

Effect of Nutrition Interventions with Mental Health Components on the Nutrition Status in Adolescents: A Systematic Review

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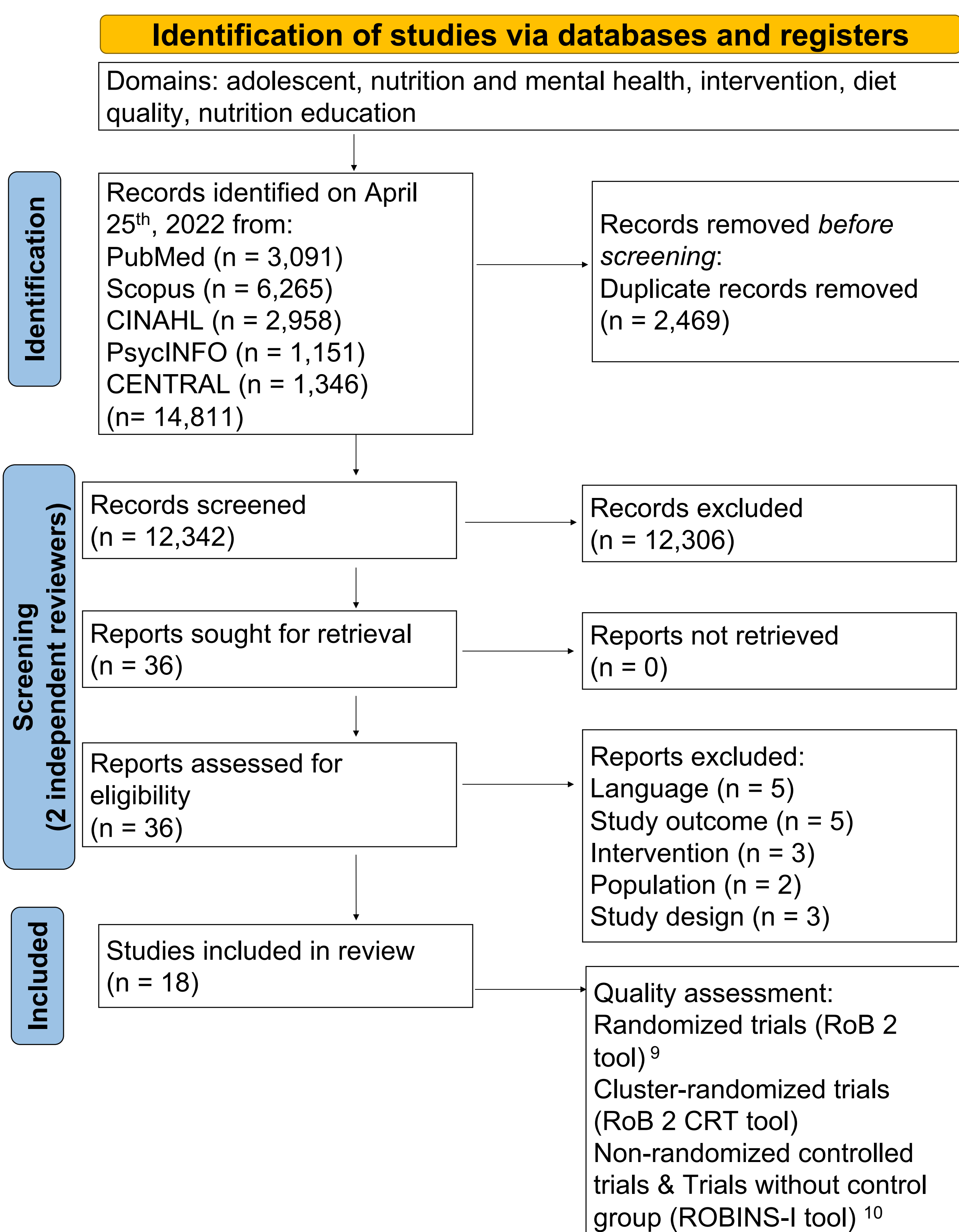
Background

- Adolescence is a life period critical in establishing current and future healthy behaviors, including mental health care and healthy nutrition practices. ¹⁻²
- In the U.S., the prevalence of depressive episode and persistent feelings of sadness or hopelessness is 15.1% and 36.7% respectively. ³⁻⁴
- In the U.S., adolescents do not meet recommended intakes for fruits and vegetables and dairy, and exceed recommended intakes for added sugars, saturated fat, and sodium. ⁵
- Mental disorders or perceived stress have been associated with lower diet quality in U.S. and Australian adolescents. ⁶⁻⁸
- Little is known on whether nutrition interventions that have a mental health component will improve the nutrition status of adolescents.

Objectives

To conduct a systematic literature review on the effect of nutrition interventions with mental health components on the nutrition knowledge and diet quality of adolescents.

Methods



Results

First Author, Year	Study Description	Intervention Description		Outcome	Overall Risk of Bias
		Duration	Intervention Components		
Randomized Controlled Trials					
Melnyk, 2009	9 Wk	NH ^c (Edu ^g), PH ^d (Edu ^g & Act ^h), MH ^e (Edu ^g & Coun ⁱ)	General Health (Edu ^g)	↑* Nutrition Knowledge	High
Flattum, 2011	N/A ^b	NH ^c (Edu ^g & Act ^h), PH ^d (Edu ^g & Act ^h), MH ^e (Sup ^j & Coun ⁱ)	N/A ^b	- Fruit and Vegetables, Breakfast, Portion Size Control	High
DeBar, 2012	12 Mo	NH ^c (Edu ^g), PH ^d (Act ^h), MH ^e (Edu ^g & Coun ⁱ), PCPs Training, PP ^f	Weight Management Materials, PP ^f	↓* Family Mealtime, Fast-Foods - Breakfast, Sugar-Sweetened Beverages, Total Calories, % Calories from Fat	Moderate
Barnes, 2016	3-6 Mo	NH ^c (Edu ^g), PH ^d (Edu ^g), MH ^e (Coun ⁱ)	General Health (Edu ^g)	↑* Binge Eating - Eating Control and Disinhibition	Moderate
Hidayanty, 2016	3 Mo	NH ^c (Edu ^g), PH ^d (Edu ^g & Act ^h), MH ^e (Coun ⁱ), PP ^f	General Nutrition Guidelines (leaflets)	↓* Snacking Habit	Moderate
Laramée, 2017	2-3 Mo	NH ^c (Edu ^g & Act ^h), MH ^e (Coun ⁱ)	NH ^c (Edu ^g & Act ^h)	↑* Nutrition Knowledge	Moderate
Miri, 2019	6 Mo	NH ^c (Edu ^g), MH ^e (Coun ⁱ), PP ^f	Routine Care, General Health (Edu ^g), PP ^f	↑* Meat, Fruits and Juice, Vegetables, Dairy ↓* Grains, Sweets, Salty Snack, Sweet Drinks, Sausage/Processed Meat, Oil - Total Calories	Moderate
Weigensberg, 2021	3 Mo	Group 1: NH ^c (Edu ^g & Act ^h), PH ^d (Edu ^g & Act ^h) Group 2: NH ^c (Edu ^g), PH ^d (Edu ^g), MH ^e (Coun ⁱ) Group 3: NH ^c (Edu ^g), PH ^d (Edu ^g), MH ^e (Coun ⁱ)	None	↑* Healthy Eating Index LS Group - Total Energy and Glycemic Index LS Group - Total Energy, Healthy Eating Index, and Glycemic Index LBG Group - Total Energy, Healthy Eating Index, and Glycemic Index SRGI Group	Moderate
Non-Randomized Controlled Trials					
Tsiros, 2008	20 Wk	NH ^c (Edu ^g), PH ^d (Edu ^g), MH ^e (Coun ⁱ), PP ^f	NH ^c (Edu ^g), PH ^d (Edu ^g), PP ^f	↓* Total Energy, % Total Energy from Softdrinks	High
Sarvestani, 2009	6 Mo	NH ^c (Edu ^g), PH ^d (Edu ^g), MH ^e (Yoga), PP ^f	3 Sessions from intervention, PP ^f	↑* Restrained Eating ↓* Emotional Eating, External Eating	No information
Ardic, 2017	12 Mo	NH ^c (Edu ^g), PH ^d (Edu ^g), MH ^e (Coun ⁱ)	General Health (Edu ^g)	↑* Fruit and Vegetables, Water ↑* Nutrition Knowledge	Moderate
Pierce, 2017	2-8 Wk	NH ^c (Edu ^g & Act ^h), PH ^d (Act ^h), MH ^e (Yoga & Mindfulness)	NH ^c (Edu ^g & Act ^h), PH ^d (Act ^h), MH ^e (Yoga & Mindfulness)	- Fruits and Vegetables in Year 1 ↑* Tomatoes, Vegetables, Whole Wheat Bread in Year 2 ↓* Hot dogs, Corn dogs, or Sausage, Hamburger or Cheeseburger, and Ice Cream Year 2	High
Trials Without a Control Group					
Kotler, 2006	6 Wk	NH ^c (Edu ^g & Act ^h), PH ^d (Act ^h), MH ^e (Sup ^j & Coun ⁱ , Art Therapy & Yoga), PP ^f	- Daily Calories		High
Lofrano-Prado, 2009	24 Wk	NH ^c (Edu ^g), MH ^e (Coun ⁱ)		↓* Binge Eating (no p-value reported)	High
Shrewsbury, 2011	2 Mo	NH ^c (Edu ^g), PH ^d (Act ^h), MH ^e (Coun ⁱ), PP ^f		↑* Fruit and Vegetables, Water, Breakfast ↓* High Fat Meat Products, Potato Crisps, Fruit Juice, Softdrinks - Fast food/Takeaway, Lunch, Dinner	High
Ranucci, 2017	3 Mo	NH ^c (Edu ^g), PH ^d (Act ^h), MH ^e (Coun ⁱ), PP ^f		↑* Mediterranean Diet Adherence	High
Miguet, 2019	10 Mo	NH ^c (Edu ^g), PH ^d (Act ^h), MH ^e (Sup ^j & Coun ⁱ)		- Restraint Eating, External Eating, Emotional Eating	High
Khammassi, 2019	10 Mo	NH ^c (Edu ^g), PH ^d (N/A ^b), MH ^e (Edu ^g & Coun ⁱ)		↑* Healthy Balanced Diet	High

^aN: Total Sample Size
^bN/A: Not Available
^cNH: Nutritional Health; ^dPH: Physical Health; ^eMH: Mental Health; ^fPP: Parental Participation
^gEdu: Education; ^hAct: Activity; ⁱSup: Support; ^jCoun: Counselling
 * ↑ ↓ statistically significant (p<0.05) outcomes increase or decrease respectively; - No statistically significant outcomes

Discussion

- Nutrition knowledge increased in all nutrition intervention studies with mental health components.
- 75% of interventions reported an increase in diet quality and dietary patterns
- A significant decrease in energy and sugar-sweetened beverage intake was observed in one intervention
- Interventions of more than four months but not those less than three months, reported better diet quality.
- Nutrition interventions that have or include a mental health component seem to increase the nutrition knowledge, diet quality, and dietary patterns of adolescents. Interventions of more than four months and that include parental participation seem to have more significant increases in diet quality and dietary patterns.

Implications

- 78% of included interventions were conducted on overweight and obese adolescents and with nutrition being an integral treatment component for obesity and overweight, nutrition intervention aimed at overweight and obesity treatment in adolescents may benefit from including a mental health component.
- Limitations due to the heterogeneity of the study designs and outcome measurements suggest that future studies should include high-quality randomized trials specifically testing the effect of adding mental health components to nutrition interventions in adolescents.