

“I know what you are going through”: Answers to informational questions about eating disorders in *Yahoo! Answers*: A qualitative study

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ABSTRACT

The purpose of this study is to enrich our understanding of social question and answer (Q&A) sites as a health information source for teens. To do so we investigated answers to 81 informational questions about eating disorders posted in *Yahoo! Answers*, a social Q&A site. Through a content analysis, we found that users do not always respond to eating disorder questions with credible, factual information, even if the need for it was expressed in the question. The findings suggest that people who pose questions in *Yahoo! Answers* use it as a social and emotional scaffold rather than an informational source, even if their questions are couched in terms that suggest they are seeking information. Further, a large portion of the people who answer such questions understand this to be the purpose and rarely provide answers drawn from evidence-based medicine or reliable, credible sources for health information. Through the investigation of the answers to questions on a health topic that is prevalent amongst teens, this study deepens our understanding of the health information behavior of young people and the quality of the health information they find in *Yahoo! Answers*.

Keywords

Social Q&A, *Yahoo! Answers*, Eating Disorders, Health Information Behavior, Teens.

INTRODUCTION

Teens who suffer from eating disorders are reluctant to speak directly to a medical professional about the extent of their symptoms or to seek diagnosis or treatment (Katzman et al., 2010) and *Yahoo! Answers*, a popular social question and answer (Q&A) site, might be one place they go to fill the information gap. Since eating disorders like anorexia nervosa are, as research indicates (Rosen et al., 2010; Keel, 2010), a common teen health issue, it makes sense to

assume that many of the questions in *Yahoo! Answers* do come from teens. If it is the case that teens use *Yahoo! Answers* as a source for health information, it is important to understand the process of answering questions and ultimately, the quality of the answers that result from the intermediation between questioners and askers in social Q&A.

Reference librarians, experienced as they are in the reference interview, have long understood that the ability to accurately and meaningfully respond to a question is highly dependent on the quality of the dialogue that happens between the questioner and the answerer (Taylor, 1968; Bopp & Smith, 1995; Ross et al, 2002). But *Yahoo! Answers* does not afford the give-and-take of a conversation. A question is posted and the answerer interprets it as best they can, without the cues that might accompany face-to-face communication. Askers cannot answer their own question and answerers are limited to one post per question. This limits the amount of back-and-forth discussion among users. In the absence of visual cues and opportunities to refine the meaning of a question, how then is the actual need of the asker interpreted, especially since not all questions are fact-based “look-up” type queries? In selecting a best answer, the person who has posed the question is often faced with a range of answers to choose from. The asker’s selection of the “best answer” is perhaps evidence that the answerer “got it right”. In other words, they interpreted the information need that was implied by the question.

What is it about an answer that makes the asker select it as the *best*? To answer these questions we looked at the best answers to 81 questions seeking information on eating disorders from *Yahoo! Answers*. Our objective in this study is twofold: 1) to characterize the best answers to eating disorder questions in *Yahoo! Answers* in order to reveal how “question answerers” might have interpreted and responded to questions, and; 2) to determine what the choice of best answer says about how the askers of eating disorder questions in *Yahoo! Answers* interpret and assess relevance, credibility, and meaningfulness.

LITERATURE REVIEW

Social Question and Answer Sites

Yahoo! Answers falls into the category of internet services called social Q&A. Harper et al. (2008) and Choi et al. (2012) offer two comparable typologies of these services. For Harper et al. (2008), sites can be classified as one of the following: digital reference services, “ask an expert” sites, and community Q&A sites. The first two categories encompass web services in which users can get assistance from a librarian (digital reference services) or a party with some level of expertise in an area (“ask an expert” sites). The final category, community question and answer sites, include those sites like *Yahoo! Answers* that bring together peers. For Choi et al., there are four types of social Q&A sites: community-based, collaborative, expert-based, and social. They identify *Yahoo! Answers* as falling within the community-based category, which “constitutes a user-driven environment in which people searching for a personalized answer to an information need post various types of questions to the Q&A community” (2012, A community-based Q&A model sect., para. 1).

Adamic et al. (2008) describe *Yahoo! Answers* as the largest English-language “knowledge sharing” community, with, at the time of their writing, more than 23 million resolved questions. Oh et al. (2012b) estimate that on *Yahoo! Answers* alone, users have resolved more than 97 million health-related questions during the period between the site's inception in 2005 and May 2012. Researchers have estimated that *Yahoo! Answers* has a user base that is greater than 200 million, a base that generates an average of 90,000 questions per day (Harper et al., 2009; Choi et al., 2013). A question is “resolved” on *Yahoo! Answers* when a best answer is selected.

Answers in Social Q&A

Recent studies have begun to investigate the quality and characteristics of answers and the answerers in social Q&A. Nam et al. (2009) cite participation from users as the basis of the success of social Q&A sites, but identify the motivations for answerer participation to be “one of the biggest puzzles” in our understanding of these resources. Through interviews with users of the South Korean Q&A site Naver, the authors found that “by far, the most often stated reasons [for answering questions] were the wish to help others, to learn and review material, or to participate as a hobby” (p. 782). In drawing upon both the work of social Q&A researchers (like Nam et al.) and research on knowledge sharing in the business sector, Oh (2012) outlines the following ten motivations for health answerers on social Q&A sites: self-enjoyment, self-efficacy, learning, personal gain, altruism, empathy, community interest, social engagement, reputation, and reciprocity (p. 545-546). In investigating the types of sources that these (motivated) answerers draw upon to respond to questions, Oh et al. (2008) find that human sources are the most common resources that are referenced.

In his study of the effectiveness of and satisfaction with the social Q&A site, Shah (2011) investigates the immediacy of answering on *Yahoo! Answers*. He finds that more than 30% of questions posted to *Yahoo! Answers* receives a response in less than five minutes and suggests that, in light of the quantity of questions, this pace of response is indicative of the success of the site. His findings suggest, however, that “the answers that satisfy an interrogator take longer to appear,” with about one-third of the designated “best answers given more than an hour after the question is posted” (Shah, 2011).

Of course, not all askers on *Yahoo! Answers* designate a “best answer.” Shah et al. (2012) find that of the questions posted between November 2011 and March 2012, nearly 14,000 questions were “unresolved” questions, or questions that had no best answer. The researchers outlined characteristics of “failed questions” on *Yahoo! Answers*; this research suggests that answerers are less motivated to respond to questions that are unclear, overly complex, inappropriate, or composed of multiple questions.

Oh et al.'s 2012 ASIS&T paper (2012a) is a contribution to the study of answer quality on *Yahoo! Answers*. The researchers asked librarians, nurses, and *Yahoo! Answers* users (40 participants in each of these groups) to evaluate the answers to a set of 400 health questions on the basis of ten criteria: accuracy, completeness, relevance, objectivity, source credibility, readability, politeness, confidence, knowledge, and efforts. Their study aimed to address a second question as well: how do expert groups (librarians and nurses) and users differ in their assessment of information quality (p. 1). The researchers found that two expert groups of users, librarians and nurses, rated the responses as lower in quality than general users included as participants. However, one area of divergence between the two “expert” groups – the librarians and the nurses – was in the area of source credibility, with the nurses rating the sources cited higher than the librarians.

With regard to how askers view quality and select a “best answer,” Adamic et al.'s (2008) findings suggest that there is a preference for longer responses. They also found that the answers from a user with a good track record are more likely to be selected as the best, leading to questions as to whether it is the quality of the answer or the track record of the answerer that influence ranking. In an effort to determine the reasons for the selection of “best answer,” Kim et al. (2007) examined the comments that askers can post in response to the best answer. After eliminating comments that were a “simple expression of appreciations” from their sample, the researchers performed a content analysis of the comments in the context of the questions and the best answers. From this analysis, they developed a framework of best answer selection criteria that is composed of seven values: socio-emotional value, content value, cognitive value, extrinsic value, information source value, and utility. The researchers found that askers most frequently selected best answers based on the socio-

emotional value they offered. In the comments to the best answerers, askers responded to the socio-emotional support value of the best answer by expressing an appreciation for the answerer's attitude, shared experience, and effort. In an *ASIS&T* poster paper the following year, Kim et al. (2008) applied their framework to a set of health questions, best answers, and comments in response to the best answers. The researchers again found that the socio-emotional dimension of a response was the most frequently suggested reason for its selection as "best answer." The second most cited reason was the "utility" of the answer; in these cases, the askers indicated, in their responses to the best answerer, that the offered solution seemed feasible or that the offered solution actually worked. Our study contributes to the existing work attempting to understand the characteristics and values of answers in Social Q&A. Our work is unique in that we focus on the answers to eating disorder questions, a health topic that is relevant to many teens. We seek to understand the nature of the answers that may have an impact on the quality of health information that teens find in *Yahoo! Answers*.

METHODOLOGY

Data Collection

The data set was gathered using *Yahoo! Answers Application Programming Interface* (API), and includes questions on eating disorders that were posted to *Yahoo! Answers* between December 2005 and April 2011. The *Yahoo! Answers* API allows researchers to access data in four ways: "questionSearch," which returns questions that contain specified search terms; "getByCategory," which lists questions by *Yahoo! Answers* category; "getQuestion," which lists the responses to a selected question; and "getByUser," which retrieves questions using a user ID. For further details about how the data set was collected and processed, please see (reference removed for anonymous review).

Data Analysis

The study used a case study approach to analyze the textual communications in a set of 81 question/answer cases. We began with an initial set of 330 questions posted in *Yahoo! Answers* which had been classified into five perceived motivations (or intents) for posting a question about eating disorders in *Yahoo! Answers*. They are: *Seeking Information*, *Seeking Emotional Support*, *Seeking Communication*, *Seeking Self-Expression*, and *Seeking Help to Complete a Task*. We found that the preponderance of questions on eating disorders fall into the category of *Seeking Information*. That is, questions which seek to fill an information gap (or need). Many of the questions, however, had an element of emotional need, beyond the need for factual information. And even when the questioners sought emotional support, a desire for communication, or self-expression, there could be an informational question buried within the broader question, suggesting that there can be more than one perceived intent embedded in one question. We have labeled such questions seemingly addressing two

Table 1. Best Answers to "Seeking Information" Questions (N = 81)

	Single Intention ^a	Mixed Intention ^b	Sub-total
General health-related questions about eating disorders	45	19	64
School assignment	10	0	10
Book recommendation	7	0	7
Sub-total	62	19	Total: 81

Note: a. Seeking Information only

b. Seeking information *and* seeking emotional support, communication, or self-expression

or more needs as "mixed intention" (For a more complete description of the classification scheme, please see (reference removed for anonymous review).

From the set of 330 questions, the data set was reduced to 81 question/answer cases based on three criteria: 1) the question was coded as "seeking information" (In other words, it had to have an information component to it, even if it spoke to other needs as well); 2) the question had been answered and the person who posted the question in *Yahoo! Answers* had selected a "best answer" (excluding those cases where the best answer was selected by 'voting' of other users), and; 3) there was an inter-rater agreement rate of at least two of the three coders (77.6%) in terms of the perceived motivation of each question (as mentioned above, the categories we used were *Seeking Information*, *Seeking Emotional Support*, *Seeking Communication*, *Seeking Self-Expression*, and *Seeking Help to Complete a Task*). The reasoning behind our focus on "best answers" was that the selections might open a window on how the askers perceive relevance, credibility, and meaningfulness of health information – specifically health information about eating disorders - in *Yahoo! Answers*. In our analysis we looked at the "best answers" in relation to the other answers in the question/answer set, as well as follow-up comments from the askers and their "star" ranking of the question, in order to be able to compare, contrast, and gain a richer understanding of the context of the "best answer". We re-located the questions in *Yahoo! Answers* and then printed the entire question/answer set from the web site. The 81 cases of informational questions were then sorted into the following three sub-categories: 1) general health questions about eating disorders, 2) questions identified as relating to a school task (such as writing an essay or preparing a class presentation), and; 3) queries for reading recommendations (more likely for pleasure reading than for a school assignment). The table below shows the types of question/answer sets in the case analysis.

In the set of 81 question/answers cases, there were 19 cases in which two or more coders agreed would fit into the same two or more categories in our classification scheme. We

Table 2: Use of evidence to support Best Answers to “Seeking Information” Questions

	Best Answer is based on personal experience (living with an ED, knowing someone who does, or as a health professional treating an ED)	Best Answer provides an documentary source (name of a book, link to a web site)	Best Answer is unsupported by evidence (neither personal experience nor a documentary source)
General health care question (N=64)	30	11	26
School assignment (N=10)	5	4	3
Book recommendation (N=7)	3	7	1
Total (out of 81)	38	22	30

Note: The first two categories overlap. (N=81)

characterized these questions as “mixed intention” cases. These cases seemingly present two or more information needs to the people answering questions. While this data set is small, it does raise some intriguing questions: When faced with a question that presents two or more intents, how do the people who answer the question decide which one to address, especially given the lack of opportunities to negotiate the question in *Yahoo! Answers*? And what does the selection of the best answer say about what the askers really want out of their question?

Open coding was conducted amongst a set of 29 “mixed intention” and “school task” questions by three coders. From this analysis emerged four new themes: *personal experience*, *emotional support and encouragement*, *information quality*, and *third party intervention*, which we have used to frame our discussion about answers in *Yahoo! Answers*. Then, using a constant comparative method, these categories were applied by one of the coders to the balance of the 81 informational questions.

Finally, in order to draw links between the nature of the question and the quality of the answer, we followed all the links to web resources that were suggested by answerers. In addition, we opened a wide selection (but not all) of the links that Yahoo now embeds in questions and answers in *Yahoo! Answers*, reasoning that these links are part of the content that users of encounter in their search for health information.

RESULTS

In this study, we explored the answers selected as “best” by the people who asked informational questions about eating disorders in *Yahoo! Answers* in order to answer two questions: First of all, what does the answer say about how the *question answerer* interpreted the question, and secondly, what does the choice of best answer say about how the *question asker* interpreted and assessed its relevance, credibility, and meaningfulness? We answer these questions through the lens of four themes emerged from the data: *personal experience*, *emotional outreach*, *mixed intentions*, *information quality*, and *third party intervention*.

Personal Experience

The people who answered the 81 questions in this study commonly drew upon their own experiences, recounting powerful stories about personal struggles with eating disorders or their experience having a loved one affected by

anorexia or bulimia. This is an observation that supports the findings of Oh et al. (2008). Within the smaller set of “best answers”, at least 40% of the people (33 out of 81) who asked the question appeared to view personal experience as adding value to the response, with one questioner thanking the answerer with these words, “Thank you so much for sharing. I fell like you really know what I’m going through.” More than half of the “best answers” to mixed intention questions (11 out of 19) drew on personal experience. It should be kept in mind that not all question and answer sets offered the option to choose an answer based on personal experience. However, when given the choice between an answer supported by personal experience and one that was not, the askers overwhelmingly chose evidence drawn from the lived experiences of the answerer.

The sense that many answerers were speaking from personal experience, even those that did not state so explicitly, was strengthened by the language and tone of the answer, most couched in chatty, non-clinical language that seemed to mimic peer-to-peer conversation. Many of the answerers told a personal narrative and in some cases, it was compelling enough for users to adjust his or her information need after reading an impassioned response by someone personally affected by anorexia. For example, in one question, the asker sends out this query:

“I’m doing a summer project for extra credit and the topic is eating disorders...I’ve heard of teen girls taking up smoking to lose weight and things like that, but I need some more examples/information about dangerous ways that teens try to lose weight.”

The answer designated as the “best answer” begins with, “I’m not completely comfortable saying how I lose weight and what I do because I don’t want to accidentally give out tips to people looks for EDs or to trigger someone who’s struggling.” This, of course, was the asker’s primary informational need. With this caveat, the answerer then tells a dramatic and heart wrenching personal narrative about the symptoms of eating disorders and personal hardships with anorexia and bulimia:

“I’ve struggled with anorexia and bulimia for the past 6 years...My eating disorder has given me MANY horrible physical side effects (heart

problems (including a heart attack last year), dizziness, blacking out, loosing the hair on my head, growing hair on my tummy)[sic]. But as horrible as the side effects are, they're nothing compared to the mental/emotional effects. I flunked out of school last year due to severe depression and bulimia. My friends think I hate them because I never talk to them or go out with them anymore. I'm terrified they're going to make me eat something [...] I know I'll never think I'm skinny enough, no matter how low my weight gets. There's so much more too."

The asker gives the response five stars, the highest ranking possible, and says, "Thanks so much, and I understand you not wanting to give people ideas, but I appreciate the info. I was able to add a lot of my project." While the factual question that was posted was not addressed, the asker demonstrated satisfaction with the response and suggested that his or her task-driven information need was still met, an example perhaps of the asker reaching out to the answerer with sympathy.

For those answerers who have suffered or continue to suffer from an eating disorder, there was a tendency for them to express concern that the asker learn from the answerers' personal struggles. For example, when one poster asks, "Anyone who has/knows someone with anorexia; can you help me?", a number of the answerers passionately implore the asker to avoid the difficulties that they experienced by receiving treatment for her eating disorder before it worsens. One answerer writes, "I really want you to talk to someone about this. I started out the exact same way, and if I had gone any further I might have died. This disease is hell." Another respondent to the same question emphatically states, "You do NOT want to go there...I lost all my friends and my bf because i [sic] of anorexia...Eat wayyyy more, you don't want to get into this trap".

Emotional Support and Encouragement

In our analysis, we saw that the answers, including many of those ranked as "best answer", were empathetic to the asker, a finding that confirms the work of Kim et al. (2007). We saw some form of emotional support and encouragement in at least 20 of the 81 question/answer cases. Not surprisingly, this type of emotionally supportive response was found among the 30 best answers to general health questions in which the best answerer drew upon personal experience as evidence (see Table 2). Given that our study specifically focused on health information questions that could, if the answerer desired, be answered with the objective delivery of facts, it was interesting to find that so many answerers frequently offered sympathy, encouragement and a sense that the weight of the problem was being shared. As an example, "Kelly" begins her answer with "I'm the same way, kind of", thus establishing a connection before responding to the question. In cases where the asker has already self-diagnosed themselves (or a loved one) and wants their judgment confirmed, the "best

answers" validate the perceptions of the askers, perhaps providing an emotional scaffold for making a difficult decision.

Positivity was important. Uplifting messages foretelling a hopeful future weave their way throughout many of the answers. In one question/answer string, where the asker wonders if he or she is "slowly becoming anorexic", positive messages of support flow from multiple answerers: "Please, please, please talk to a counselor, or just talk to an adult you trust. If you get the help you need, you will be ok, I promise", "I'm sure you are beautiful, but doesn't mean anything unless you believe it!", "Things will get a lot better in the long run", "I'm so glad to see you reaching out for help." Not surprisingly, answers that might make the asker feel better about themselves and give hope were usually valued by a "best answer" vote, as in this answer, where the asker is told that "when the fog lifts you'll be able to get your happy life back." Critical answers were usually not acknowledged or in some cases, the asker pushed back with a retort.

Some answerers felt that direct contact with the askers - a more straightforward form of emotional support - was the best way to help. Email addresses are riddled throughout the corpus of answers (the "best answers" and others) with offers to communicate directly with the askers so as to provide stronger support (we are aware of the potential threat some of these offers might bring). Those who indicate personal experience with eating disorders frequently encouraged the asker to reach out directly to them in order to continue the conversation. In some instances, it seemed that the answerer, not just the asker, was using the opportunity to share his or her personal experience as a means to find comfort in another. When one asker wonders how boot camp is "supposed to help out depressed, suicidal, or teens with an eating disorder," the "best answerer" responds by saying, "all I can see is that making everything worse, but hey this is coming from a depressed suicidal teenager with an eating problem. If this question is for you and you need someone to talk to your free to email or IM me." It seems likely, based on the answerer's own disclosure, that the benefit of having this continued communication would not be one-sided.

Mixed Intentions

In classifying the nature of the questions, we encountered questions where the intent was multi-faceted - there were several needs woven into one question. We wondered how people who answer questions in *Yahoo! Answers* interpret the underlying need of the asker when they are faced with a question that suggests two or more intentions or, where the intention is simply not clear. Which intention do they gravitate to? All they have is the question at hand - they can't interview the asker, they can't ask clarifying questions, nor can they test and fine tune the answer. The only feedback they might receive is when the asker chooses a best answer and leaves a brief message of thanks.

A goal in analyzing the responses to mixed-intention questions was to learn whether a primary intention could be identified by the selection of a best answer. The following is a case in which it was readily apparent. In a heartbreaking inquiry, one teen asked, “Could having anorexia as a teen caused my complications? I’m 19 now and have had 2 miscarriages...Out of curiosity, could the past anorexia have caused this?” In our coding of the question, we identified this as a “Seeking Information” question and a “Seeking Emotional Support.” While two answerers provide (uncited) responses to the factual question of whether anorexia can cause complications with a pregnancy, the “best answerer” simply expresses, “hmm awww im [sic] sorry that sucks. :[.” The asker rates this answer as 5 out of 5 stars and responds with another sad-face emoticon. With the selection of this response and the high rating it was given, we can infer that the asker is, by posting this question, primarily seeking emotional support and comfort from someone – anyone – in the faceless *Yahoo! Answers* community.

In our view, when given a choice, askers are inclined toward answers that respond to an emotional need or which help to make a connection to someone else, rather than straight information-only answers. In 12 of the 19 “best answers” to mixed-intention questions, the winning answers were those that made a human connection, by offering sympathy, words of encouragement, or sharing personal experiences. In the remaining seven cases, answers provided did not offer this socio-emotional aspect. As such, the asker’s only option was to select an information-only response.

Information Quality

In this study we deliberately selected questions with an informational component to them. While the most successful answers to eating disorder questions (successful at least in terms of getting the “best answer” vote) seemed to relate to a desire to connect with another human, we wondered about information quality. In voting for an answer that meets a socio-emotional need, do askers forego information quality? Does one necessarily preclude the other? Our assessment is that answerers do try to address informational needs but the quality the information and the evidence they use to support it is very weak or non-existent.

Of the 38 “best answers” where the answerer cites knowledge based on personal experience, only four supported their response with a cited information source. In 30 cases, no references to any source were provided at all – whether it be personal experience or a documentary source. But in 19 of the 81 question/best answer sets, we found 31 links to web sites. These were overwhelmingly commercial. A questionable web site (www.somethingfishy.com) was recommended in four different answers. And in response to questions about support groups, links to another social media site were provided – *iVillage* and *Livejournal* being two sites. *WebMD* and *Medicinenet.com*, two consumer health web sites that bear the Hon Code badge for reliable

health information, were each cited once, as was *Wikipedia*. In one case, the answerer cited statistics and, in proper fashion, pointed the way to where the statistics had been sourced – *DeviantART*, an online social network for artists. The statistics had been drawn from a photograph overlaid with the text “50% of girls between the age of 8 and 14 are dieting” – clearly an odd source for health data.

Answerers often exhibited a high level of confidence in their responses to factual questions, matter-of-factly answering the question without referencing the source of the information. This becomes a concern when considering whether askers, who may not understand the importance of knowing where information is coming from, will take the responses at face-value, even when a response may be incorrect. For example, one asker questions, “Can anorexia be genetic/hereditary?” and goes on to confide that both his or her mother and grandmother had suffered from anorexia. While the “best answerer” responds by stating that recent studies have identified a link, another assertively states, “It’s not genetic, but quite often runs in families, because children can pick it up by watching their parents, even if the mother tries to hide it.” Despite the latter poster’s assuredness, he or she is supplying misinformation; there is, in fact, “increasing evidence from both family and twin studies for a strong genetic component that is shared between AN and BN” (Rosen et al., 2010, p. 1241).

In Oh, Yi, and Worrall’s previously mentioned study (2012a) on the quality of answers on *Yahoo! Answers*, they found that two “expert” groups of users, librarians and nurses, rated the responses as lower in quality than general *Yahoo! Answers* users. However, as discussed above, one area of divergence between the two “expert” groups was in the area of source credibility. On a scale from 1 (lowest) and 5 (highest), the librarian’s mean rating was a 1.79. In our study, an analysis of the sources (or lack thereof) cited by the answerers provides insight into the rationale behind this low rating. One asker, for instance, questions, “Why do people with anorexia usually suffer with depression and insomnia...I need the info for a project.” The “best answerer” responds:

You developed anorexia because you were unhappy or depressed to begin with. And you probably cant [sic] sleep because youve [sic] got so much on your mind.

Source(s): when i [sic] was anorexic, i [sic] slept constantly due to lack of energy from poor nutrition.

Here we see an answerer providing one explanation for insomnia in the body of his or her response, but then contradicting the link between anorexia and insomnia on the basis of personal experience. It is unclear, however, whether any of the explanations provided here are grounded in a medical understanding of anorexia; no source outside of the fact that this answerer has grappled with the illness is cited. And, in some cases, personal experience as a source

may be sufficient, particularly when the asker is asking for emotional support or using *Yahoo! Answers* as simply a conduit for self-expression. With this question, however, the asker has identified a task-driven need, citing a project as the purpose behind the post. The “best answerer” provides anecdotal information in the source line of the response, but offers no source that the asker might cite in a project. In turn, by distinguishing this response as the “best,” the asker is perhaps demonstrating a lack of understanding of the importance of reliable sources in completing an assignment.

Third Party Intervention

Throughout this study we have looked at the question and answer dynamic between two sets of people – those who post questions on eating disorders and those who answer them. A serendipitous finding of this study is that there is a third player involved in the question/answer transaction – Yahoo’s sponsored results, which are visible in browsers that don’t have adblocking plugins. These are hyperlinks to web sites about eating disorders that are automatically implanted by *Yahoo! Answers*. Given that they become part of the answer, even if the answerer didn’t put them there, they are integrally related to the nature and quality of the answer and therefore, need to be considered. As Yahoo explains, the “sponsored results only appear when they’re relevant to the search terms you used” (Yahoo, 2013). This may be so, but the links can lead users to questionable sources, irrespective of the answers provided by the *Yahoo! Answers* community. If, for example, one clicks on the hyperlinked words “anorexic”, a dialogue box pops up showing the results of a web search. The top two results are always advertising. In one case, we saw a link that led to a site selling t-shirts printed with the words, “I eat anorexics”. The results also include a link to a Wikipedia article but we did not see links to reliable health information sites like Medline Plus.

DISCUSSION

Credibility: In the *Yahoo! Answers* environment, askers seem to interpret “credibility” in a way that experts in health information would not. It doesn’t mean askers don’t understand or use this interpretation in other information environments, just that here – in *Yahoo! Answers* – it matters less. Answerers who purported to have personal experience with an eating disorder carried more credibility amongst the askers than those who cited documentary sources. This is perhaps a hopeful sign since the vast majority of the web sites suggested by the answerers were a poor quality. This may suggest an ability to critically evaluate documentary sources but in our view, the selection of answers based on personal experience speaks to something else - a different understanding of what counts as evidence. This is “evidence based medicine” but evidence as interpreted by the patient.

There may also be developmental aspects to the determination of credibility, accuracy, and reliability. The primary task of teens is to become independent adults and as such, they are more inclined to question (and distrust) the authority of parents, teachers, and perhaps even health professionals. For some teens, real credibility may come in the form of “street credibility”, which, as Eysenbach (2008) points out, typically comes from people who are like them and have firsthand experience living with a health problem (p. 138). It may be that for teens, health information from a peer may have more credibility than that from scientific evidence. The high value placed on personal experience in the asker’s ranking of “best questions” may point to an underlying assumption that the people who answer their questions are peers and understand them.

Affective Aspects of Question Answering: Does “bonding” equal relevance? In our analysis we found strong evidence that affect plays a key role in the interplay between questions and answers. One might say that in *Yahoo! Answers* relevance is interpreted through an affective lens. In cases where the intent of the question might be ambiguous (for example, when it is not clear whether the asker seeks information or emotional support), there is a strong tendency for answerers to cue in to an emotional need, even as they attempt to provide factual information. In voting for the best answers to their questions, the askers valued answers with a social or emotional component over those that simply provide information, in some cases even overlooking the advice of answerers who identified themselves as health care providers.

The noise of poor information quality: The quality of information and information sources provided by people who answer eating disorder questions was poor and this should not come as a surprise. But the intervention of Yahoo’s sponsored results does raise new questions. The preponderance of web sites offered in Yahoo’s sponsored results lead to commercial sites selling products and treatment centers for eating disorders. This, coupled with the poor quality of information offered by the answerers,

The screenshot shows a Yahoo! Answers post titled "Resolved Question" with the question "What are some signs of eating disorders?". The asker, "bailey p", describes a 13-year-old sister who is not eating and is being forced to eat. The post is 7 years old. Below the question, there are sponsored search results for "eating disorders" from various commercial sites. The "Best Answer" is chosen by the asker and lists four common types of eating disorders: anorexia nervosa, bulimia nervosa, compulsive overeating, and binge-eating disorder. The answerer, "The Answer Man", notes that the asker's sister is most likely not the last two because they involve eating a lot, but it is possible she has anorexia or bulimia.

Figure 1: A question and best answer to an eating disorder question showing Yahoo sponsored results.

means that some of answers, even those that offer a positive messages, are drowned out by the noise of poor information. And for those people who use *Yahoo! Answers* to seek positive emotional support and interpersonal connections around the problem of eating disorders, it is unlikely that Yahoo's sponsored results are answering their needs since the results are interpreted by machine intelligence which, as yet, cannot capture the affective aspects of questions about eating disorders in the same way that humans can.

LIMITATIONS OF THE STUDY

Although eating disorders is a health issue that is more prevalent during the teen years (and indeed, many of the "askers" in our data set do self-identify as teens), we cannot verify the age of the users of *Yahoo! Answers* with 100% certitude. We acknowledge that the anonymity of the users is a limitation of the study but must note that this is a methodological problem common to research that uses social media data.

CONCLUSION

In this study we sought to characterize the best answers to informational questions about eating disorder questions in *Yahoo! Answers* in order to reveal how "answerers" might have interpreted and responded to questions and to determine what the choice of best answer says about how "askers" of eating disorder questions in *Yahoo! Answers* interpret relevance, credibility, and meaningfulness. Teens who post questions in *Yahoo! Answers* seek information that is peer-based and grounded in lived experiences rather than the factual, analytically interpreted, research-based, and scholarly information produced by experts. Teens who ask questions about eating disorders may risk finding unreliable health information and negative feedback from answerers and yet the very fact that there are so many questions about eating disorders in *Yahoo! Answers* suggests that there is some value to be found in the answers. Finding a kindred spirit – another person who has experienced similar concerns about health and well-being – and those who offer sympathy, understanding, and a positive message seems to be a significant pay-off for teens who are posting questions about eating disorders in *Yahoo! Answers*.

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