



Social Media Use and Adolescent Nutrition

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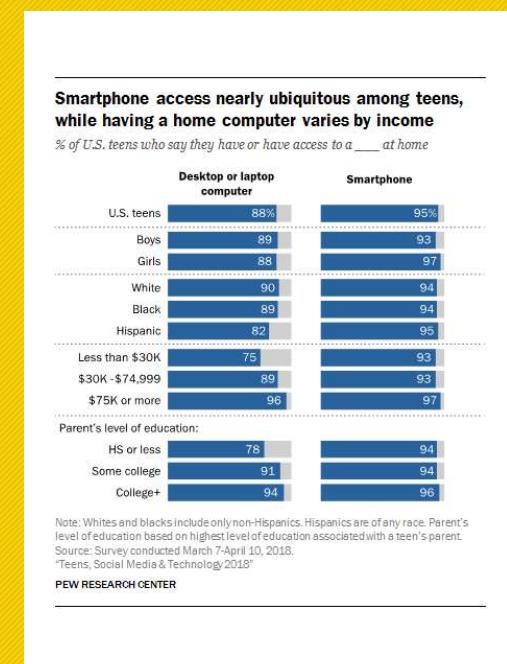
Learning Objectives

- Critically review current evidence on role of social media use in adolescent nutrition.
- Debate the value and limitations of current food and nutrition-driven interventions on influencing adolescent health and nutrition outcomes.
- Inspire action on incorporating digital technologies for improved adolescent nutrition action.

Adolescents Today

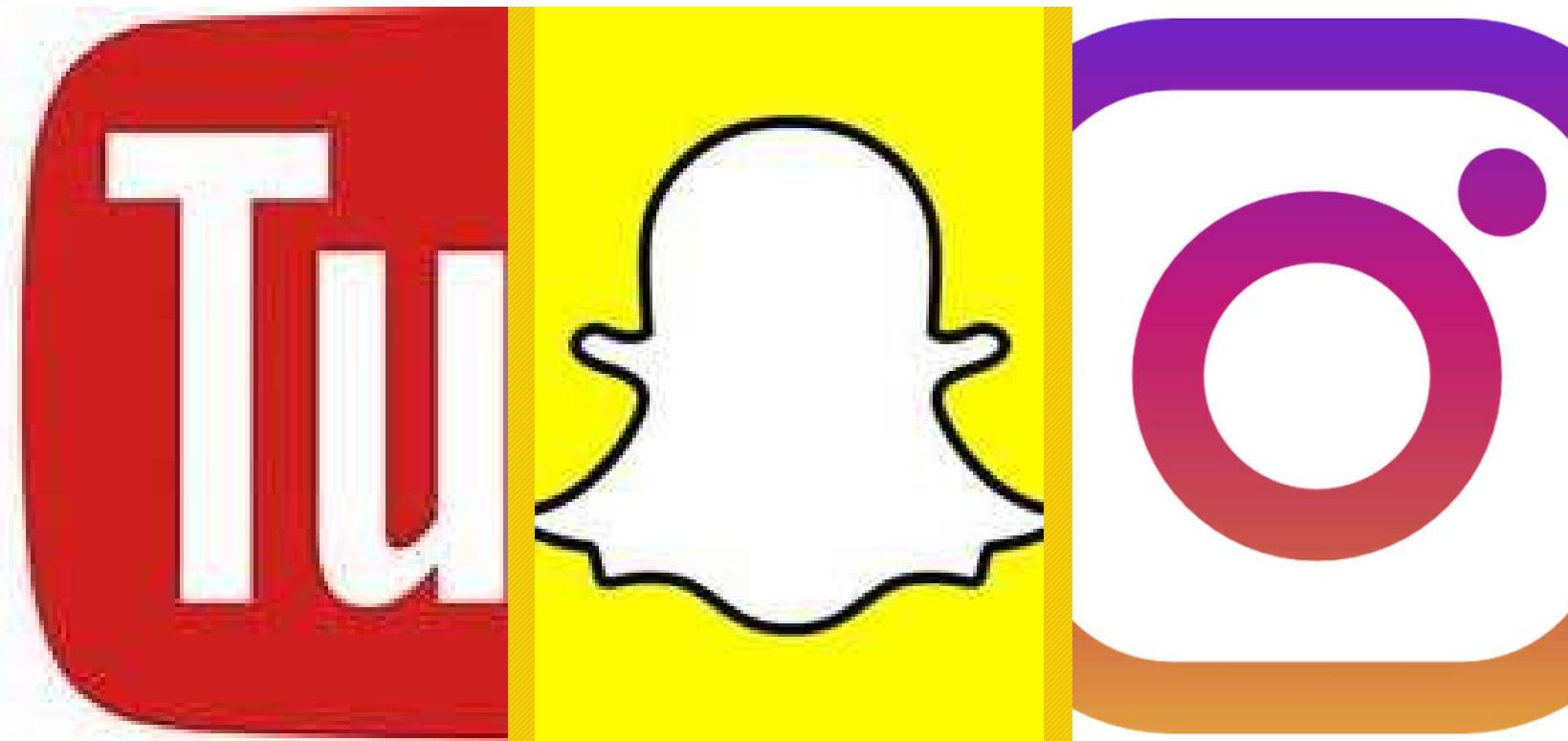
- 95% have access to smart phones
- 45% say they are online almost constantly
- Majority of both boys and girls play video games, but gaming is nearly universal for boys

(Pew Research Center, 2018)



2019 This Is What Happens In An Internet Minute

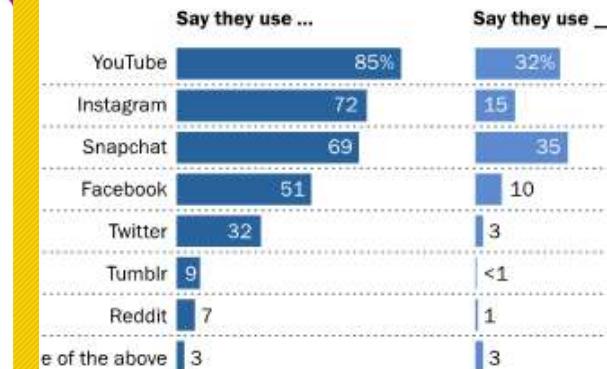




Most popular social media platforms among adolescents

YouTube, Instagram and Snapchat are the most popular online platforms among teens

of U.S. teens who ...



Figures in first column add to more than 100% because multiple responses were allowed. Question about most-used site was asked only of respondents who said they used at least one platform. All other results have been recalculated to include those who use only one site. Results for one or more sites include those who did not give an answer are not shown.

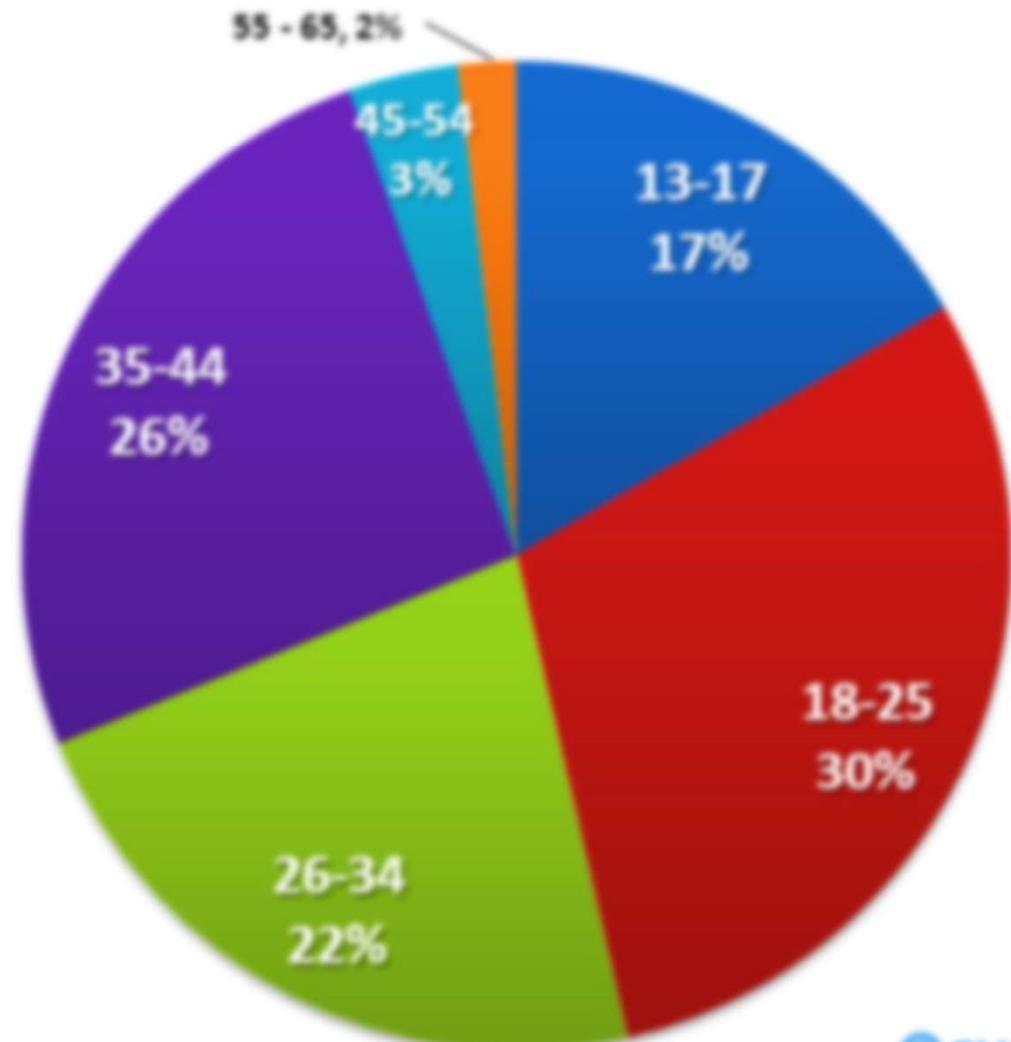
Source: Survey conducted March 7-April 10, 2018. For more information, see [Social Media & Technology 2018](#).

Pew Research Center

Mobile social gaming is profitable

- Facebook takes 30% income generated from payments in games such as *Farmville* and *Zynga Poker*).
- By the end of 2014, *Facebook* reported that 510 million people a month were playing social games
- Over 100 million playing daily

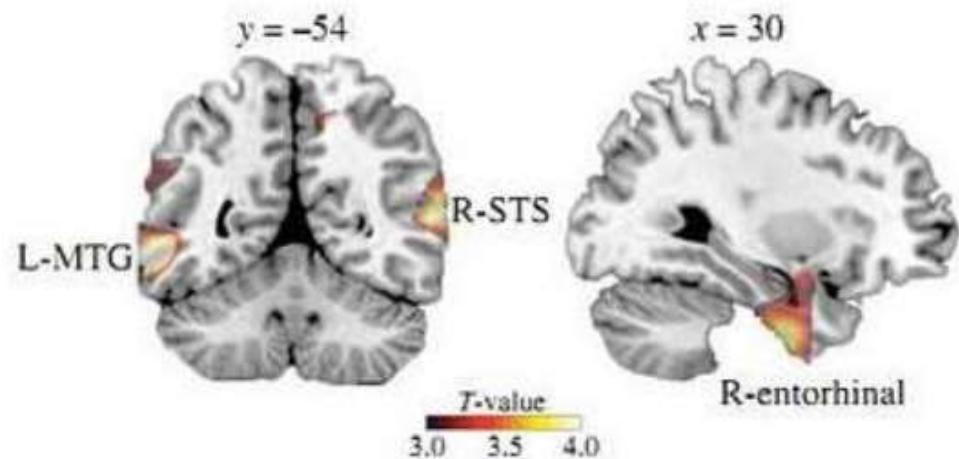
Mobile Social Gamers by Age, WW



Social Media Use and Brain Changes

- **Dependence:** like drug addition. Clear degradation in the white matter in the regions that control emotional processing, attention and decision-making
- **Immediate rewards with very little effort required:** brain rewires itself making you desire these stimulations resulting in more neurological excitement after each interaction
- **Multitasking** online reduces ability to filter interferences and information to memory; i.e., phantom vibration syndrome
- **Increased dopamine secretion** related to speaking to own views instead of listening to others (80% is self involved on social media communication)

Social Media Physically Changes the Gray Matter in your Brain



Kanai et al (2011) Proc Royal Soc B

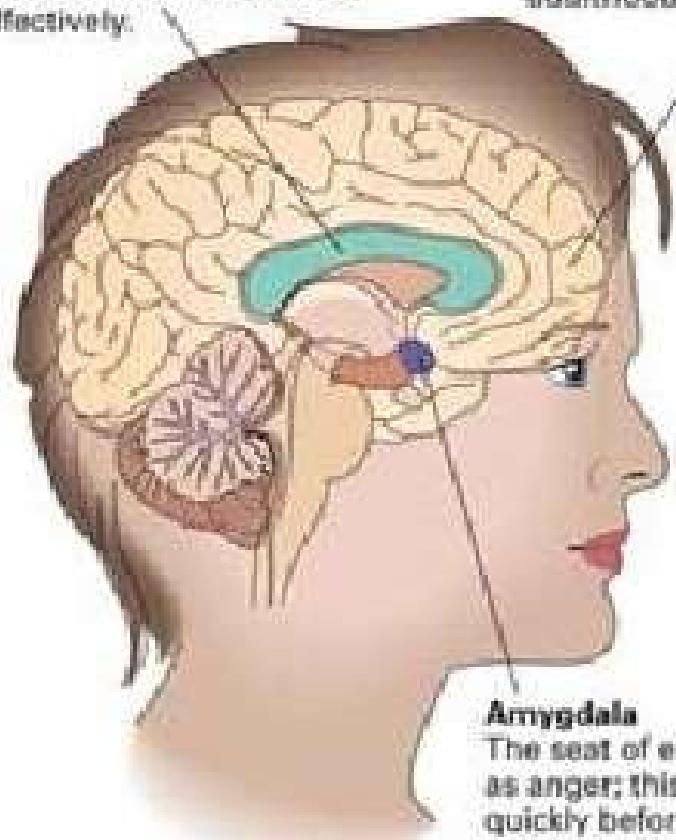
ADOLESCENCE (12 – 19 YEARS)

Corpus callosum

These nerve fibers connect the brain's two hemispheres; they thicken in adolescence to process information more effectively.

Prefrontal cortex

This "judgment" region reins in intense emotions but doesn't finish developing until at least emerging adulthood.



Amygdala

The seat of emotions such as anger; this area develops quickly before other regions that help to control it.

Brain undergoes structural changes

Age 12 - Parietal Lobe mature

- **Corpus callosum**

- nerve fibers connect the brain's left and right hemispheres
- thickens, improves adolescents' ability to process information

- **Amygdala** - matures earlier than the prefrontal cortex

- **Synapses** – at adult density

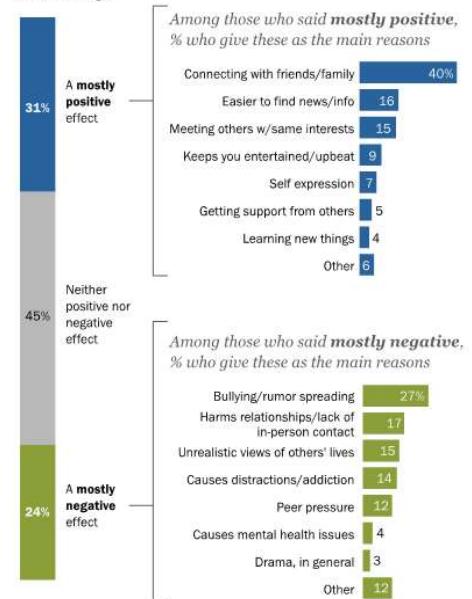
18 – 25 years: Frontal Lobe/ Prefrontal cortex matures



Teens have mixed views on the impact of social media on their lives

Teens have mixed views on social media's effect on people their age; many say it helps them connect with others, some express concerns about bullying

% of U.S. teens who say social media has had ___ on people their own age



Note: Respondents who did not give an answer are not shown. Verbatim responses have been coded into categories, and figures may add up to more than 100% because multiple responses were allowed.

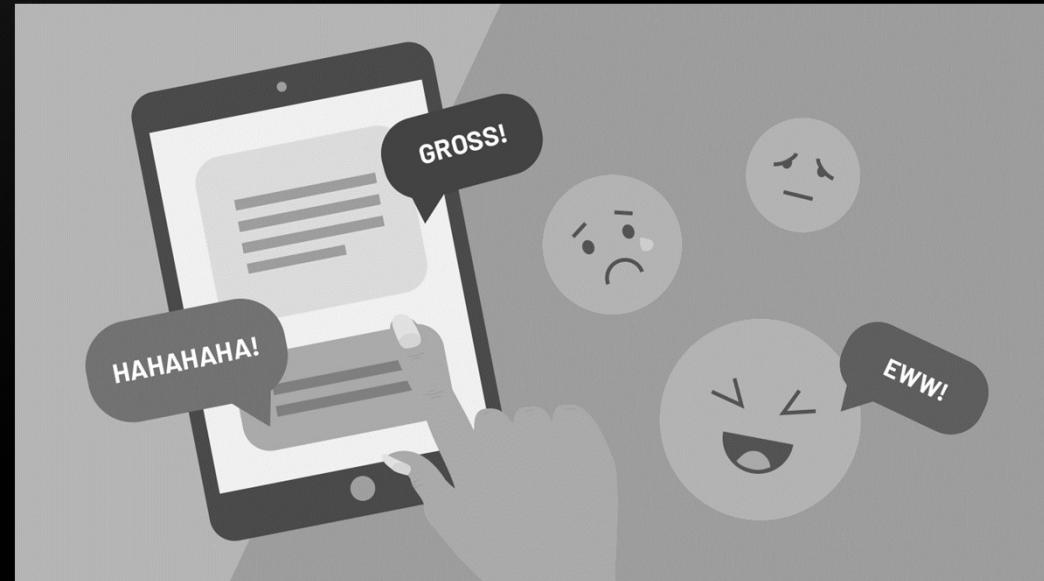
Source: Survey conducted March 7-April 10, 2018.
"Teens, Social Media & Technology 2018"

PEW RESEARCH CENTER

Roles of cyberbullying, sleep, and physical activity in mediating the effects of social media use on mental health and wellbeing among young people in England: a secondary analysis of longitudinal data

Viner, et al (2019)

- Mental health harms related to very frequent social media use in girls might be due to a combination of exposure to cyberbullying or displacement of sleep or physical activity, whereas other mechanisms appear to be operative in boys.
- Interventions to promote mental health should include efforts to prevent or increase resilience to cyberbullying and ensure adequate sleep and physical activity in young people.



Adolescents and Social Media Use

WHAT WE KNOW

- They are constantly trying to define themselves.
- They crave positive feedback to help them see how their identity fits into their world.
- They use social media for this feedback... but they are looking in a dangerous place.

HARMFUL EFFECT

- Possibility of a very public rejection because negative feedback is there for anyone and everyone to see.
- Adolescents ask for feedback without learning first that not everyone will respond in a supportive way.

Social media use by teens linked to internalizing behaviors (Riehm et al., 2019)

Question:

Is time spent using social media associated with mental health problems among adolescents?

Findings:

In this cohort study of 6595 US adolescents, increased time spent using social media per day was prospectively associated with increased odds of reporting high levels of internalizing and comorbid internalizing and externalizing problems, even after adjusting for history of mental health problems.

Meaning:

Adolescents who spend more than 3 hours per day on social media may be at heightened risk for mental health problems, particularly internalizing problems.

Social Media Influence on Adolescent Nutrition



Higher risk of eating



Disordered eating



Body Image concerns



Food intake and consumption habits



Exercise



Sexuality



Sleep disorders



Information seeking behavior



Mental well-being, depression and addiction

The use of social media in nutrition interventions for adolescents and young adults (Chau, Burgermaster and Mamykina (2018))



Social media is a promising feature for nutrition interventions for adolescents and young adults.



16 studies included social media in a nutrition intervention for these age groups; a majority had at least one significant outcome.



Intervention features included: social media; communication; tracking health; education; tailoring; social support; and gamification.



Most studies utilized basic social media features and did not evaluate the efficacy of social media individually

Social media use linked to teen disordered eating behaviors (Wilksch, O'Shea, Byrne and Wade, 2019)



Adolescents who are active on social media may be more likely to exercise excessively, skip meals or develop other forms of disordered eating



45% of the boys and 51.7% of girls were reported for behavior related to disordered eating.



Most common behaviors: meal skipping and strict exercise to lose weight or prevent weight gain.



The study focused on two main issues related to disordered eating:

How teens thought about their bodies and about eating
Whether teens exhibited disordered eating behaviors like skipping meals or exercising excessively.



When it came to “cognition,” or how often teens worried about things like their shape or eating habits:

girls who used Snapchat were 39% more likely to report these issues than girls who didn't use that platform.
Tumblr was associated with a 43% higher likelihood of eating-related cognition issues.

Problem eating



Early childhood

Teasing



Middle childhood

Negative body image,
dieting, weight concerns



Adolescence

Developmental Continuum of Eating Habits and Disorders

The Progression

42% OF 1ST-3RD GRADERS want to be thinner → 81% OF 10 YEAR OLDS are afraid of being fat → 70% OF 18-30 YEAR OLDS don't like their bodies → 60% OF THOSE IN MIDDLE AGE remain unsatisfied

WEIGHT STIGMA INCREASES UNHEALTHY EATING BEHAVIORS



OF GIRLS USE UNHEALTHY WEIGHT CONTROL BEHAVIORS
such as skipping meals, fasting, smoking, vomiting & taking laxatives

50%

12X
MORE LIKELY TO BINGE EAT
if you diet frequently

25%

of pathological dieters
PROGRESS TO A FULL-BLOWN EATING DISORDER

Trigger Phrases over Social Media



“Oh, your going to eat that?”



“I look/feel fat.”



“I shouldn’t eat this/that...”



“I won’t be able to eat tomorrow after eating that...”



“You should start working out...”

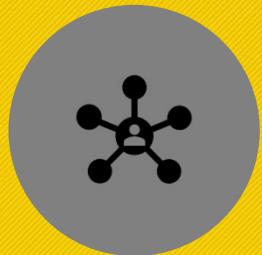


“You look so great now that you have lost weight!”

Consumption of Health-Related Content on Social Media Among Adolescent Girls: Mixed-Methods Pilot Study (Leary, et al, 2019).

- Objective: This mixed-methods study (qualitative and quantitative) assessed health behavior attitudes and practices as well as social media use among adolescent girls. Additionally, similar practices and behaviors of adults who regularly interact with this population were studied.
- Results:
 - Although adolescents may see health-related content, most do not follow health-related pages or share such pages themselves, and fewer are actively searching for this information.
 - Adolescents tend to trust information from familiar sources, and the participants reported that they do not follow official news accounts.
 - Adults considered modeling and discussing healthy behaviors important and reportedly expected adolescents to see some level of health-related, especially fitness-related, content on social media.
- Conclusions: Education interventions are warranted for both adolescents and adults with whom adolescent girls regularly interact, in the areas of sedentary behavior to guide them to access reliable online health-related information and be judicious consumers of online health information.

Social media use for nutrition outcomes in young adults: a mixed-methods systematic review (Klassen et al., 2018).



Information-dissemination is now an acceptable use of social media by young adults.



Using social media effectively for social support, either via private groups or public pages, requires careful evaluation as its effectiveness is yet to be demonstrated in experimental designs.



Concerns about public social media use may be a contributing factor to poor engagement with social media in research intervention studies aimed at influencing weight.

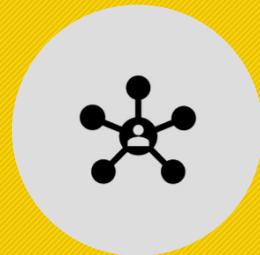


Future research should consider how to best engage with young adults using social media, how to more effectively use social media to support young adults and to facilitate social and peer-to-peer support in making healthier choices.

Adolescents' Use of Digital Technologies and Preferences for Mobile Health Coaching in Public Mental Health Settings (Aschbrenner, et al, 2019).



Of 121 survey respondents (mean age 15.2, $SD = 1.5$), 92% had a cell phone, 79% had a smartphone, 90% used text messaging, and 98% used social media.



Focus group interviews revealed that adolescents were interested in receiving strengths-based mobile health coaching, and they preferred structured online peer-to-peer interactions in which a professional moderator promotes positive connections and adherence to privacy guidelines.

What adolescents are looking for in the region?

- **Health**
- **Convenience, Speed and Flexibility**
- **Technology**
 - Estimated to grow at 13% to reach \$365 billion worldwide by 2022 (UBS Evidence Lab, 2018).
 - Food delivery may introduce great innovation such as robot cooks and drone delivery, in parts, replacing the need to cook.
- **Super-casualisation**
 - More casual environments, service styles and dining at your convenience are, in parts, replacing the older white tablecloth three course meal experience.



LET'S GET COOKING!



STRAWBERRY



MANGO



TEA



WHITE CHOCOLATE

The garden strawberry (or simply strawberry / 'stro b(e)ri; *Fragaria × ananassa*) is a widely grown hybrid species of the genus *Fragaria* (collectively known as the strawberries). It is cultivated worldwide for its fruit. The fruit (which is not a botanical berry, but an aggregate accessory fruit) is widely appreciated for its characteristic aroma, bright red

Author: Tomato Basilico and others

W

The mango is a fleshy stone fruit belonging to the genus *Mangifera*, consisting of numerous tropical fruiting trees, that are cultivated mostly for edible fruits. The majority of these species are found in nature as wild mangoes. They all belong to the flowering plant family *Anacardiaceae*. The mango is native to South Asia, from where it has been

Attributed to Tomato Basilico and others

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Attributed to Tomato Basilico and others

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Attributed to Tomato Basilico and others

Tea is an aromatic beverage commonly prepared by pouring hot or boiling water over cured leaves of the tea plant, *Camellia sinensis*. After water, tea is the most widely consumed beverage in the world. It has a cooling, slightly bitter, and astringent flavour that many people enjoy. Tea originated in China as a medicinal drink. It was first introduced to Portuguese

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Attributed to Tomato Basilico and others

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HERE ARE SOME IDEAS



Strawberry Pie

water, light brown sugar, baking powder, vanilla extract, butter, whole wheat pastry flour, bread flour, mango nectar, strawberry, mango, unsweetened chocolate, white chocolate, semisweet chocolate



Chef Watson

Artificial intelligence sug. x

news.mit.edu/2017/artificial-intelligence-suggests-recipes-based-on-food-photos-0720

Apps Jeremy Leggett | Ener ETHICS for Media Psy PLOS Neuroscience Marshall McLuhan Sp PAR-16-292: Mobile | The Nutrition Impact Reunion 2015 | Flickr

MIT News

Browse or Search

Photo: Jason Dorfman/MIT CSAIL

Artificial intelligence suggests recipes based on food photos

Given a still image of a dish filled with food, CSAIL team's deep-learning algorithm recommends ingredients and recipes.

[Watch Video](#)

Adam Conner-Simons | Rachel Gordon | CSAIL
July 20, 2017

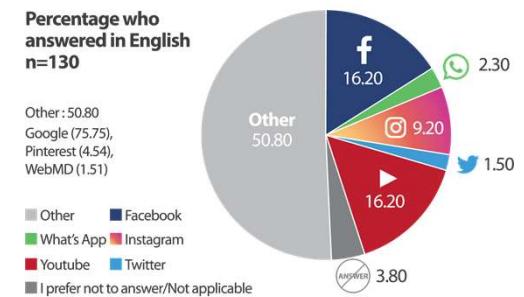
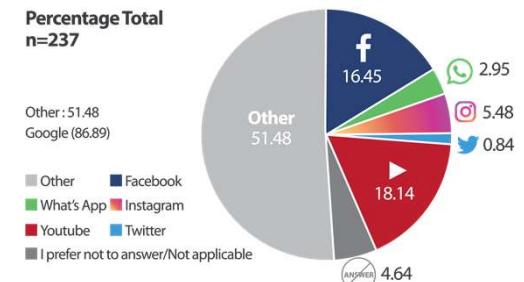
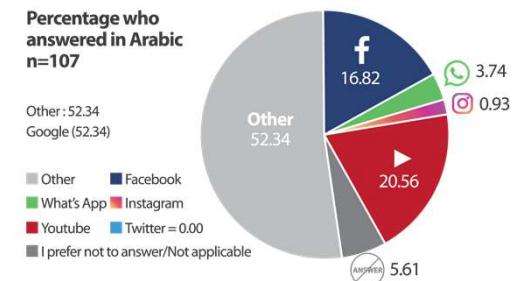
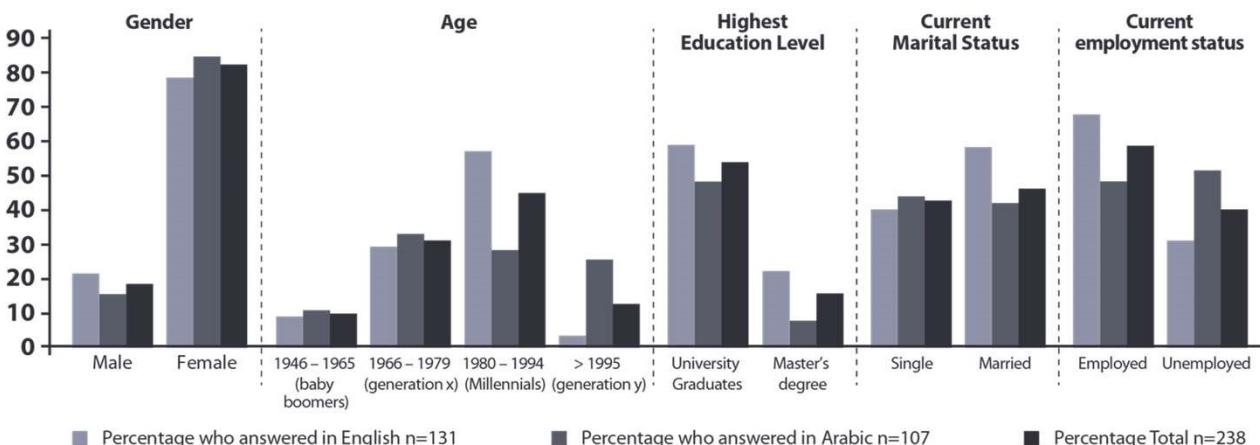
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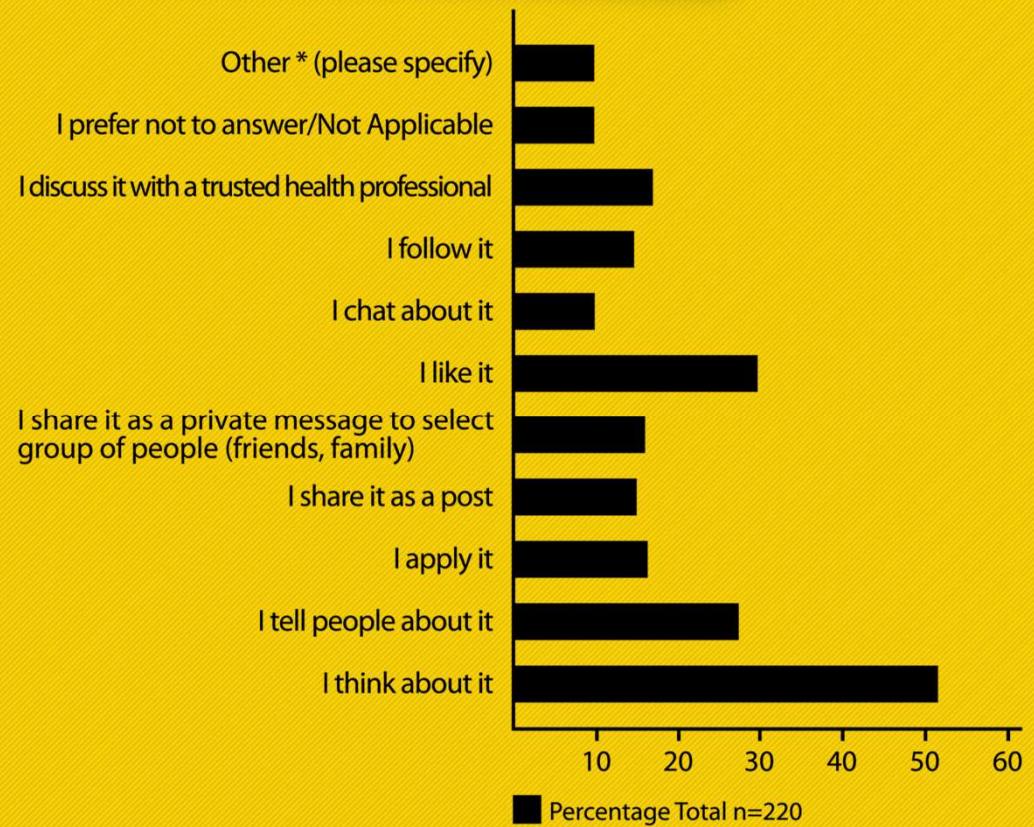
There are few things social media users love more than flooding their feed with food. Yet we seldom use these images for much more than a quick scroll. Researchers from MIT's Computer Science and Artificial Intelligence Laboratory believe that analyzing photos like these could help us learn recipes and better understand people's eating habits. In a new paper with the [Qatar Computing Research Institute](#), the team trained an artificial intelligence system called [Pic2Recipe](#) to look at

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5/1/2018

Defining the Medium when it comes to Nutrition Information



Is Facebook the message of social connections?



Is Facebook the medium or the message?

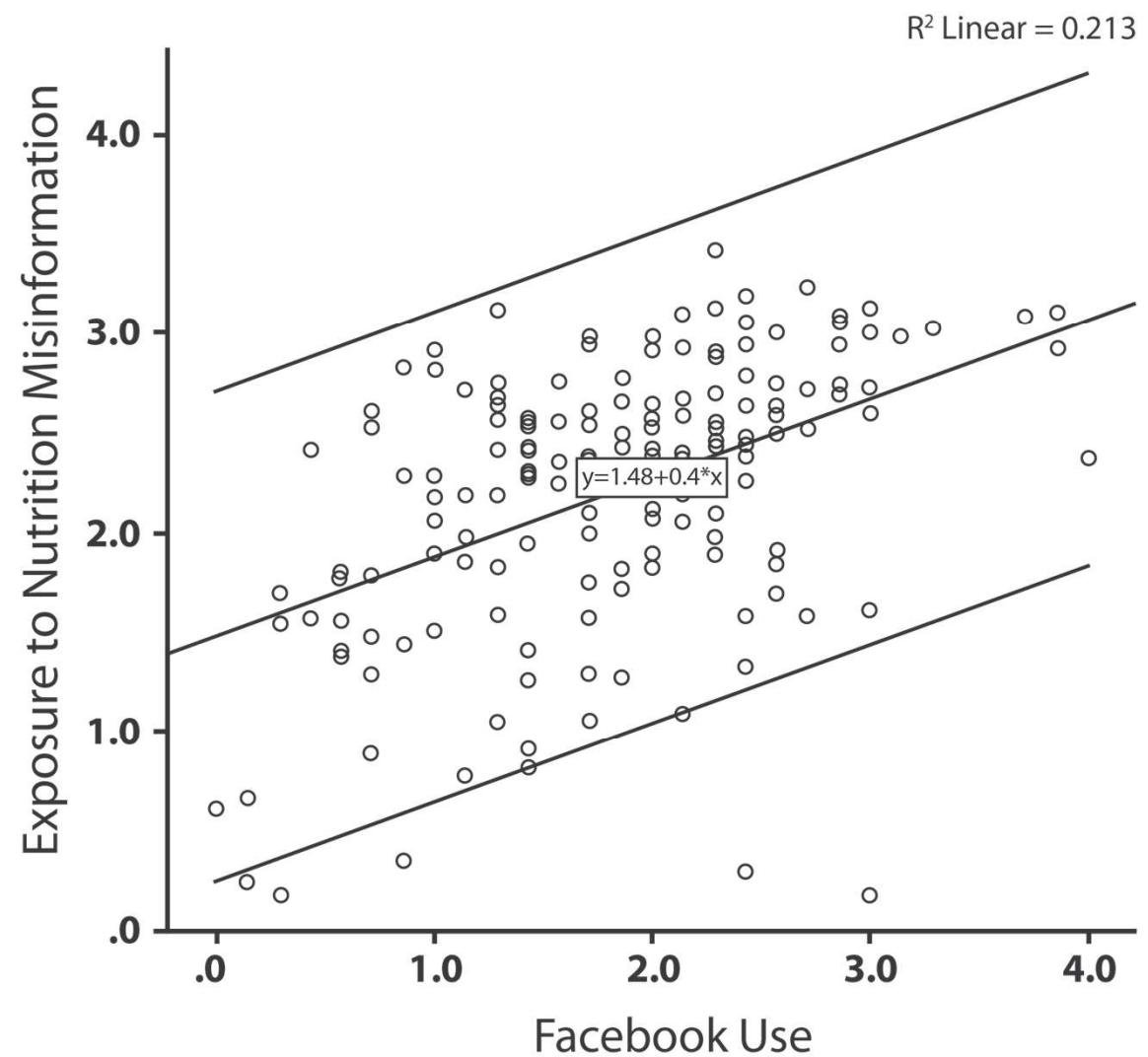
The multiple regression model statistically significantly predicted exposure to nutrition misinformation, $F(3,162) = 41.651$, $p < 0.001$, adj. $R^2 = 0.425$. All three variables added statistically significantly to the prediction, $p < 0.05$.

Variable	B	SE _B	B
Intercept	0.817	0.154	
Facebook use	0.231	0.056	0.267*
Food consumption behavior	0.274	0.045	0.422*
Risk perception	0.123	0.045	0.171*

Note. * $p < 0.05$; B=unstandardized regression coefficient;
 SE_B = Standard error of the coefficient;
B = standardized coefficient



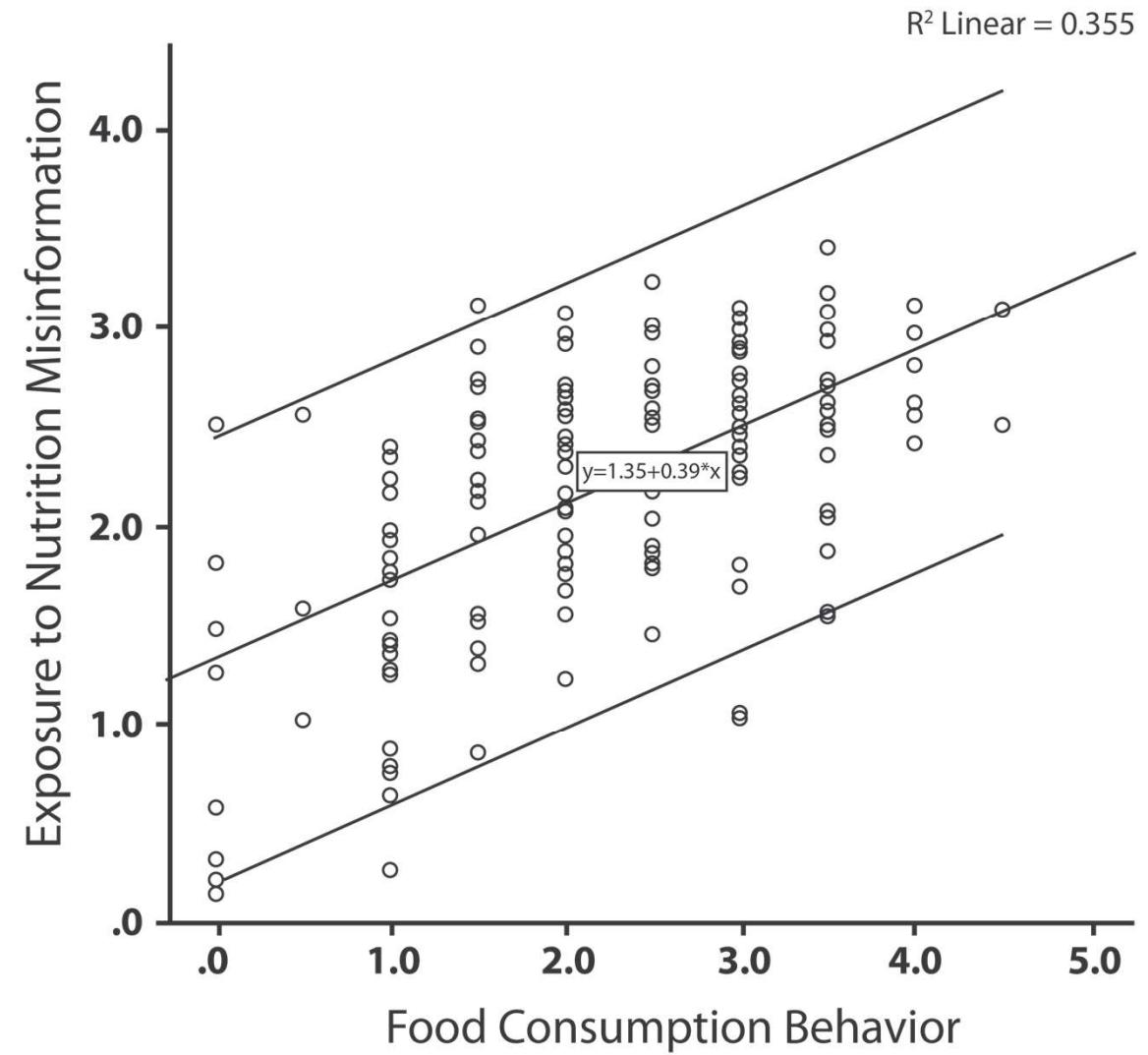
Scatterplot of exposure to nutrition misinformation score against Facebook use score with superimposed regression line.



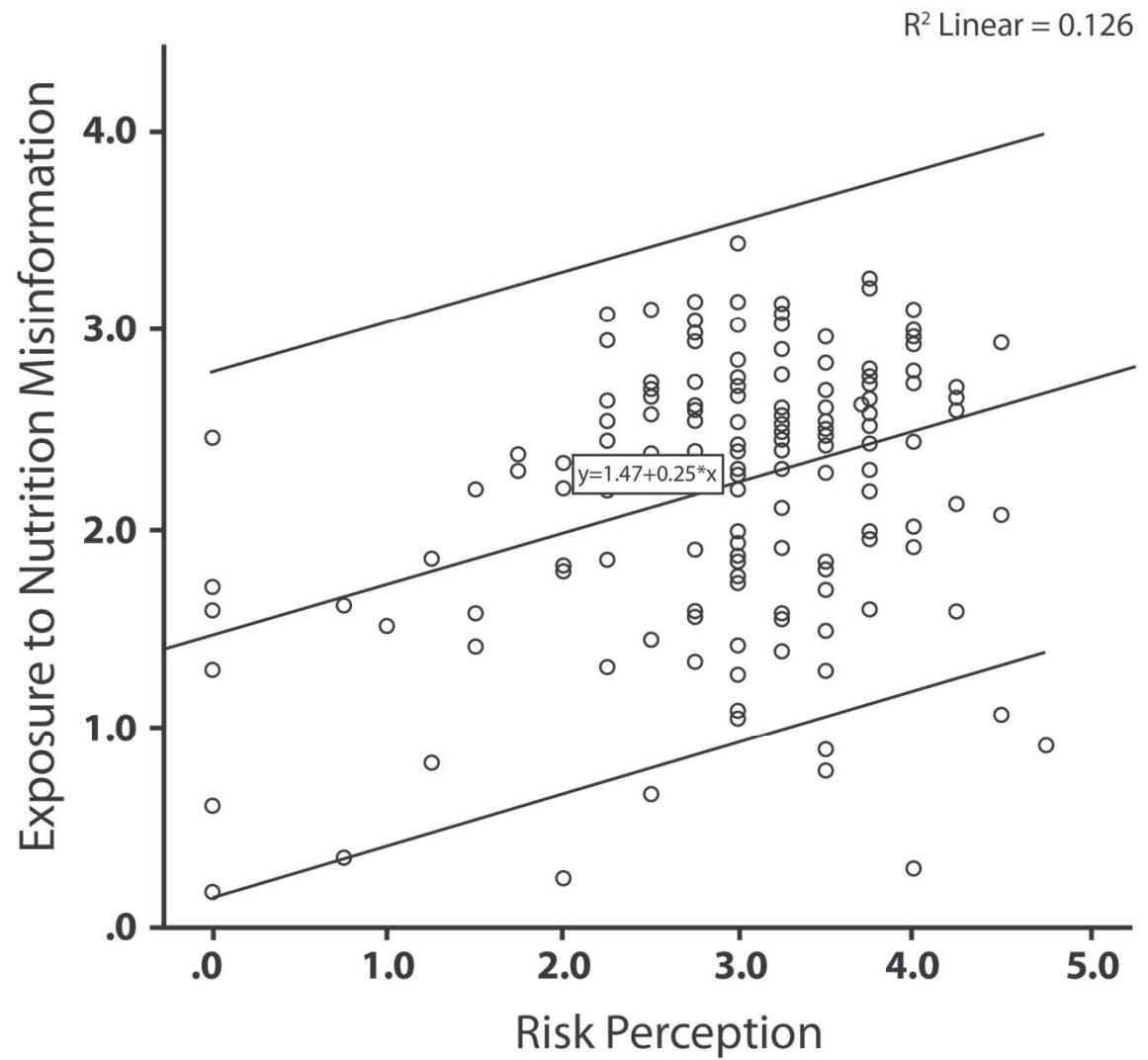
Scatterplot of exposure to nutrition misinformation score against food consumption behavior score with superimposed regression line.



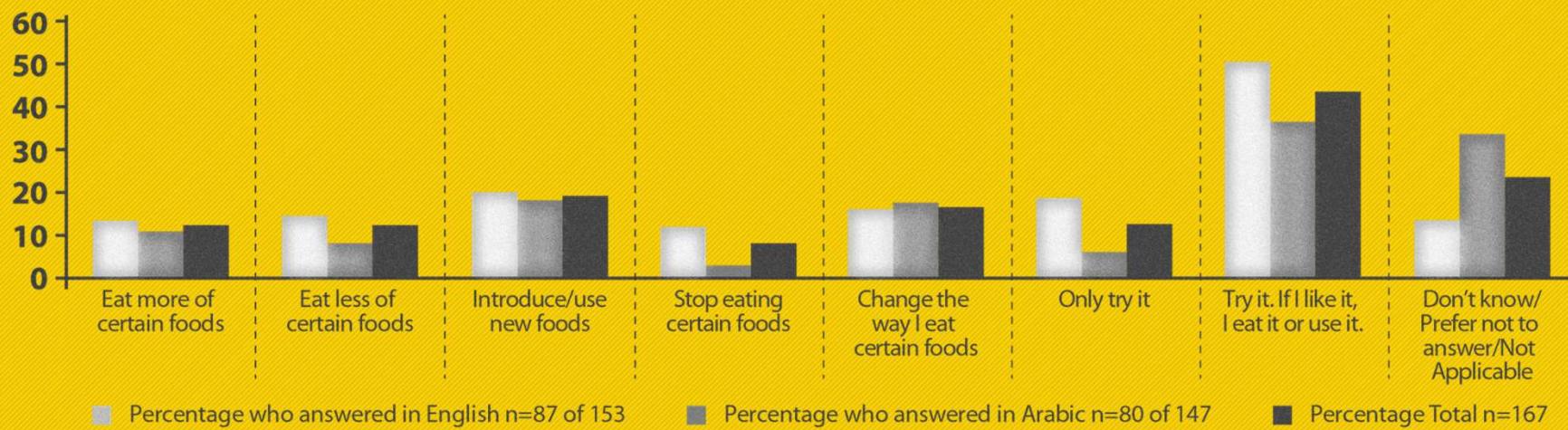
El-Kour, Hogg and Sewell, 2018



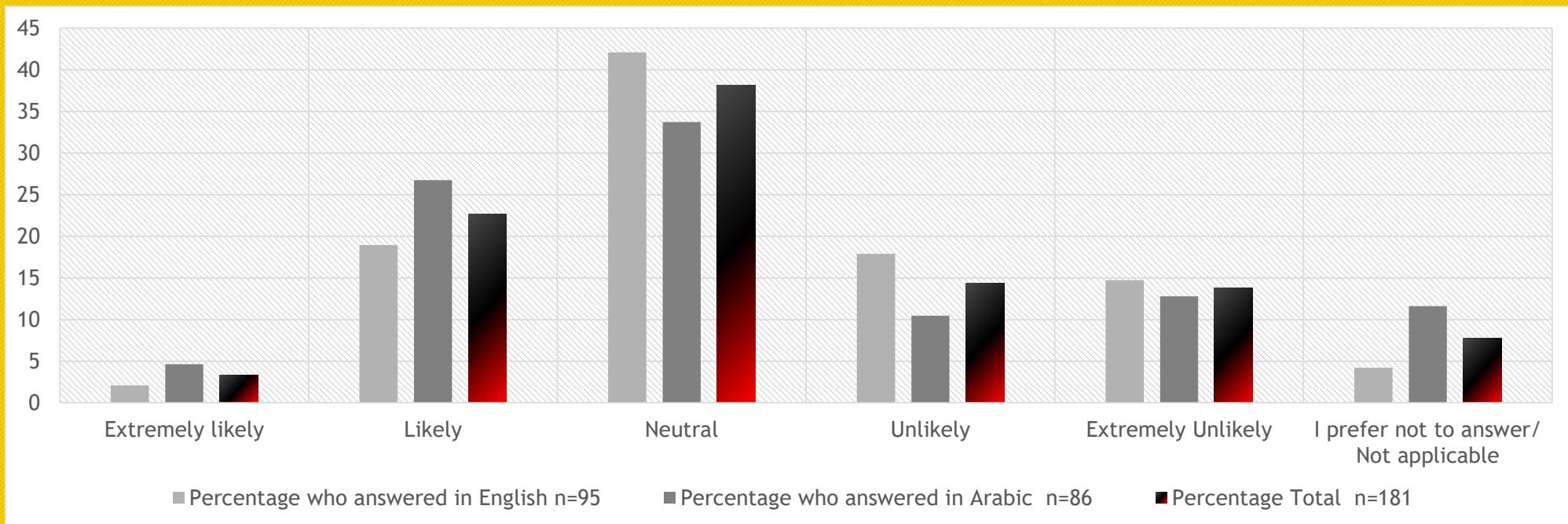
Scatterplot of exposure to nutrition misinformation score against risk perception score with superimposed regression line.

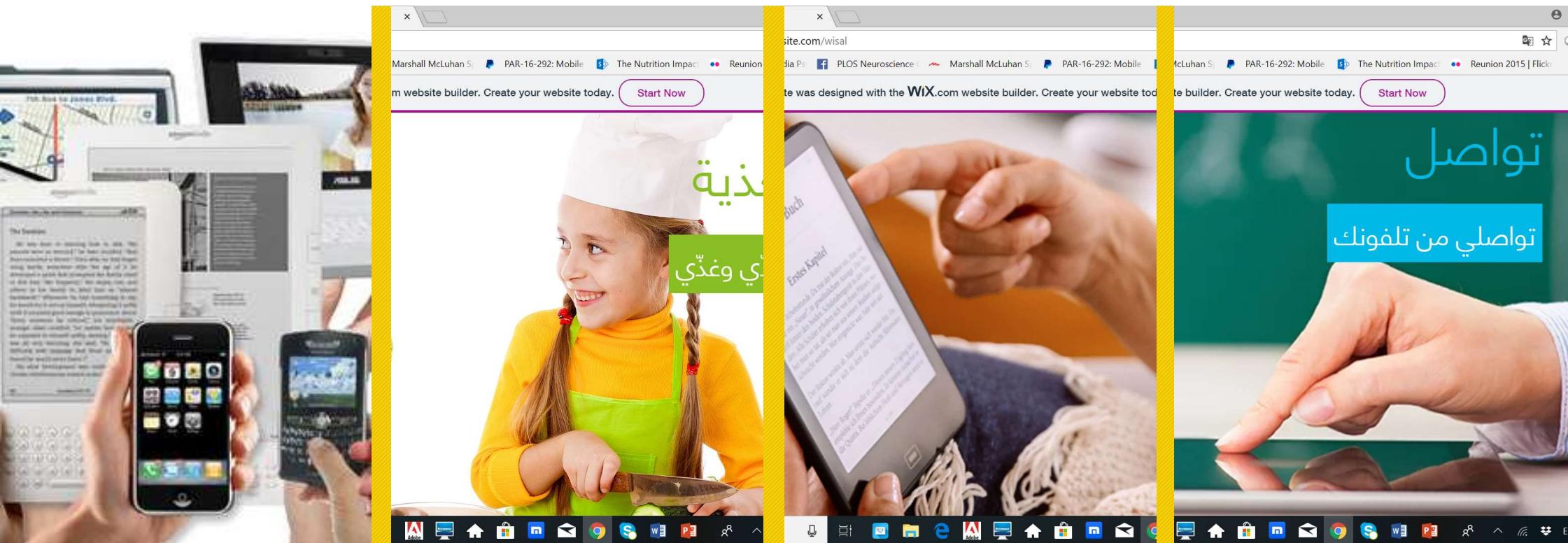


Facebook as the medium used to deliver the nutrition misinformation message has a significant effect on how the content is received and digested



On Average, How likely would you be to choose to endorse a nutrition message if it was posted on Facebook?

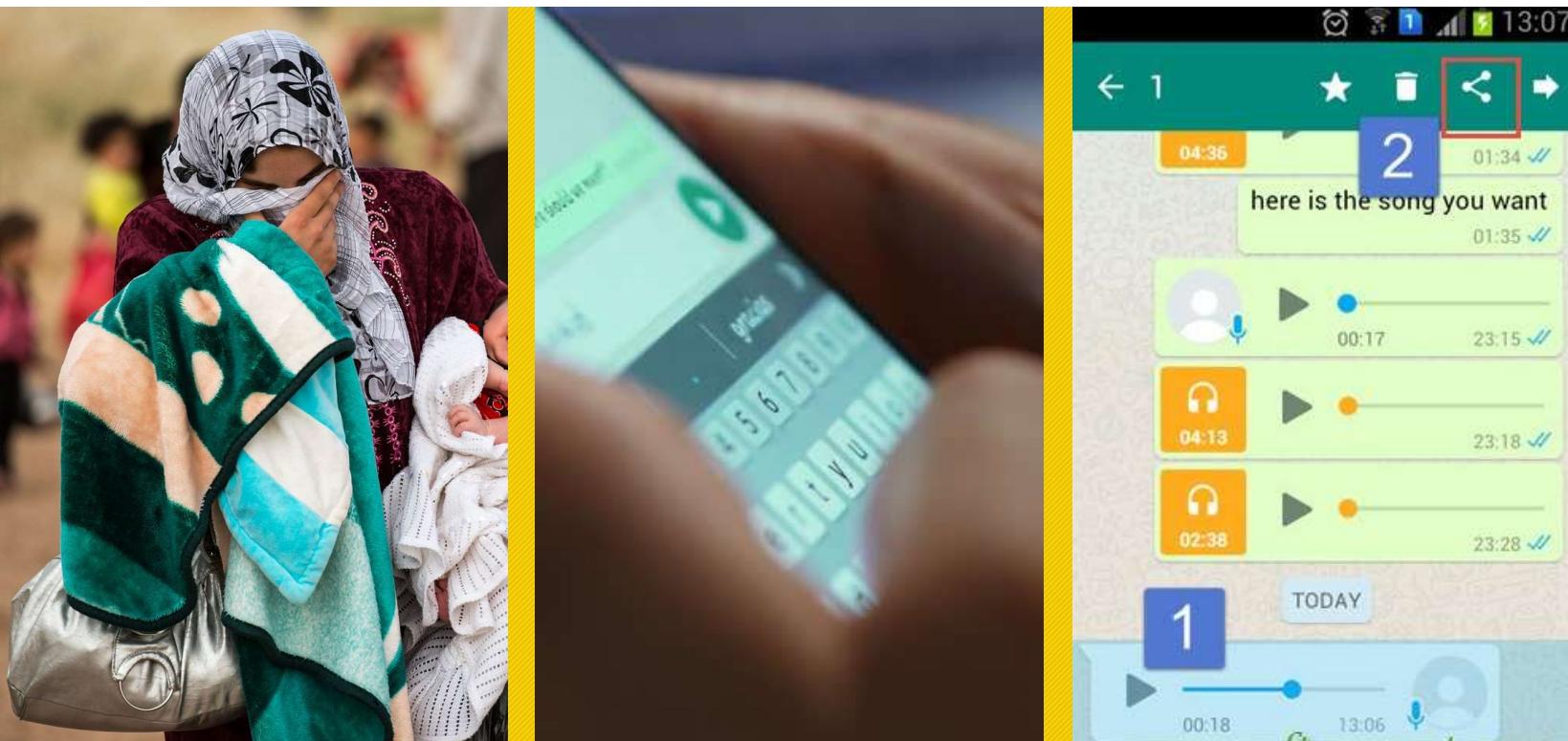




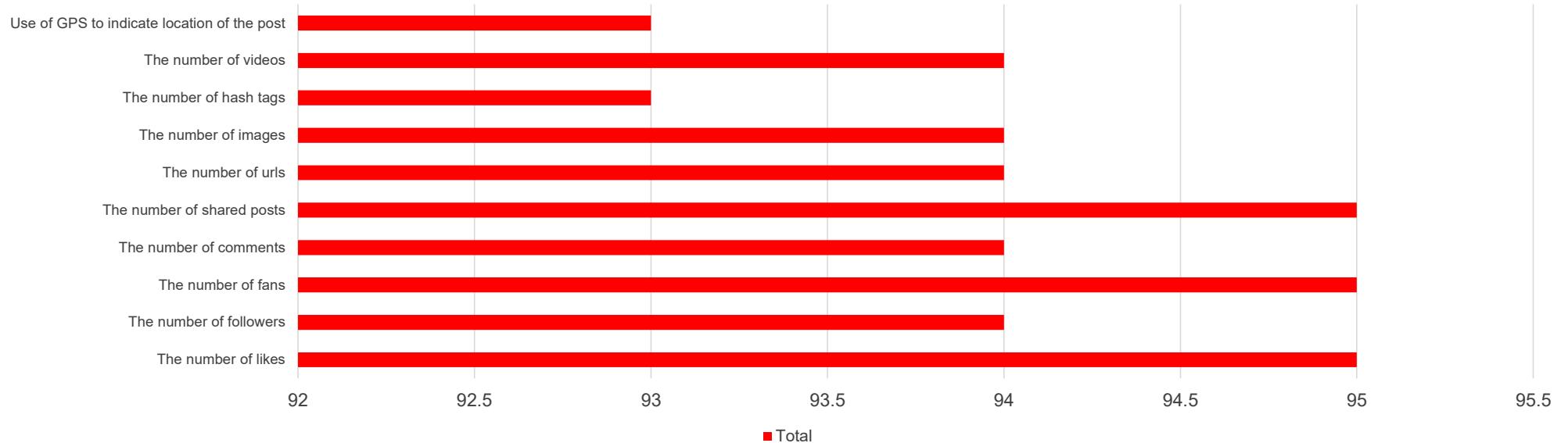
How might identifying which medium affect how we receive and act on the message?



Is Smartphone technology the medium or is it the message of a new lifeline for Syrian Adolescent and Young Refugees?



Is WhatsApp the medium or is it the message of audio storytelling for low-literate adolescent and young refugees?



Facebook Social Features and Trust

Figure 4: Emergent themes

Theme 1: Parental influence over food choices

"My mom forces me to eat any food she reads about on Facebook! Please talk to her! She drives me crazy!" - M.N.

Theme 3: Primer for food intake

"Once I tried out a recipe for fried ice-cream and it was amazing." - S.A.

"My dad is 65 years old. He started on green coffee beans pills and some other herbal pills because of Facebook posts that created some health problems for him" - D.K.

Theme 2: Primer for misinformation sharing and adoption

Theme 4: Driver of new experiences

"it is great for trying out new things. I do not actually look for them. I just find them on my screen." - D.H.

Theme 5: Socially engaging experiences

"I get shares from my friends that trigger me to try." - I.O.

Activate Windows

What factors impact the eating behaviors of female Arab millennials who use social media daily? (El-Kour and Sewell,2016)



A platform for food ideation



Food at the center of the social experience and the social media engagement



An expression of sharing and caring



Skill-building effect



Enhancer for creativity



Primer for greater food intake (especially intake of unhealthy food that is high in fat, sugar, and calories)



Venue to celebrate achievement with others, including family and friends



Trigger for food craving

WHO EMRO | Arabadol X +

www.emro.who.int/in-press/short-communications/arab-adolescents-and-their-sources-of-health-information.html

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Article in press

Arab adolescents and their sources of health information

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PDF version

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Abstract

Background: In Qatar, health media campaigns and applications (apps) have not been particularly successful among adolescents. Arab culture and Kohlberg's theory of moral development suggest personal communication as a promising alternative.

Aims: This study asks the question, how important is personal communication for health information among adolescents when compared to other sources?

Methods: A secondary analysis of a representative survey in 2017 with 1117 adolescents in Qatar was performed.

Results: Personal communication is the most important source of health information, together with a few selected internet platforms. There was little difference in selection according to gender or age of adolescents.

Conclusions: Health information for adolescents should take advantage of personal communication and pay attention to which internet channels are used. Parents and friends are particularly relevant.

Keywords: Adolescents, health, health information, health campaigns, Qatar

Citation: Schoenbach K. Arab adolescents and their sources of health information. East Mediterr Health J. 2019;25(4):900-905.

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