

Figure S1. Scatter plots from genetically predicted protective effects assessed the relative intake of protein on breast cancer risk. **(a)** genetically predicted protective effects assessed the relative intake of protein on overall breast cancer risk; **(b)** genetically predicted protective effects assessed the relative intake of protein on Luminal A breast cancer risk; **(c)** genetically predicted protective effects assessed the relative intake of protein on ER-positive breast cancer risk.

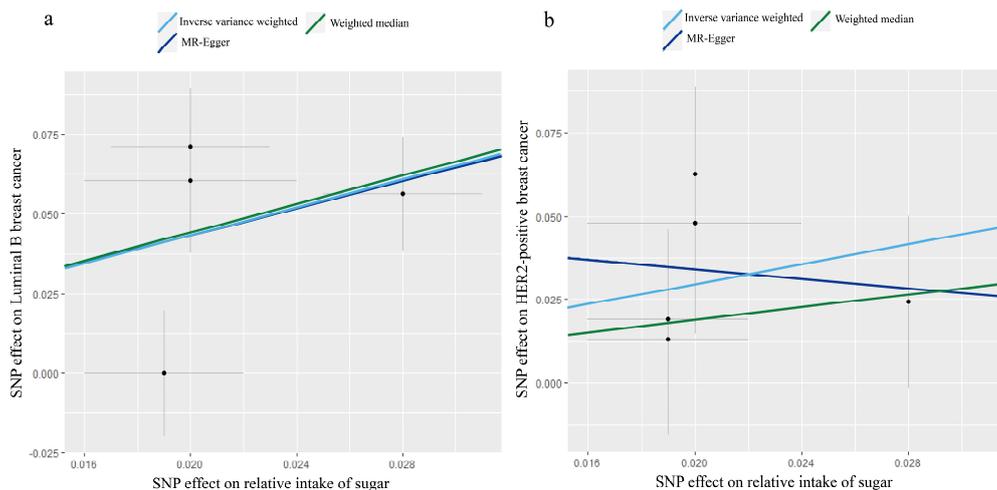


Figure S2. Scatter plots from genetically predicted protective effects assessed the relative intake of sugar on breast cancer risk. **(a)** genetically predicted protective effects

assessed the relative intake of sugar on Luminal B breast cancer risk; **(b)** genetically predicted protective effects assessed the relative intake of protein on HER2 positive breast cancer risk.

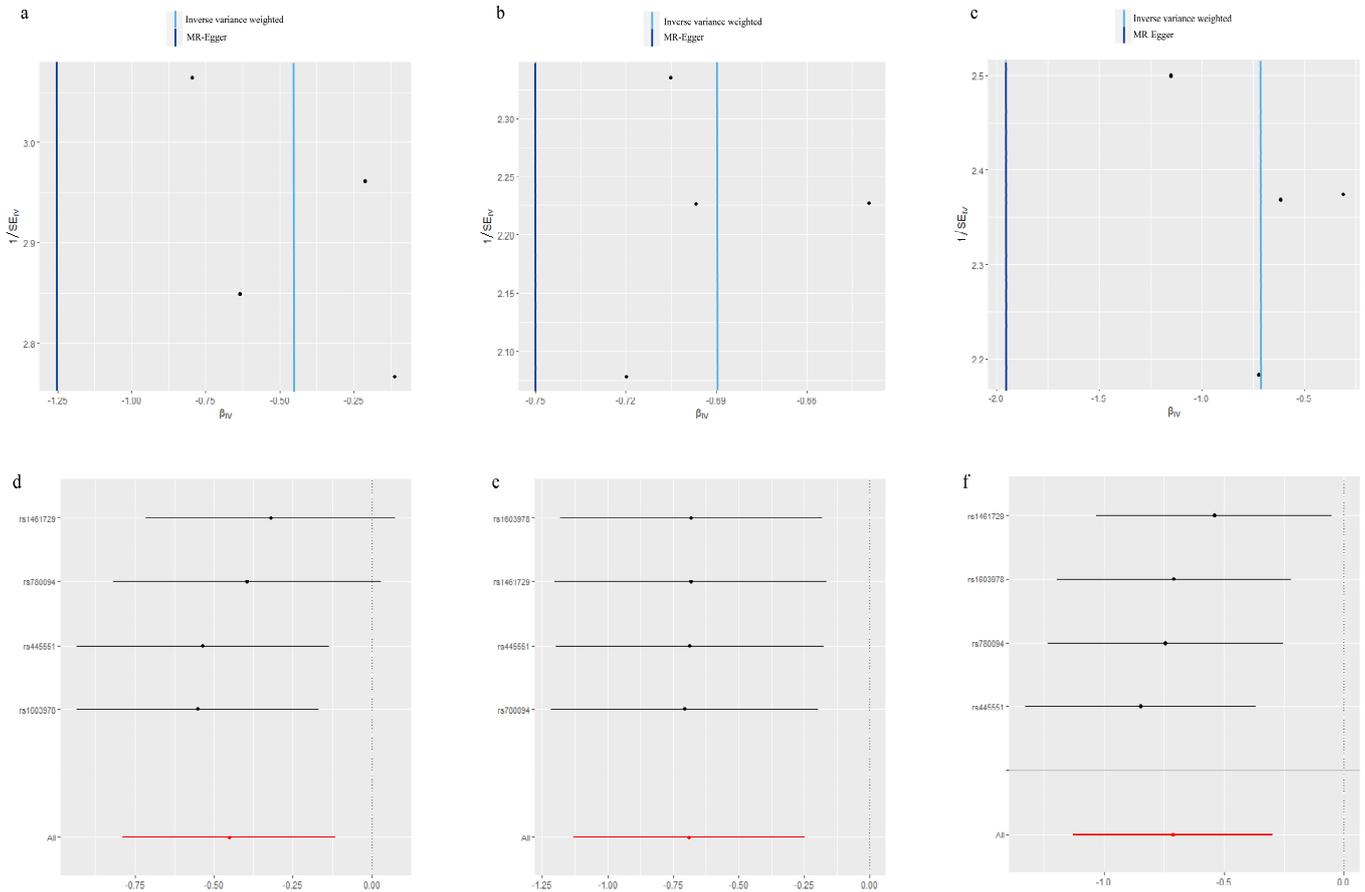


Figure S3. Funnel plot and Leave-one-out sensitivity analysis of MR estimate assessed the relative intake of protein on overall breast cancer risk. **(a)** funnel plot of MR estimate assessed the relative intake of protein on overall breast cancer risk; **(b)** funnel plot of MR estimate assessed the relative intake of protein on Luminal A breast cancer risk; **(c)** funnel plot of MR estimate assessed the relative intake of protein on ER-positive breast cancer risk; **(d)** Leave-one-out analysis of MR estimate assessed the relative intake of protein on overall breast cancer risk; **(e)** Leave-one-out analysis of MR estimate assessed the relative intake of protein on Luminal A breast cancer

risk; **(f)** Leave-one-out analysis of MR estimate assessed the relative intake of protein on ER-positive breast cancer risk.

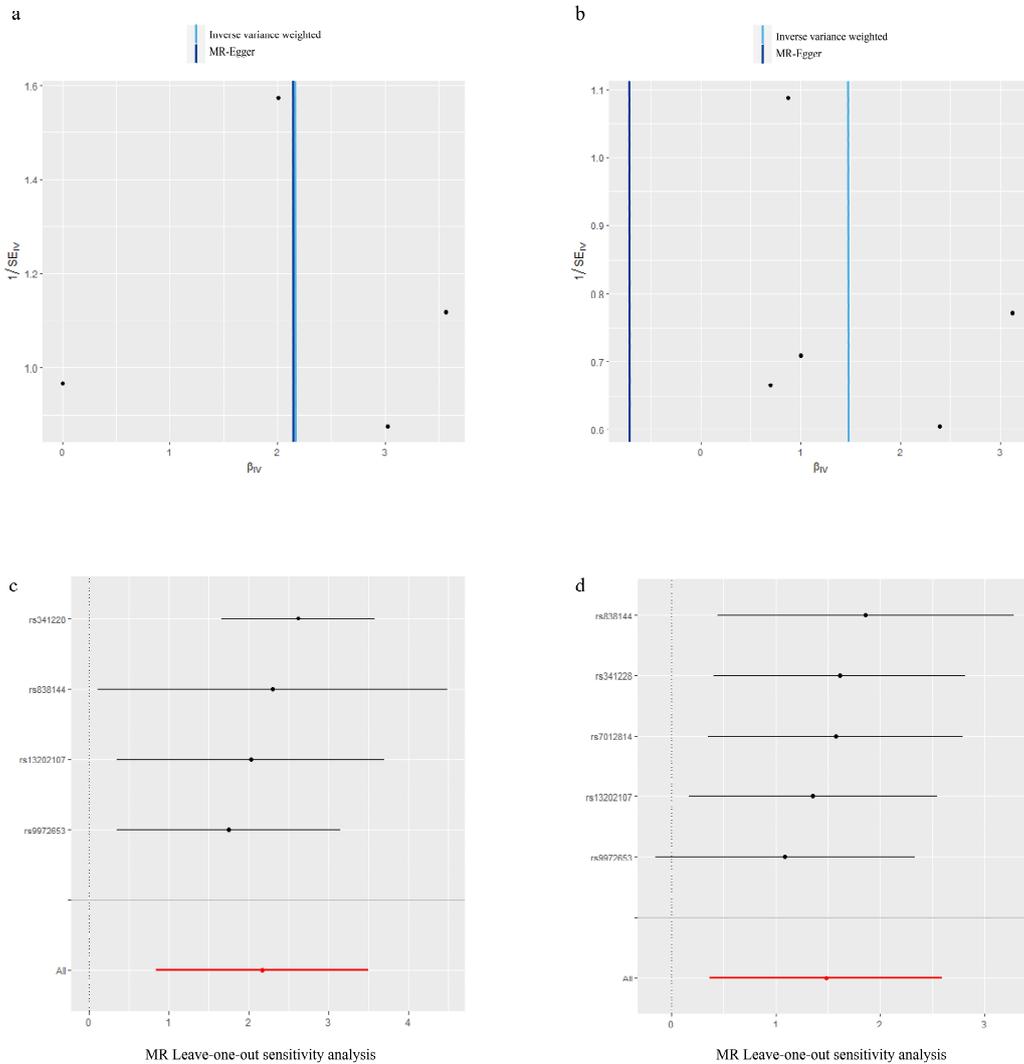


Figure S4. Funnel plot and Leave-one-out sensitivity analysis of MR estimate assessed the relative intake of sugar on overall breast cancer risk. **(a)** funnel plot of MR estimate assessed the relative intake of sugar on Luminal B breast cancer risk; **(b)** funnel plot of MR estimate assessed the relative intake of sugar on HER2 positive breast cancer risk; **(c)** Leave-one-out analysis of MR estimate assessed the relative intake of sugar on Luminal B breast cancer risk; **(d)** Leave-one-out analysis of MR estimate assessed the relative intake of sugar on HER2 positive breast cancer risk.