Supplementary figures and tables.

**Figure legend:**

Figure S1. A. Forest plot for non-small cell lung cancer (NSCLC) VS. small cell lung cancer (SCLC). B. Forest plot for risk difference for NSCLC VS. SCLC. RD risk difference; PR positive rate; CI confidence interval.

Figure S2. Forest plot for clinical TNM stages. PR positive rate; CI confidence interval.

Figure S3. Forest plot for previous treatment methods. PR positive rate; CI confidence interval.

Figure S4. Forest plot for DT threshold. PR positive rate; CI confidence interval.

Figure S5. Forest plot for sample size. PR positive rate; CI confidence interval.
**Figure S1.** A. Forest plot for non-small cell lung cancer (NSCLC) VS. small cell lung cancer (SCLC). B. Forest plot for risk difference for NSCLC VS. SCLC. RD risk difference; PR positive rate; CI confidence interval.
**Figure S2.** Forest plot for clinical TNM stages. PR positive rate; CI confidence interval.

| Study          | Year | Case | N  | PR (95% CI)    | Weight(%) |
|----------------|------|------|----|----------------|-----------|
| Stage I–II     | 2019 | 12   | 26 | 0.4615 (0.2659, 0.6663) | 100.00    |
| Geerse, OP     |      |      |    |                |           |
| Stage I–III    | 2019 | 72   | 212| 0.3396 (0.2762, 0.4076) | 100.00    |
| Tan, H         |      |      |    |                |           |
| Stage III      | 2017 | 39   | 113| 0.3451 (0.2582, 0.4404) | 100.00    |
| de Mol, M      |      |      |    |                |           |
| Stage IV       | 2019 | 90   | 208| 0.4327 (0.3644, 0.5030) | 49.91     |
| Tan, H         | 2019 | 39   | 109| 0.3578 (0.2683, 0.4553) | 27.08     |
| McFarland, DC  | 2017 | 41   | 92 | 0.4457 (0.3419, 0.5530) | 23.01     |
| Sherry, V      |      |      |    |                |           |
| Subtotal (*)    |      |      |    | 0.4151 (0.3662, 0.4648) | 100.00    |
| Stage III–IV   | 2019 | 34   | 61 | 0.5574 (0.4245, 0.6845) | 100.00    |

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| Study                                      | Year | Case | N  | PR (95% CI)       | Weight(%) |
|-------------------------------------------|------|------|----|-------------------|-----------|
| Chemotherapy                              |      |      |    |                   |           |
| de Mol, M                                 | 2017 | 5    | 9  | 0.5556 (0.2120, 0.8630) | 17.14     |
| Geerse, OP                                | 2019 | 32   | 54 | 0.5926 (0.4503, 0.7243) | 36.73     |
| Tan, H                                    | 2019 | 136  | 349| 0.3897 (0.3382, 0.4443) | 46.13     |
| Subtotal (I^2 = .%, p = .)                |      |      |    | 0.4987 (0.3234, 0.6590) | 100.00    |
| Surgery and (neo) adjuvant chemotherapy   |      |      |    |                   |           |
| de Mol, M                                 | 2017 | 5    | 14 | 0.3571 (0.1276, 0.6486) | 100.00    |
| Chemotherapy and sequential/concurrent Radiotherapy |      |      |    |                   |           |
| de Mol, M                                 | 2017 | 29   | 90 | 0.3222 (0.2275, 0.4290) | 77.35     |
| Geerse, OP                                | 2019 | 11   | 26 | 0.4231 (0.2335, 0.6308) | 22.65     |
| Subtotal (I^2 = .%, p = .)                |      |      |    | 0.3429 (0.2577, 0.4334) | 100.00    |
| Biological                                |      |      |    |                   |           |
| Geerse, OP                                | 2019 | 8    | 17 | 0.4706 (0.2298, 0.7219) | 100.00    |
| No Chemotherapy                           |      |      |    |                   |           |
| Tan, H                                    | 2019 | 26   | 71 | 0.3662 (0.2550, 0.4890) | 100.00    |

**Figure S3.** Forest plot for previous treatment methods. PR positive rate; CI confidence interval.
Figure S4. Forest plot for DT threshold. PR positive rate; CI confidence interval.
**Figure S5.** Forest plot for sample size. PR positive rate; CI confidence interval.

| Study      | Year | Case | N  | PR (95% CI)          | Weight (%) |
|------------|------|------|----|----------------------|------------|
| Sample Size <100 |
| Acquini, C | 2017 | 64   | 93 | 0.6882 (0.5837, 0.7802) | 9.68       |
| Geerse, OP | 2019 | 51   | 97 | 0.5258 (0.4218, 0.6281) | 9.75       |
| Lynch, J   | 2010 | 15   | 33 | 0.4545 (0.2811, 0.6365) | 7.35       |
| Sherry, V  | 2017 | 41   | 92 | 0.4457 (0.3419, 0.5530) | 9.66       |
| Steinberg, T | 2009 | 50   | 98 | 0.5102 (0.4072, 0.6126) | 9.77       |
| Subtotal (I² = 69.5047%, p = 0.0107) | | | | 0.5310 (0.4408, 0.6202) | 46.21      |
| Sample Size ≥100 |
| Carlson, LE | 2019 | 278  | 507 | 0.5483 (0.5038, 0.5922) | 11.31      |
| Carlson, LE | 2010 | 343  | 549 | 0.6248 (0.5828, 0.6654) | 11.34      |
| de Mol, M  | 2017 | 39   | 113| 0.3451 (0.2582, 0.4404) | 9.99       |
| McFarland, DC | 2019 | 39   | 109| 0.3578 (0.2683, 0.4553) | 9.94       |
| Tan, H     | 2019 | 162  | 420| 0.3857 (0.3389, 0.4341) | 11.22      |
| Subtotal (I² = 95.0902%, p = 0.0000) | | | | 0.4562 (0.3452, 0.5695) | 53.79      |
| Heterogeneity between groups: p = 0.312 |
| Overall (I² = 90.5946%, p = 0.0000) | | | | 0.4904 (0.4151, 0.5660) | 100.00     |
### Table S1 Selection strategy in PubMed (The retrieval time: 20211231)

| Search | Query                                                                 | Items found |
|--------|------------------------------------------------------------------------|-------------|
| #1     | (Psychological[All Fields] AND distress[All Fields]) OR (Distress[All Fields] AND (“thermometers”[MeSH Terms] OR “thermometers”[All Fields] OR "thermometer"[All Fields])) OR (psychosocial[All Fields] AND problems[All Fields]) | 71146       |
| #2     | (“lung neoplasms”[MeSH Terms] OR ("lung"[All Fields] AND "neoplasms"[All Fields]) OR "lung neoplasms"[All Fields] OR ("lung"[All Fields] AND "cancer"[All Fields]) OR "lung cancer"[All Fields]) | 386772      |
| #3     | #1 AND #2                                                             | 615         |

### Table S2 Selection strategy in Embase

| Search | Query                                                                 | Items found |
|--------|------------------------------------------------------------------------|-------------|
| #1     | (psychological AND ('distress'/exp OR distress) OR 'distress thermometer'/exp OR 'distress thermometer' OR (‘psychosocial'/exp OR psychological AND problems)) | 62069       |
| #2     | ('lung cancer'/exp OR 'lung cancer' OR 'lung neoplasms'/exp OR 'lung neoplasms'/exp OR 'lung neoplasm') | 450344      |
| #3     | #1 AND #2                                                             | 929         |

### Table S3 Selection strategy in PsycINFO

| Search | Query                                                                 | Items found |
|--------|------------------------------------------------------------------------|-------------|
| #1     | (Psychological distress) OR (“Distress Thermometer”) OR (psychosocial problems) | 24532       |
| #2     | (“lung cancer” OR “lung neoplasms” OR “lung neoplasm”)                | 3120        |
| #3     | #1 AND #2                                                             | 96          |

### Table S4 Selection strategy in The cochrane library

| Search | Query                                                                 | Items found |
|--------|------------------------------------------------------------------------|-------------|
| #1     | MeSH descriptor: [Thermometers] explode all trees                      | 91          |
| Search | Query | Items found |
|--------|-------|-------------|
| #2     | (Distress):ti,ab,kw (Word variations have been searched) | 25261 |
| #3     | #1 AND #2 | 2 |
| #4     | (Psychological distress OR Distress Thermometer OR psychosocial problems):ti,ab,kw (Word variations have been searched) | 11704 |
| #5     | #3 OR #4 | 11704 |
| #6     | MeSH descriptor: [Lung Neoplasms] explode all trees | 8309 |
| #7     | (“lung cancer” OR “lung neoplasms” OR “lung neoplasm”):ti,ab,kw (Word variations have been searched) | 22947 |
| #8     | #6 OR #7 | 23250 |
| #9     | #5 AND #8 | 182 |
| #10    | #9 in Trials | 178 |
Table S5 Risk of bias in the included studies.

| Study            | Item 1 | Item 2 | Item 3   | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Overall |
|------------------|--------|--------|----------|--------|--------|--------|--------|--------|--------|---------|
| Acquati, C 2017  | Low    | Low    | Unclear  | Low    | Low    | Low    | Low    | Low    | Unclear| Low     |
| Carlson, LE 2019 | Unclear| Low    | Unclear  | Low    | Low    | Low    | Low    | Low    | Low    | Low     |
| Carlson, LE 2010 | Unclear| Unclear| Unclear  | Unclear| Low    | Low    | Low    | Low    | Unclear| Low     |
| de Mol, M 2017   | Unclear| Unclear| Unclear  | Low    | Low    | Low    | Low    | Low    | Low    | Low     |
| Geerse, OP 2019  | Low    | Low    | Unclear  | Low    | Low    | Low    | Low    | Low    | Low    | Low     |
| Lynch, J 2010    | Low    | Unclear| Unclear  | Unclear| Low    | Low    | Low    | Low    | Low    | Low     |
| McFarland, DC 2019 | Unclear | Unclear | Unclear | Low    | Low    | Low    | Low    | Low    | Low    | Low     |
| Sherry, V 2017   | Unclear| Unclear| Unclear  | Low    | Low    | Low    | Low    | Low    | Low    | Unclear |
| Steinberg, T 2009 | Unclear | Unclear | Unclear | Low    | Low    | Low    | Low    | Low    | Low    | Unclear |
| Tan, H 2019      | Low    | Low    | Unclear  | Unclear| Unclear| Unclear| Unclear| Unclear| Unclear| Low     |

Item 1, Was the sample frame appropriate to address the target population?

Item 2, Were study participants sampled in an appropriate way?

Item 3, Was the sample size adequate?

Item 4, Were the study subjects and the setting described in detail?

Item 5, Was the data analysis conducted with sufficient coverage of the identified sample?

Item 6, Were valid methods used for the identification of the condition?

Item 7, Was the condition measured in a standard, reliable way for all participants?

Item 8, Was there appropriate statistical analysis?

Item 9, Was the response rate adequate, and if not, was the low response rate managed appropriately?