Female Sex

a)

Author, Year	OR (95% CI)	Weight (%)
Camuo et al, 2012	1.34 (0.98, 1.84)	5.76
Gerbershagen et al, 2014	1.27 (1.17, 1.38)	12.18
Jae Chul et al (A), 2015	1.39 (1.13, 1.71)	8.49
Jae Chul et al (B), 2015	1.59 (1.30, 1.95)	8.62
Kim et al, 2016	2.88 (1.31, 6.33)	1.45
Lesin et al, 2016	2.24 (1.15, 4.37)	1.94
Liu et al (A), 2012	1.10 (1.01, 1.20)	12.09
Liu et al (B), 2012	1.09 (0.60, 1.98)	2.32
Mamie et al, 2004	1.00 (0.54, 1.82)	2.27
Mei et al, 2010	1.49 (1.14, 1.96)	6.72
Murray et al, 2016	1.41 (1.08, 1.85)	6.88
Petrovic et al, 2014	4.91 (2.01, 12.01)	1.15
Radinovic et al, 2014	1.35 (0.65, 2.70)	1.74
Rakel et al (A), 2012	1.22 (0.63, 2.38)	1.95
Rakel et al (B), 2012	1.09 (0.52, 2.27)	1.61
Sananslip et al, 2016	1.04 (0.43, 2.50)	1.19
Sommer et al, 2010	0.77 (0.59, 1.01)	6.81
Storesund et al, 2016	2.31 (1.39, 3.86)	3.00
Tighe et al, 2014	1.14 (1.10, 1.19)	13.01
Zhao et al, 2014	0.31 (0.10, 0.91)	0.81
Overall (I–squared = 71.0%, p < 0.001)	1.29 (1.17, 1.42)	100.00

NOTE: Weights are from random effects analysis

Pooled OR 1.29 (95% CI 1.17 to 1.42)

Younger Age

b)

Author, Year	OR (95% CI)	Weight (%)
Camuo et al, 2012	4.73 (2.69, 8.32)	3.59
Jasim et al, 2017	0.90 (0.49, 1.67)	3.10
Katz et al, 2005	0.36 (0.12, 1.04)	1.08
Kim et al, 2016	0.98 (0.95, 1.02)	29.03
Mamie et al, 2004	0.97 (0.45, 2.12)	2.02
Mei et al, 2010	1.30 (1.01, 1.68)	11.96
Persson et al (A), 2017	0.90 (0.30, 2.90)	0.98
Persson et al (B), 2017	0.80 (0.20, 3.30)	0.65
Rehberg et al, 2017	2.44 (1.20, 5.00)	2.37
Robleda et al, 2014	1.04 (1.02, 1.06)	29.50
Sananslip et al, 2016	3.09 (0.98, 9.81)	0.95
Sommer et al, 2010	1.57 (1.16, 2.15)	9.37
Storesund et al, 2016	1.08 (0.65, 1.77)	4.42
Zhao et al, 2014	3.47 (1.15, 10.99)	0.99
Overall (I–squared = 79.7%, p < 0.001)	1.18 (1.05, 1.32)	100.00

NOTE: Weights are from random effects analysis

Pooled OR 1.18 (95% CI 1.05 to 1.32)

Smoking

c)

Author, Year	OR (95% CI)	Weight (%)
Borges et al, 2016	2.72 (0.82, 9.01)	2.41
Duan et al, 2017	1.85 (1.25, 2.70)	12.51
Jae Chul et al (A), 2015	1.52 (1.10, 2.12)	14.44
Jae Chul et al (B), 2015	0.99 (0.75, 1.03)	20.92
Kim et al, 2016	1.00 (0.47, 2.16)	5.20
Liu et al (A), 2012	1.83 (1.11, 3.02)	9.41
Liu et al (B), 2012	1.49 (0.88, 2.52)	8.77
Mei et al, 2010	1.14 (0.90, 1.43)	18.11
Storesund et al, 2016	1.10 (0.63, 1.92)	8.23
Overall (I–squared = 55.8%, p = 0.021)	1.33 (1.09, 1.61)	100.00

NOTE: Weights are from random effects analysis
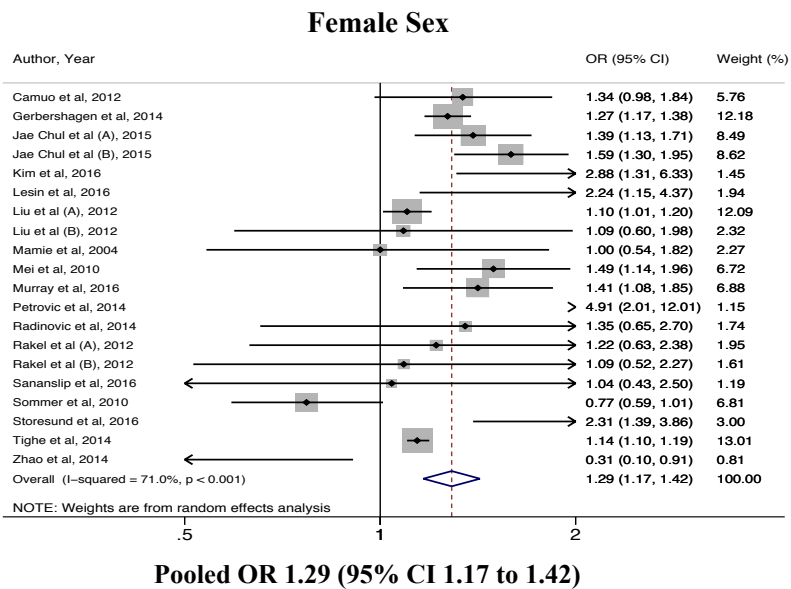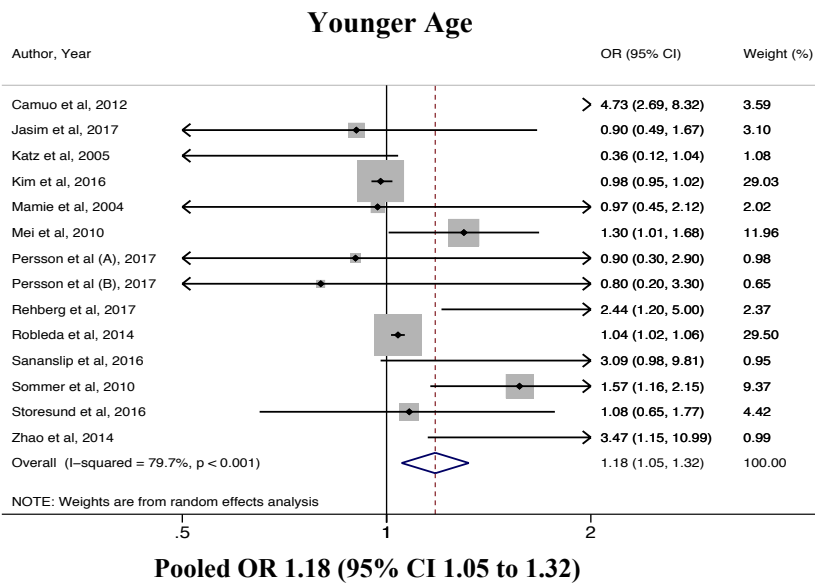
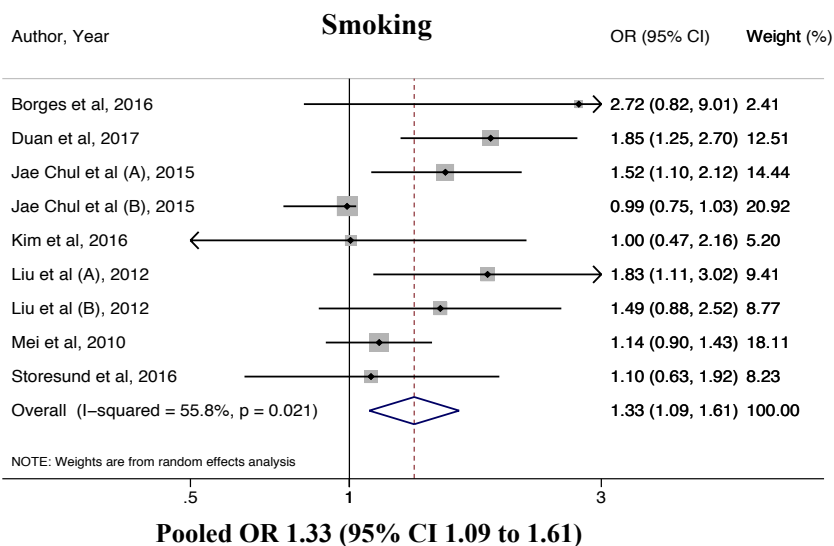**Pooled OR 1.33 (95% CI 1.09 to 1.61)**

Figure S1. Forest Plot of Preoperative Predictors of Postoperative Pain. a) female sex b) younger age, and c) smoking history.

a) Depression

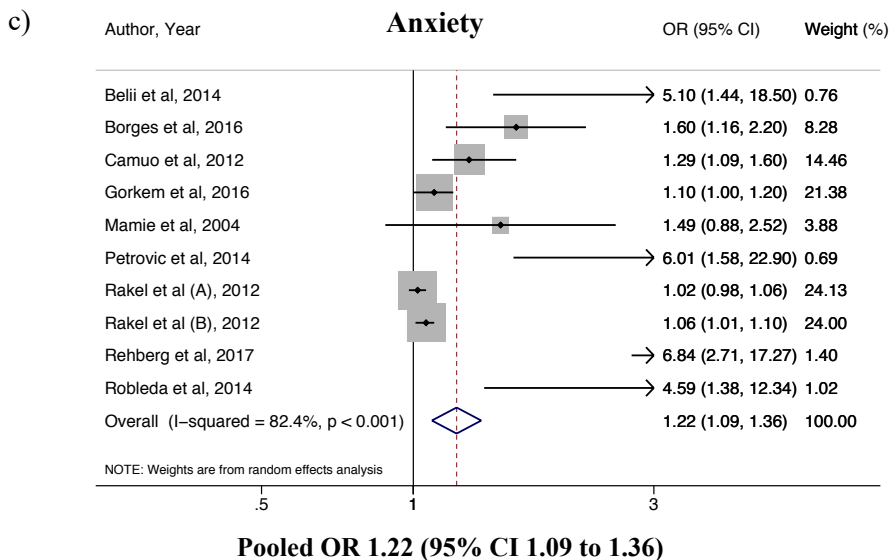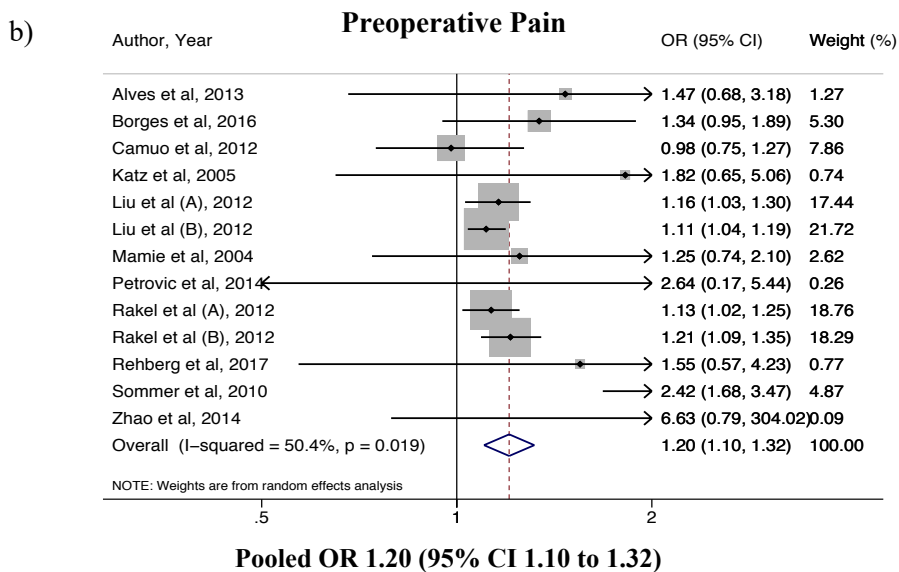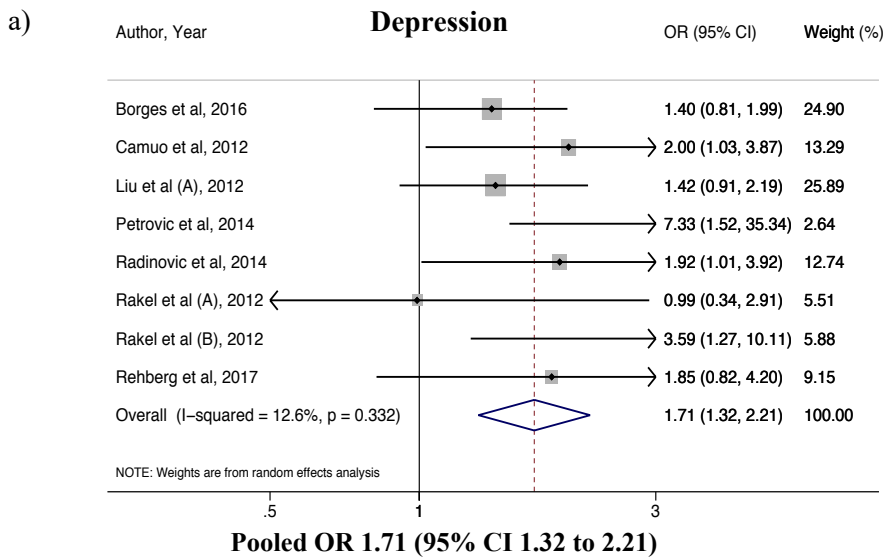| Author, Year	OR (95% CI)	Weight (%)
Borges et al, 2016	1.40 (0.81, 1.99)	24.90
Camuo et al, 2012	2.00 (1.03, 3.87)	13.29
Liu et al (A), 2012	1.42 (0.91, 2.19)	25.89
Petrovic et al, 2014	7.33 (1.52, 35.34)	2.64
Radinovic et al, 2014	1.92 (1.01, 3.92)	12.74
Rakel et al (A), 2012	0.99 (0.34, 2.91)	5.51
Rakel et al (B), 2012	3.59 (1.27, 10.11)	5.88
Rehberg et al, 2017	1.85 (0.82, 4.20)	9.15
Overall (I–squared = 12.6%, p = 0.332)	1.71 (1.32, 2.21)	100.00

NOTE: Weights are from random effects analysis

Pooled OR 1.71 (95% CI 1.32 to 2.21)

b) Preoperative Pain

Author, Year	OR (95% CI)	Weight (%)
Alves et al, 2013	1.47 (0.68, 3.18)	1.27
Borges et al, 2016	1.34 (0.95, 1.89)	5.30
Camuo et al, 2012	0.98 (0.75, 1.27)	7.86
Katz et al, 2005	1.82 (0.65, 5.06)	0.74
Liu et al (A), 2012	1.16 (1.03, 1.30)	17.44
Liu et al (B), 2012	1.11 (1.04, 1.19)	21.72
Mamie et al, 2004	1.25 (0.74, 2.10)	2.62
Petrovic et al, 2014	2.64 (0.17, 5.44)	0.26
Rakel et al (A), 2012	1.13 (1.02, 1.25)	18.76
Rakel et al (B), 2012	1.21 (1.09, 1.35)	18.29
Rehberg et al, 2017	1.55 (0.57, 4.23)	0.77
Sommer et al, 2010	2.42 (1.68, 3.47)	4.87
Zhao et al, 2014	6.63 (0.79, 304.02)	0.09
Overall (I–squared = 50.4%, p = 0.019)	1.20 (1.10, 1.32)	100.00

NOTE: Weights are from random effects analysis

Pooled OR 1.20 (95% CI 1.10 to 1.32)

c) Anxiety

Author, Year	OR (95% CI)	Weight (%)
Belii et al, 2014	5.10 (1.44, 18.50)	0.76
Borges et al, 2016	1.60 (1.16, 2.20)	8.28
Camuo et al, 2012	1.29 (1.09, 1.60)	14.46
Gorkem et al, 2016	1.10 (1.00, 1.20)	21.38
Mamie et al, 2004	1.49 (0.88, 2.52)	3.88
Petrovic et al, 2014	6.01 (1.58, 22.90)	0.69
Rakel et al (A), 2012	1.02 (0.98, 1.06)	24.13
Rakel et al (B), 2012	1.06 (1.01, 1.10)	24.00
Rehberg et al, 2017	6.84 (2.71, 17.27)	1.40
Robleda et al, 2014	4.59 (1.38, 12.34)	1.02
Overall (I–squared = 82.4%, p < 0.001)	1.22 (1.09, 1.36)	100.00

NOTE: Weights are from random effects analysis

Pooled OR 1.22 (95% CI 1.09 to 1.36)

Figure S2. Forest Plot of Significant Preoperative Predictors of Postoperative Pain. a) history of depression symptoms, b) presence of preoperative pain, and c) history of anxiety symptoms.
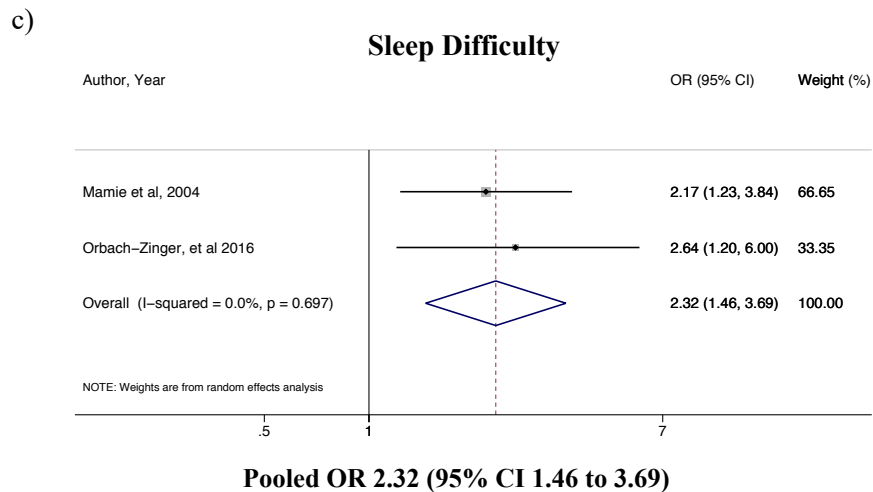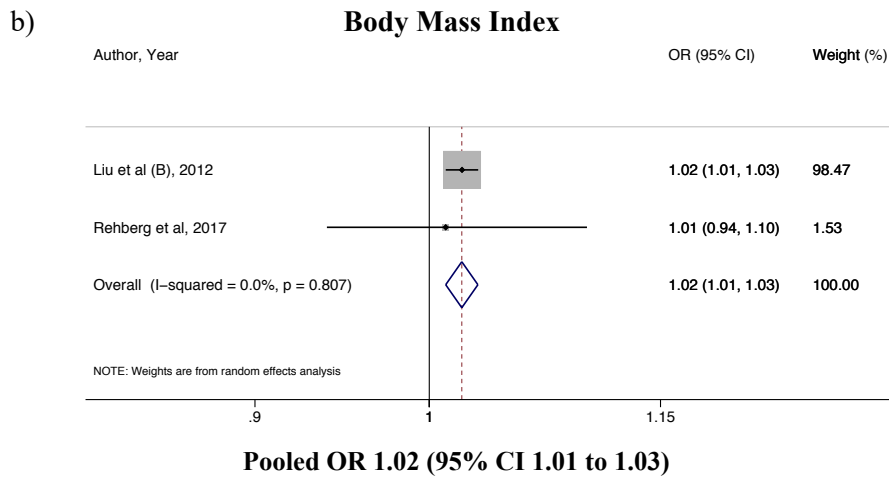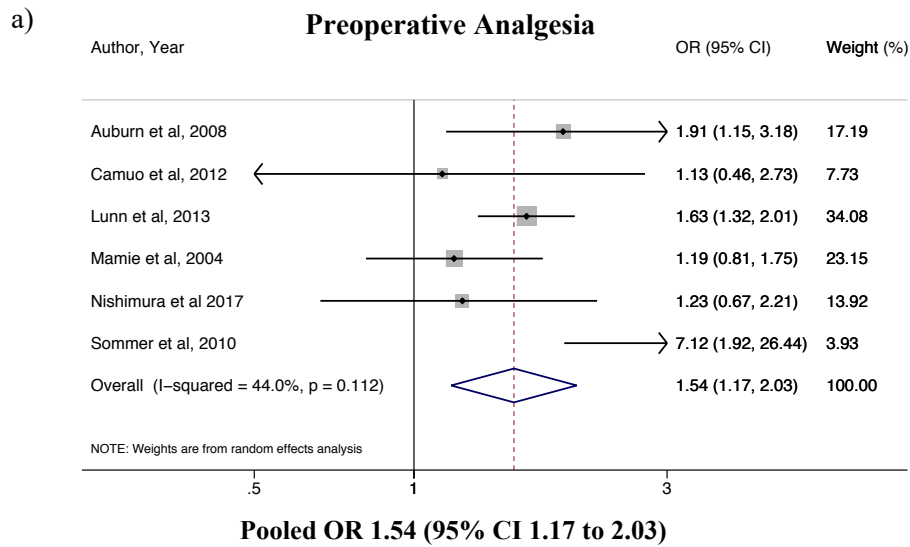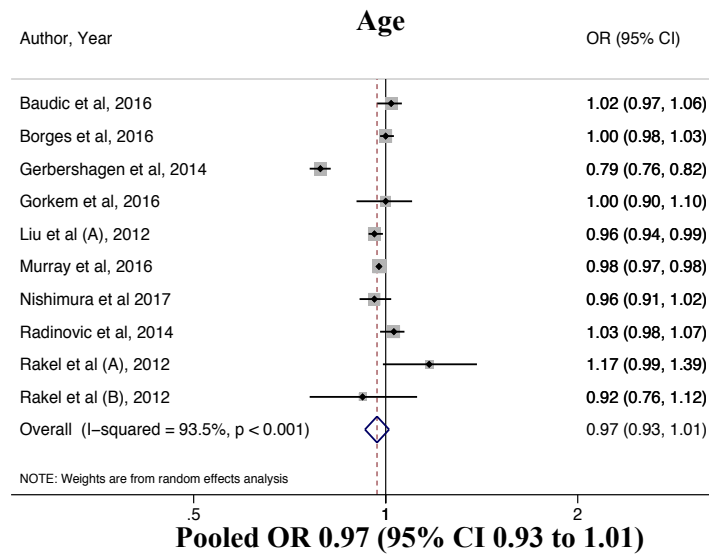
a) Preoperative Analgesia

Author, Year	OR (95% CI)	Weight (%)
Auburn et al, 2008	1.91 (1.15, 3.18)	17.19
Camuo et al, 2012	1.13 (0.46, 2.73)	7.73
Lunn et al, 2013	1.63 (1.32, 2.01)	34.08
Mamie et al, 2004	1.19 (0.81, 1.75)	23.15
Nishimura et al 2017	1.23 (0.67, 2.21)	13.92
Sommer et al, 2010	7.12 (1.92, 26.44)	3.93
Overall (I–squared = 44.0%, p = 0.112)	1.54 (1.17, 2.03)	100.00

NOTE: Weights are from random effects analysis

.5 1 3

Pooled OR 1.54 (95% CI 1.17 to 2.03)

b) Body Mass Index

Author, Year	OR (95% CI)	Weight (%)
Liu et al (B), 2012	1.02 (1.01, 1.03)	98.47
Rehberg et al, 2017	1.01 (0.94, 1.10)	1.53
Overall (I–squared = 0.0%, p = 0.807)	1.02 (1.01, 1.03)	100.00

NOTE: Weights are from random effects analysis

.9 1 1.15

Pooled OR 1.02 (95% CI 1.01 to 1.03)

c) Sleep Difficulty

Author, Year	OR (95% CI)	Weight (%)
Mamie et al, 2004	2.17 (1.23, 3.84)	66.65
Orbach–Zinger, et al 2016	2.64 (1.20, 6.00)	33.35
Overall (I–squared = 0.0%, p = 0.697)	2.32 (1.46, 3.69)	100.00

NOTE: Weights are from random effects analysis

.5 1 7

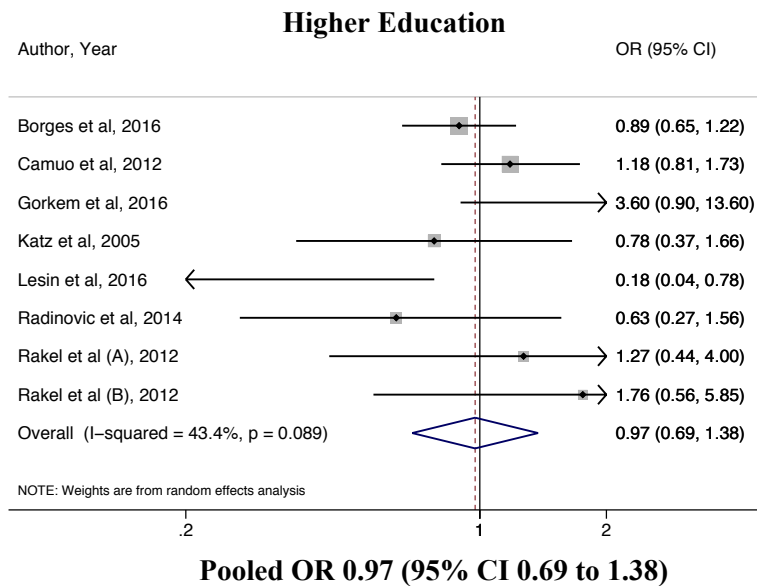**Pooled OR 2.32 (95% CI 1.46 to 3.69)**

Figure S3. Forest Plot of Significant Preoperative Predictors of Postoperative Pain.
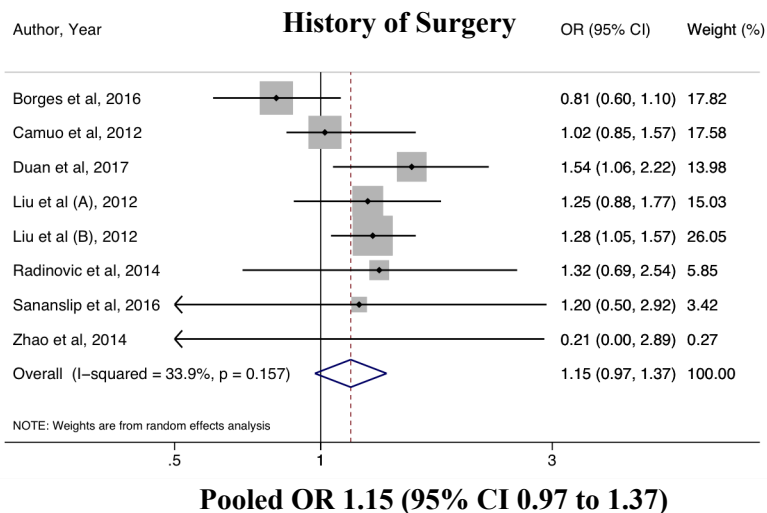a) preoperative analgesia, b) body mass index (continuous), and c) history of sleeping difficulty.

a)

Age

Author, Year	OR (95% CI)
Baudic et al, 2016	1.02 (0.97, 1.06)
Borges et al, 2016	1.00 (0.98, 1.03)
Gerbershagen et al, 2014	0.79 (0.76, 0.82)
Gorkem et al, 2016	1.00 (0.90, 1.10)
Liu et al (A), 2012	0.96 (0.94, 0.99)
Murray et al, 2016	0.98 (0.97, 0.98)
Nishimura et al 2017	0.96 (0.91, 1.02)
Radinovic et al, 2014	1.03 (0.98, 1.07)
Rakel et al (A), 2012	1.17 (0.99, 1.39)
Rakel et al (B), 2012	0.92 (0.76, 1.12)
Overall (I–squared = 93.5%, p < 0.001)	0.97 (0.93, 1.01)

NOTE: Weights are from random effects analysis

Pooled OR 0.97 (95% CI 0.93 to 1.01)

b)

Higher Education

Author, Year	OR (95% CI)
Borges et al, 2016	0.89 (0.65, 1.22)
Camuo et al, 2012	1.18 (0.81, 1.73)
Gorkem et al, 2016	3.60 (0.90, 13.60)
Katz et al, 2005	0.78 (0.37, 1.66)
Lesin et al, 2016	0.18 (0.04, 0.78)
Radinovic et al, 2014	0.63 (0.27, 1.56)
Rakel et al (A), 2012	1.27 (0.44, 4.00)
Rakel et al (B), 2012	1.76 (0.56, 5.85)
Overall (I–squared = 43.4%, p = 0.089)	0.97 (0.69, 1.38)

NOTE: Weights are from random effects analysis

Pooled OR 0.97 (95% CI 0.69 to 1.38)

c)

History of Surgery

Author, Year	OR (95% CI)	Weight (%)
Borges et al, 2016	0.81 (0.60, 1.10)	17.82
Camuo et al, 2012	1.02 (0.85, 1.57)	17.58
Duan et al, 2017	1.54 (1.06, 2.22)	13.98
Liu et al (A), 2012	1.25 (0.88, 1.77)	15.03
Liu et al (B), 2012	1.28 (1.05, 1.57)	26.05
Radinovic et al, 2014	1.32 (0.69, 2.54)	5.85
Sananslip et al, 2016	1.20 (0.50, 2.92)	3.42
Zhao et al, 2014	0.21 (0.00, 2.89)	0.27
Overall (I–squared = 33.9%, p = 0.157)	1.15 (0.97, 1.37)	100.00

NOTE: Weights are from random effects analysis

Pooled OR 1.15 (95% CI 0.97 to 1.37)

Figure S4. Forest Plot of Non-Significant Preoperative Predictors of Postoperative Pain. a) age (continuous), b) higher education, and c) history of surgery.
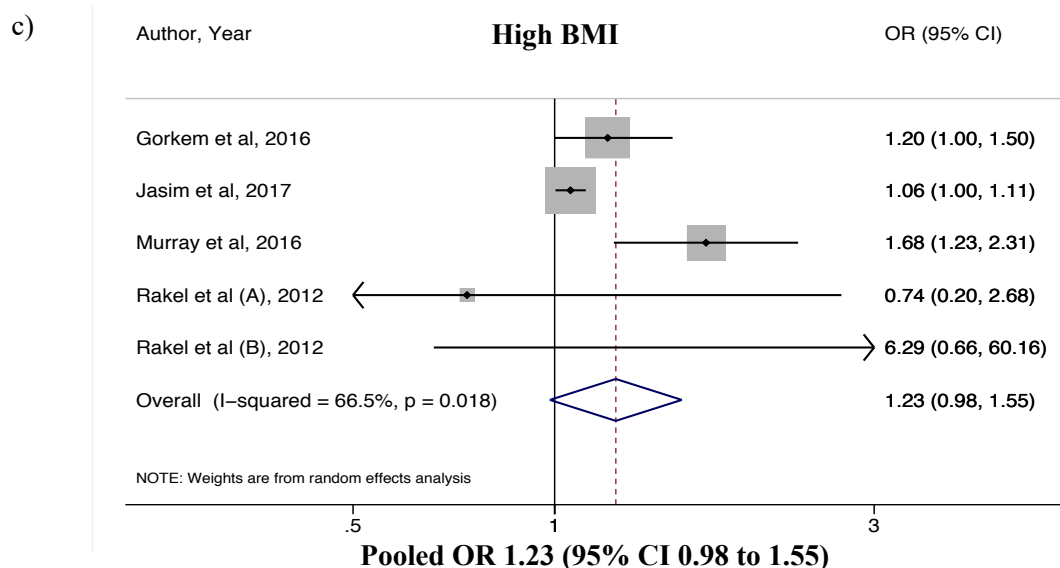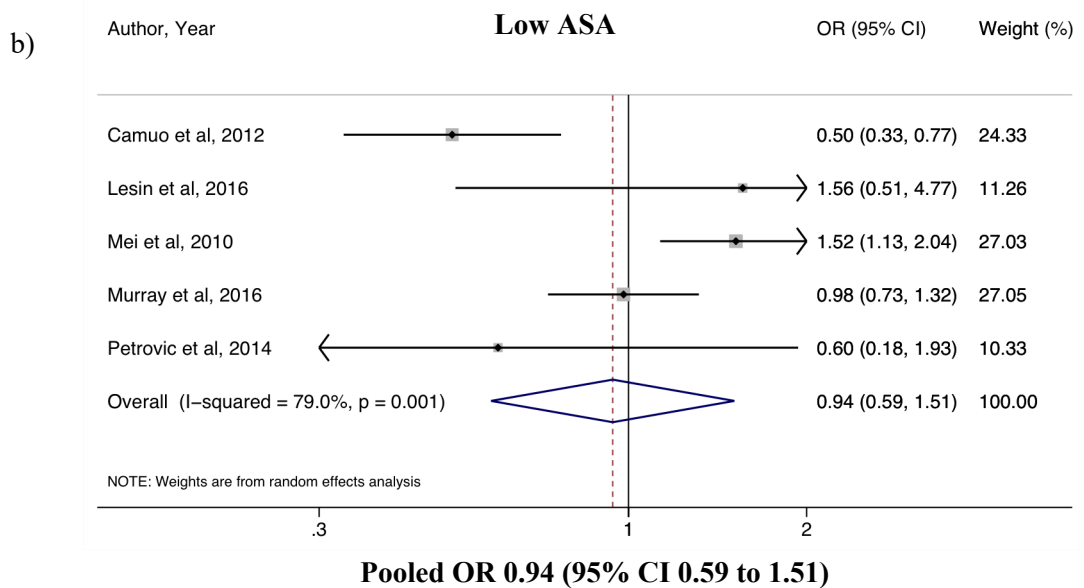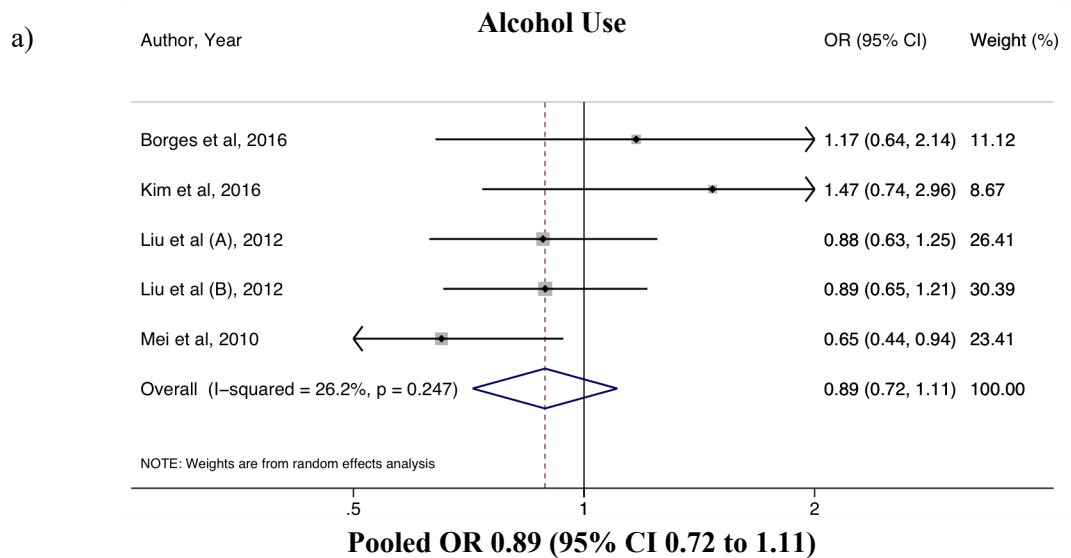
a)

Alcohol Use

Author, Year	OR (95% CI)	Weight (%)
Borges et al, 2016	1.17 (0.64, 2.14)	11.12
Kim et al, 2016	1.47 (0.74, 2.96)	8.67
Liu et al (A), 2012	0.88 (0.63, 1.25)	26.41
Liu et al (B), 2012	0.89 (0.65, 1.21)	30.39
Mei et al, 2010	0.65 (0.44, 0.94)	23.41
Overall (I–squared = 26.2%, p = 0.247)	0.89 (0.72, 1.11)	100.00

NOTE: Weights are from random effects analysis

Pooled OR 0.89 (95% CI 0.72 to 1.11)

b)

Low ASA

Author, Year	OR (95% CI)	Weight (%)
Camuo et al, 2012	0.50 (0.33, 0.77)	24.33
Lesin et al, 2016	1.56 (0.51, 4.77)	11.26
Mei et al, 2010	1.52 (1.13, 2.04)	27.03
Murray et al, 2016	0.98 (0.73, 1.32)	27.05
Petrovic et al, 2014	0.60 (0.18, 1.93)	10.33
Overall (I–squared = 79.0%, p = 0.001)	0.94 (0.59, 1.51)	100.00

NOTE: Weights are from random effects analysis

Pooled OR 0.94 (95% CI 0.59 to 1.51)

c)

High BMI

Author, Year	OR (95% CI)
Gorkem et al, 2016	1.20 (1.00, 1.50)
Jasim et al, 2017	1.06 (1.00, 1.11)
Murray et al, 2016	1.68 (1.23, 2.31)
Rakel et al (A), 2012	0.74 (0.20, 2.68)
Rakel et al (B), 2012	6.29 (0.66, 60.16)
Overall (I–squared = 66.5%, p = 0.018)	1.23 (0.98, 1.55)

NOTE: Weights are from random effects analysis

Pooled OR 1.23 (95% CI 0.98 to 1.55)

Figure S5. Forest Plot of Non-Significant Preoperative Predictors of Postoperative Pain. a) alcohol use, b) low ASA, and c) BMI (dichotomous).
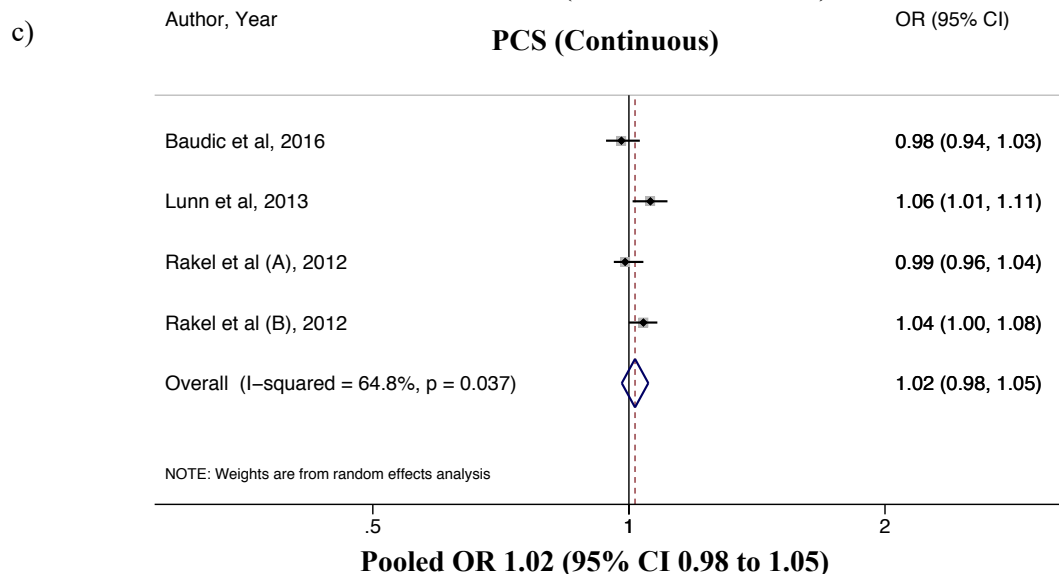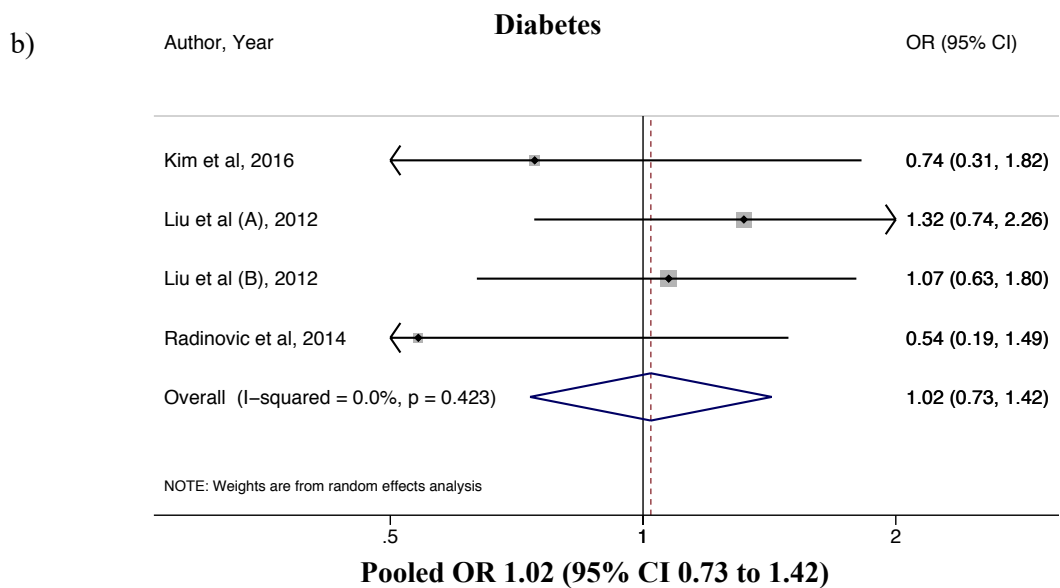
a)

Author, Year	Chronic Pain	OR (95% CI)
Camuo et al, 2012		1.75 (1.03, 2.98)
Liu et al (A), 2012		0.85 (0.59, 1.21)
Liu et al (B), 2012		0.76 (0.55, 1.05)
Sananslip et al, 2016		0.64 (0.15, 2.69)
Overall (I-squared = 59.5%, p = 0.060)		0.96 (0.65, 1.42)

NOTE: Weights are from random effects analysis

.5   1   2

Pooled OR 0.96 (95% CI 0.65 to 1.42)

b)

Author, Year	Diabetes	OR (95% CI)
Kim et al, 2016		0.74 (0.31, 1.82)
Liu et al (A), 2012		1.32 (0.74, 2.26)
Liu et al (B), 2012		1.07 (0.63, 1.80)
Radinovic et al, 2014		0.54 (0.19, 1.49)
Overall (I-squared = 0.0%, p = 0.423)		1.02 (0.73, 1.42)

NOTE: Weights are from random effects analysis

.5   1   2

Pooled OR 1.02 (95% CI 0.73 to 1.42)

c)

Author, Year	PCS (Continuous)	OR (95% CI)
Baudic et al, 2016		0.98 (0.94, 1.03)
Lunn et al, 2013		1.06 (1.01, 1.11)
Rakel et al (A), 2012		0.99 (0.96, 1.04)
Rakel et al (B), 2012		1.04 (1.00, 1.08)
Overall (I-squared = 64.8%, p = 0.037)		1.02 (0.98, 1.05)

NOTE: Weights are from random effects analysis

.5   1   2

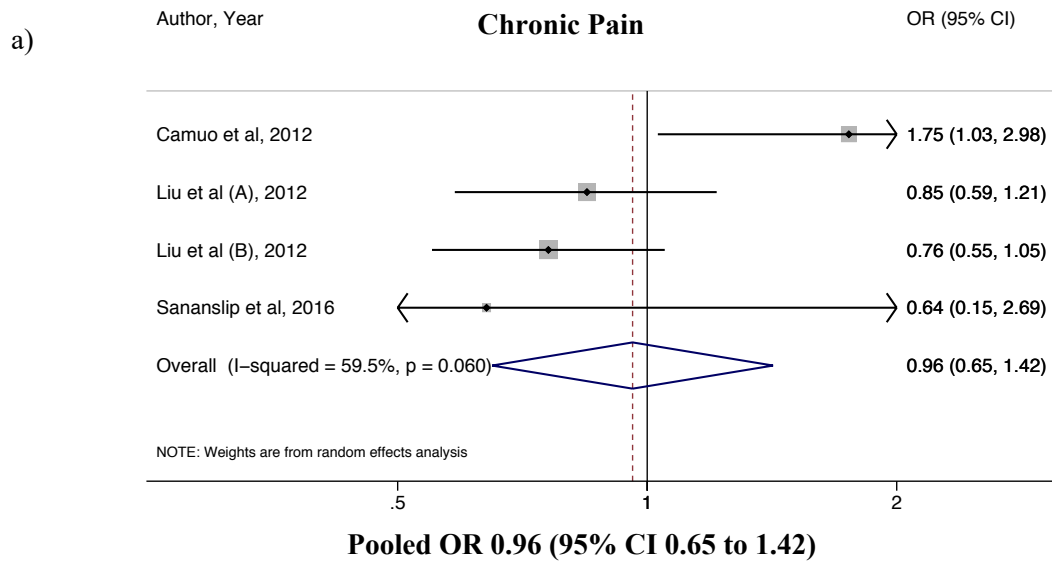**Pooled OR 1.02 (95% CI 0.98 to 1.05)**

Figure S6. Forest Plot of Non-Significant Preoperative Predictors of Postoperative Pain. a) chronic pain, b) diabetes, and c) pain catastrophizing scale (continuous).
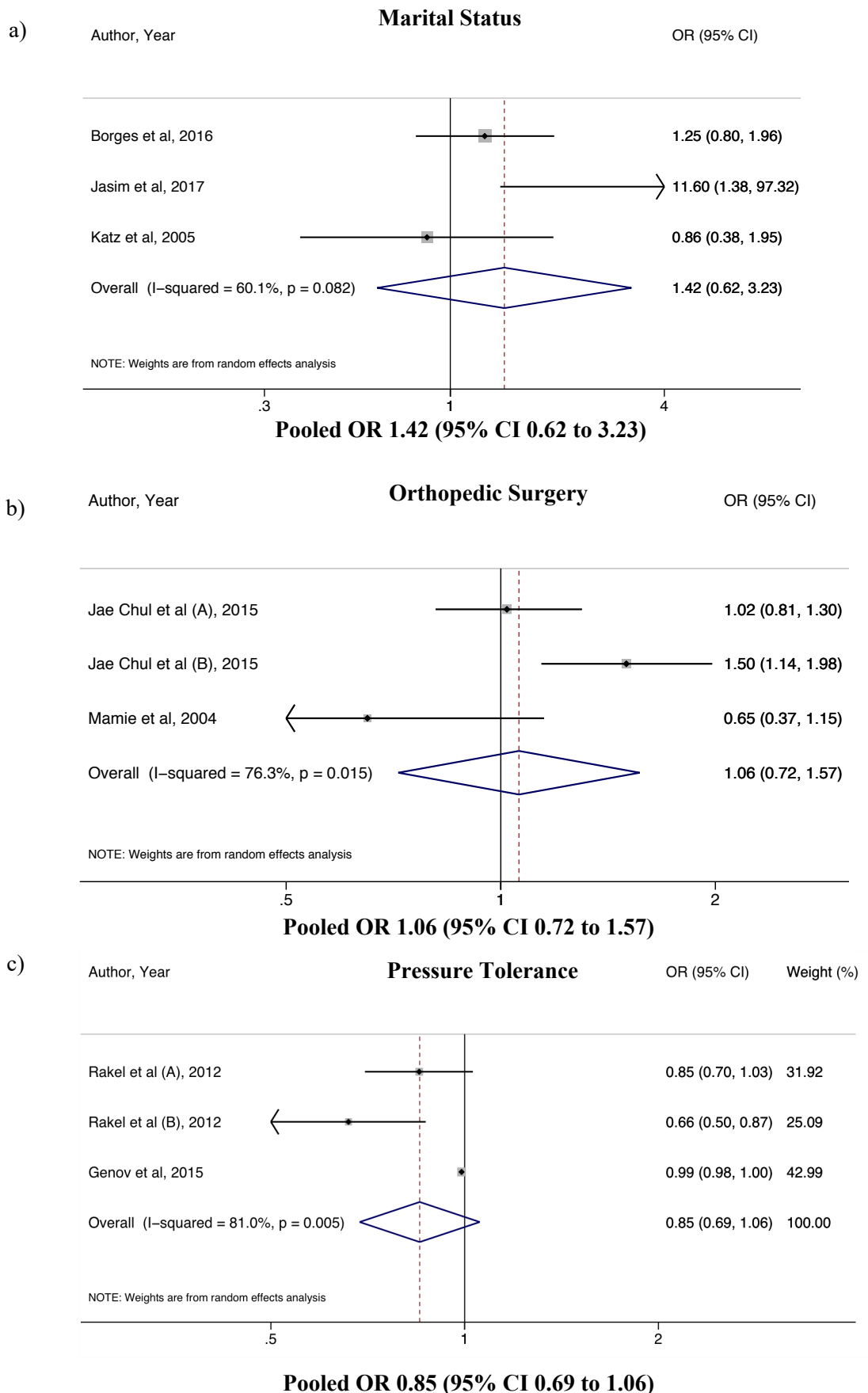
a)

Marital Status

Author, Year	OR (95% CI)
Borges et al, 2016	1.25 (0.80, 1.96)
Jasim et al, 2017	11.60 (1.38, 97.32)
Katz et al, 2005	0.86 (0.38, 1.95)
Overall (I–squared = 60.1%, p = 0.082)	1.42 (0.62, 3.23)

NOTE: Weights are from random effects analysis

.3   1   4

Pooled OR 1.42 (95% CI 0.62 to 3.23)

b)

Orthopedic Surgery

Author, Year	OR (95% CI)
Jae Chul et al (A), 2015	1.02 (0.81, 1.30)
Jae Chul et al (B), 2015	1.50 (1.14, 1.98)
Mamie et al, 2004	0.65 (0.37, 1.15)
Overall (I–squared = 76.3%, p = 0.015)	1.06 (0.72, 1.57)

NOTE: Weights are from random effects analysis

.5   1   2

Pooled OR 1.06 (95% CI 0.72 to 1.57)

c)

Pressure Tolerance

Author, Year	OR (95% CI)	Weight (%)
Rakel et al (A), 2012	0.85 (0.70, 1.03)	31.92
Rakel et al (B), 2012	0.66 (0.50, 0.87)	25.09
Genov et al, 2015	0.99 (0.98, 1.00)	42.99
Overall (I–squared = 81.0%, p = 0.005)	0.85 (0.69, 1.06)	100.00

NOTE: Weights are from random effects analysis

.5   1   2

Pooled OR 0.85 (95% CI 0.69 to 1.06)

Figure S7. Forest Plot of Non-Significant Preoperative Predictors of Postoperative Pain. a) marital status, b) orthopedic surgery, and c) preoperative pressure tolerance.
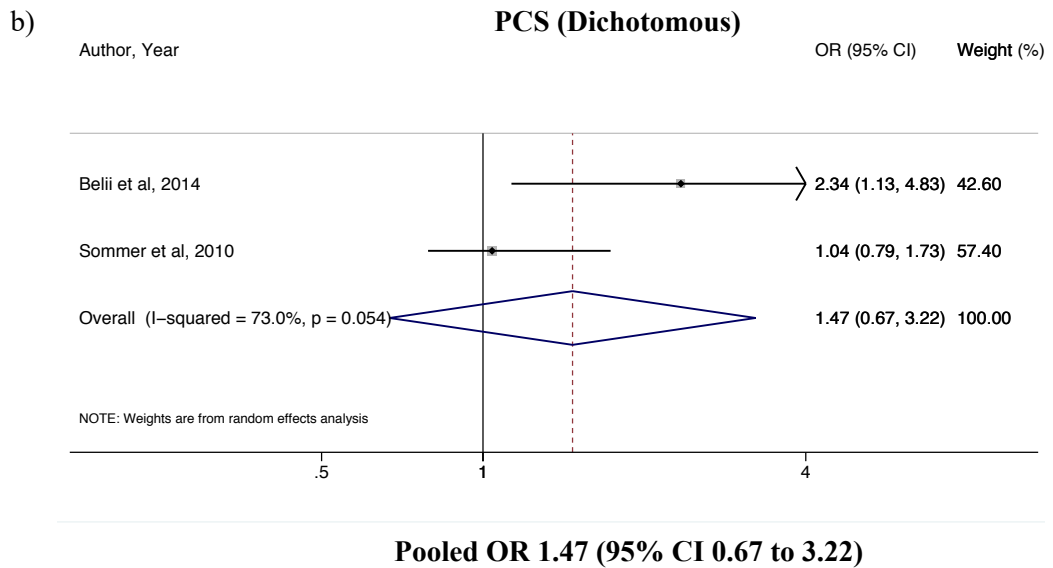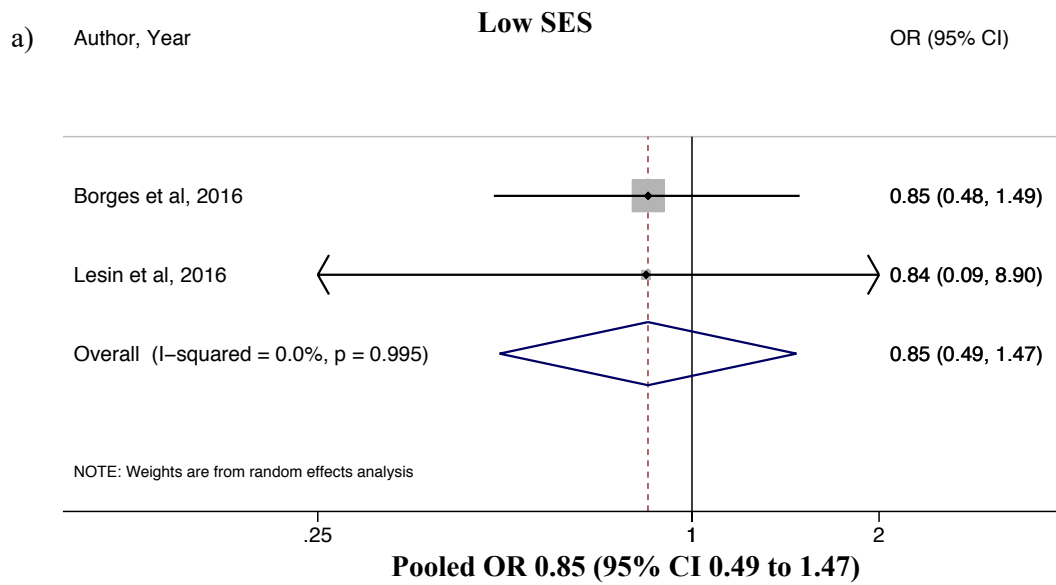
a)

| Author, Year | | Low SES | | OR (95% CI) |

Borges et al, 2016 — 0.85 (0.48, 1.49)

Lesin et al, 2016 — 0.84 (0.09, 8.90)

Overall (I–squared = 0.0%, p = 0.995) — 0.85 (0.49, 1.47)

NOTE: Weights are from random effects analysis

.25   1   2

Pooled OR 0.85 (95% CI 0.49 to 1.47)

b)

PCS (Dichotomous)

Author, Year — OR (95% CI)   Weight (%)

Belii et al, 2014 — 2.34 (1.13, 4.83) 42.60

Sommer et al, 2010 — 1.04 (0.79, 1.73) 57.40

Overall (I–squared = 73.0%, p = 0.054) — 1.47 (0.67, 3.22) 100.00

NOTE: Weights are from random effects analysis

.5   1   4

Pooled OR 1.47 (95% CI 0.67 to 3.22)

Figure S8. Forest Plot of Non-Significant Preoperative Predictors of Postoperative Pain. a) low socioeconomic status and b) pain catastrophizing scale (dichotomous).