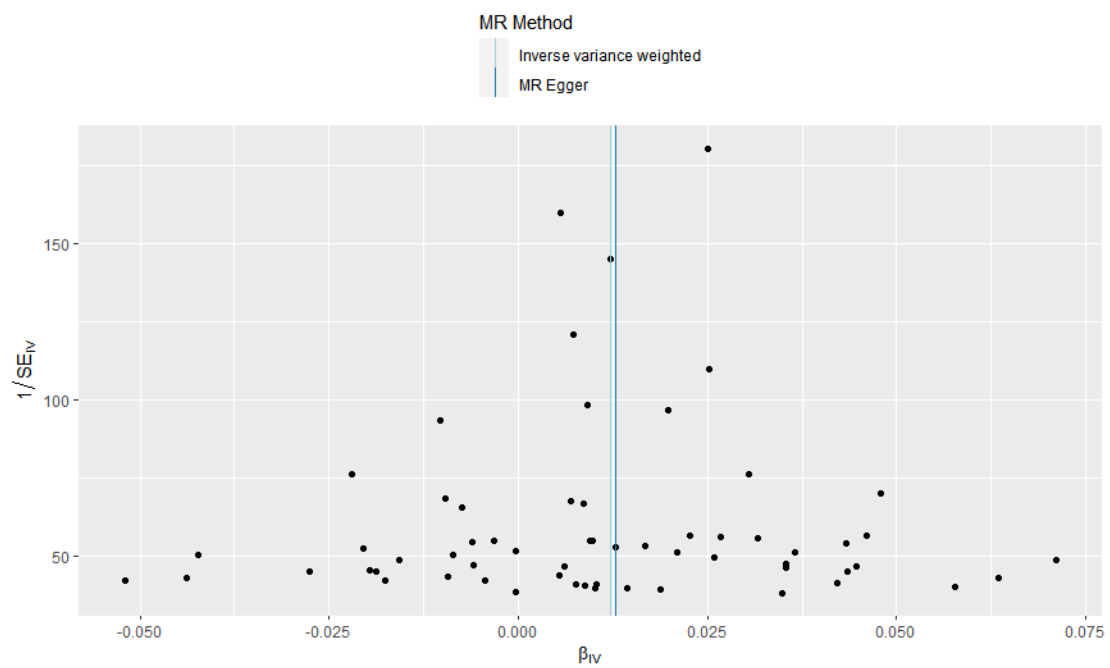


A bidirectional Mendelian randomisation study of the association between rheumatoid arthritis and frailty

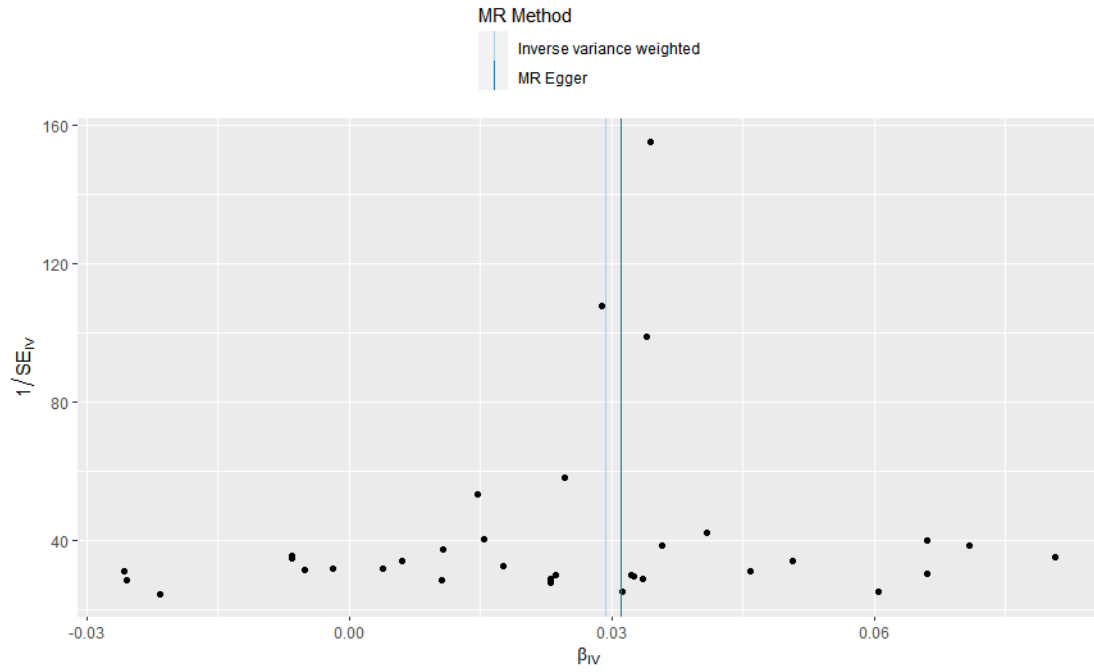
S. Li, Y. Shi, W. Fang, Y. Feng

Supplementary material

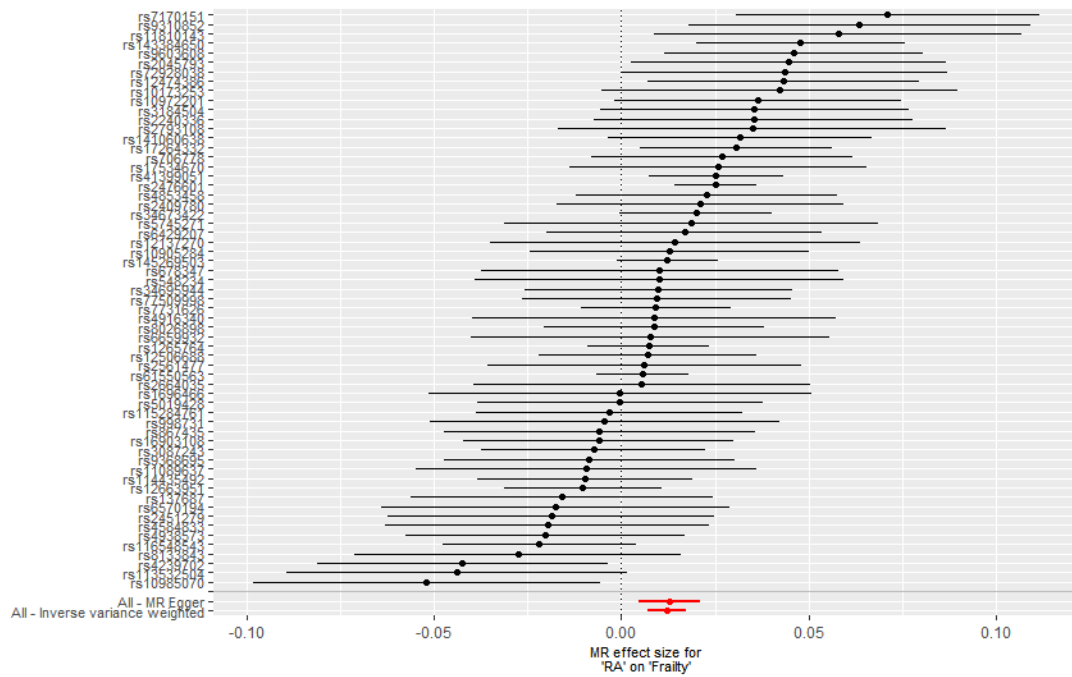


Supplementary Fig. S1. Funnel plot (Primary analysis).

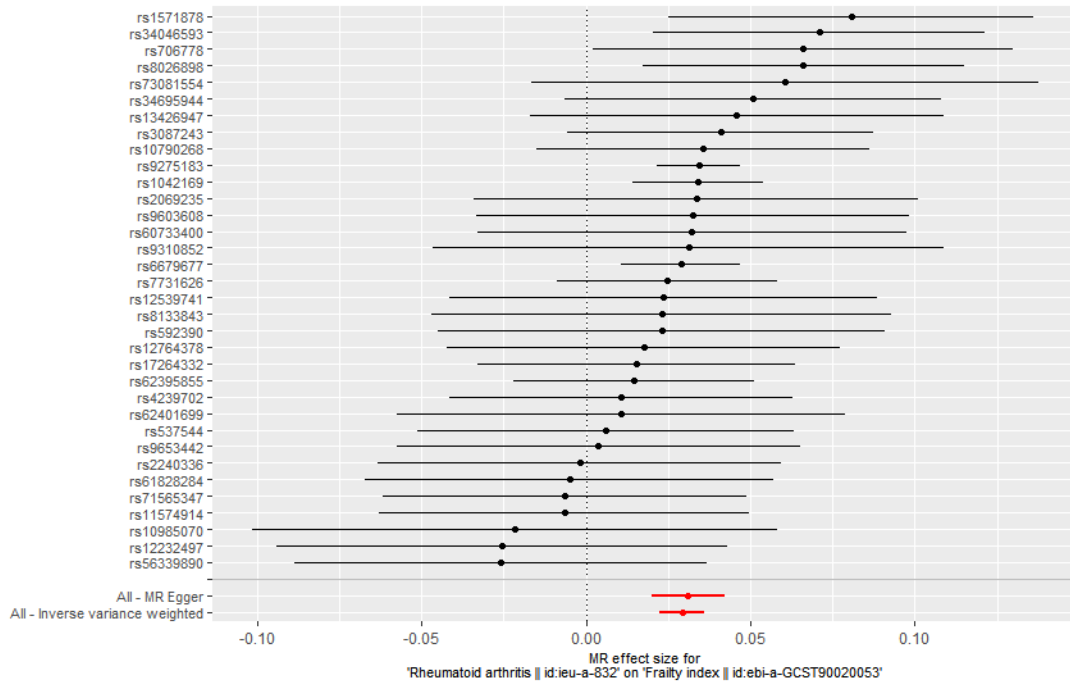
Rheumatoid arthritis on Frailty index. The x-axis represents β , and the y-axis represents $1/SE$ (standard error).



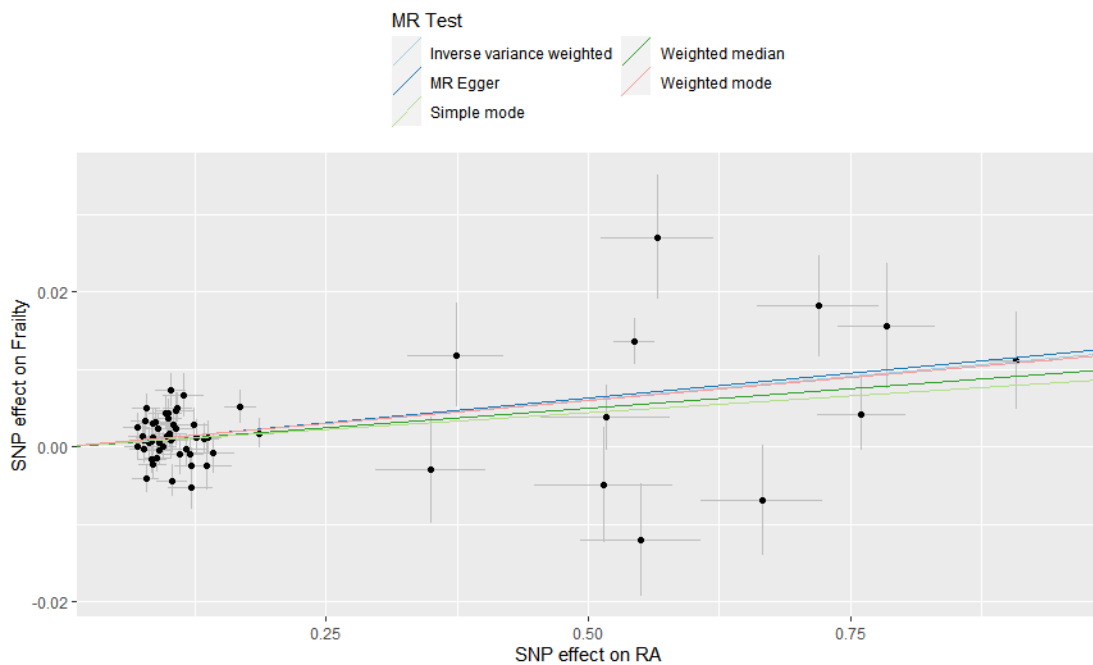
Supplementary Fig. S2. Funnel plot (Validation analysis). Rheumatoid arthritis on Frailty index. The x-axis represents β , and the y-axis represents 1/SE (standard error).



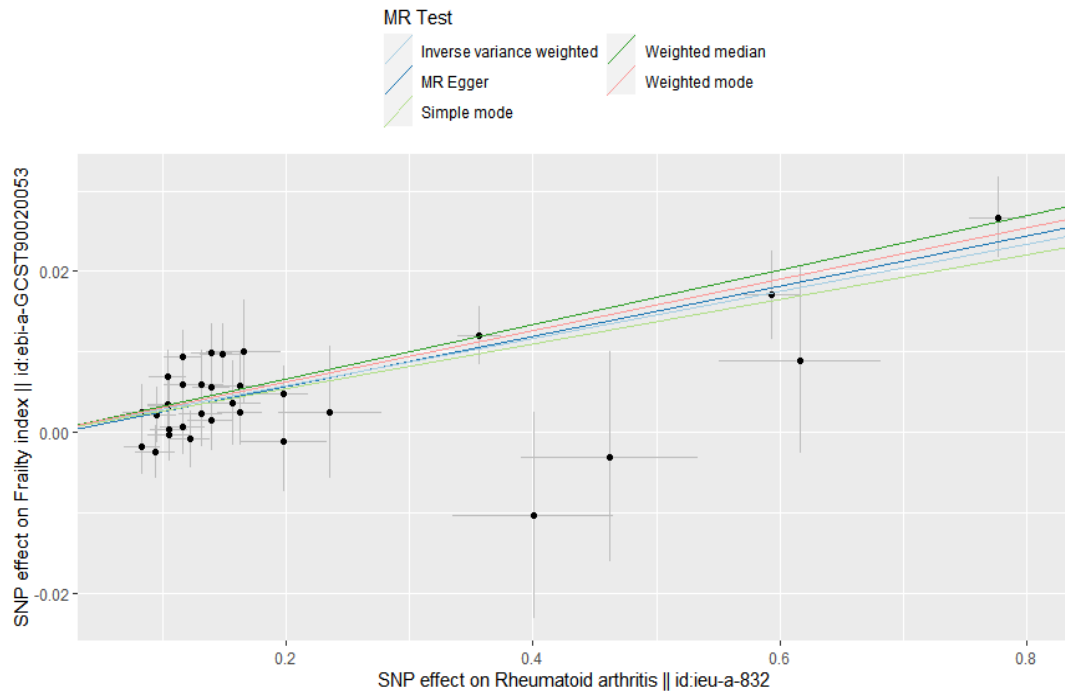
Supplementary Fig. S3. Forest plot (the MR effect size of RA on frailty index was in the primary analysis)



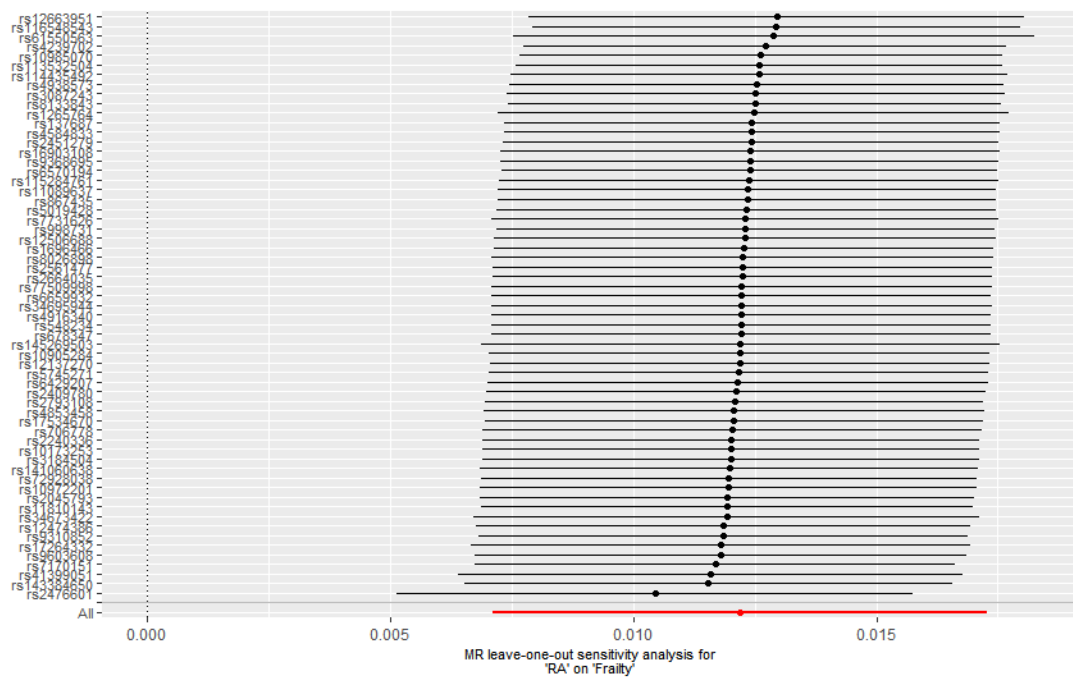
Supplementary Fig. S4. Forest plot (the MR effect size of RA on frailty index was in the validation analysis)



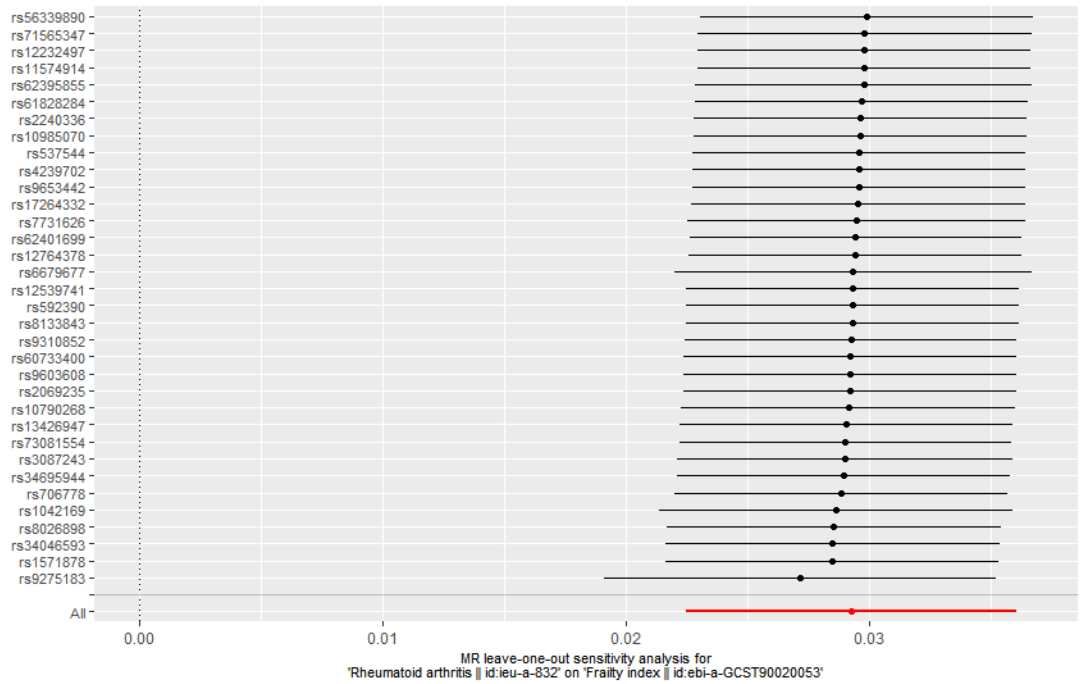
Supplementary Fig. S5. Scatter plot (the effect of SNPs on RA was in the primary analysis). The estimate of intercept can be interpreted as an estimate of the average pleiotropy of all single-nucleotide polymorphisms (SNPs), and the slope coefficient provides an estimate of the bias of the causal effect.



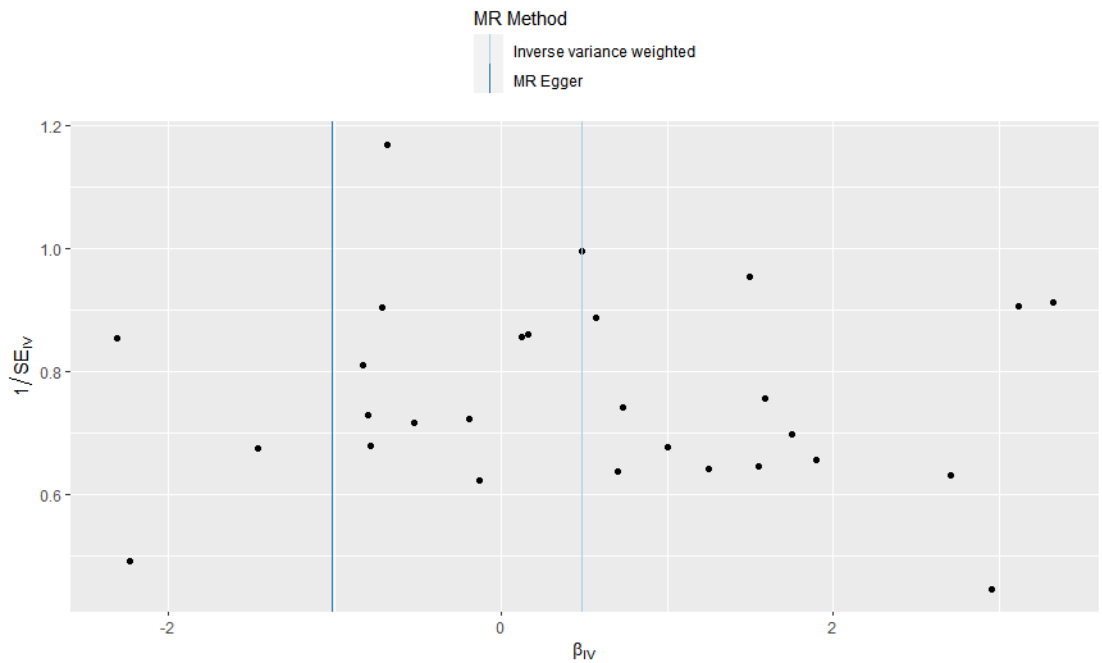
Supplementary Fig. S6. Scatter plot (the effect of SNPs on RA was in the validation analysis). The estimate of intercept can be interpreted as an estimate of the average pleiotropy of all single-nucleotide polymorphisms (SNPs), and the slope coefficient provides an estimate of the bias of the causal effect.



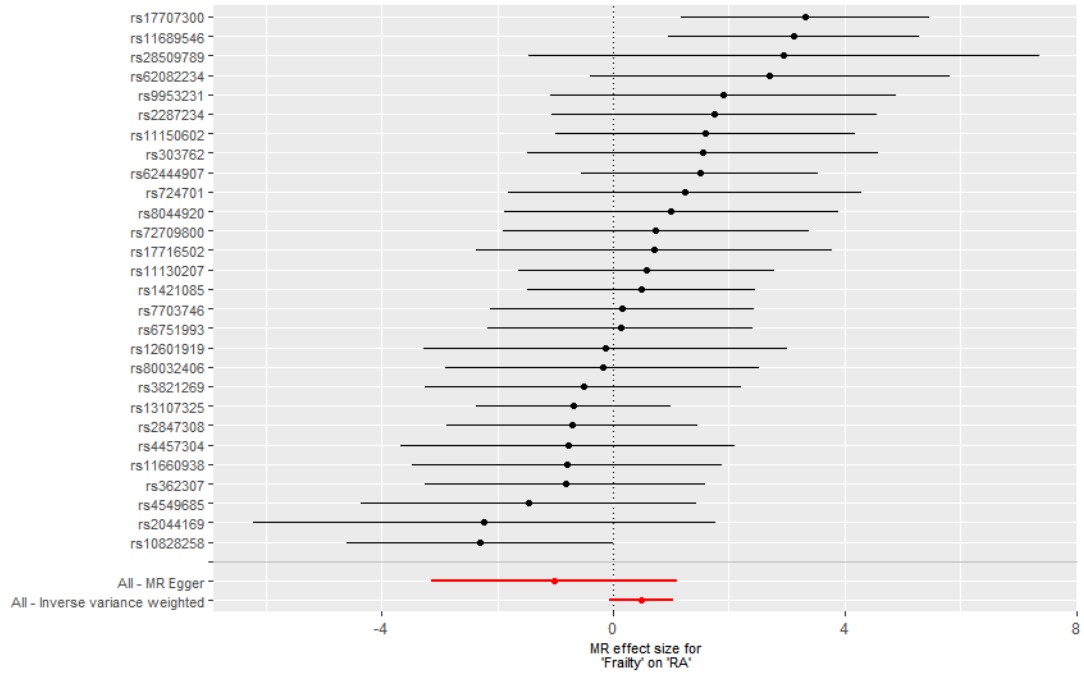
Supplementary Fig. S7. MR leave-one-out sensitivity analysis of rheumatoid arthritis on frailty index was performed in the primary analysis



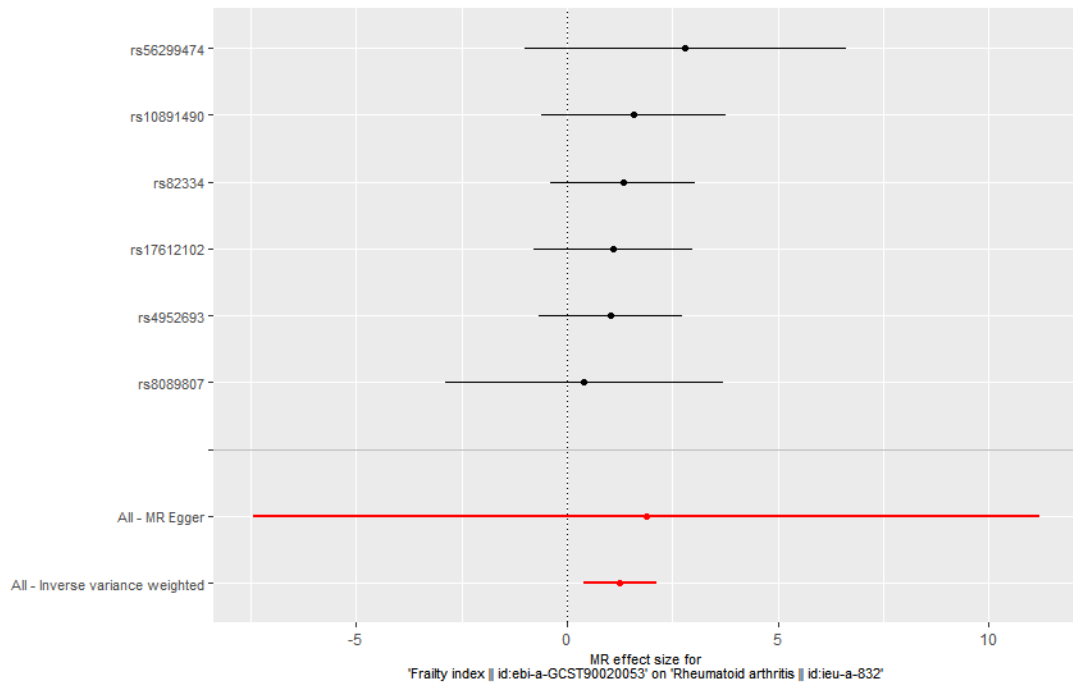
Supplementary Fig. S8. MR leave-one-out sensitivity analysis of rheumatoid arthritis on frailty index was performed in the validation analysis.



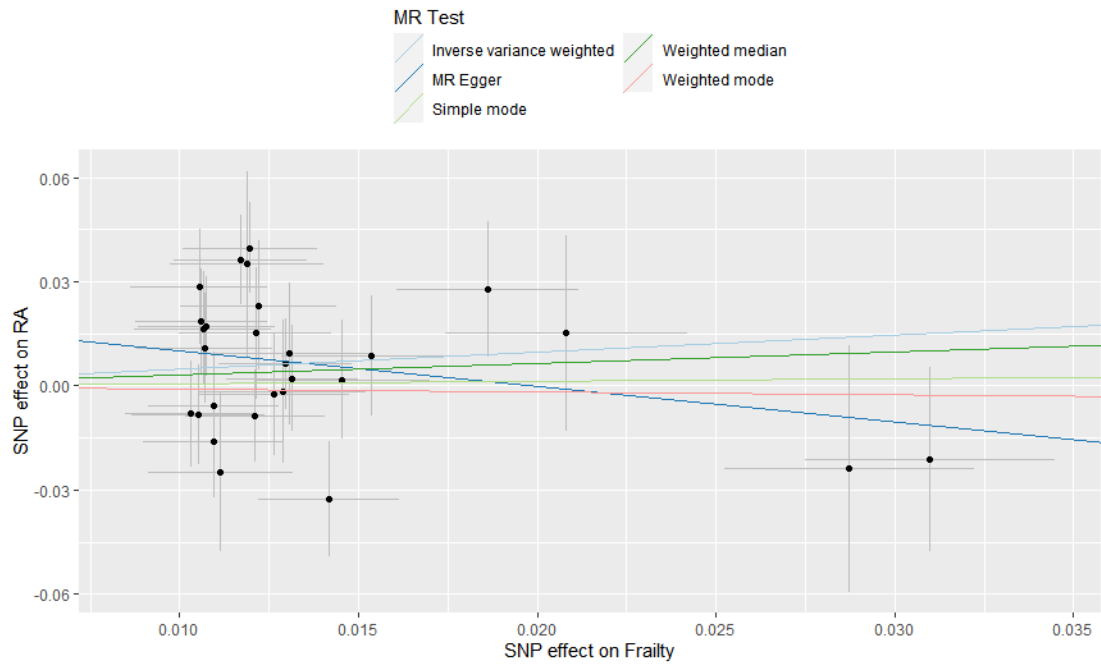
Supplementary Fig. S9. Funnel plot (Primary analysis). Frailty index on rheumatoid arthritis. The x-axis represents β , and the y-axis represents $1/SE$ (standard error).



Supplementary Fig. S10. Forest plot (the MR effect size of frailty index on RA was in the primary analysis).

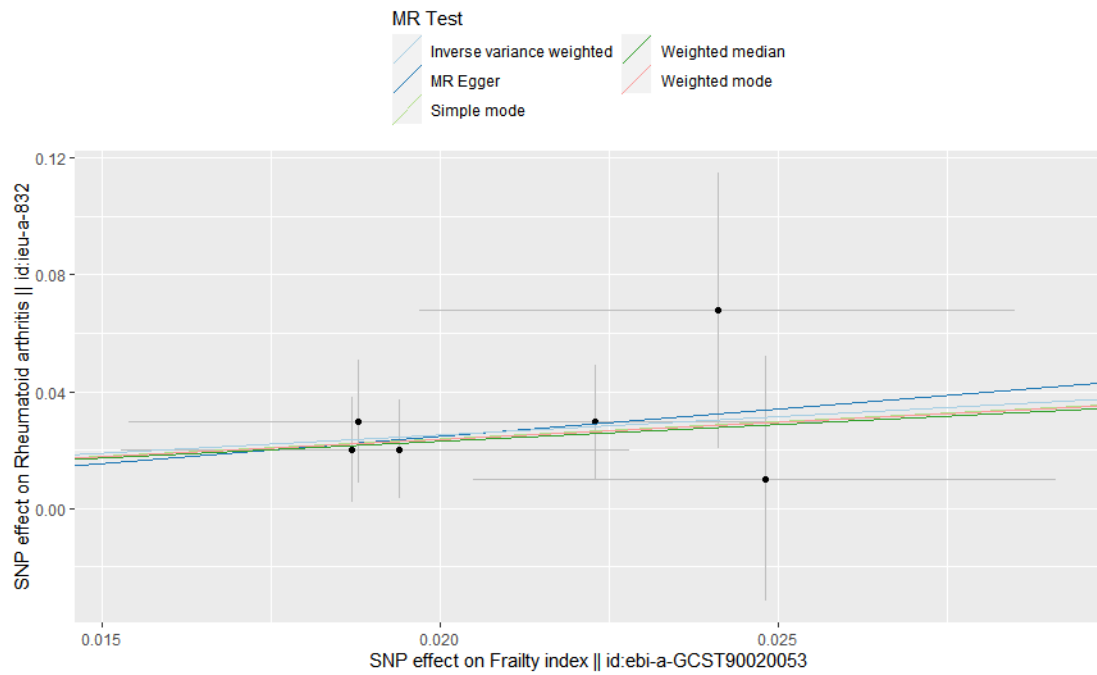


Supplementary Fig. S11. Forest plot (the MR effect size of frailty index on RA was in the validation analysis).



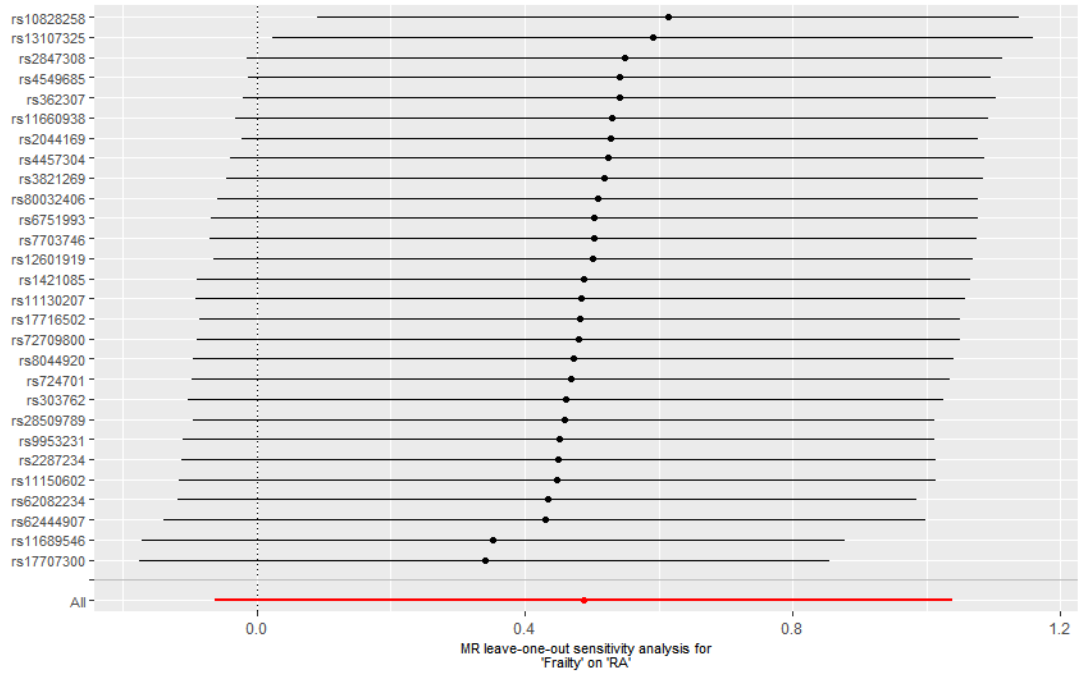
Supplementary Fig. S12. Scatter plot (the effect of SNPs on frailty index was in the primary analysis).

The estimate of intercept can be interpreted as an estimate of the average pleiotropy of all single-nucleotide polymorphisms (SNPs), and the slope coefficient provides an estimate of the bias of the causal effect.

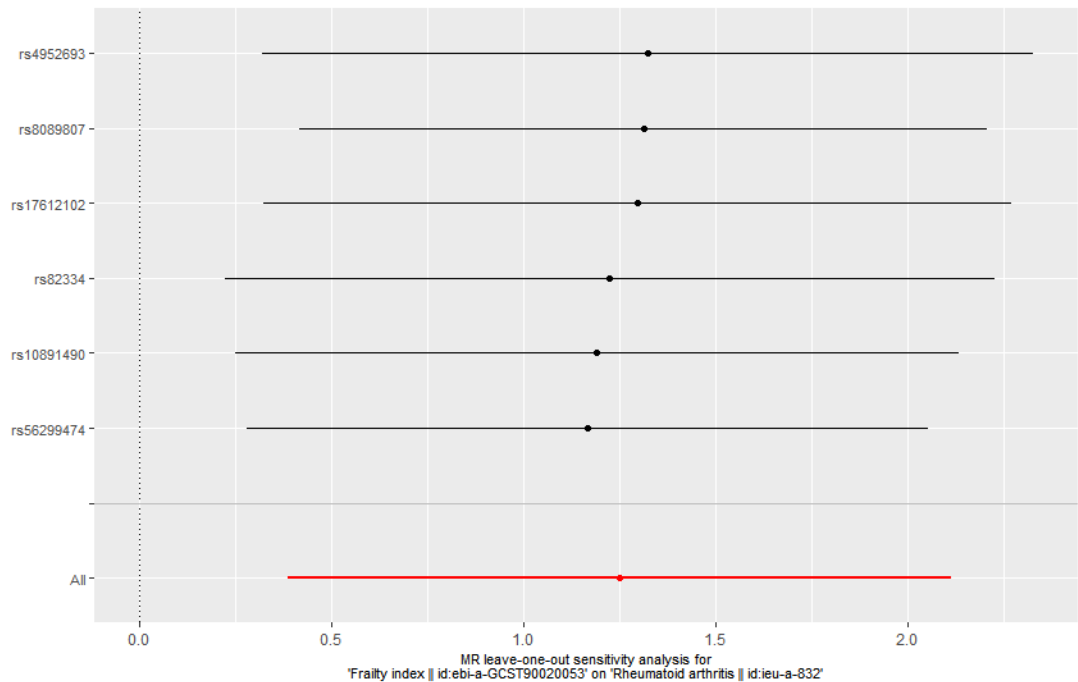


Supplementary Figure 13. Scatter plot (the effect of SNPS on frailty index was in the validation analysis).

The estimate of intercept can be interpreted as an estimate of the average pleiotropy of all single-nucleotide polymorphisms (SNPs), and the slope coefficient provides an estimate of the bias of the causal effect.



Supplementary Fig. S14. MR leave-one-out sensitivity analysis of frailty index on rheumatoid arthritis index was performed in the primary analysis.



Supplementary Fig. S15. MR leave-one-out sensitivity analysis of frailty index on rheumatoid arthritis index was performed in the validation analysis.