

# The Girlsmarts website: Assessing benefit and effectiveness

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## Abstract

The Girlsmarts website ([www.girlsmarts.org](http://www.girlsmarts.org)) was built to allow teens to virtually experience the consequences of high-risk behaviors prior to experiencing them in life. As the prefrontal cortex of the brain, involved in understanding the repercussions of decisions, continues to develop throughout the teenage years, allowing teens to understand consequences can promote better decision making. The Girlsmarts website houses 7 cases which address common situations teens face, but no measureable data regarding website value had ever been obtained. The aim of this project was to determine who accesses the website Girlsmarts and to assess the value that it brings to its viewership.

To explore these questions, the website encouraged individuals to complete a voluntary and anonymous survey that obtained information regarding effectiveness of content and also user demographics. Analysis of 45 surveys revealed the website was viewed by teenage girls 51% of the time, while it was viewed by a teachers/educators 20% of the time. 96% of viewers reported that the cases did impact how they would handle certain situations.

Based on these findings, adolescent females and their educators do benefit from viewing the Girlsmarts website. This web-based learning can equip adolescents with the tools to better react to certain risky situations. It may also allow educators to supplement their existing curriculum in order to better educate adolescents about difficult and risky situations.

## Introduction

The teenage years revolve around the quest to develop an individual moral code and identity. As children enter the teenage years, they tend to shift communication away from their parents and towards their social environment. During this process, self-regulation, or the ability to exert control over one's actions, can be difficult for adolescents [1]. This period of discovery and difficulty with self-control is postulated to be due to the delayed maturation of the prefrontal cortex [2,3].

The prefrontal cortex plays an essential role in higher-order cognitive processes and executive functioning. These skills are responsible for the ability to plan, maintain inhibitions, and practice goal-directed behavior [3]. Without these traits, teens can choose to make decisions that lead to "instant gratification." Many of these decisions may result in high-risk situations. While some high-risk behaviors, such as the use of illicit drugs, has improved from 23% to 14% over the last 10 years, other high risk behaviors have emerged. As an example, studies note decrease use of condoms, with only 54% of high school students now using condoms, a statistic that has decreased 8% from 2007 through 2017 [4].

Knowledge of consequences prior to encountering a high-risk behavior may alter a teen's reaction to a situation, and allow them to respond more favorably. Using simulation as an education tool could help teens analyze a high-risk behavior prior to experiencing the situation first hand. Seeing how others handle the high-risk situation would help build refusal skills and knowledge of the hardships associated with these behaviors, and may motivate teens to avoid potentially detrimental activities.

A literature review reveals that there has been little research exploring the use of digital health tools in teen education and

prevention of high-risk behaviors. This form of education is in need of more careful attention, as approximately 84% of teens have used online health information [5]. This high rate of use among teens underscores the need for accurate and teen friendly web-based information.

To close this gap, the website [www.girlsmarts.org](http://www.girlsmarts.org) was created with the goal of creating new avenues to educate and promote healthy choices among adolescents. Currently, the website hosts 7 scenarios of "risky behaviors" for viewing. Topics addressed include, but are not limited to Consequences of Unprotected Intercourse (pregnancy and sexually transmitted infections), Consequences of Underage Alcohol, Drug or Tobacco Abuse, Internet Dangers, and/or Eating Disorders (Figure 1). Prior to the creation of each case, teen focus groups were utilized to ensure relevance to the average teen. For each situation, there is a summary of pertinent health facts. These health facts serve to provide further education for the participants. There are also additional web links where teens can access other healthcare resources. After viewing the cases, individuals have the opportunity to complete a survey regarding the website.

In this preliminary study, we aim to use the Girlsmarts website's survey to collect information on our user demographics and determine overall effectiveness of the site. This project sought to validate the perceived utility of online module education provided by GirlSmarts.

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**Key words:** adolescent, girls, girlsmarts, judgment, risk-taking, teen pregnancy

**Received:** July 03, 2019; **Accepted:** July 11, 2019; **Published:** July 15, 2019

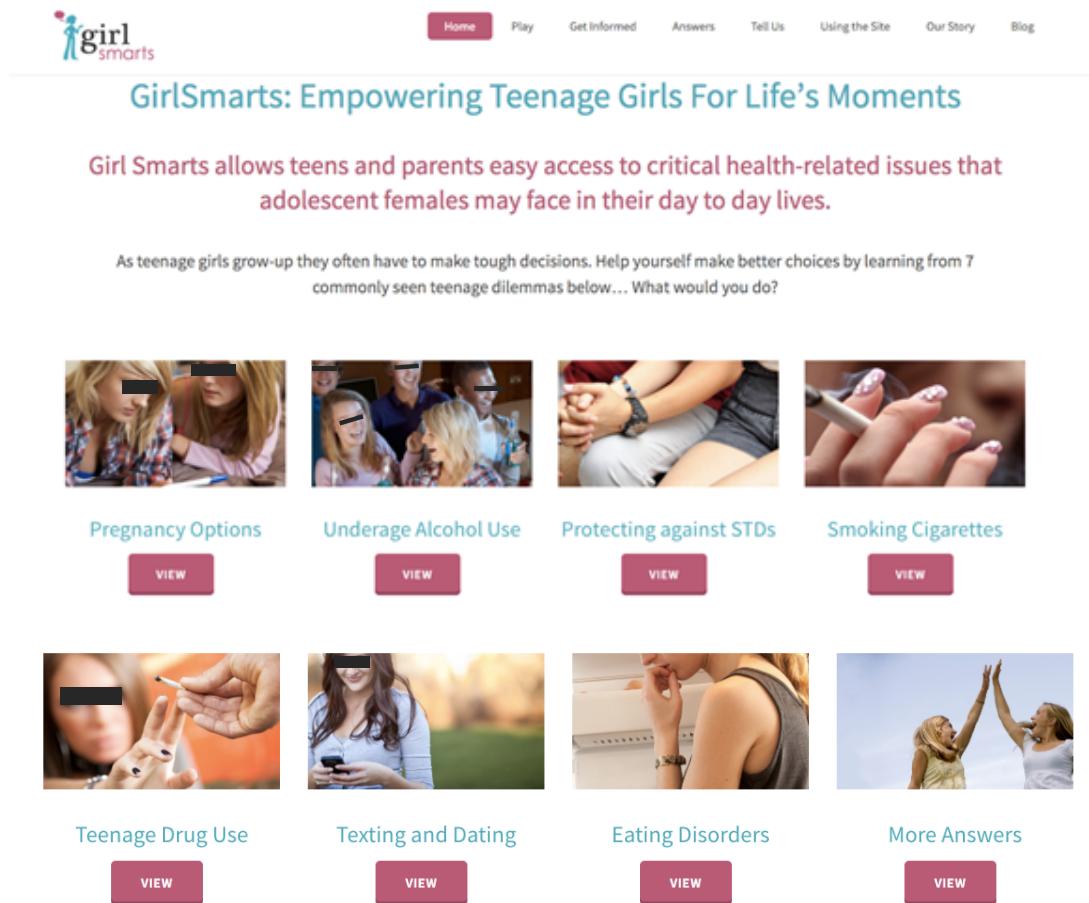


Figure 1. List of Cases that Teens Can Access at [www.girlsmarts.org](http://www.girlsmarts.org)

## Materials and methods

### Participants

After viewing the cases and exploring other resources on the website, the site encouraged all participants to complete a survey (Figure 2). Any individual who visited the site had the opportunity to submit a survey, regardless of how many modules they completed. Participation was completely anonymous and the participants were required to consent to allow the information gathered to be used for research purposes.

### Survey

This survey was brief, with only seven questions, in an effort to promote efficiency and thus attract more respondents. There was no way to link the survey results to any individual participant. At the end of the survey, participants were able to check a box to allow the survey information to be used anonymously for research purposes. Once this box had been checked, the survey answers were forwarded electronically to the primary investigator for review. The survey items included participant's demographics, their feelings regarding how the information would change their handling of high-risk situations, which cases they found valuable, how they found out about the GirlSmarts website, and the people with whom they would likely share this information. The survey also asked for suggestions on additional topics participants would like to see addressed on the website in the future.

### Analysis

After approval from the University of Oklahoma Institutional Review Board, 45 surveys were collected from April 2016 to April 2017. Responses were compiled and analyzed to assess demographics of those viewing the website and perceptions of educational value of the cases. All the information was compiled into a data pool and descriptive statistical techniques were performed using Microsoft Excel.

### Results

At the conclusion of our study, 45 surveys were collected. The majority of GirlSmart users identified themselves as teenage girls (51%). The remaining users reported themselves to be Teachers/Educators (20%), Parent/Guardian (11%) or "Other" (18%).

Participants were from all parts of the United States as noted in Table 1, and 7% were noted to be viewing the site from outside the United States of America. Most learned about the website from friends (49%). Others learned of the site from their school (29%) or Google (27%) (Table 1).

96% of website users felt the online cases changed their thoughts about how they would handle certain high-risk situations (Figure 3).

Data also evaluated cases that viewers of the website found most valuable. Viewers felt that cases on the topics of Sex, birth control and STDs were most valuable (71%). Cases on the topics of Getting

## Your Feedback Please!

### Our Really Short 1-minute GirlSmarts.org Survey!

GirlSmarts is an effort to empower girls with impartial knowledge so that they can make the best choices during life's toughest moments. This is our first version, but we are already looking to improve.

By taking a minute to fill this survey, you will immensely help us get better at helping our society. Thank you!!

#### Which of the following best describes you? \*

Teenage Girl  Parent or Guardian  Teacher or Educator  Teenage Boy  Other

#### Where do you live? \*

NorthEastern USA  Southern USA  Midwestern USA  
 Western USA  Other USA  Outside USA

#### Due to the cases that I did, I will change my thoughts about how I handle a certain situation \*

Yes  No

#### Choose which cases you found valuable \*

Getting Pregnant  Drunk at a Party  Sex, Birth Control, STDs  
 Trying Smoking  Getting High on Drugs  Online Chats, social pressure and  
 Eating Disorders  bullying  
 News

#### How did you find out about GirlSmarts.org? \*

Google  Yahoo  Bing  
 Friend  Facebook  Twitter  
 School  Other online  News

#### Who would you discuss what you learned on GirlSmarts with? \*

Friends  Parents  
 Teachers  I would not discuss

#### Please list out additional topics that you think we should address, and that you think would benefit teenage girls \*

Figure 2. Survey taken by participants viewing the Girlsmarts website

### Due to the cases that I did, I will change my thoughts about how I handle certain situations

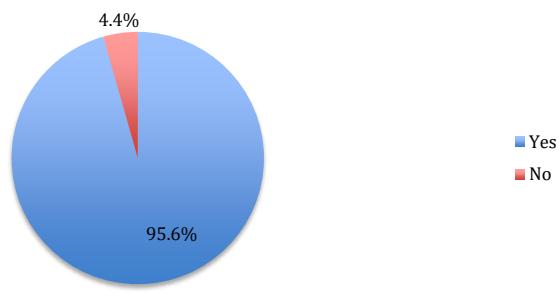


Figure 3. Participant perception on changes in their handling of situation after viewing the Girlsmarts website

**Table 1.** Results of Survey taken after participants viewed Girlsmarts website

Which best describes you?		
Description	n	Percentage
Teenage girl	23	51.1%
Parent or Guardian	5	11.1%
Teacher or Educator	9	20%
Teenage boy	0	0%
Other	8	17.8%
Where do you live?		
Northeastern USA	14	31.1%
Southern USA	16	35.6%
Midwestern USA	10	22.2%
Western USA	2	4.4%
Other USA	0	0%
Outside USA	3	6.7%
Due to the cases that I did, I will change my thoughts about how I handle a certain situation		
Yes	43	95.6%
No	2	4.4%
Choose which cases you found valuable		
Getting pregnant	31	68.9%
Drunk at a party	24	53.3%
Sex, birth control, STDs	32	71.1%
Trying smoking	17	37.8%
Getting high on drugs	12	26.7%
Online chats/pressures, rape, & bullying	28	62.2%
Eating disorders	19	42.2%
How did you find out about GirlSmarts.org?		
Google	12	26.7%
Yahoo	2	4.4%
Bing	0	0%
Friend	22	48.9%
Facebook	3	6.7%
Twitter	0	0%
School	13	28.9%
Other online	3	6.7%
News	0	0%
Who would you discuss what you learned on GirlSmarts.org with?		
Friends	31	68.9%
Parents	16	35.6%
Teachers	14	31.1%
I would not discuss	11	24.4%

Pregnant and Online Chatting, Date rape and Bullying were also very highly regarded as valuable (69% and 62%, respectively) (Figure 4).

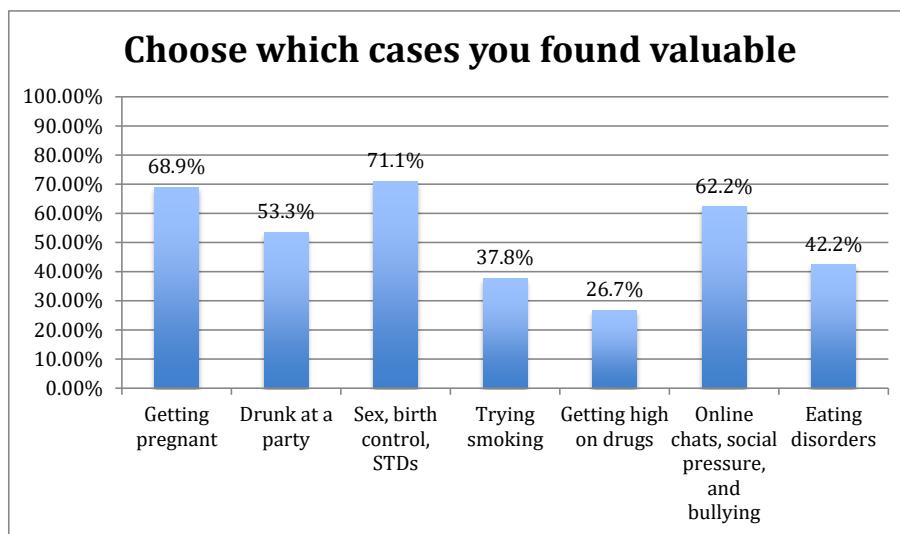
When asked with whom they might discuss the information learned from Girlsmarts, 69% said friends, while only 31-36% said a parent/guardian or teacher (Table 1). New cases that were most often requested in the written portion of the survey included cases on the topics of teen suicide, bullying and depression/anxiety.

## Discussion

Adolescent females and their educators/guardians can benefit from use of the Girlsmarts ([www.girlsmarts.org](http://www.girlsmarts.org)) website. The majority of viewers felt the site was effective as it allowed viewers to see the consequences of high-risk behaviors. Because of the delayed maturation

of the prefrontal cortex in teens, teens are often unable to conceptualize the consequences that result from certain behaviors. This is especially dangerous when teens encounter high-risk decisions, such as having unprotected sex or drinking and driving. The site allows teenage viewers to imagine difficult and risky scenarios in a more educated manner, hopefully leading to better real life outcomes when such situations are encountered.

Furthermore, this site provides a valuable educational resource to teachers, educators, and parents. Teens are acquiring more information from Internet sources than ever before (5). Because of this shift in how teens are acquiring their information, it has become increasingly important to provide useful and accurate information in a form that teens will utilize. The information available on the Girlsmarts website



**Figure 4.** Participants perception of value of various cases within the Girlsmarts website

allows the spread of information to adolescent girls that will help them make prudent, well-informed decisions when faced with difficult real life situations.

There are limitations when considering the results of this study. One limitation is the small sample size available for analysis. Only 45 surveys were collected for analysis, so the general applications of these findings are limited. There also may be a non-response bias, in that those that did not find this website useful may have been less likely to complete a survey.

There is minimal research exploring the use of online modules to enhance adolescent education regarding health and high-risk behaviors. This preliminary study sets the groundwork to follow up with further studies. Future studies could create focus groups of teens and use surveys to assess the short-term efficacy of the online information.

In conclusion, the GirlSmarts website is a beneficial resource that can potentially aid adolescent girls in making healthier decisions in difficult situations. This website, which was found useful by its participants, may be used as a supplement to other educational programs or as a stand-alone source of information. Based on these positive findings, efforts to foster future collaborations should be encouraged. With more widespread use and expansion of this resource, there is great potential to see a decline in high-risk behaviors amongst adolescent girls.

### Authorship and contributorship statement

N Desilva (ND) was involved with the creation of the Girlsmarts website. She then worked closely with K Thill (KT) to obtain IRB approval for this study. KT did a large portion of the data analysis with ND's assistance. ND and KT worked together in the creation of this manuscript.

### Acknowledgments

Thank you to Heather McIntosh and Krista Kezbers for their assistance with statistical analysis and manuscript delineation.

### Funding information

This study did not obtain or utilize funding from any sources.

### Competing interest statement

While this research received no specific funding from any agency, it is with great appreciation that we acknowledge that the Girlsmarts.org website was created by Giantsky Web Designers with the guidance of Dr. Nirupama DeSilva. Funding sources for the website included unrestricted grants from the American College of Obstetricians and Gynecologists and also the George Kaiser Family Foundation.

Nirupama DeSilva MD does disclose conflicts of interest, but none that relate to the topic of this manuscript. She is an educator for Merck and also is an author for Up To Date.

Kathleen Thill MD has no conflicts of interest.

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