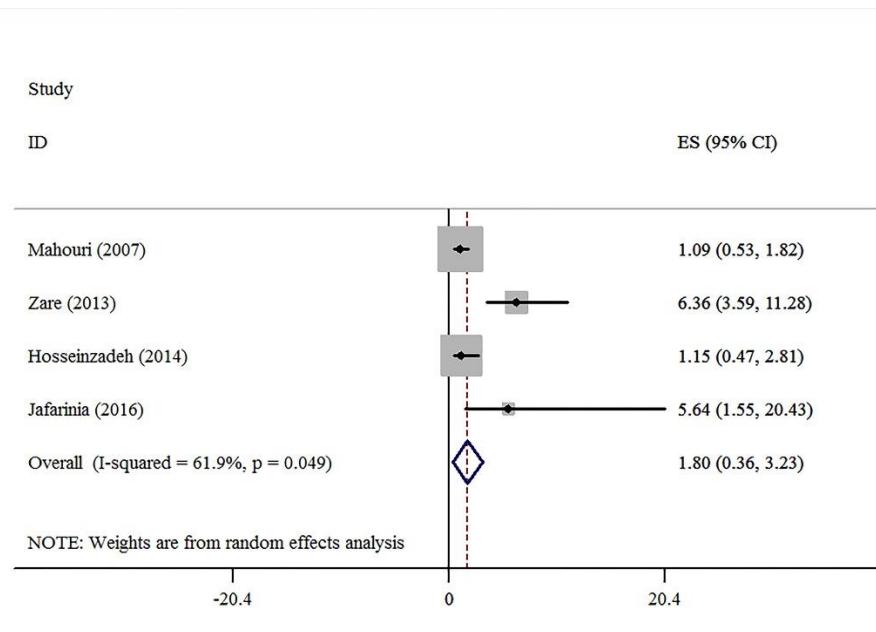
Supplement Figure 35. Forest plot for pooling odds ratio of hormone replacement therapy

Study
ID

ES (95% CI)

Zare (2013) 6.32 (3.92, 10.21)

Tazhibi (2014) 10.24 (1.18, 88.89)

Jafarinia (2016) 2.41 (0.47, 12.32)

Overall (I-squared = 0.0%, p = 0.509) 5.48 (2.71, 8.25)

-88.9 0 88.9
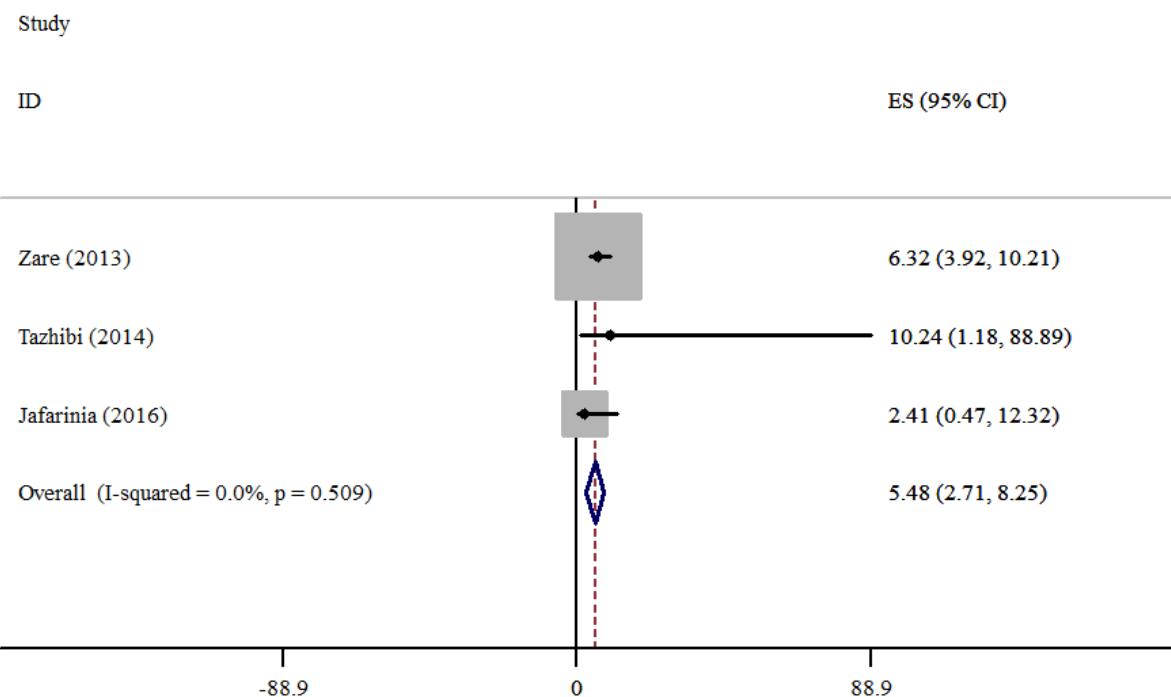
Supplement Figure 36. Forest plot for pooling adjusted odds ratio of hormone replacement therapy

Oral contraceptive

Study
ID

ES (95% CI)

Yavari (2005)	1.95 (1.32, 2.87)
Ghiasvand (2010)	1.52 (1.11, 2.08)
Ghiasvand (2012)	1.40 (0.66, 2.99)
Zare (2013)	0.57 (0.44, 0.72)
Tazhibi (2014)	0.18 (0.04, 0.75)
Hosseinzadeh (2014)	3.18 (1.80, 5.59)
Sepandi (2014)	1.09 (0.75, 1.58)
Jafarinia (2016)	0.45 (0.17, 1.21)
Dianatinasab (2017)	1.46 (1.05, 2.04)
Fararouei (2018)	1.77 (1.32, 2.38)
Overall (I-squared = 86.9%, p = 0.000)	1.17 (0.77, 1.57)

NOTE: Weights are from random effects analysis

-5.59   0   5.59

Supplement Figure 37. Forest plot for pooling adjusted odds ratio of oral contraceptive consumption

Study
ID

ES (95% CI)

Ebrahimi (2002)	0.67 (0.25, 1.82)
Montazeri (2004)	1.31 (0.96, 1.78)
Yavari (2005)	1.50 (1.09, 2.07)
Mahouri (2007)	0.91 (0.39, 1.99)
Naieni (2007)	1.10 (0.79, 1.53)
Lotfi (2008)	0.41 (0.20, 0.85)
Ghiasvand (2010)	1.16 (0.88, 1.52)
Ghiasvand (2012)	1.32 (0.90, 1.93)
Zare (2013)	0.66 (0.52, 0.85)
Hosseinzadeh (2014)	3.59 (2.33, 5.53)
Sepandi (2014)	1.08 (0.81, 1.44)
Veisy (2015)	2.11 (1.44, 3.08)
Jafarinia (2016)	3.43 (1.18, 5.01)
Dianatinasab (2017)	1.28 (1.03, 1.63)
Overall (I-squared = 80.0%, p = 0.000)	1.18 (0.93, 1.44)

NOTE: Weights are from random effects analysis

-5.53   0   5.53

Supplement Figure 38. Forest plot for pooling odds ratio of oral contraceptive consumption

Birth giving status
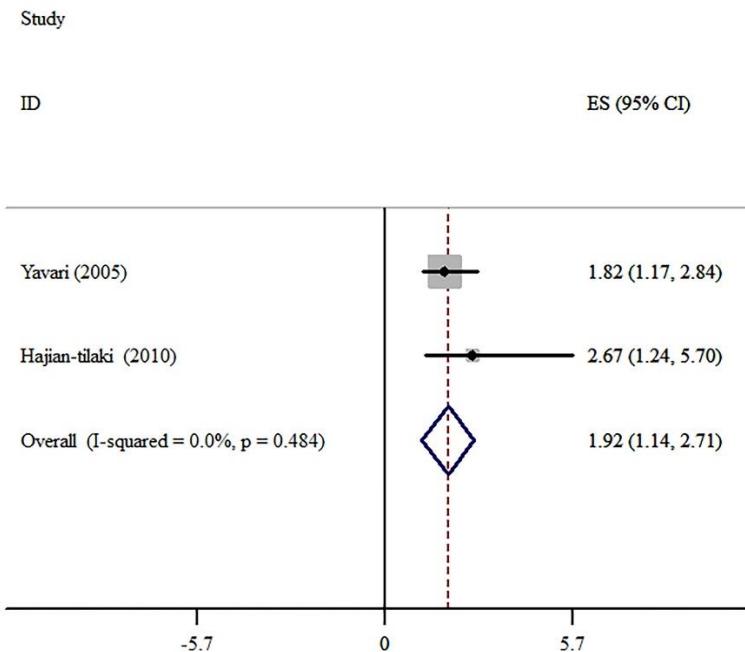
Supplement Figure 39. Forest plot for pooling adjusted odds ratio of full-term pregnancy between 20 to 24
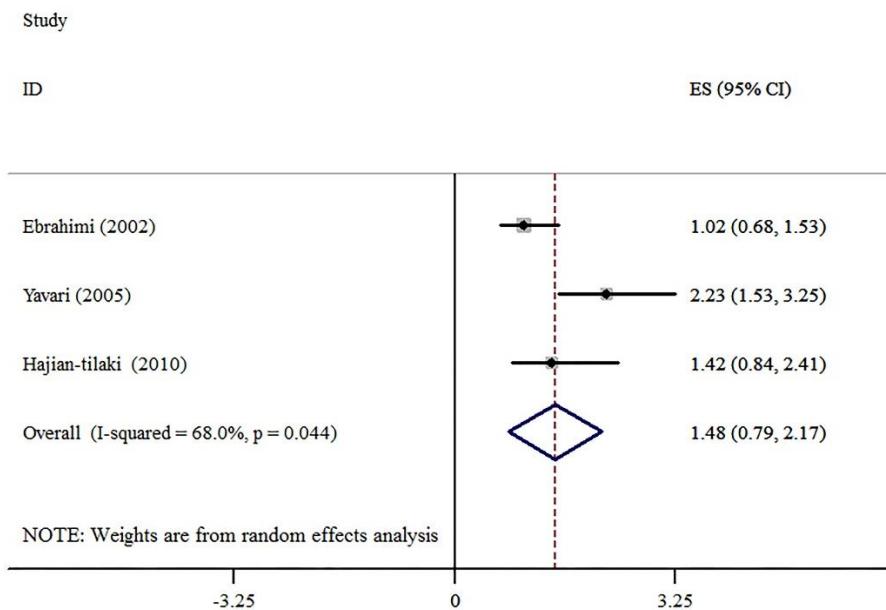
Supplement Figure 40. Forest plot for pooling odds ratio of full-term pregnancy between 20 to 24

Birth giving status
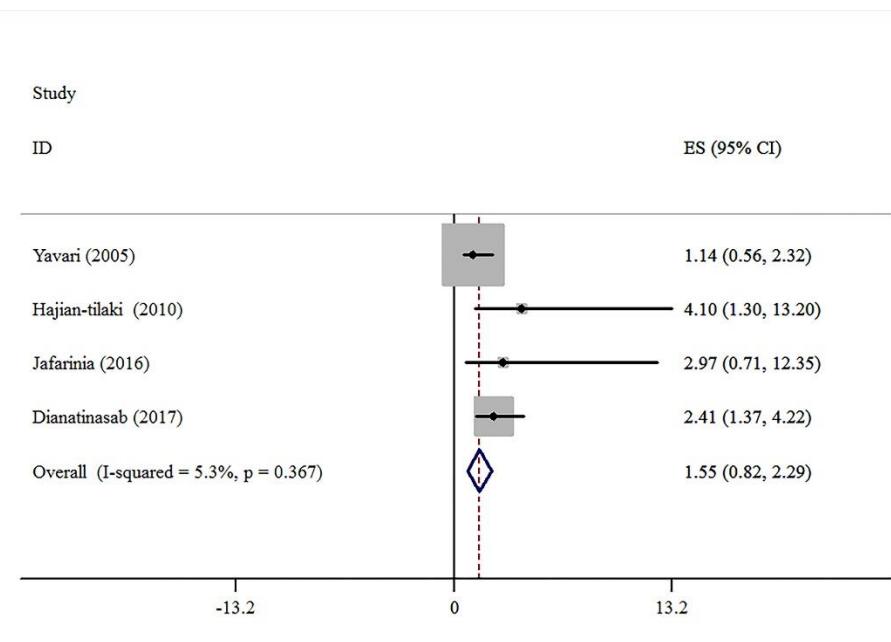
Supplement Figure 41. Forest plot for pooling adjusted odds ratio of full-term pregnancy between 25 to 29
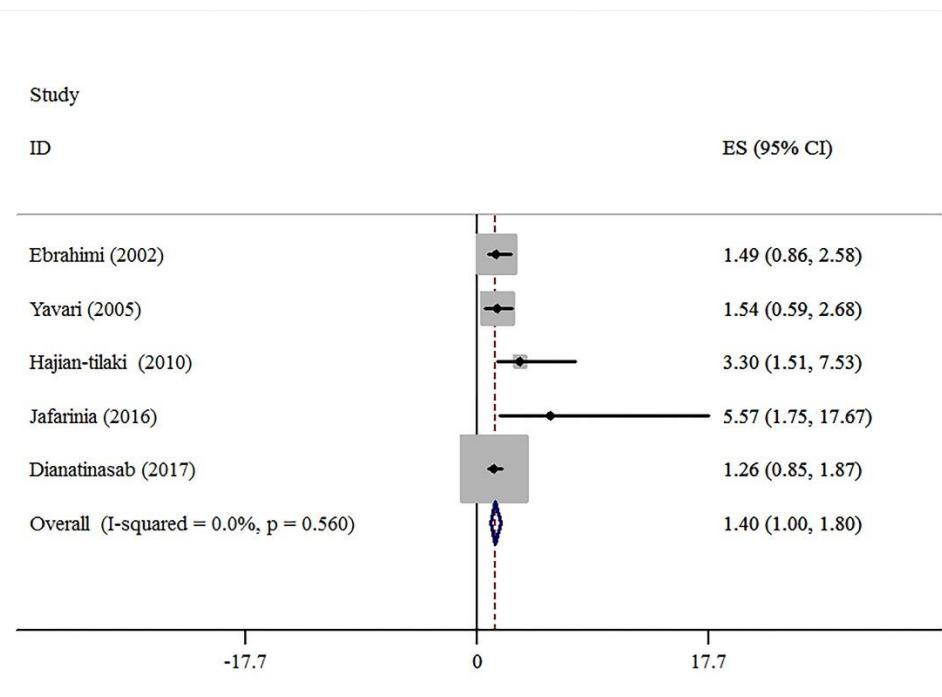

Supplement Figure 42. Forest plot for pooling odds ratio of full-term pregnancy between 25 to 29

Birth giving status

Study

ID   ES (95% CI)

Yavari (2005)   3.46 (1.13, 10.60)

Jafarinia (2016)   2.65 (0.52, 13.50)

Dianatinasab (2017)   3.53 (1.73, 7.18)

Overall (I-squared = 0.0%, p = 0.970)   3.41 (1.19, 5.63)

                -13.5   0   13.5
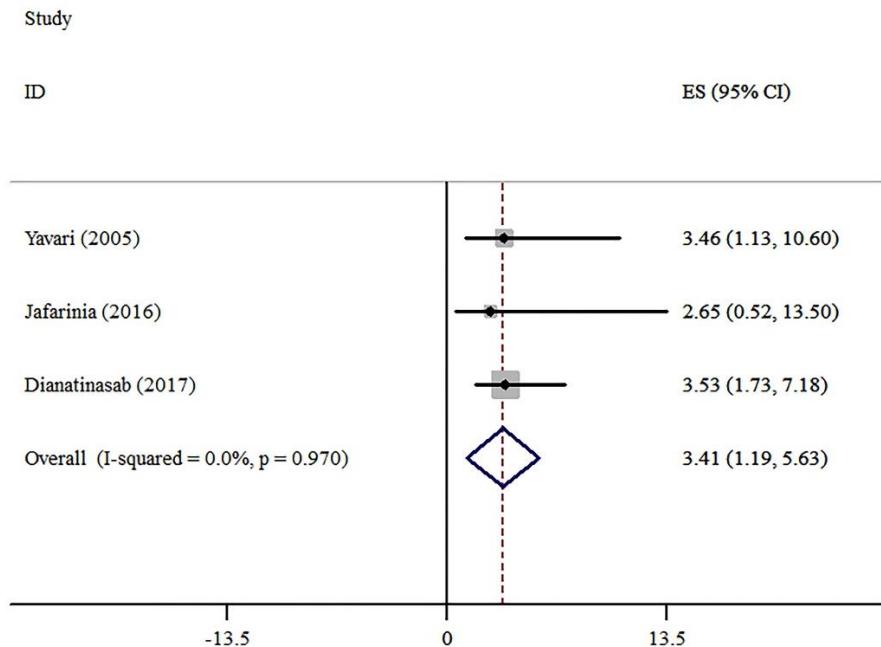
Supplement Figure 43. Forest plot for pooling adjusted odds ratio of full-term pregnancy at 30

Study

ID   ES (95% CI)

Ebrahimi (2002)   2.47 (0.84, 7.22)

Yavari (2005)   4.39 (1.80, 10.73)

Hosseinzadeh (2014)   3.84 (1.41, 8.61)

Jafarinia (2016)   2.29 (0.59, 8.78)

Dianatinasab (2017)   2.04 (1.36, 3.07)

Overall (I-squared = 0.0%, p = 0.758)   2.23 (1.45, 3.01)

                -10.7   0   10.7
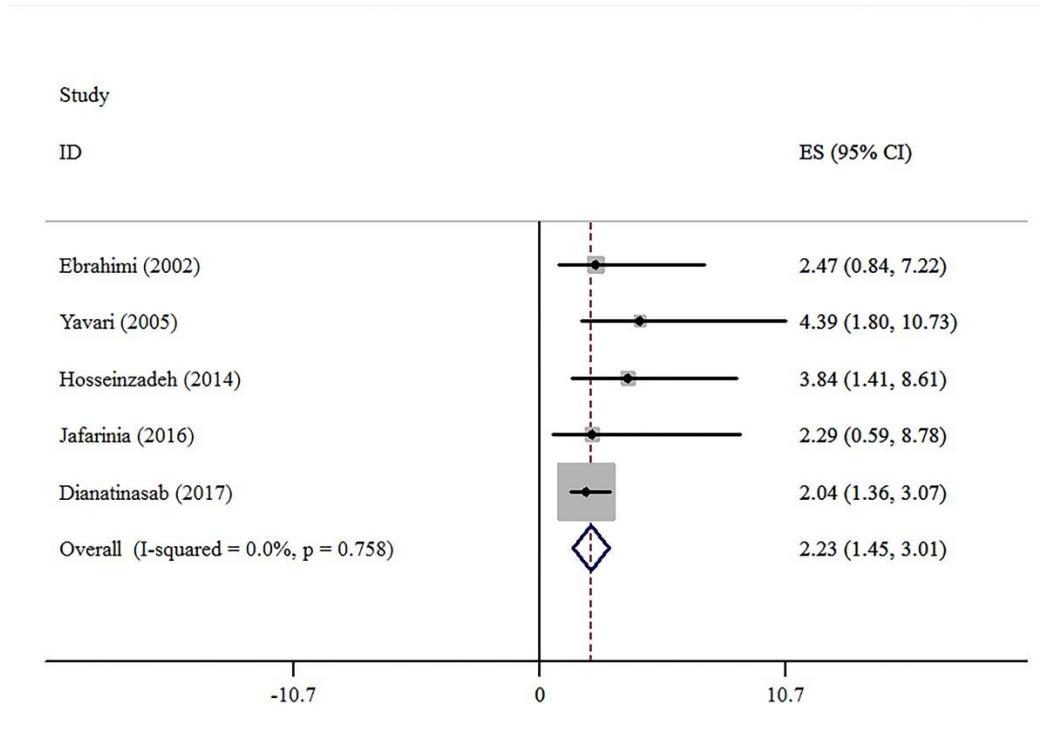
Supplement Figure 44. Forest plot for pooling odds ratio of full-term pregnancy at 30

Birth giving status

Study

ID   ES (95% CI)

Yavari (2005)   1.06 (0.28, 4.05)

Ghiasvand (2010)   0.52 (0.37, 1.05)

Sepandi (2014)   1.05 (0.64, 1.73)

Overall (I-squared = 28.0%, p = 0.249)   0.68 (0.39, 0.96)

          -4.05   0   4.05
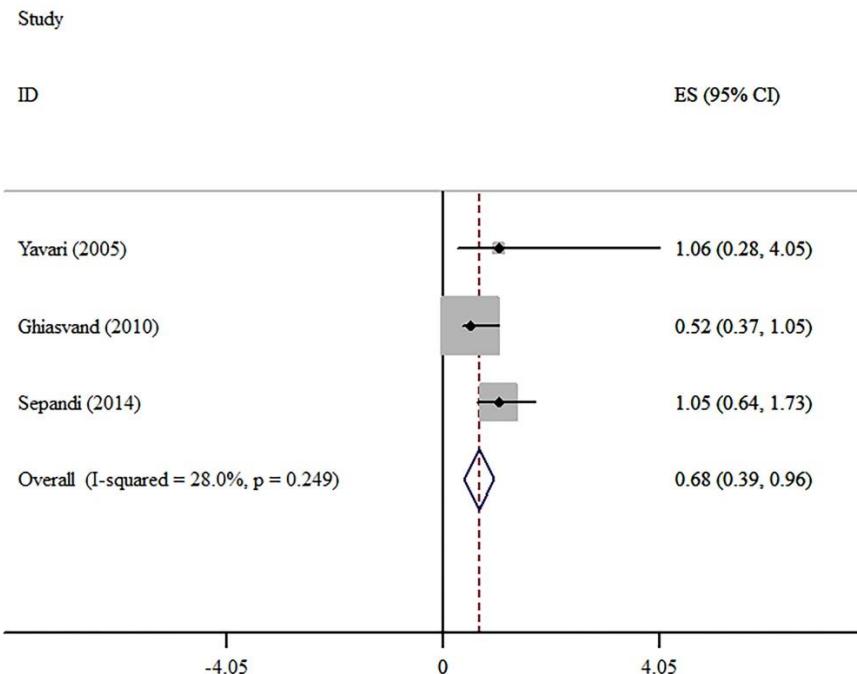
Supplement Figure 45. Forest plot for pooling adjusted odds ratio of nulliparity

Study

ID   ES (95% CI)

Ebrahimi (2002)   2.78 (1.45, 5.35)

Yavari (2005)   1.92 (0.93, 3.96)

Mahouri (2007)   3.18 (0.77, 12.26)

Ghiasvand (2010)   0.74 (0.50, 1.10)

Hosseinzadeh (2014)   1.34 (0.58, 3.10)

Sepandi (2014)   0.64 (0.39, 1.05)

Overall (I-squared = 40.4%, p = 0.136)   0.77 (0.55, 0.98)

          -12.3   0   12.3
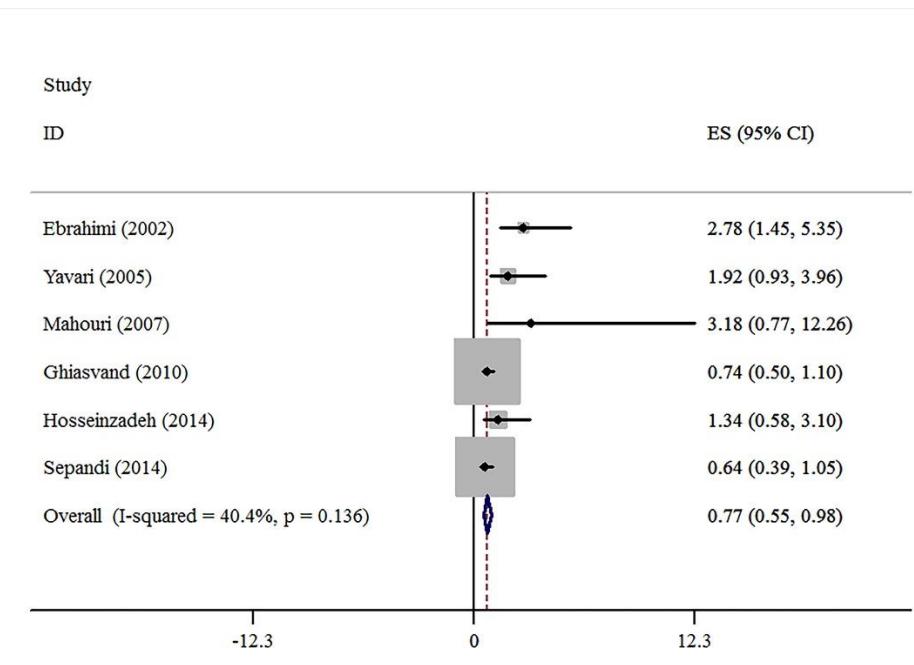
Supplement Figure 46. Forest plot for pooling odds ratio of nulliparity

Birth giving status
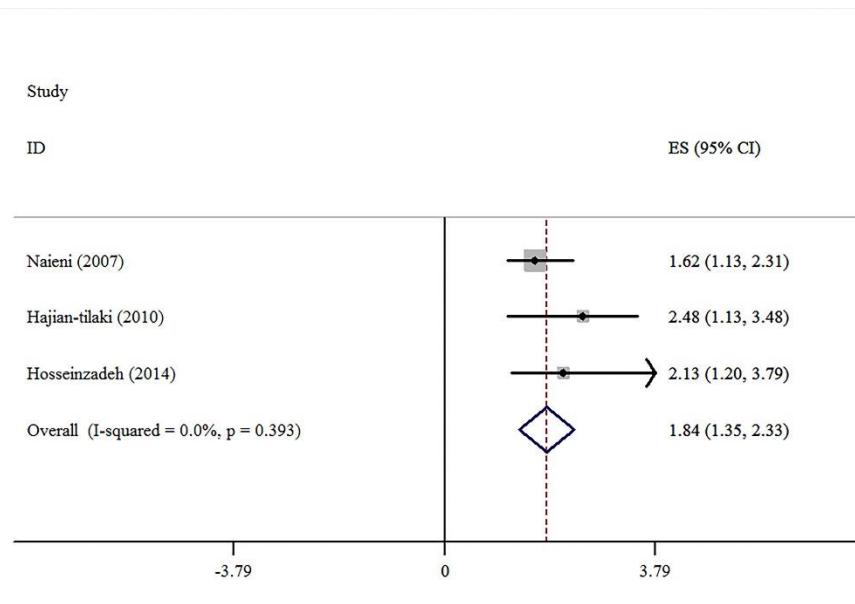
*Supplement Figure 47. Forest plot for pooling adjusted odds ratio of abortion history*
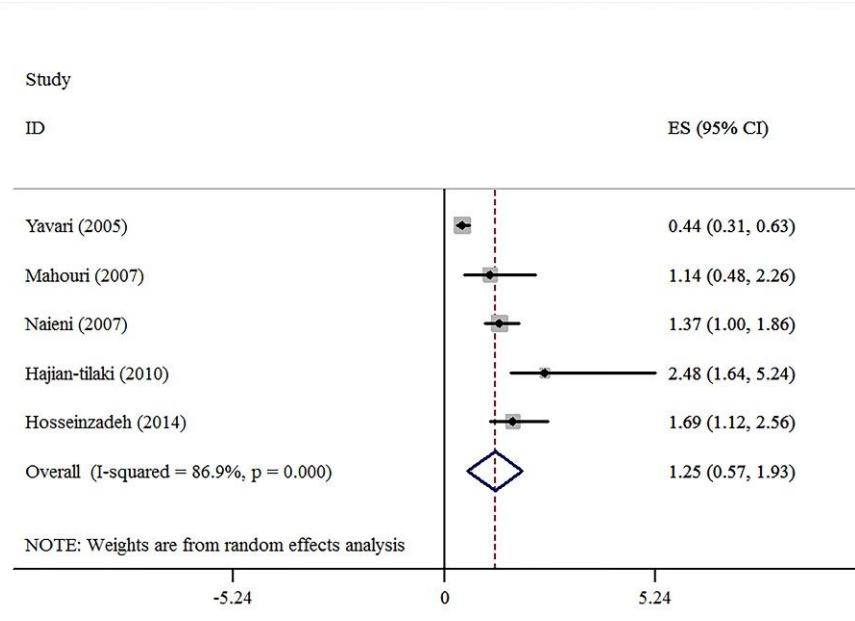
Supplement Figure 48. Forest plot for pooling odds ratio of abortion history

Benign Breast Conditions
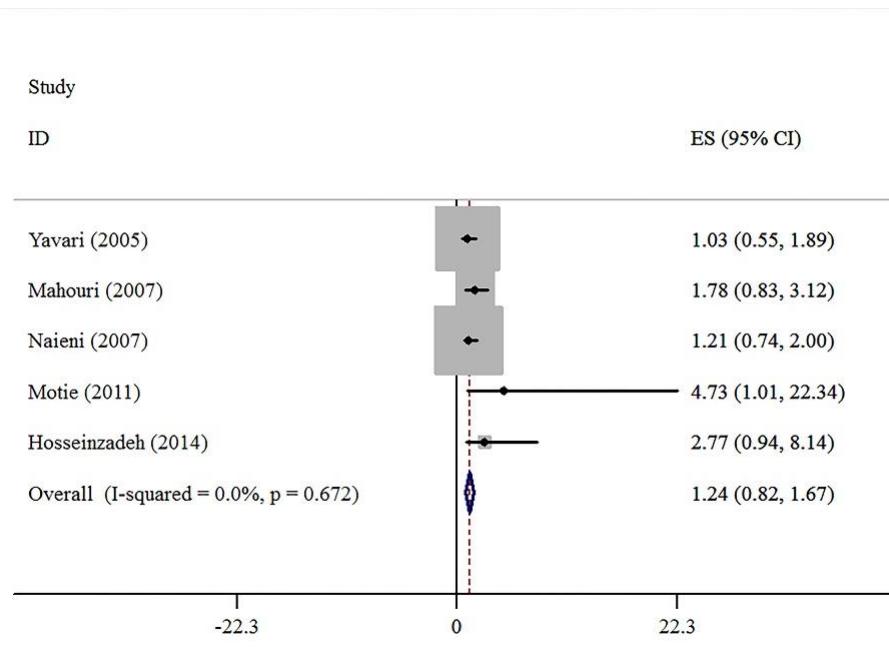
Supplement Figure 49. Forest plot for pooling odds ratio of previous benign breast

X-ray exposure

Study

ID   ES (95% CI)

Yavari (2005)   1.68 (1.08, 2.58)

Motie (2011)   0.13 (0.01, 1.26)

Dianatinasab (2017)   1.28 (0.93, 1.75)

Overall (I-squared = 83.6%, p = 0.002)   1.02 (0.19, 1.86)

NOTE: Weights are from random effects analysis

-2.58   0   2.58
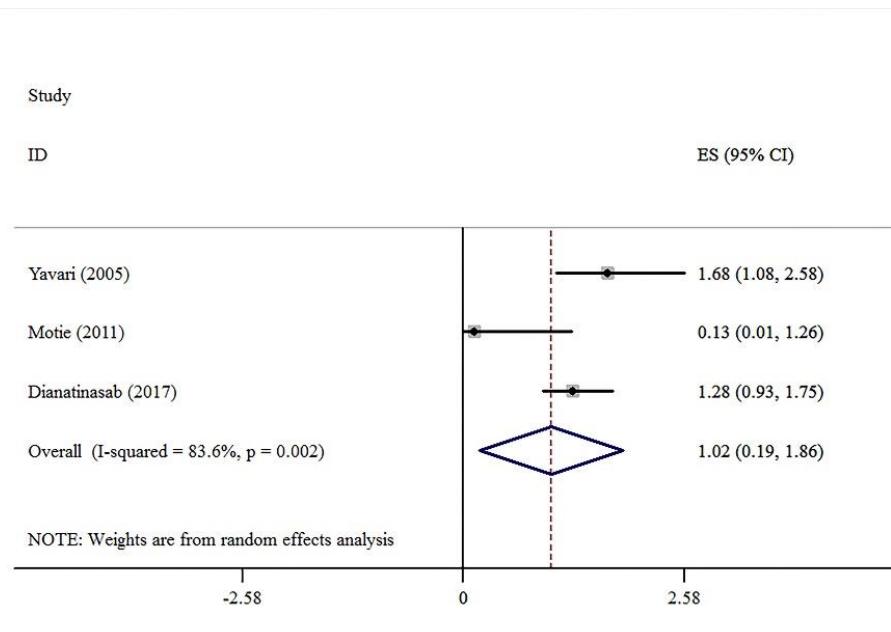
Supplement Figure 50. Forest plot for pooling adjusted odds ratio of X-ray exposure

Study

ID   ES (95% CI)

Yavari (2005)   1.59 (1.10, 2.29)

Lotfi (2008)   3.46 (1.10, 11.60)

Motie (2011)   6.39 (2.14, 19.17)

Dianatinasab (2017)   1.36 (1.06, 1.75)

Dianatinasab-2 (2017)   1.40 (1.16, 1.98)

Overall (I-squared = 0.0%, p = 0.676)   1.42 (1.18, 1.66)

-19.2   0   19.2
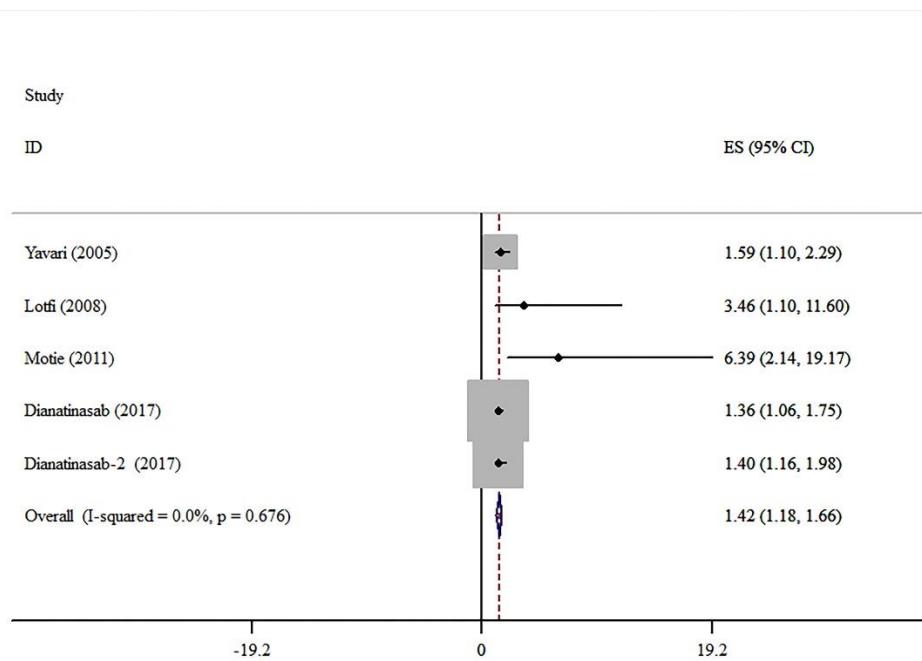
Supplement Figure 51. Forest plot for pooling odds ratio of X-ray exposure

Breastfeeding duration
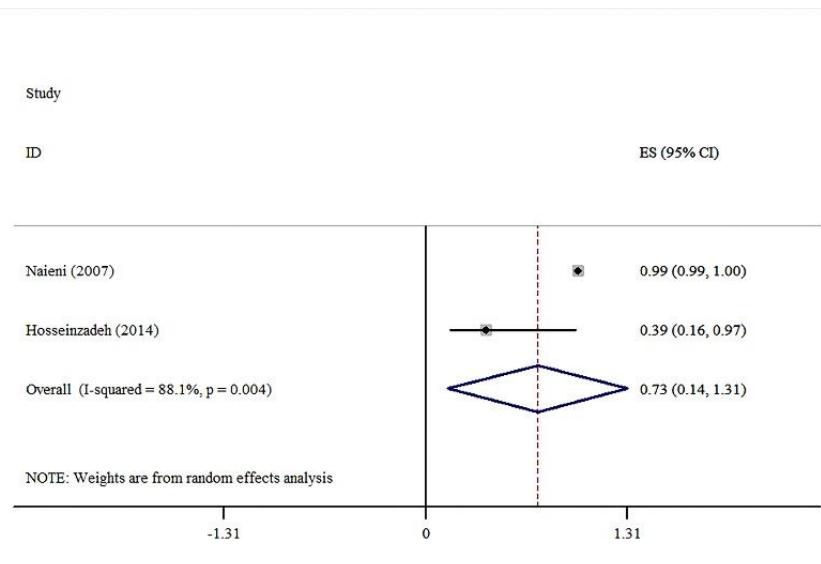
Supplement Figure 52. Forest plot for pooling adjusted odds ratio of breastfeeding duration
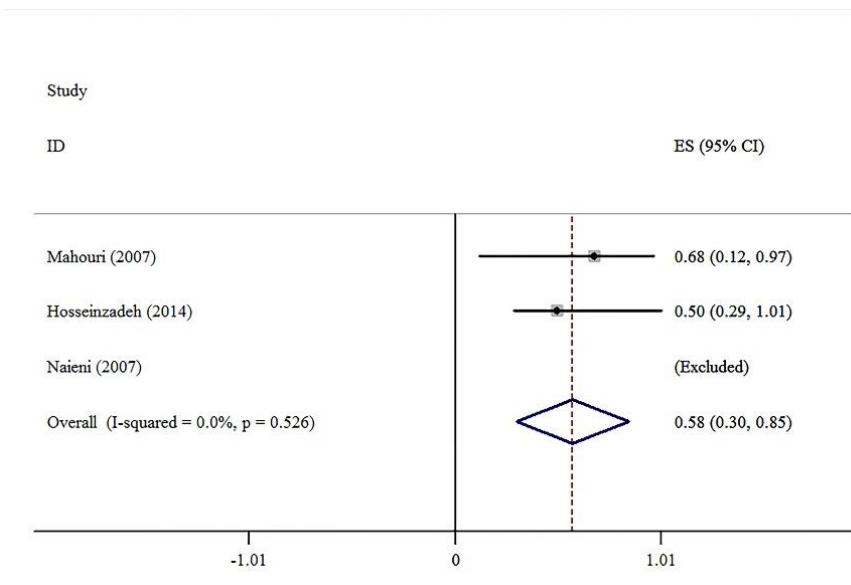
Supplement Figure 53. Forest plot for pooling odds ratio of breastfeeding duration

Breastfeeding duration
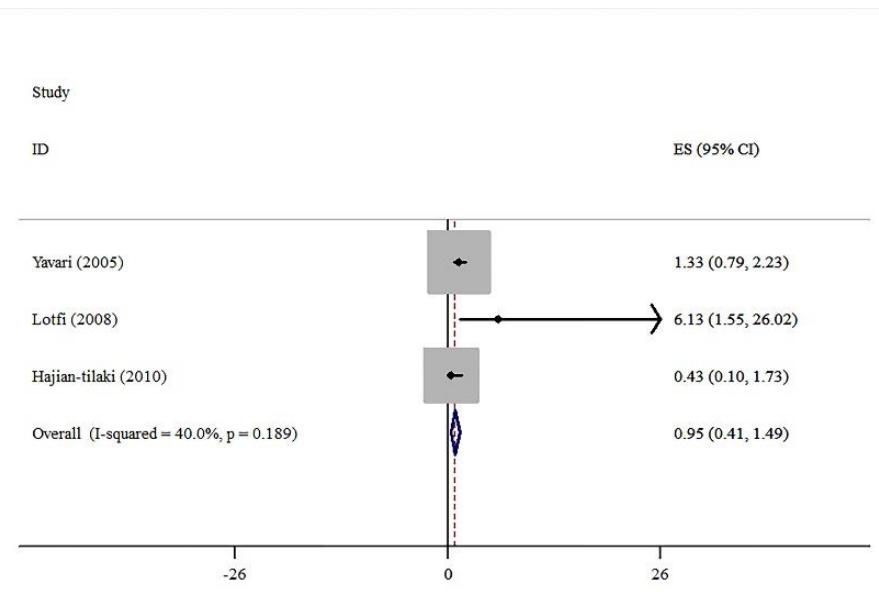
Supplement Figure 54. Forest plot for pooling odds ratio of breastfeeding 1 to 12 months

Breastfeeding duration
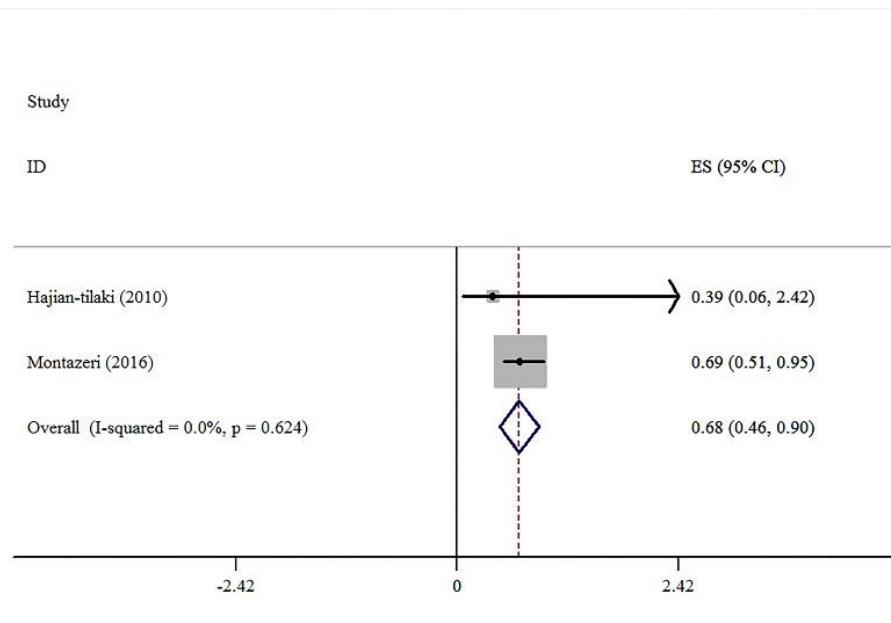

Supplement Figure 55. Forest plot for pooling adjusted odds ratio of breastfeeding 13 to 24 months
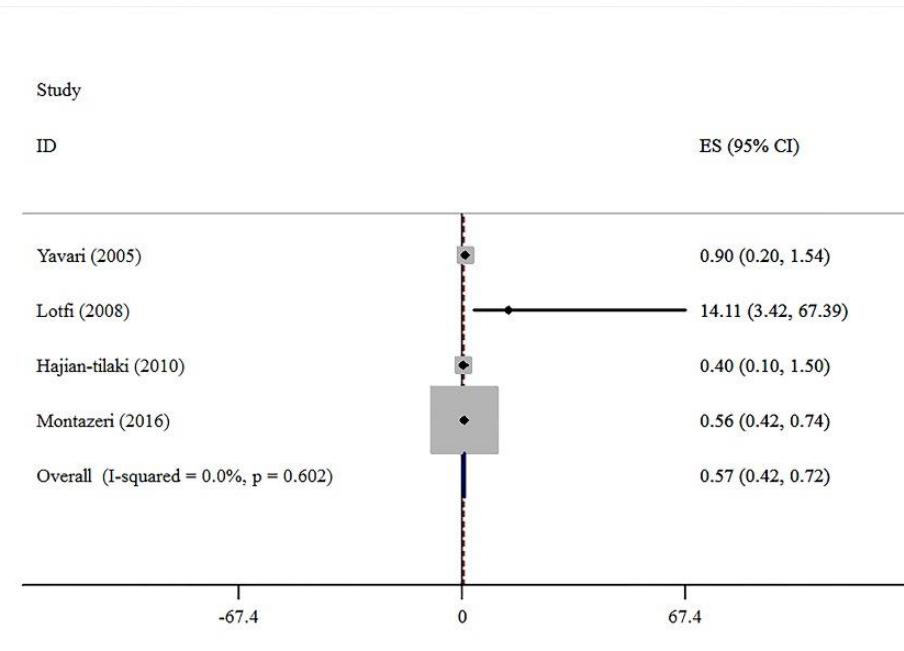
Supplement Figure 56. Forest plot for pooling odds ratio of breastfeeding 13 to 24 months

Breastfeeding duration
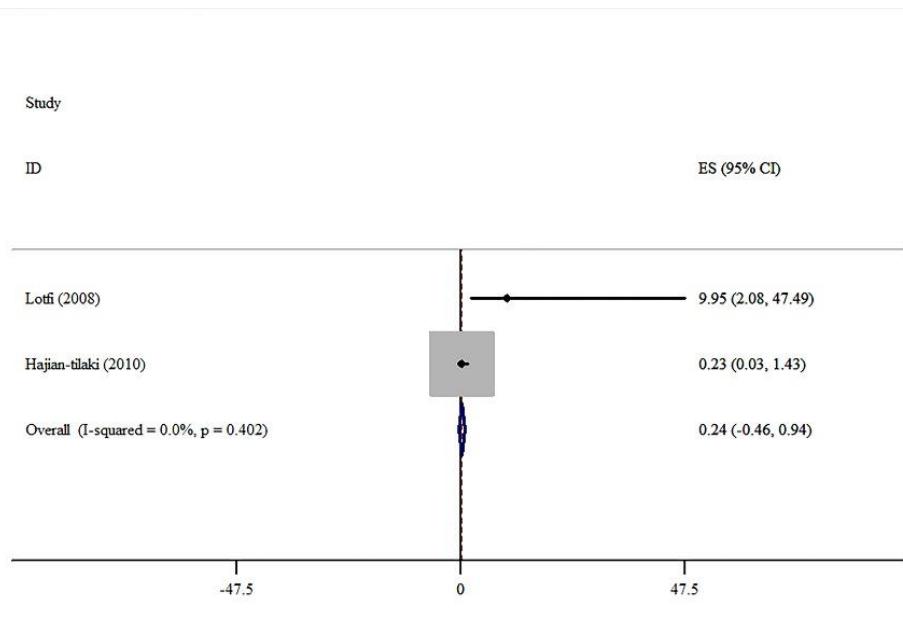
Supplement Figure 57. Forest plot for pooling adjusted odds ratio of breastfeeding 25 to 48 months
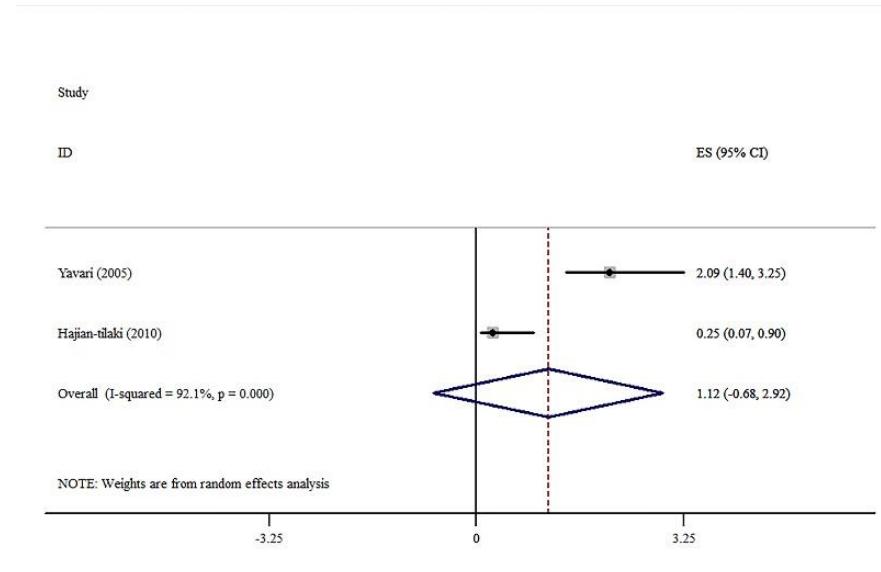
Supplement Figure 58. Forest plot for pooling odds ratio of breastfeeding 25 to 48 months

Breastfeeding duration

Study

ID   ES (95% CI)

Lotfi (2008)   2.45 (0.51, 11.72)

Hajian-tilaki (2010)   0.09 (0.01, 0.70)

Overall (I-squared = 0.0%, p = 0.410)   0.10 (-0.25, 0.44)

-11.7   0   11.7
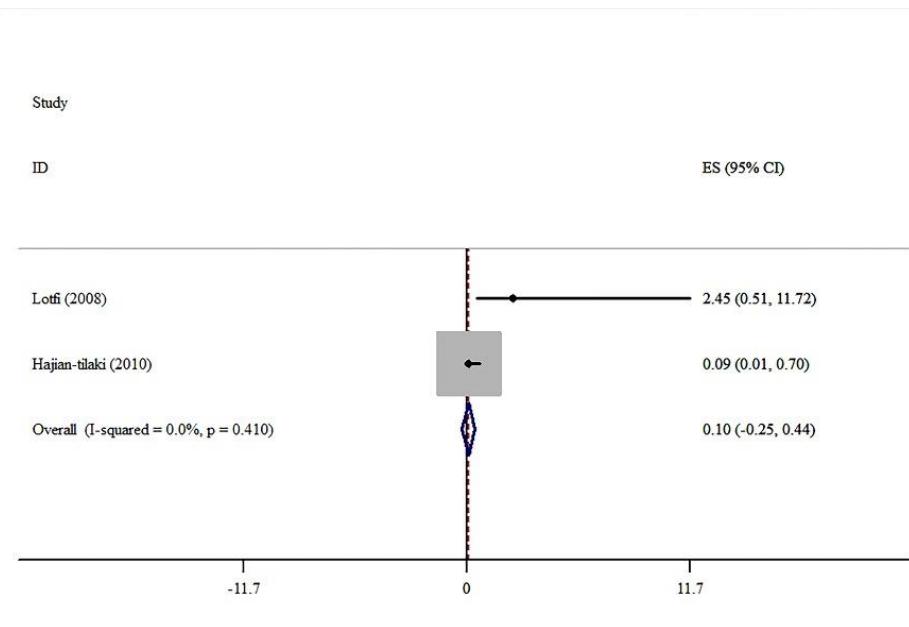
Supplement Figure 59. Forest plot for pooling adjusted odds ratio of breastfeeding more than 49 months

Dietary status
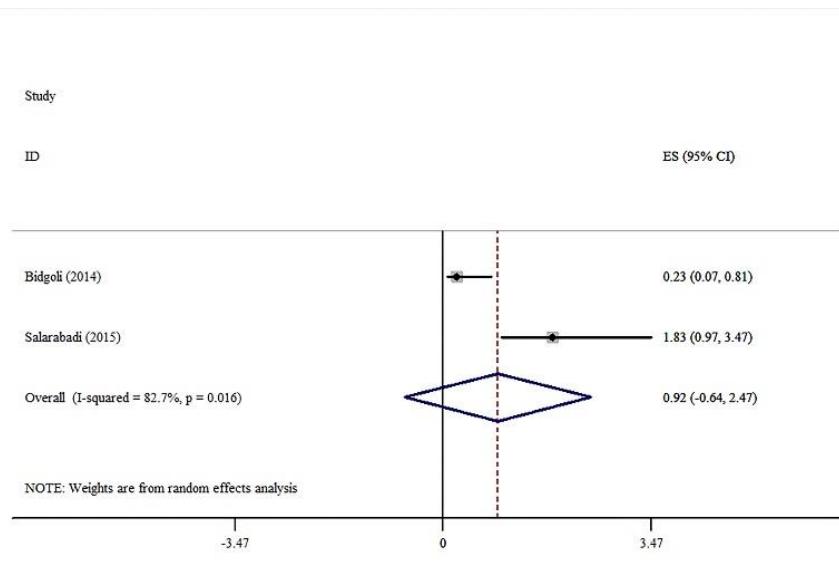
Supplement Figure 60. Forest plot for pooling odds ratio of egg consumption
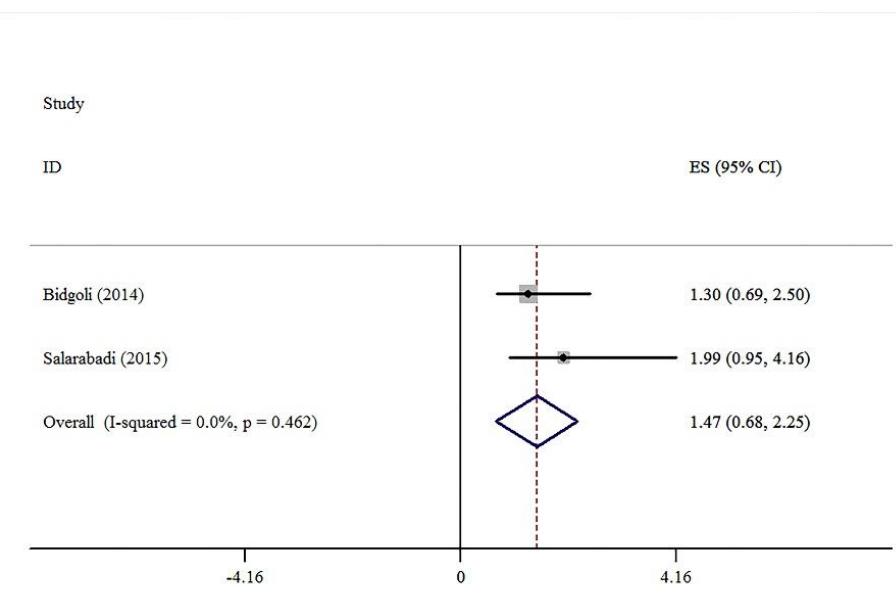
Supplement Figure 61. Forest plot for pooling odds ratio of fish consumption

Dietary status

Study
ID   ES (95% CI)

Tajaddini (2015)   2.00 (1.34, 2.98)

Marzbani (2019)   2.60 (1.70, 3.90)

Overall (I-squared = 0.0%, p = 0.391)   2.21 (1.56, 2.87)

        -3.9   0   3.9
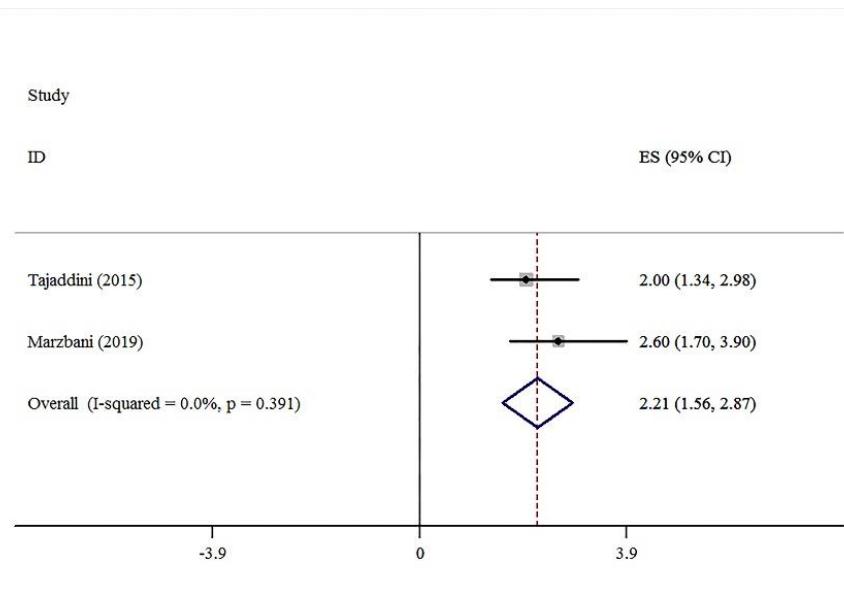
Supplement Figure 62. Forest plot for pooling adjusted odds ratio of sweets consumption

Study
ID   ES (95% CI)

Tajaddini (2015)   2.20 (1.60, 3.00)

Marzbani (2019)   3.70 (2.60, 5.30)

Overall (I-squared = 73.2%, p = 0.053)   2.83 (1.38, 4.29)

NOTE: Weights are from random effects analysis

        -5.3   0   5.3
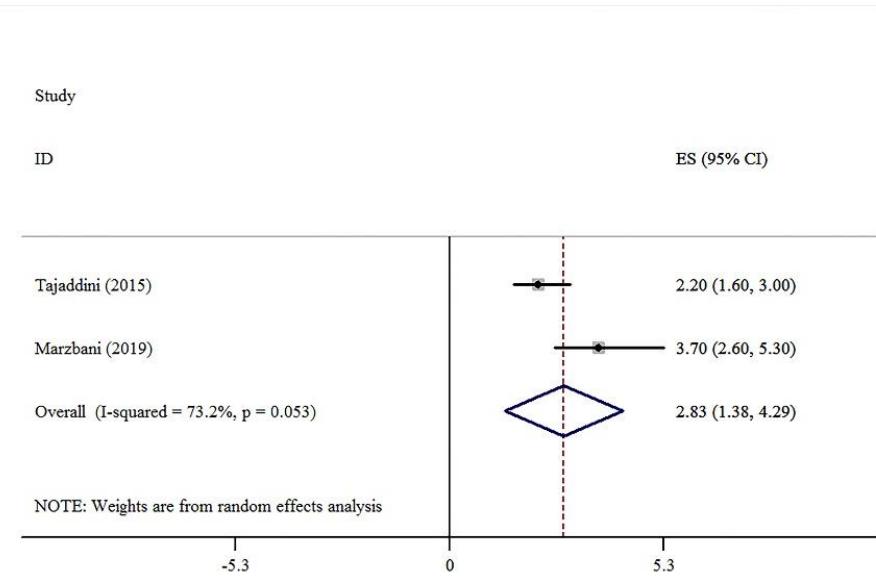
Supplement Figure 63. Forest plot for pooling odds ratio of sweets consumption
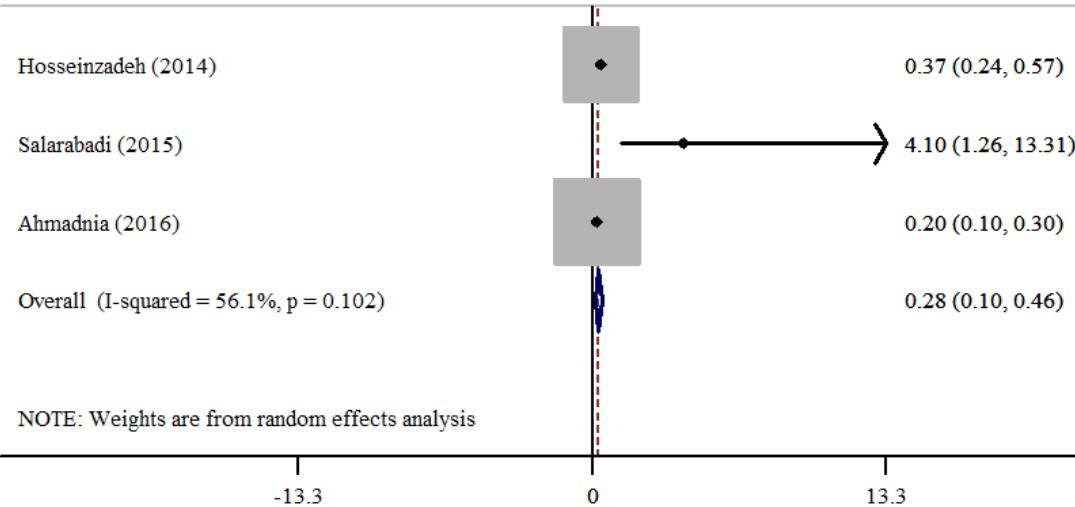
Supplement Figure 64. Forest plot for pooling odds ratio of vegetable consumption

Genotype status
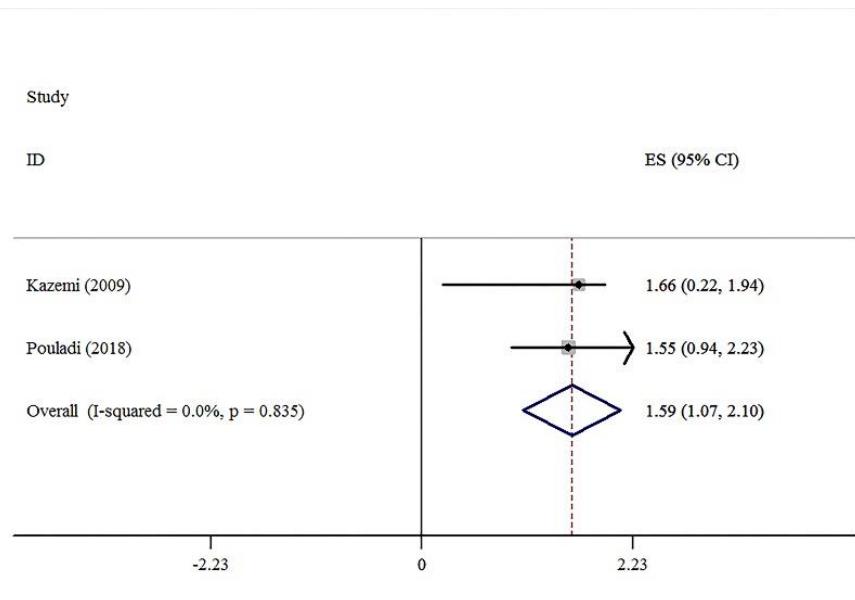
Supplement Figure 65. Forest plot for pooling odds ratio of genotype Arg/Arg
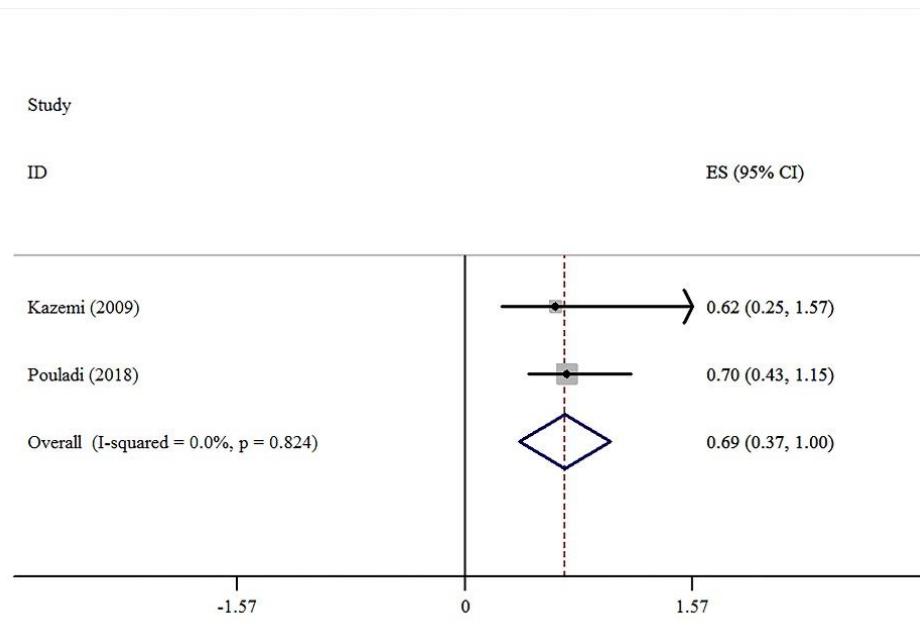
Supplement Figure 66. Forest plot for pooling odds ratio of genotype Arg/Pro

Genital surgery
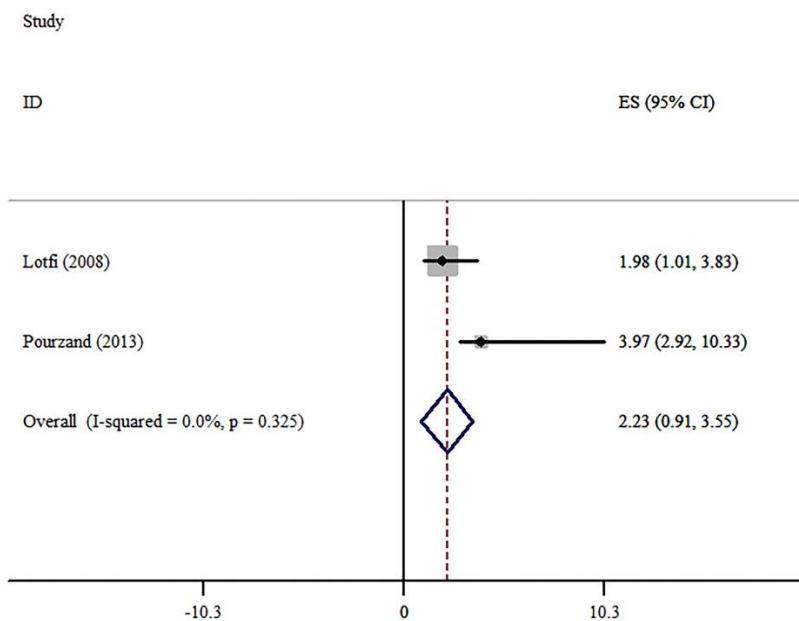
Supplement Figure 67. Forest plot for pooling odds ratio of genital surgery status

Residency status

Study

ID   ES (95% CI)

Mirfarhadi (2017)   1.32 (0.76, 2.27)

Marzbani (2019)   1.40 (0.90, 2.20)

Overall (I-squared = 0.0%, p = 0.875)   1.37 (0.87, 1.86)

-2.27   0   2.27
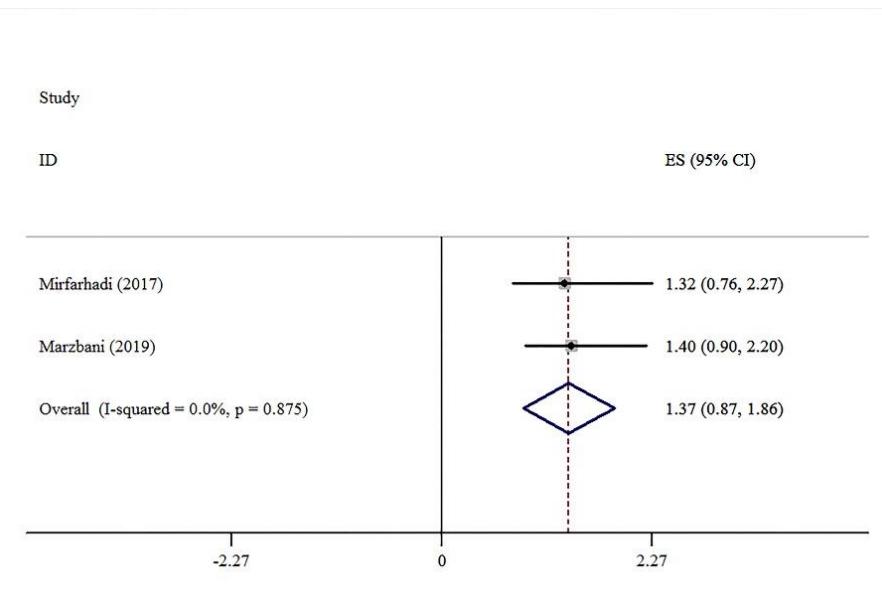
Supplement Figure 68. Forest plot for pooling odds ratio of rural residency status

Supplement Figure 69. Summary of risk of bias for case-control studies

Supplement Figure 70. Summary of risk of bias for cross-sectional studies