

An exploratory literature review of DNA methylation related to a rapid eating rate

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Introduction

- The prevalence of obesity has grown to epidemic level proportions, with the WHO estimating that it has tripled since 1975.
- One factor that has been linked to obesity is an individual's eating rate, or how rapidly one finishes a meal.
- However, there is little information available about whether a rapid eating rate may epigenetically modify DNA or if there is an epigenetic predisposition in individuals with a rapid eating rate.

Objective

The goal of this exploratory literature review is to identify if prior research identified a connection between eating rate and methylated DNA regions.

Methods

- A key word listed was generated for both eating rate and methylation and an exploratory review of the literature in English was conducted through the PubMed database.
- A total of 56 keywords were developed for eating rate and 9 for methylation

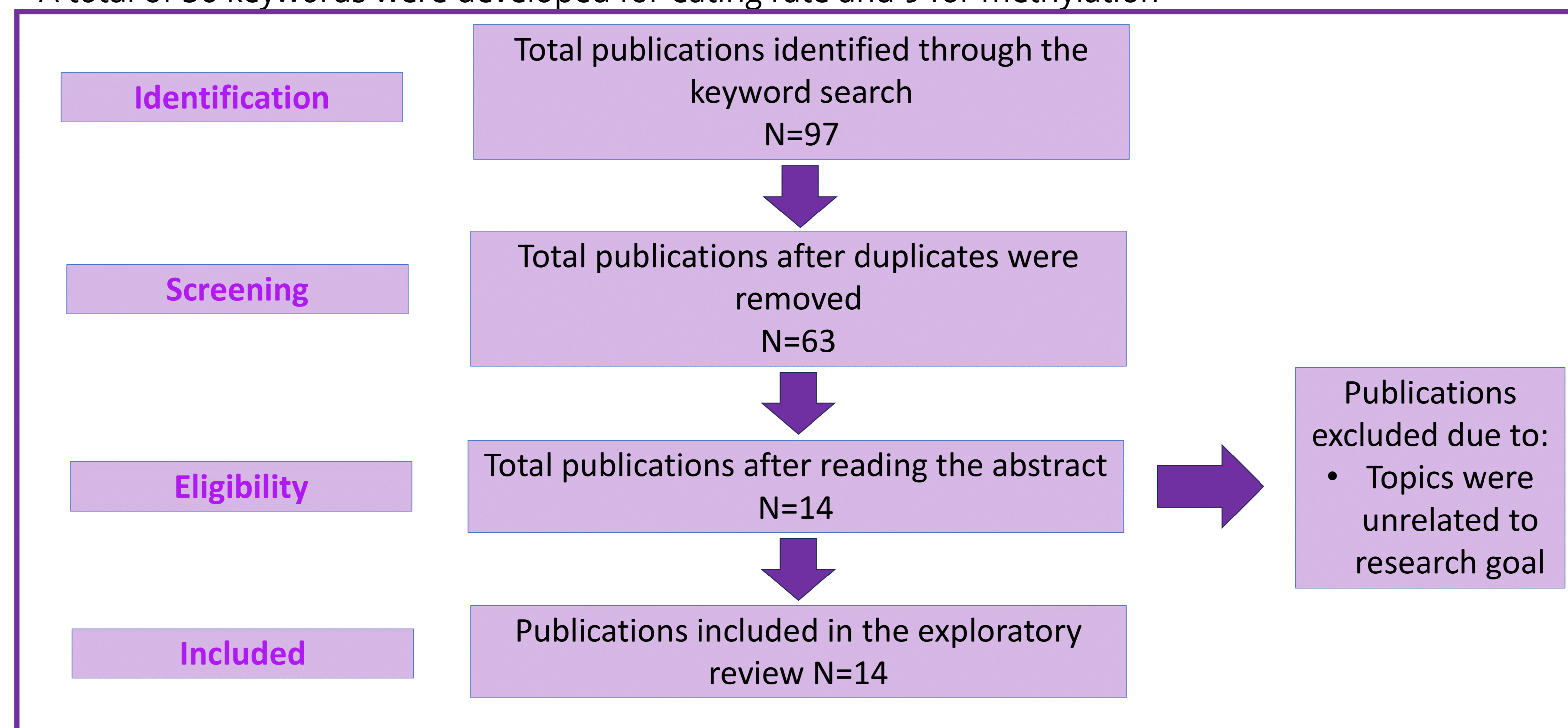


Figure 1: Flow Chart of Review Process for Methylation and Eating Rate keyword search

Conclusion

Eating rate and methylation has been explored in other studies, justifying a more scoping review of the literature to identify DNA regions for future work

Future Directions

- Determine what has already been identified in the current field by reviewing the 3 review publications
- Identify any common candidate genes from the remaining animal and human study publications

References

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Rodriguez et al. Human Study

Number of participants	Demographics	Tissue	Methylation Studies	Genes of Interest	Justification for Inclusion
N=46	12 Male 34 Female 25 with BN 21 BED Adolescents from Mexico City	Whole Blood	Illumina Infinium Methylation EPIC microarray beadchip	<i>PRKAG2, ST3GAL4, FRK</i>	<ul style="list-style-type: none"> The definition of binge eating is consuming a large amount of food in a short period Therefore, it can be said that those who binge eat exhibit a rapid eating rate

Table 1. Summary of Rodriguez et al. paper

BN: Bulimia Nervosa, BED: Binge Eating Disorder

Results

- The keyword list generated 97 possible publications tied to eating rate and methylation.
- 14 were identified as relevant
 - 5 human studies
 - 6 animal experiments
 - 3 reviews publications
- However, there was little overlap of DNA regions among the publications.

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