

Supplementary data

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S1Table. Search strategy in Medline, ScienceDirect, and Wiley.

1. MSI
2. Microsatellite instability
3. Mismatch repair
4. MMR
5. MLH1
6. MSH2
7. MSH6
8. PMS2
9. 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8
10.Cancer
11.Neoplasm
12.Carcinoma
13.Adenocarcinoma
14.Tumor
15.10 OR 11 OR 12 OR 13 OR 14
16. Gastric
17. Stomach
18. Colorectal
19. Ovarian
20.16 OR 17 OR 18 OR 19
21.9 AND 15 AND 20

S2Table. Search strategy in Web of Science, OVID, and Embase.

1. MSI Ti, ab
2. Microsatellite instability Ti, ab
3. Mismatch repair Ti, ab
4. MMR Ti, ab
5. MLH1 Ti, ab
6. MSH2 Ti, ab
7. MSH6 Ti, ab
8. PMS2 Ti, ab
9. 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8
10.Cancer Ti, ab
11.Neoplasm Ti, ab
12.Carcinoma Ti, ab
13.Adenocarcinoma Ti, ab
14.Tumor Ti, ab
15.10 OR 11 OR 12 OR 13 OR 14
16. Gastric Ti, ab
17. Stomach Ti, ab
18. Colorectal Ti, ab
19. Ovarian Ti, ab
20.16 OR 17 OR 18 OR 19
21.9 AND 15 AND 20

S3 Table. Methodological quality of included studies included in the meta-analysis.

Author/ Year	Selection			Compa rability		Exposure			Tot al qua lity sco re	Go od qua lity
	Ade quat e defin ition of cases	Represent ativeness of cases	Sele ction of contr ols	Defin ition of contr ols	Exposu re ascertai nment	Same method of ascertai nment	Non- Resp onse rate			
Horri/1994	☆	-	-	☆	-	☆	☆	-	4	No
Brown/1998	☆	-	-	☆	☆	-	-	-	3	No
Kiriu/1998	☆	-	-	☆	☆	☆	☆	-	5	No
Abe/2000	☆	-	-	☆	☆☆	☆	☆	-	8	Ye s
Kim HS/2001	☆	-	-	-	☆☆	☆	☆	-	5	No
Mark/2002	☆	☆	-	☆	☆☆	☆	☆	☆	8	Ye s
Kim YH/2005	☆	☆	-	☆	☆☆	☆	☆	-	7	Ye s
Lawes/2005	☆	☆	-	☆	☆☆	☆	☆	-	7	No
Yamamoto/2006	☆	☆	-	☆	☆☆	☆	☆	-	7	Ye s
Hayashi/ 2006	☆	☆	-	☆	☆☆	☆	☆	-	7	Ye s
Yun HR/2009	☆	☆	-	☆	☆☆	☆	☆	-	8	Ye s
Nosho/2009	☆	☆	☆	☆	☆☆	☆	☆	☆	9	Ye s
Kim SH/2010	☆	☆	-	☆	☆☆	☆	☆	-	7	Ye s
Yoon/2010	☆	☆	-	☆	☆☆	☆	☆	-	7	Ye s
Bae JM/2012	☆	☆	-	☆	☆☆	☆	☆	-	7	Ye s
Hu H/2013	☆	☆	-	☆	☆☆	☆	☆	-	7	Ye s

Huang/2014	☆	☆	-	☆	☆☆	☆	☆	-	7	Yes
Lee JW/2014	☆	☆	-	☆	☆☆	☆	☆	-	7	Yes
Malesci/2014	☆	☆	-	☆	☆☆	☆	☆	-	7	Yes
Choi/2014	☆	☆	-	☆	-	☆	☆	-	5	No
Meng/2015	☆	☆	-	☆	☆☆	☆	☆	☆	8	Yes
Kim YB/2016	☆	☆	-	☆	☆☆	☆	☆	-	7	Yes

S4Table. Characteristics of the included studies

Author/Year	Country	Study period	Number of patients	Site	Adjusted or matched variables
Horri/1994	Australia	-	212	Colorectal, stomach, pancreas, lung, liver, biliary, uterine, esophagus, thyroid, head and neck, hematologic	-
Brown/1998	United Kingdom	1987-1996	155	Colorectal, multiple colorectal, stomach, uterine, ovarian	Age, location, and family history
Kiriu/1998	Japan	1992-1996	27	Head and neck, esophageal	Age, gender, location, and staging
Abe/2000	Japan	-	110	Colorectal, multiple colorectal	Age, gender, location, histological type, and staging
Kim HS/2001	Korea	1997-1998	288	Colorectal, stomach	Age, gender, location, and staging

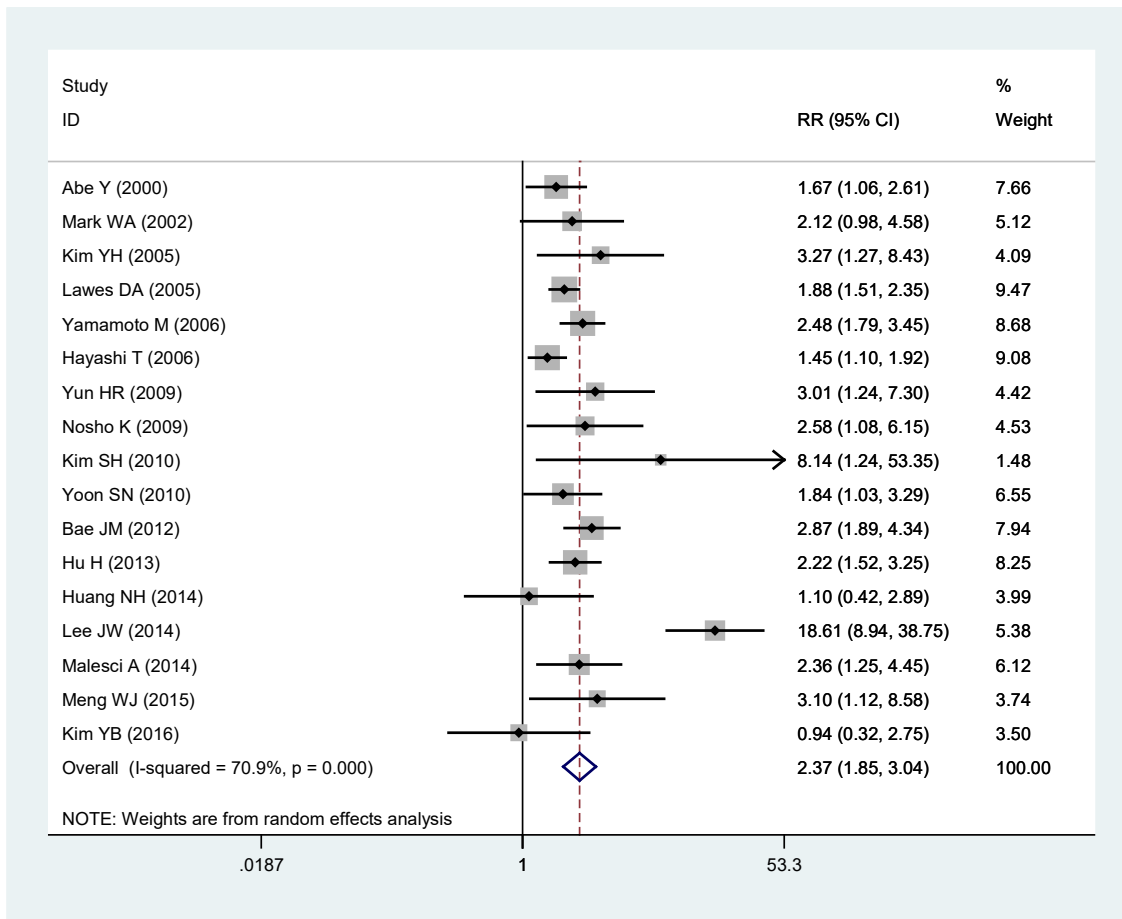
Mark/2002	Australia	-	362	Colorectal,multi ple colorectal	Age, gender, location, histological type, and staging
Kim YH/2005	Korea	1994-2002	238	Colorectal, stomach	Age, gender, location, histological type, and staging
Lawes/2005	United Kingdom	1972-1997	152	Colorectal, multiple colorectal	Age, gender, and location
Yamamoto/20 06	Japan	1974-1999	125	Colorectal, stomach	Age, gender, location, histological type, and staging
Hayashi/2006	Japan	1980-2001	205	Colorectal, stomach	Age, location, and family history
Yun HR/2009	Korea	1994-2004	501	Colorectal,stom ach, duodenum, small bowel, biliary,lung,pan creas,liver,uteri ne,hematologic, breast,gynecolo gic, thyroid	Age, gender, location, histological type, and staging
Nosho/2009	USA	1976-2004	1107	Colorectal,multi ple colorectal	Age, gender, location, histological type, family history, and staging
Kim SH/2010	Korea	2004-2009	128	Stomach,multipl e stomach	Age, gender, location, histological type, family history, and staging
Yoon/2010	Korea	1989-2008	8680	Colorectal, Stomach	Age, gender, location, histological type, family history, perineural invasion, lymphovascular

						invasion, and staging
Bae JM/2012	Korea	2004-2006	151	Colorectal,multiple colorectal		Age, gender, location, histological type, and staging
Hu H/2013	USA	2002-2012	167	Colorectal,multiple colorectal		Age, gender, location, histological type, and staging
Huang/2014	Taiwan	1995-2001	87	Ovarian,endometrial		Age, location, and histological type
Lee JW/2014	Korea	2003-2012	718	Colorectal,stomach,thyroid,prostate,esophageal		Age, gender, location, lymphovascular invasion, tumor size, and staging
Malesci/2014	Italy	1998-2006	881	Colorectal,multiple colorectal		Age, gender, location, histological type, and staging
Cho I/2014	Korea	2005-2010	2594	Colorectal,stomach,biliary,lung,pancreas,liver,uterine,hematologic,breast,thyroid,gynecologic		Age, gender, location, tumor size, and staging
Meng/2015	Sweden	1972-2001	601	Colorectal,multiple colorectal		Age, gender, location, histological type, surgery, complication, recurrence, and staging
Kim YB/2016	Korea	2005-2013	596	Colorectal, stomach		Age, gender, location, lymphovascular invasion, tumor size, and staging

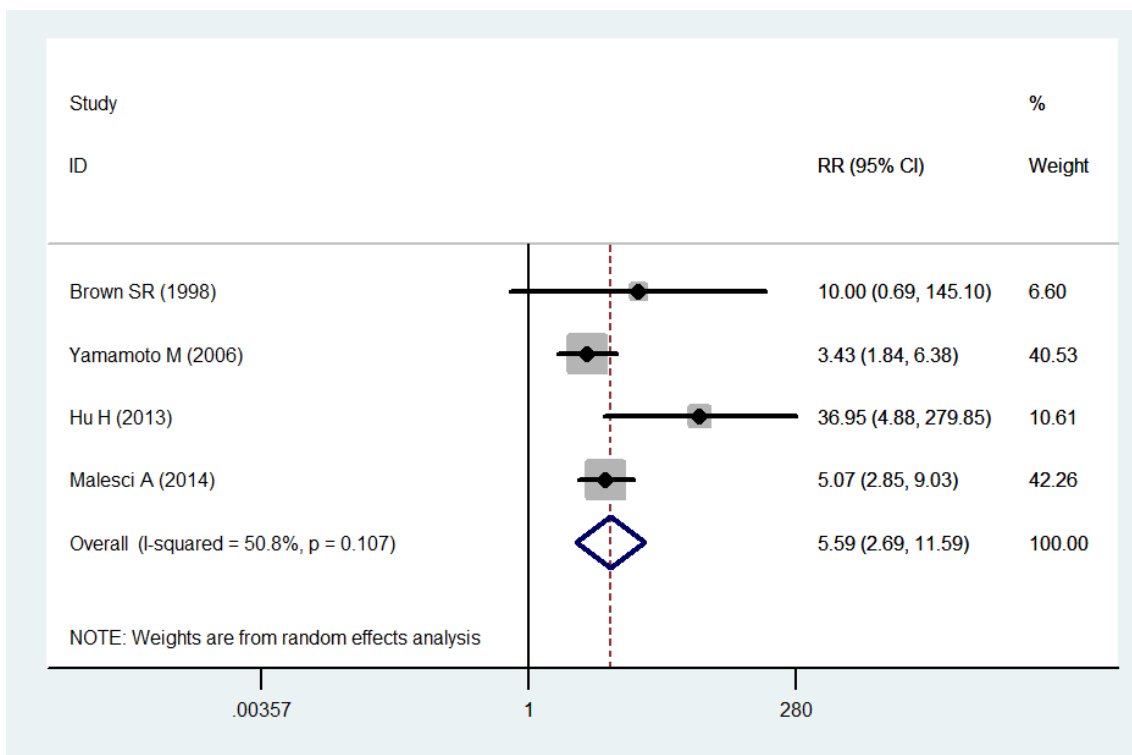
S5Table. Meta-regression analysis.

Variable	Coefficient	Standard error	P value	95% CI
Study design	3.19	1.52	0.025	1.18 - 8.63
Study quality	3.01	1.06	0.005	1.44 - 6.29
MSI detection method	1.18	0.18	0.285	0.86 - 1.62
Publication year	0.81	0.32	0.595	0.36 - 1.83
Country	0.96	0.09	0.648	0.80 - 1.15

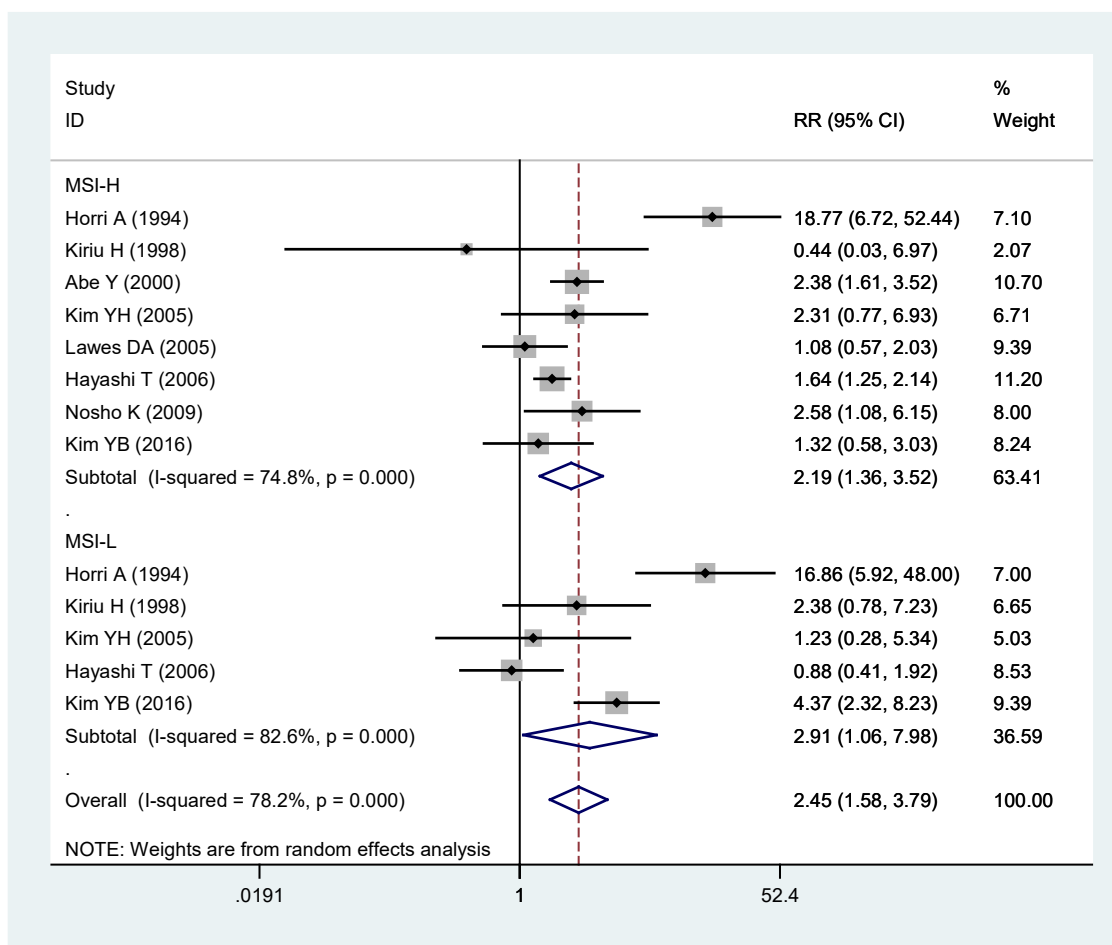
S1 Figure. Forest plot of MMR status and risk of MPC (MSI vs MSS) adjust for study quality.



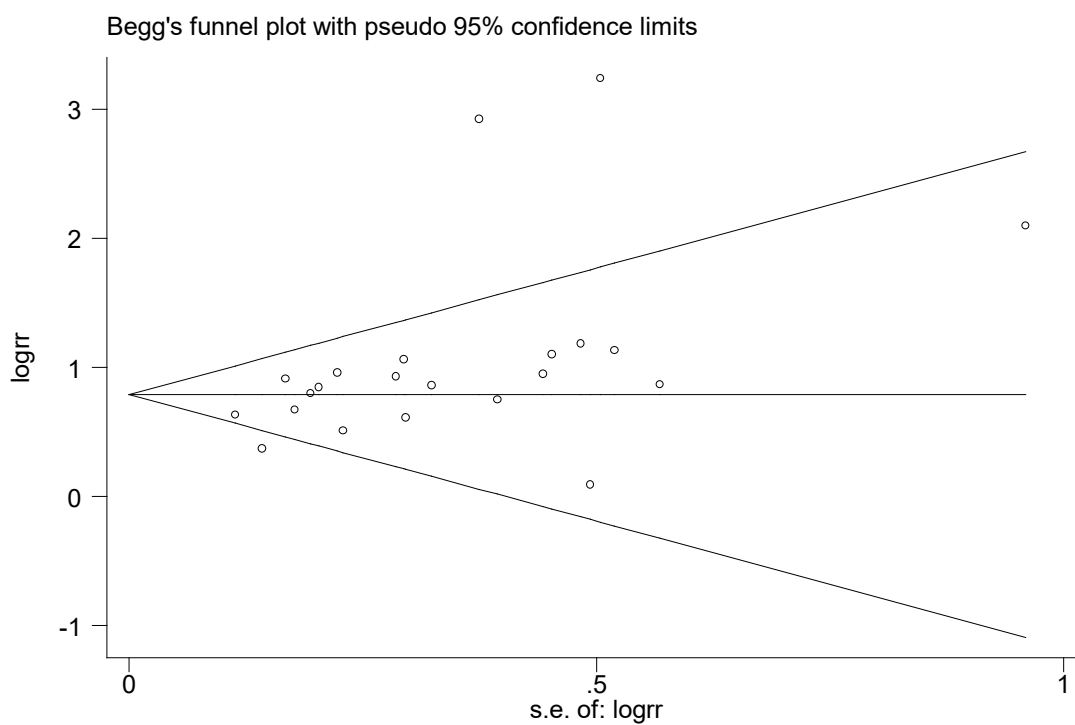
S2 Figure. Forest plot of MMR status and risk of MPC for HNPCC (MSI vs MSS).



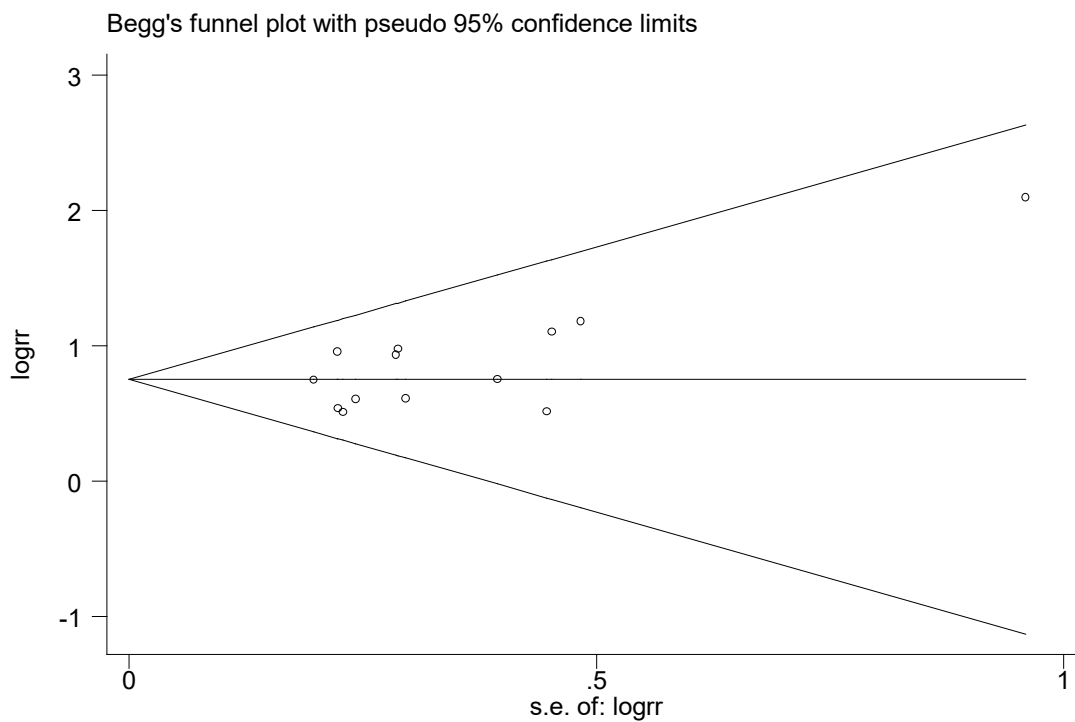
S3 Figure. Forest plot of level of MSI and risk of MPC (MSI vs MSS).



S4 Figure. Begg's funnel plot with pseudo 95% confidence limits for overall studies.



S5 Figure. Begg's funnel plot with pseudo 95% confidence limits for non-HNPCC studies.



S6 Figure. Begg's funnel plot with pseudo 95% confidence limits for adjusted studies.

