

# **THE EFFECT OF COMMUNICATING GENOMIC CANCER RISK ESTIMATES ON RISK-REDUCING BEHAVIOUR IN PRIMARY CARE PATIENTS: A SYSTEMATIC REVIEW**

**INTRODUCTION:** Lifestyle modification as primary prevention act as long-term cancer protection, whereas screening as part of secondary prevention reduces the burden of cancer by identifying an asymptomatic population and provide recommendation for further detection and intervention. Genomic cancer risk estimates is used to provide future risk estimations of developing cancer to target prevention and is expected to result in behavioural changes to reduce the risk of developing cancer. However, it is unclear how disclosing and communicating genomic cancer risk estimates can affect lifestyle and screening behaviours in the population. This review aims to investigate the effects of communicating genomic cancer risk estimates (compared to non-genetic or none) on lifestyle behaviors and screening uptake in adults in the primary care settings.

**METHODS:** A systematic review was conducted in accordance with the PRISMA guidelines. Literature searches were performed through Medline, Embase, PsycINFO, and Cochrane Central Register of Controlled Trials. Interventional and observational studies involving genomic cancer risk estimates in adult population and published in English were included. Risk of bias assessment was performed using Cochrane RoB-2.0 and ROBINS-I. Outcome measures of lifestyle and screening behavioural changes after receiving genomic cancer risk estimates were extracted and analysed.

**RESULTS:** Initial search yielded a total of 5650 articles, and a total of two RCTs and seven non-RCT studies met criteria for analysis. Sun protection behaviour changes were limited, but participants had intentions to change their behaviour due to receiving genomic risk estimate. Likewise, studies had not found participants to reduce or abstain from smoking, but some may have intention to quit smoking. Studies were congruent with no changes to diet and physical activity. Similarly, cancer screening uptake was not affected by communicating genomic risk estimates. Lastly, having intention to change behaviour may not translate into actual behaviour change.

**CONCLUSION:** There was a lack of evidence and inconsistencies of result to conclude whether disclosing and communicating genomic cancer risk estimate may affect changes in lifestyle and screening behaviours. High-quality randomised controlled studies with large sample sizes should be performed in the future to obtain larger statistical power.

**KEYWORDS:** cancer, genomic testing, risk estimates, lifestyle, screening

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