Young Children's Understanding of Food and Beverage Healthiness: Effects of a Character-Based App

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Children's Nutrition

- Childhood obesity is a serious health issue in the United States (McGinnis, Gootman, & Kraak, 2006; Ogden, Carroll, Kit, & Flegal, 2014).

- Obesity may occur through poor food choices, marketing practices, and media characters that endorse low-quality foods and beverages (Calvert, 2008; Galloway & Calvert, 2014).

- Go, Slow, Whoa Framework (We Can!, National Heart, Blood, and Lung Institute)

Media Characters & Digital Media

- Media Characters (McGinnis et al., 2006 ; Galloway & Calvert, 2014)
  - Parasocial relationships: one sided emotionally-tinged relationships (Horton & Wohl, 1956; Bong & Calvert, 2014)
  - Girls prefer female characters, boys prefer male characters (Richards & Calvert, in press 2016)

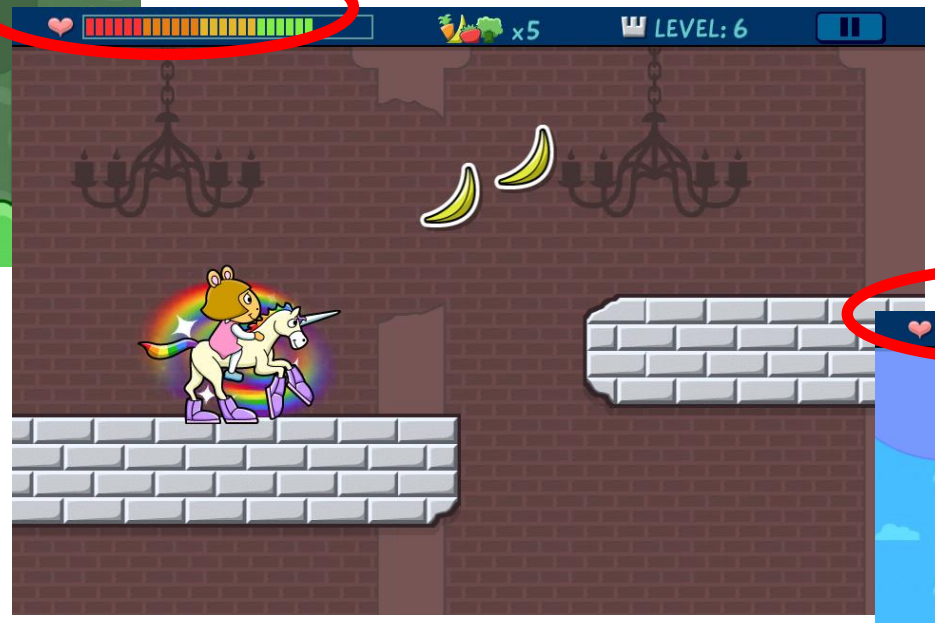
- The prevalence of applications (apps) is increasing in young children's lives (Common Sense Media, 2013).

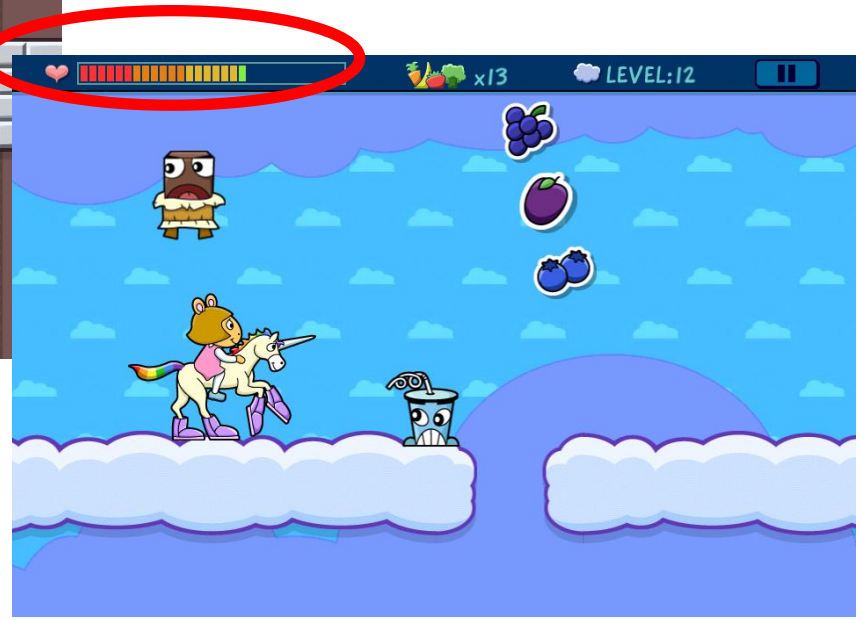
Current Study

Are there gender differences in how much children like a female character in an app and enjoy playing an app?

Does more exposure to an app increase knowledge of healthy and unhealthy foods?

x9
LEVEL: 3


x5
LEVEL: 6


x13
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Hypotheses

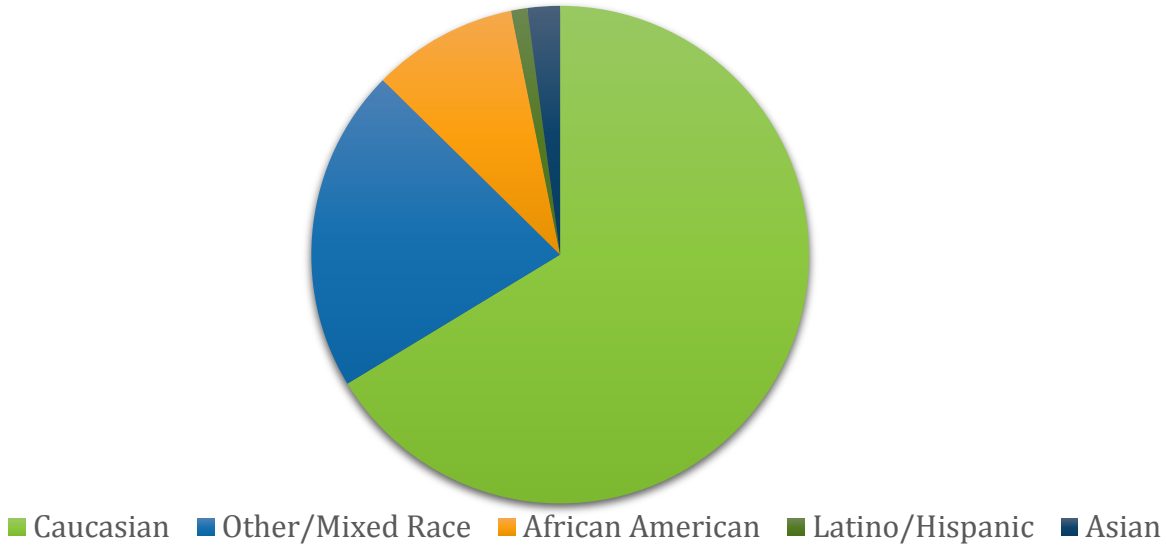
Girls will like the female character more than boys, and boys will enjoy playing the game more than girls.

Young children with more exposure to the app will have greater knowledge of healthy and unhealthy foods.

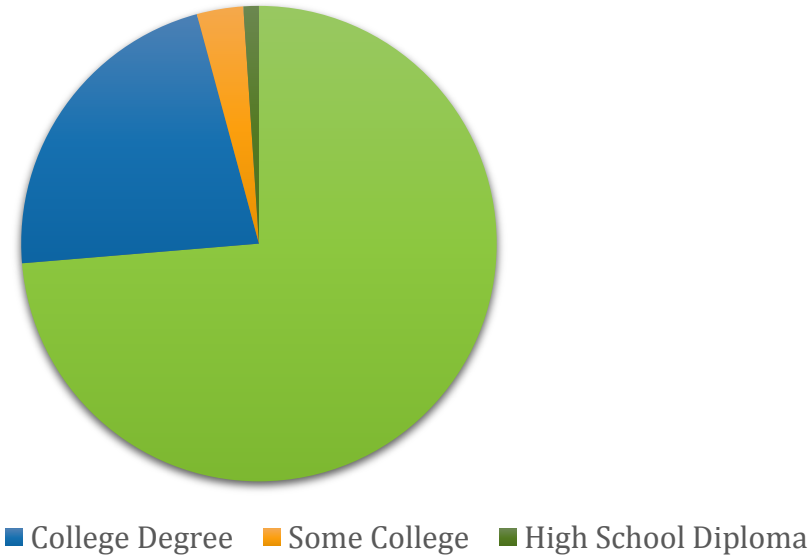
Participants

	Total
N	95
Age (years)	5.05 (.65)
Girls	49%

Race/ Ethnicity



Parental Education



Conditions

	N	App Play	Duration
No-Exposure Control	32	∅	∅
Single-Exposure	28		
Repeated-Exposure	35		+

Procedure

5 days + 30 minutes
30 minutes
No Exposure

What is her name?

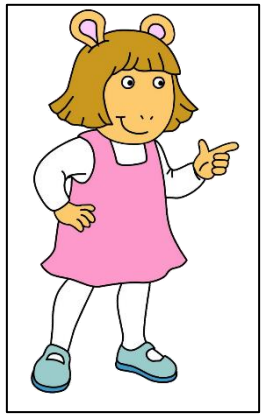
Do you know what show she is from?

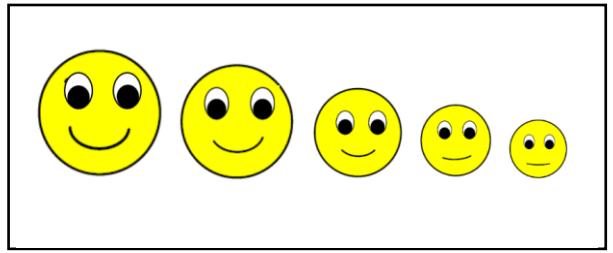
How much do you like D.W.?

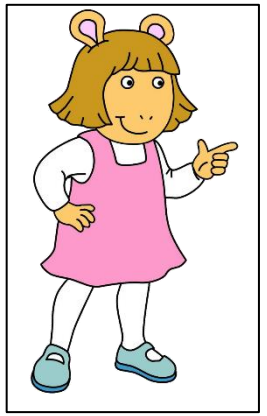
How much did you like the app we just played?

What are some foods that are healthy and give D.W. energy?

What are some foods that are unhealthy and take D.W.'s energy away?







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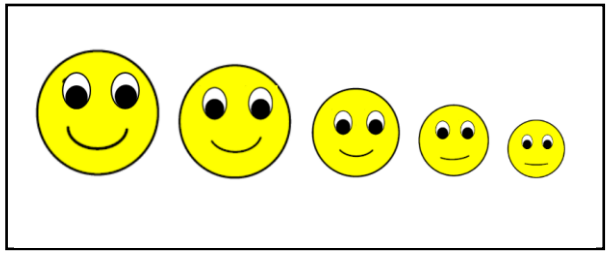

Results of t-tests Like D.W. and Like App by Gender

Outcome	Group								
	Boys			Girls					
	M	SD	n	M	SD	n	p	t	df
Like D.W.	2.87	.24	45	3.27	.21	44	.16	-1.26	87
Like App	4.31	.21	32	4.29	.20	28	.83	.09	58

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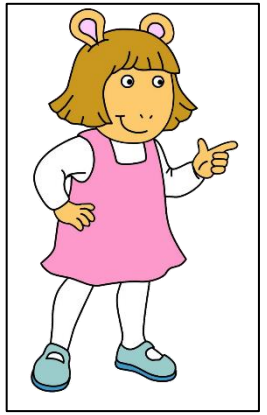

Hierarchical Regression Analysis for Variables Predicting Knowledge of Healthy Foods in the App (N = 95)

	Model 1		*Model 2*		*Model 3*	
Knowledge of Healthy Foods in the App	*B*	*SE B*	*B*	*SE B*	*B*	*SE B*
Condition						
Single-Exposure	.96*	.38	.94*	.38	.83	.46
Repeated-Exposure	2.50**	.48	2.49**	.49	2.27**	.67
F-test *H₀:* single-exposure = repeated-exposure	9.97**		9.99**		7.36**	
Female			-.16	.39	-.60	.93
Condition x Female					.22	.49
Constant	1.19	.27	1.27	.34	1.39	.38

Hierarchical Regression Analysis for Variables Predicting Knowledge of Healthy Foods Not in App (N = 95)

	Model 1		*Model 2*		*Model 3*	
Knowledge of Healthy Foods Not in App	*B*	*SE B*	*B*	*SE B*	*B*	*SE B*
Condition						
Single-Exposure	-.54	.31	-.54	.32	-.44	.32
Repeated-Exposure	-.58*	.27	-.58*	.27	-.38	.34
F-test H_0: single-exposure = repeated-exposure	.01		.01		.03	
Female			.06	.24	.45	.58
Condition x Female					-.19	.27
Constant	1.43	.19	1.41	.20	1.30	.20

Procedure

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30 minutes
No Exposure

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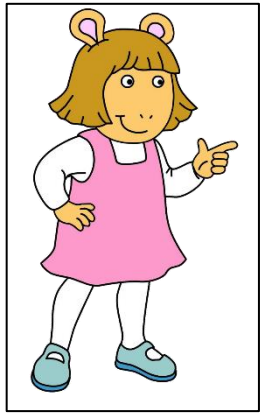


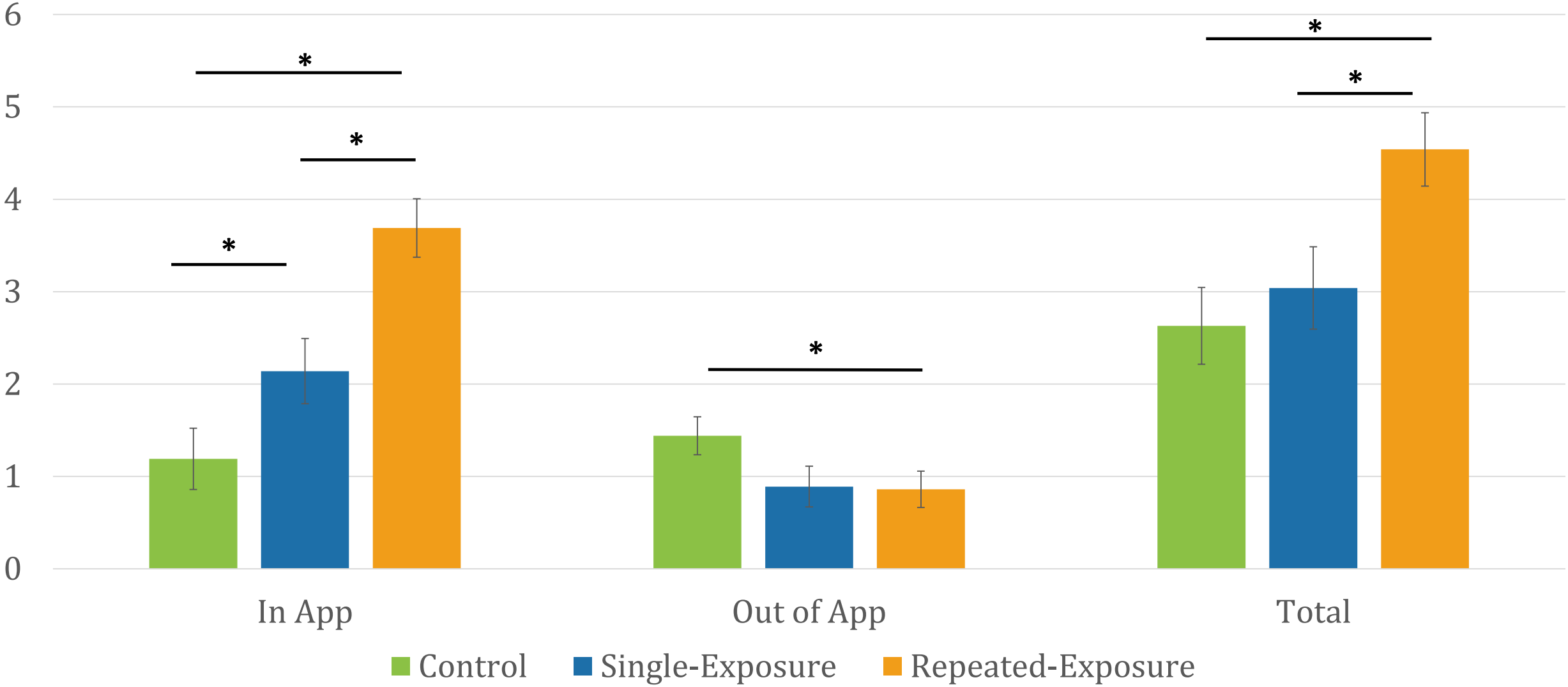
Hierarchical Regression Analysis for Variables Predicting Knowledge of Unhealthy Foods in the App (N = 95)

	Model 1		*Model 2*		*Model 3*	
Knowledge of Unhealthy Foods in the App	*B*	*SE B*	*B*	*SE B*	*B*	*SE B*
Condition						
Single-Exposure	.68**	.20	.68**	.20	.69**	.24
Repeated-Exposure	1.55**	.23	1.55**	.23	1.57**	.35
F-test H_0: single-exposure = repeated-exposure	9.19**		9.09**		7.51**	
Female			-.04	.20	.00005	.38
Condition x Female					-.02	.24
Constant	.25	.08	.27	.13	.26	.13

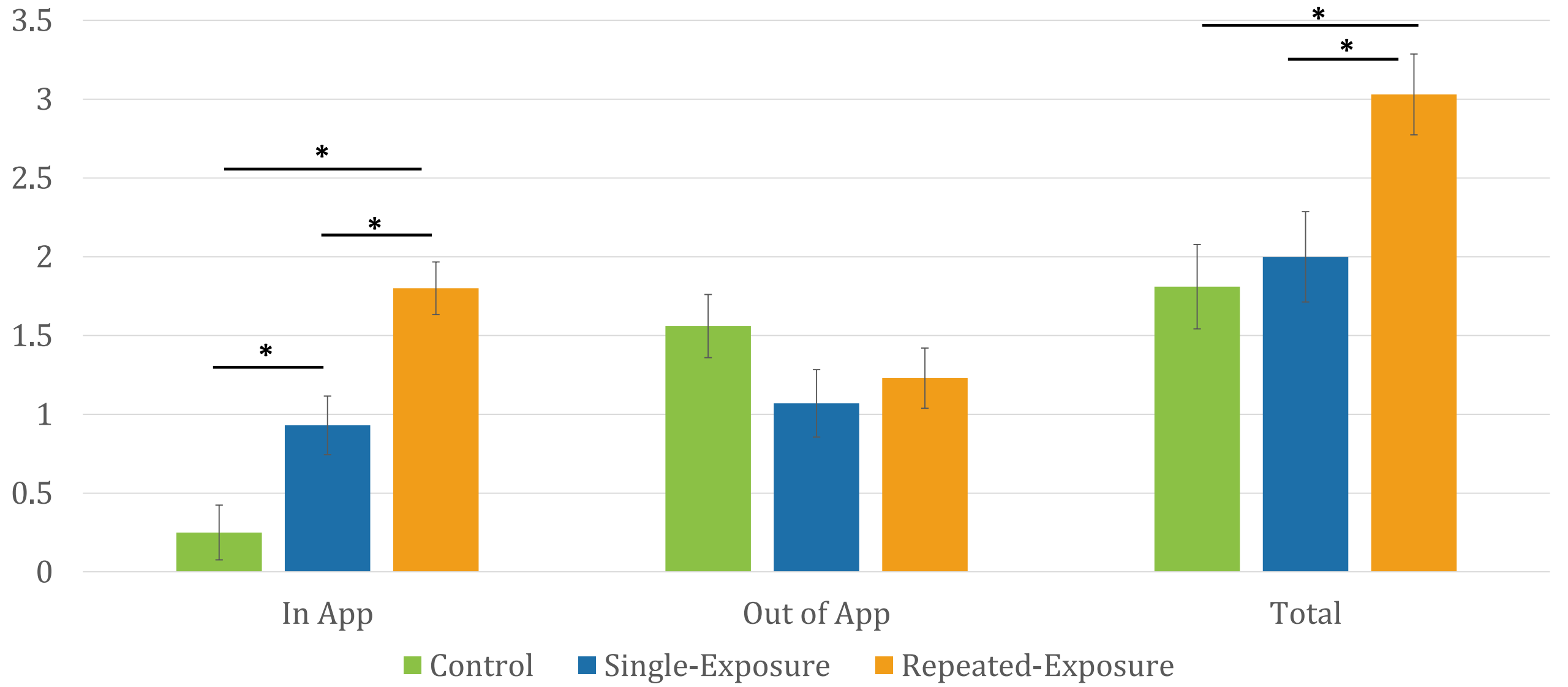
Hierarchical Regression Analysis for Variables Predicting Knowledge of Unhealthy Foods Not in App (N = 95)

	Model 1		*Model 2*		*Model 3*	
Knowledge of Unhealthy Food Not in App	*B*	*SE B*	*B*	*SE B*	*B*	*SE B*
Condition						
Single-Exposure	-.49	.30	-.46	.30	-.50	.33
Repeated-Exposure	-.33	.27	-.31	.25	-.39	.29
F-test H_0: single-exposure = repeated-exposure	.29		.25		.14	
Female			.53*	.23	.38	.57
Condition x Female					.08	.25
Constant	1.56	.20	1.28	.21	1.32	.25

Healthy Foods



Unhealthy Foods



Discussion

- Girls and boys in our study like the female character featured in the app and enjoy playing the app similarly.

- Apps can improve children's knowledge of healthy and unhealthy foods featured in the app; however, children's transfer of knowledge to foods not in the app may be limited.

- Apps could include a higher variety of foods to increase general knowledge of healthy and unhealthy foods from app play.

Thank you

All the parents and children
who participated
in this project

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