

Can Genome Cancer Risk Estimates Change Behaviour? - A Systematic Review

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INTRODUCTION



Cancer is abnormal cell growth which causes ~10 million deaths in 2020



Cancer screening potentially reduces the burden of cancer in population significantly



Genomic cancer risk estimates provide personalised approach in estimating the risk of cancer



A genomic cancer risk estimate could encourage behaviour change to reduce risk



However, these evidences are conflicting.

AIMS AND OBJECTIVES

To determine the **effect** of genomic cancer risk estimate on:

- Lifestyle changes
- 2. Screening uptake
- Psychological experiences

METHODS

Adults > 18 years old

Genomic cancer risk estimate

Non-genetic risk estimate or none

Lifestyle behaviour changes and screening uptake

Data extraction

- Study design
- Interventions
- Comparator
- Duration
- Outcomes
- Results
- Additional
- information

Search strategy

Keywords: Cancer or Neoplasm, Genomic risk estimate, diet or physical activity or smoking or alcohol or lifestyle behaviour

Limited to English and published after 1 January 2013

Risk of bias assessment

Risk of Bias 2.0 (RoB 2.0) The Risk Of Bias In Non-randomized Studies of Interventions (ROBINS-I)

PRISMA flowchart

Database Search

Medline (n = 1557)Embase (n = 3746)

PsycINFO (n = 176)

Cochrane Central Register of Controlled Trials (n = 166)

(+) Experts' recommendation (n = 5)

Duplicate removed

Full-Text Screening

(n = 61)

Studies included in narrative synthesis

(n = 9)

Sun protection (n=2)

• No quantitative sun exposure reduction (highest reduction in average risk

RESULTS

- Reduced intentional tanning, time in sun, and stayed in the shade (for the average risk group)
- Motivated participants to adopt sun protection behaviours

Screening uptake (n=6)

- No changes to colorectal screening
- Participants on a routine screening more likely to screen
- Risk group affects likeliness to screen and adherence
- Positive attitudes towards cancer screening increased

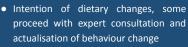
Smoking cessation (n=2)



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- From 64 active smokers, 14 quit smoking, 6 reduced smoking, and 2 increased smoking
- Intention to quit smoking

Diet (n=3)



- No significant changes in motivation and actualisation of dietary changes
- Increased vitamins and supplements uptake in elevated risk for prostate

Physical activity (n=3)

- Intention of improved physical activity, some proceed with expert consultation and actualisation of behaviour change
- No significant changes in motivation and actualisation of physical activity

No association of risk estimate result

Psychological impact (n=5)

- towards psychological components
- No increase in cancer worry, distress, or
- No association to perceived cancer risk

CONCLUSION

There are mixed effects of communicating genomic cancer risk estimates on behaviour changes in adults. However, there is an increase in intention and motivation to improve their lifestyle and to undergo cancer screening. Future research should consider a more robust study design with standardised assessment of behaviour changes and screening uptake.



REFERENCES

