



The search for peer advice in cyberspace: An examination of online teen bulletin boards about health and sexuality

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Abstract

The physical, emotional, and psychological changes that occur in adolescence prompt youths to have serious questions about their bodies, relationships, and health that are often personal, sensitive, or embarrassing. Past research has shown that adolescents are often reluctant to consult physicians, peers, and others for personal health questions due to concerns about confidentiality. One new venue for health information is the Internet, which is a promising resource due to its accessibility, interactivity, and anonymity. This study is a snapshot investigation of a popular health support website, which utilized a peer-generated bulletin board format to facilitate the discussion of adolescent health and social issues. Analyses of two health bulletin boards—one on teen issues and one on sexual health—were conducted on the questions and replies found on 273 topics of mainly anonymous adolescents collected over a 2-month period. Results revealed that the questions most frequently posted and viewed reflected interests and concerns about their changing physical, emotional, and social selves: Romantic relationships were the most frequent topic on the teen issues bulletin board; sexual health was the most frequent topic on the sexuality bulletin board. The bulletin boards proved to be a valuable forum of personal opinions, actionable suggestions, concrete information, and emotional support and allowed teens to candidly discuss sensitive topics, such as sexuality and interpersonal relations.

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1. Introduction

Adolescence is a time of many physical, cognitive, and social changes that can prompt numerous health, sexuality, and relationship-based questions among youth (e.g., Joffe, Radius, & Gall, 1988; Klein & Wilson, 2002; Malus, LaChance, Lamy, Macaulay, & Vanasse, 1987). The avenues for finding answers to these questions, however, may be limited because teens often lack knowledge about available medical resources (Dubow, Lovko, & Kausch, 1990) and are often reluctant to reveal personal problems to others (e.g., Ackard & Neumark-Sztainer, 2001; Cheng, Savageau, Sattler, & DeWitt, 1993). Fortunately, the Internet has provided easy access to a low-cost means of both receiving and providing health information. Moreover, it provides a level of confidentiality that could particularly appeal to teens, especially for embarrassing or controversial inquiries. This study investigated the content of two “Teen Issues” bulletin boards found on a popular health support website. The objective was to learn more about the types of health, sexuality, and relationship questions that youths choose to ask their peers online, and the types of advice and support that they receive. A secondary objective was to assess teen interest in different health, sexual, and relationship topics as indicated by the number of times that each topic was clicked on and read.

1.1. *Teen health and sexuality questions*

Although most studies on health- and sex-related informational help-seeking behaviors have been conducted on adults (Boldero & Fallon, 1995), some data are available about teens. When asked what issues they found most distressing, most teens mentioned interpersonal relationships, weight, depression, suicidal thoughts, confusion about the future, and health problems (Boldero & Fallon, 1995; Dubow et al., 1990; Puskar, Tusaie-Mumford, Sereika, & Lamb, 1999; Borzekowski & Rickert, 2002). Older children and teens mentioned wanting to discuss topics, such as physical fitness, stress, nutrition, STDs, alcohol, good eating behaviors, and contraception with their physicians (Ackard & Neumark-Sztainer, 2001; Joffe et al., 1988; Klein & Wilson, 2002; Malus et al., 1987). However, teens often hesitate to request personal health information from their physicians (Ackard & Neumark-Sztainer, 2001; Cheng et al., 1993), and there is evidence that most adolescents do not receive all of the health advice from their health care practitioners that they desire (Boldero & Fallon, 1995; Klein & Wilson, 2002; Malus et al., 1987). Moreover, they report struggling with their lack of knowledge about sexual health and healthy sexual relationships (Andrew, Patel, & Ramakrishna, 2003; Banister & Schreiber, 2001).

1.2. *Teens' reluctance to seek health and sexuality advice*

Confidentiality seems to be of particular concern when talking to others about health (Dunham et al., 1998; Ginsburg, Menapace, & Slap, 1997). One study found that 82% of youths felt that the protection of confidentiality was very important when seeking health information (Rideout, 2002). A survey of 1295 high school students revealed that 58% had health concerns that they wanted to keep from their parents, and 69% had health concerns that they did not want to disclose to friends (Cheng et al., 1993). Adolescents in general were particularly uncomfortable discussing private health issues, such as sexuality and contraception, and younger adolescents in grades 5 through 9 were more embarrassed, afraid, or uncomfortable discussing certain health issues (e.g., menstruation, pregnancy) than were their older peers in grades 10 through 12 (Ackard & Neumark-Sztainer, 2001).

In fact, teenagers often express a fear of discussing sex with a physician because of embarrassment and the potential disclosure of information to parents (Hassan & Creatsas, 2000). Adding to such discomfort, many physicians feel ill equipped to counsel adolescents, and parents often feel inadequate as resources, due to a lack of information, distress in broaching matters of a sexual nature, and confusion about their own sexual attitudes and feelings (Hassan & Creatsas, 2000). It seems that teens want to receive counseling from adults, adults want to be effective resources to teens, but such information exchanges rarely occur (Somers & Paulson, 2000).

Consequently, most adolescents prefer to consult friends and peers on sexual topics (Andrew et al., 2003; Di Iorio, Kelley, & Hockenberry-Eaton, 1999), although there are private health issues that many teens wish to keep from even from their friends (Cheng et al., 1993).

1.3. The Internet as a health and sexuality information resource

Given that teens' concerns about confidentiality seem to be a major barrier to seeking information and help directly from others, teenagers might be better served by the anonymity of the Internet, which would allow them to explore sensitive topics online that they may not want to reveal to parents, physicians, school officials, or acquaintances (McKenna & Bargh, 1998; McKenna & Bargh, 2000; Rideout, 2002). Health information on the Web can be found on Internet web pages, bulletin boards, newsgroups, listservs, and chatrooms (Hsiung, 2000; Sharp, 2000). One study revealed that 18% of online youth looked for sensitive information on the Web, and for teenage boys aged 15–17, the percentage increased to 25% (Lenhard, Rainie, & Lewis, 2001). While these percentages are not huge, they provide ample evidence that the Internet is already being utilized by a fair number of adolescents on issues about health and sexuality. One study in New York City found that across all socioeconomic and ethnic groups, adolescents considered having health information available over the Internet worthwhile (Borzekowski & Rickert, 2002). There is utility in learning more about this phenomenon, which is sure to increase.

Although online health support has potential drawbacks, such as limited access for noncomputer-using populations, potentially inaccurate information, and abusive language or content (a.k.a. "flaming"; Finn & Lavitt, 1994; McKenna & Bargh, 2000; Winzelberg, 1997), on the whole, many find it to be beneficial. For example, 48% of adults that used the Internet for health information said that it improved the way they took care of themselves, and 92% said that the health information found on their last online search was useful (Fox & Rainie, 2000). A survey of adult users of a mental health discussion board in Norway revealed that 75% felt that it was easier to discuss personal problems online than face to face, and the majority reported that they would not have participated without the option of using a pseudonym (Kummervold et al., 2002).

Searching for online health advice from peers has other benefits as well. On the Web, advice is available 24 hours a day (Fox & Rainie, 2000). Unlike face-to-face support groups, online support groups also provide access to information for a potentially large number of participants worldwide (Finn, 1999; White & Dorman, 2001). Gender differences are also minimized; one study of a bulletin board group on depression found a lack of gender differences in the frequency and content of postings, although women tend to have higher rates of depression (e.g., Immerman & Mackey, 2003) and use more medical and psychological help services than do men (Mechanic, 1976; Salem, Bogat, & Reid, 1997). Furthermore, those who are shy about revealing themselves, but still desire information, can view other people's messages without active participation (King & Moreggi, 1998; Winzelberg, 1997).

1.4. Teen use of online health and sexuality support groups

A few studies have been conducted on online health information support groups (e.g., Braithwaite, Waldron, & Finn, 1999; Finn, 1999; Finn & Lavitt, 1994; Greer, 2000), but these studies did not focus on teens. One of the few studies on analyzed questions on reproduction asked by teens in an online format (Flower-Coulson, Kushner, & Bankowski, 2000). In this study, however, responses to teen questions were provided by medical health professionals, rather than by other teens. There appear to be no studies of teen health boards that have analyzed content of both teen questions and responses.

Our study was a qualitative examination of peer health advice bulletin boards for teens; one bulletin board was intended for general teen issues, the other for sexual health. Unlike listservs and chatrooms, bulletin boards have the benefit of having topics organized into readily accessible “threads” (posts by multiple people on the same topic; Hsiung, 2000). We explored both the types of questions posted and the types of responses given on two teen health bulletin boards. We also investigated the types of questions eliciting the most responses as well as views or “hits.” This information is intended to show the types of health, sexual, and social issues that teens ask questions about online, how they respond to their peers’ questions, and how much they access this information.

2. Method

2.1. Bulletin board downloading

We explored the content found on a popular public website that houses over 120 health-related bulletin boards, including issues such as diabetes, autism, and HIV. Two boards on this site are specifically for teens and were used for this study: a general teen issues board and a teen sexual health board. While teens are not prevented from posting questions on any of the adult health boards, the teen boards are specifically created for young people’s concerns. Although the questions posted on these sites tend not to focus on serious diseases (these issues are usually posted on the general bulletin boards for that disease), the sites do provide a venue for adolescents to post questions that may be more socially embarrassing, and in which anonymous peer advice might be desired.

We obtained permission from the administrators of the bulletin board to use their site for research, and approval was also obtained from the institutional review board at UCLA. All of the bulletin boards in this study use screen names instead of real names, and have monitors that intervene to prevent posts that are abusive, unsafe, invasive of privacy, or that contain profanity. However, the content of the questions and responses is apparently otherwise uncensored.

2.2. Bulletin board sampling criteria

Bulletin boards are dynamic entities. The posting of new threads, as well as the addition of new posts to old threads, result in ongoing rearrangement of the boards. Consequently, data collection was limited to a snapshot of the bulletin board threads on the general teen issues and teen sexual health boards in which the last entry was posted between February 6 and April 6, 2003, as accessed and printed on April 7, 2003. This search resulted in 116 threads on the general teen issues board and 179 threads on the teen sexual health board.

Because we were interested in questions posed by adolescents college-aged or younger, we omitted threads initiated by adults 23 or older when possible. Age was determined by self-admission (e.g., “I’m 43 years old”) or inferred by content on the postings (e.g., “I have a teenage son”). If participants did not mention any age information on their post, they were included in the study. Repeated posts and threads started by the bulletin board moderator or immediately stopped by the moderator (e.g., because of inappropriate content) were omitted from analyses. This resulted in a revised total of 103 threads on the general teen issues board and 170 threads on the teen sexual health board (273 threads total). Replies to initial questions sometimes contained adult responses. Because these adult replies were a form of support for the teens, they were retained for analysis. Of the responders, 10.2% identified themselves as bulletin board moderators or adults 23 years or older.

2.3. Analysis methods

2.3.1. Categorization of posted questions

Instead of focusing on individual posters (who cannot be individually contacted, who may have more than one screen name, and who may have posted multiple entries), we decided to analyze the bulletin board data on a “cultural” level, looking at the broad content of the boards across individuals. Content analysis was used to classify the range of topics reflected in the threads. The first author read all 273 of the initial posted questions found on both boards. The main topic of each question was summarized briefly and inductively grouped and collapsed according to similarity of topic to form an initial set of categories. The second author independently took 20% of the threads on both boards and created a separate set of categories. The two category sets were then compared and collapsed by both authors to form the final set of 14 question topic categories: Parents/Adults, Peers, Romantic Relationships, Personality/Mental Health, Grooming, Body Image/Exercise, Physical Health, Sexual Health, Pregnancy/Birth Control, Sexuality—Interpersonal, Sexuality—Techniques, Physical/Sexual Abuse, Drugs/Alcohol, and School. For example, the “Grooming” category contained teen concerns, such as getting rid of body hair and getting body piercings. There were also a number of questions related to sexuality, which were divided into Sexual Health (about the physical functioning of sexual organs), Sexuality—Interpersonal (about interpersonal relationships that involve sex), and Sexuality—Techniques (“how to” questions about sex, and about people’s technique preferences). In order to elucidate the questions posted on the boards, examples of each category are provided in [Table 1](#). Minor edits to spelling and/grammar were sometimes made, and screen names and other identifying information were omitted to protect the posters’ identities.

Each question that started a new thread on the boards was put into one of the 14 categories. Intercoder reliability was calculated by having two coders independently categorize a randomly selected 20% of the threads on each board. The kappa statistic for the intercoder reliability was 0.85, which is in the excellent range (Fleiss, 1981). The content of the two boards was combined for the kappa statistic as well as for most of the subsequent analyses. Disagreements during reliability checks were discussed and resolved, then one of the coders completed coding of the entire data set.

2.3.2. Replies and views for specific questions

The bulletin board system used in this study provided the number of replies posted for each question, as well as the number of times people clicked on the subject heading of each thread to read

Table 1
Question category codes and examples

Thread question category	Examples
Parents/adults	“I’m embarrassed around my mom”; “I lied to my parents about where I was going”
Peers	“I am not mean to anybody but for some reason nobody likes me!! HELP!!! My basketball teammates all don’t like me but I don’t know why. I am always nice to them!!!”
Relationships—romantic	“I feel awkward hugging and kissing my girlfriend with everyone around” “How do I ask a girl out, or at least talk to her?”
Personality/mental health	“I feel like I’m going insane! Sometimes I feel like I want to cry about everything but I just can’t” “I just want to gain the self-confidence to feel better about me. . . where do I start?”
Grooming	“I have a question about shaving ‘down there’” “I am just curious, why do girls get their bellies pierced.”
Body image/exercise	“I would really like to drop 10 lbs in the next 2 months” “I feel so fat compared to some of my friends who wear such small sizes”
Physical health	“Will I get skin cancer if I only go tanning for two weeks?” “I have a problem with a lot of sweat coming from my underarms”
Sexual health	“I have a hooked penis, do you know how to fix this?!? PLEASE HELP ME!!!” “After having an orgasm is it normal to have white discharge looking stuff?”
Pregnancy/birth control	“Just curious, which would be better, the pill or shot for birth control?” “He came on my stomach. . . could it have went inside of me and gotten me pregnant?”
Sexuality—interpersonal	“My boyfriend wants to have sex and I agreed, but now I don’t want to. . . I’m afraid that if I say no he’ll break up with me”; “I really don’t like performing oral sex on my boyfriend”
Sexuality—technique	“Is it normal to kiss someone with your mouth open but no tongue?” “Anyone have tips for keeping the urge of ejaculating down?”
Physical/sexual abuse	“My stepsister. . . was beaten a lot by her uncle when she was young” “He took his hand across my cheek twice. . . what was I to do?”
Drugs/alcohol	“Are there a good number of people that go to high school parties that don’t drink?”
School	“Should I take Human Bio or AP Bio? Which one looks better when applying for college?” “I hate going to school I don’t want to wait til I’m 16 to do homeschooling”

its contents (views) with or without responding. The number of replies and views were used to index the interest level associated with each thread topic. The number of views, however, may not always be applicable, as views are prompted by the brief subject topic headings written by each thread starter, which sometimes did not reflect the true subject topic. Therefore, in the case of views, the topic heading was coded for content without referring to the actual question posted within the thread. Each subject topic heading was coded as belonging to one of the 14 topic categories, or to a 15th category called “Unclassifiable.” For example, a thread topic heading titled, “The Pill” would be classified as “Pregnancy/Birth Control,” but a topic titled, “I need some help” would be “Unclassifiable,” because the main topic is ambiguous. The two authors rated this characteristic for 15% of the data on both boards. The kappa statistic for the authors was 0.76, which is in the good range (Fleiss, 1981). Disagreements during reliability were discussed, and then the first author then rated the entire data set. Only topic headings rated as clearly belonging to a classifiable category were analyzed for number of views.

2.3.3. Categorization of posted responses

Replies to original posted questions were analyzed for content. The two authors used content analysis methods similar to those used for the initial questions to categorize the responses. Two independently formed category lists were collapsed and combined to create a set of 12 response types: Personal Experience, Emotional Support, Concrete Information, Advice, Personal Opinion, Urges Medical/Professional Help, Negative Responses, Requests More Information, New Question, Defends Position, Thanks, and Other. Examples of each reply category (with minor edits to grammar and spelling) are provided in Table 2.

Table 2
Reply category codes and examples

Thread reply category	Examples
Personal experience	“I know what you mean. . . I didn’t start wearing tampons until a couple of years after my period. But I realized how much more comfortable they are!” “My first kiss was at eighteen. And it was well worth the wait.”
Emotional support	“You are a beautiful, lovely individual and you have talents and skills different to everyone” “I’m sure you’ll find that special person and she won’t know just how lucky she is! God bless” “Hope that brings some brightness to your rainy day ☺”
Concrete information	“The whole pap smear consists of them putting a speculum in your vagina to dilate it, so they can see your cervix. It doesn’t hurt, it might be a little uncomfortable, like mild cramps”
Advice	“A cold sore is Herpes, and the only things that will help it go away is a cream” “You can put an anti itch lotion very lightly there and see how that helps” “Just be yourself and express how u feel to him and u never know he might like u too”
Personal opinion	“Okay. . . this is really a no brainer. USE A CONDOM!!!!” “I don’t think zits would turn me off. Lousy personality would” “I don’t think weight matters just as long as you’re a healthy person”
Urges medical/prof help	“Talk to your doctor. He or she will be able to write you a prescription for something that will take care of this”; “Your friend might need to see a real therapist to deal with this”
Negative responses	“Don’t be talking ‘bout how you ain’t superficial, ‘cuz honey, you ARE” “Forgive me if I don’t give you a standing ovation”
Requests more information	“First of all, what age are we talking about? How long have you known/liked this person? I really need to know a little bit more about the situation before I can really give advice” “Did she just start taking birth control?”
New question	“Now I have another question. Should I tell him in person? Or I can email him about it” “Also, do you need like straight A’s in science in order to go into an AP science class?”
Defends position	“I have a right to my opinion, this being a free country and all.”
Thanks	“I was just pointing it out. . . no need to get all testy. . .” “Thanks to both of you for your reply. I don’t feel as freaked out anymore” “Okay, I will try it soon. Thank you soooo much”
Other/maintenance	“Please don’t double post”

Each response was categorized into one or more of the applicable categories. Interrater reliability was calculated by having two independent coders (the two authors) categorize 20% of the responses for whether each of the reply types was present or not present. Kappa coefficients for 11 of the 12 reply type categories ranged from 0.60 to 0.98, $M = 0.76$, all of which fell within the good to excellent range. Because the kappa statistic for the category “Negative Responses” was relatively low after several iterations, it was decided that for this particular category, both coders would code the entire data set, and any disagreements would be jointly discussed. Further disagreements were decided by a third party (7.3% of the responses). One of the authors then used the 11 remaining categories to code the data set.

3. Results

During the course of this study, 452 different screen names were used to post questions and/or responses on the boards. Of the 452 posters, 181 posted questions, and 393 posted responses, for a total of 273 questions and 1752 replies. Of those who posted questions, each poster contributed an average of 1.5 questions ($SD = 1.1$). Of those that posted responses, an average of 4.5 responses were provided ($SD = 11.6$). As shown by the large standard deviations, bulletin board users varied greatly in their number of posts. Most people asked just one or two questions (88.4%), but others asked six or even seven questions during this time (2.8%). In terms of replies, most people posted 1–3 replies to questions (73.5%), but 6.1% replied over 10 times. Because of differential numbers of postings by different screen names and the possibility that different screen names sometimes belong to the same person (i.e., lack of independence of the data), we limited ourselves to descriptive statistics.

3.1. Question types

Tables 3 and 4 show the total number of posts, percentage of posts, mean number of replies, and mean number of views for each of 14 question types for the general teen issues and teen sexual health boards.

As might be expected, frequency analyses revealed that the general teen issues board and the teen sexual health board differed in the frequency of types of questions posted. On the general teen issues board, questions about romantic relationships were most frequently posted (e.g., tips for asking someone out, having feelings for two people at once, etc.; 36.9%), followed by general questions about physical health (14.6%) and questions about body image and exercise (10.7%). The least popular questions referred to issues of physical/sexual abuse (1%) and the interpersonal aspects of sex (0%). In the teen sexual health board, the most frequently posted questions were about sexual health (41.8%) and included questions about topics, such as ejaculation problems, penis size and shape, menstruation, and vaginal infections. Questions about pregnancy/birth control (22.9%) and sexual techniques (11.8%) were also frequently posted. No questions were posted regarding mental health, parents/adults, or drugs/alcohol.

When we examined the number of replies and views elicited by each question type, a slightly different story emerged. For the teen issues board, questions about body image and exercise solicited the most replies ($M = 10.9$ replies per question). Posters were least likely to reply to questions about parents/adults ($M = 2.5$ replies per question). For the sexual health board, questions about grooming ($M = 11.1$ replies per question) garnered the most replies. (The School category also had 11 replies. However, this category had only one question posted, so it may not be a typical response rate.) Posters were least likely

Table 3
Frequency of question topics and mean number of replies/views by question topic on the teen issues bulletin board

Question type	Total (<i>N</i> = 103)	% of Total	<i>M</i> # of replies	<i>M</i> # of views
Romantic	38	36.9	4.5	152.0
Physical health	15	14.6	4.3	130.5
Body image/exercise	11	10.7	10.9	164.8
Grooming	7	6.8	5.4	168.8
Personality/mental health	6	5.8	5.5	168.8
Parents/adults	6	5.8	2.5	142.0
Peers	5	4.9	7.4	234.0
Sex, technique	4	3.9	5.5	212.2
School	4	3.9	4.8	125.7
Drugs/alcohol	2	1.9	4.5	176.3
Pregnancy/birth control	2	1.9	3.5	175.0
Sexual health	2	1.9	3.0	149.5
Abuse	1	1.0	6.0	N/A
Sex, interpersonal	0	0	N/A	N/A
Total/mean total	103	100	5.3	158.1

Standard deviations for means were large at times, often due to small sample sizes for Tables 3 and 4. Further information about standard deviations is available from the first author.

to reply to questions about peers ($M = 4.0$ replies per question), but once again, this category had only one question posted.

The number of views also varied by question type. Views refer to the number of times that Internet surfers clicked on a thread to read it, even if they did not directly reply and/or participate. Thus, views may be a rough measure of subject interest in the topic mentioned on the thread title. On the teen issues board, questions relating to peers ($M = 234.0$) and sexual techniques ($M = 212.2$) solicited the greatest

Table 4
Frequency of question topics and mean number of replies/views by question topic on the teen sexual health bulletin board

Question type	Total (<i>N</i> = 273)	% of Total	<i>M</i> # of replies	<i>M</i> # of views
Sexual health	71	41.8	5.4	249.0
Pregnancy/birth control	39	22.9	7.9	112.0
Sex, technique	20	11.8	8.4	364.9
Sex, interpersonal	16	9.4	8.9	480.9
Romantic	8	4.7	7.0	344.0
Grooming	7	4.1	11.1	510.8
Physical health	4	2.4	8.3	208.7
Body image/exercise	2	1.2	9.0	259.0
School	1	0.6	11.0	N/A
Abuse	1	0.6	10.0	N/A
Peers	1	0.6	2.0	253.0
Personality/mental health	0	0	N/A	161.0 ^a
Parents/adults	0	0	N/A	N/A
Drugs/alcohol	0	0	N/A	N/A
Total/mean total	170	100	5.3	277.1

^a The thread topic for this question was rated as “personality/metal health” for a view topic, but the question type was eventually categorized into “romantic.”

number of average views per question. “School” was the topic that garnered the least number of views ($M = 125.7$). On the teen sexual health board, people were most likely to view questions about grooming ($M = 510.8$) and the interpersonal aspects of sex ($M = 480.9$). People were least likely to view questions about pregnancy/birth control ($M = 112.0$).

3.2. Reply types

Online questions garnered different kinds of replies. To help illustrate the interactive nature of the bulletin boards, and facilitate understanding of our analyses, we have provided an excerpt from a thread we analyzed. Screen names were modified to protect confidentiality.

Topic: Hooked Penis HELP ME!!!! | Page views: 208

KarlZ11: I have a hooked penis, do you know how to fix this?!?!? PLEASE HELP ME!!!

Elfador: what the . . . is a “hooked penis”? you mean ya thing is shaped like a hook?

NickLizzy: Karl, If your penis is truly bent then there is no home remedy for it. You will have to see a doctor.

Orion: Theres nothing wrong with a hooked penis as you phrased it. Everyones unique, and you just got a unique trait below the belt line. Rather than think of it as a fault, think of it as a trophy. I bet some girls actually like guy’s who’s penises are like that. . . might be able to hit that spot ;-)

Wini: Don’t start panicking unless it seriously keeps you from having a normal life—like it make sex absolutely completely utterly impossible, makes it difficult for you to masturbate, makes it hard to urinate, that kind of thing.

As is evident from the excerpt, posters replied to KarlZ11’s distressing question in a myriad of ways, including requests for more information (e.g., “what the . . . is a hooked penis?”), a recommendation to seek medical help, advice (e.g., “Don’t start panicking. . .”), and personal opinions.

Replies for both the teen issues board and the teen sexual health board were collapsed into one analysis. Providing personal opinions was the most frequently used reply type among the web responders (63%). Respondents also provided actionable advice (44%), concrete information (37%), and gave anecdotes about relevant personal experiences (33%). The least utilized responses included the asking of new questions (4%), defending one’s point of view (4%), thanking others (4%), and “other,” which included accidental double-posts and site maintenance posts (2%).

The breakdown of reply types by question type also revealed interesting patterns. For example, the provision of concrete information (e.g., information about anatomy, side effects of medications, resources for further information) was used most frequently for questions on pregnancy/birth control (54%) and sexual health (53%). People who posted replies were also most likely to share stories about personal experiences when replying to questions about drugs and alcohol (67%), mental health (52%), peer relationships (51%), and school (50%). Posters were least likely to share personal experiences on issues about pregnancy and sexuality, and the seeking of professional medical help was most often encouraged for questions regarding physical/sexual abuse (19%) and physical health (17%).

In terms of emotional support, 12% of the responses contained emotionally supportive comments. Repliers were the most emotionally supportive of questions pertaining to parents (33%) and school (23%), but these percentages may be unrepresentative, due to the fact that only six questions were asked regarding each of those topics. Questions about body image (19%), the interpersonal aspects of sex (18%), and mental health (18%) also received many emotionally supportive comments. At the same time, negative comments were rare, and when they did occur, the comments tended to be only mildly offensive.

Although we did not have the resources to verify all of the concrete information given in the replies, posters frequently corrected each other's information within the threads. The following excerpt captures how board participants also corrected one another in certain contexts (see interaction between TraumaGirl and Nymph62). Screen names have been revised and excerpts have been shortened in this example.

Topic: belly button piercing and stomach hair | Page views: 235

Scotinge: I just got my belly button pierced a few days ago and im worried that the little hairs around it are getting stuck in the hole and my skin is healing around it. I'm not sure if this is what is happening, but is it a serious problem if it is?

IMPooH: I have had a few people ask me about this and honestly you have nothin to worry about unless the hair on your stomach is very long. . .

TraumaGirl: You'll be fine, if your really, really, really worried, why don't you wax? I wouldn't freak out though, you'll be fine.

Nymph62: Don't wax or use any lotion near the piercing until it heals! That will hugely increase your risk of infection. I have had my navel pierced for 4 years. And don't think it will heal quickly. Belly buttons can take over 6 months to heal completely. . .

4. Discussion

In general, adolescents tended to use the health bulletin boards most frequently to ask questions related to romantic relationships (teen issues board) and sexual health (teen sexual health board). In addition, the sexual health board was more popular than the teen issues board. This focus on sexuality mirrors the findings in teen chat (Subrahmanyam & Greenfield, 2004). Teenage interest in such topics is not surprising, given that adolescence is a period of physical and sexual maturation. Such changes lead to social processes wherein teens assume sexual roles and develop sexual interests (Smith, Udry, & Morris, 1985). What makes this result interesting, however, is the fact that while teens are reluctant to seek face-to-face advice about sexuality from physicians and others (Ackard & Neumark-Sztainer, 2001; Cheng et al., 1993; Malus et al., 1987), these were the most popular questions posted using an online bulletin board format. Thus, Internet health bulletin boards possibly circumvent the awkwardness associated with asking sexual and relationship questions. The boards also seem to satisfy adolescent needs by allowing teens to candidly discuss issues about relationships and sexuality in their replies to one another.

Different questions prompted varying numbers of replies among web surfers. Questions regarding grooming (teen issues board) and body image/exercise (teen sexual health board) resulted in the greatest number of replies. For the grooming questions, posters liked to describe their own grooming regimens. As for the body image/exercise questions, they often referred to issues of ideal body weight and weight loss, and many posters used the bulletin boards not only to offer advice about how to change one's weight, but also to warn posters about the dangers of eating disorders. As a result, many of these posts contained a lot of back and forth interactions between people with different opinions.

Adolescents' interest in sexuality and interpersonal relations was also reflected in the number of elicited views. Questions referring to the sexual techniques prompted a lot of interest in the teen issues board, and the interpersonal aspects of sex (e.g., problems with boyfriends and girlfriends regarding whether or not to have sex, questions of sexual identity) also garnered considerable interest as measured by views in the teen sexual health boards. As might be expected from a population of adolescents,

questions regarding grooming (body piercing, body hair, etc.) were also of interest, as were questions about peers.

Interestingly, topics that garnered a lot of questions were not necessarily the ones that received the most views, and vice versa. For example, while 23% of the questions in the teen sexual health board had to do with pregnancy and birth control, this topic solicited the least amount of views. Perhaps this is because teens may not want to read about other people's problems with the less "interesting" part of sexuality... pregnancy and birth control. Similarly, while only two questions were posted regarding body image/exercise on this board, this topic attracted the third greatest number of views. This in turn may reflect teens' interest in viewing "tips" from others about how to improve their own body image.

Posters most frequently provided responses that contained personal opinions, actionable advice, and concrete information, all of which are very useful in response to inquiries. Concrete information was given most frequently for questions on pregnancy/birth control and sexual health and contained information, such as the side effects of different birth control methods and the time course of the menstrual cycle. Of interest to health care providers, the urging of medical help occurred most frequently when teens wrote questions about physical/sexual abuse and physical health. The sharing of personal information was also fairly common, particularly when talking about issues such as alcohol/drugs and mental health. Despite the anonymity of the Internet, posters were still least likely to share personal stories about pregnancy and sexuality.

Emotionally supportive comments were also fairly common while the use of negative comments was limited. This may be partially attributable to the fact that the site employed moderators to monitor its content (see Tynes, Reynolds & Greenfield, 2004). (Portions of this paper were presented at the Biennial Meeting of the Society for Research on Adolescence, Baltimore, MD, March 2004.) It is also interesting to note that there were distinct types of people who utilized the bulletin boards. While some posted one or two targeted questions or responses, "super users" posted many replies in response to people's questions, and countless others read questions and replies without ever participating. Future research might investigate the psychosocial benefits received by different types of bulletin board users and uses.

The results of this study provide a snapshot of the Web behavior of adolescents seeking advice on electronic bulletin boards for peer advice about health and interpersonal relationships. There are a number of limitations to this study that should be addressed. First of all, because of the availability of other health boards on this site (e.g., drug addiction boards, acne boards, etc.), teens may have posted questions about these issues on available boards that were more specific to their problems. There were also a very limited number of questions referring to problems of sexual identity. Gay and lesbian youth may have been underrepresented on this bulletin board, perhaps because they may choose to post their concerns on other forums. Because of the anonymity of the bulletin board format, it was also impossible to confirm the ages of individual posters. Finally, this board is only one of hundreds that exist on the Web. More research needs to be done to examine the content of other teen bulletin boards in other domains of teen life.

While the findings are limited to the contents of one website, it is clear from this example that bulletin boards are being actively used by adolescents to ask a variety of sensitive questions online. Furthermore, the responses received from their peers are rich with personal opinions, advice, and concrete information, and are often emotionally supportive. In the future, interventions that capitalize on these qualities can be developed for teens in different health contexts. Health care providers may help by increasing adolescents' awareness of these sites, or actively participating to ensure that sites provide supportive and accurate information. Active participation by health care professionals on such sites is of particular concern, as noted by instances in which peers were unable to completely

understand a question, or could not arrive at a solid answer to a specific question. Comparative studies of different bulletin board advice sites should be conducted (for example, sites without moderators may contain more aggressive posts), as well as comparisons with health advice provided in face-to-face, telephone, and online contexts. Analyses of the quality and medical accuracy of online health advice from teens would also be informative. Finally, future studies may directly address the effectiveness and desirability of the Internet as an anonymous information and support source through interviews and surveys of youths. Expanding our awareness of the constantly evolving health-related uses for the Internet among teens is certainly an important endeavor for parents, health care providers, researchers, and policymakers alike.

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