

Safe Sexting: The Advice and Support Adolescents Receive from Peers Regarding Online Sexual Risks

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Trigger Warning: This paper discusses sensitive topics, such as sex and self-harm, which may be triggering.

The internet facilitates opportunities for adolescents to form relationships and explore their sexuality but seeking intimacy online has also become a stressor. As a result, adolescents often turn to the internet to seek support concerning issues related to sex because of its accessibility, interactivity, and anonymity. We analyzed 3,050 peer comments and 1,451 replies from adolescents (837 posts) who sought advice and/or support about online sexual experiences involving known others. We found peers mostly provided information and emotional support. They gave advice on how to handle negative online sexual experiences and mitigate their long-term repercussions, often based on their own negative experiences. They provided emotional support by letting teens know that they were not alone and should not blame themselves. A key implication of these findings is that these situations seemingly occurred regularly and youth were converging on a subset of norms about how to handle such situations in a way that supported one another. Yet, in some cases, they also resorted to victim-blaming or retaliating against those who broke these norms of “safe” sexting. Teens were grateful for emotional support and advice that helped them engage safely but were defensive when peers were critical of their relationships. Together, our findings suggest that youth are self-organizing to converge on guidelines and norms around safe sexting but have trouble framing their messages so that they are more readily accepted. In our paper, we contribute to the adolescent online safety literature by identifying youth-focused beliefs about safe sexting by analyzing the ways in which online peers give advice and support. We provide actionable recommendations for facilitating the exchange of positive advice and support via online peer-support platforms.

CCS Concepts: • **Human-centered computing** → **Human computer interaction (HCI)** → **Empirical studies in HCI**;

KEYWORDS: Online Safety, Social support, Adolescence, Teens, Sexting, Digital Trace Data, Qualitative Analysis

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1 INTRODUCTION

Internet affords adolescents opportunities to form new relationships and explore their sexual identities [66]. According to Pew Research, 57% of teens aged 13-17 have started friendships online, and 55% have used social media to flirt with others [41]. Of the 35% of teens that have had a romantic relationship, 8% met their partner online [41]. Yet, seeking intimacy online can also be a stressor for teens [68]. It can pose risks such as exposure to pornography [43], sexting [25],

unwanted online sexual solicitations [47], grooming [24], and abuse [45]. When it comes to online sexual risks and youth [24,71], adults often focus on strangers; yet, research shows that youth are more often victimized by people they know [42,59]. For instance, Whittle et al. [72] found that a majority of minors who experienced sextortion (i.e. threats to expose sexual images to coerce them to provide additional pictures, sex, or favors) knew the perpetrator in person, often as romantic partners. A more recent study by Razi et al. [54] found that adolescents have a more difficult time warding off unwanted sexual advances from people that they know, rather than strangers. Therefore, more research is warranted for understanding online sexual risks from known others, as well as how support could be provided to teens dealing with such issues.

Previous research has found that youth often leverage the internet to seek support and advice on topics like mental health [62], relationships [34], and sexual health [33,62]. Online peer support platforms empower youth to discuss these sensitive and uncomfortable topics [21,63] because they offer accessibility, interactivity, and anonymity [3,4] and enable users to receive advice and support without the risk of gossip or changing existing relationships [3,60]. Researchers [34,54] have previously analyzed adolescents' digital trace data (e.g., social media and online activities) to understand why teens seek support for online relationships and sexual issues. For instance, Razi et al. [54] investigated posts on a peer support platform and found that teens mostly seek support concerning sexting and how to resist pressure to engage when a crush, partner or friend asks them to. However, they did not analyze responses adolescents received to such posts, and they suggested future work should follow up in this direction. Similarly, Kim et al. [34] analyzed responses to posts about romantic relationship difficulties and found adolescents often advise peers to terminate relationships, rather than to seek help or communicate [34]. They suggested that more research is needed to investigate adolescent interpretations of types of social support to understand which are most useful. Thus, we utilized social media trace data from an online peer support platform to address this gap and answer the following questions:

RQ1: *What types of online support and advice (i.e., comments) do teens receive concerning online sexual experiences with known others?*

RQ2: *How does online social support vary based on different online sexual experiences?*

RQ3: *In turn, how do teens respond (i.e., original poster replies) to receiving different kinds of online social support?*

We gathered posts by 721 adolescents (ages 13-17) regarding their online sexual encounters with known others on a mental-health peer support platform, as well as the comment threads under these posts. To answer RQ1, we applied Cuthrona and Suhr's [10,15] framework of social support to qualitatively analyze the 3,050 peer comments on the posts. To answer RQ2, we analyzed the posts to identify the differing types of scenarios for which the teens sought

support. To answer RQ3, we analyzed the 1,451 Original Poster (OP) replies from to understand how teens responded to the support they received.

Our results indicate that when adolescents seek help for online sexual interactions involving people they know, social support is given through Information Support, such as teaching or advice (69%, N=2,103), Emotional Support such as empathy or sympathy (36%, N=882), Esteem Support such as encouragement or compliments (13%, N=404), Network Support such as offering presence or connecting outside the platform (7%, N=199), and Tangible Assistance through carrying out tasks (4%, N=130) (RQ1). Peers provided advice, for example, on how to avoid or mitigate the negative repercussions of online sexual experiences. Often, this advice was based on their own past negative experiences. They also provided emotional support by letting teens know that they were not alone (e.g., “it happened to me too”) and should not blame themselves.

A key implication of these findings is that these situations seemed to occur regularly, and youth were converging on a subset of advice and norms about how to handle such situations in a way that supported one another. Yet, in some cases, peers resorted to retaliating against those who were seen as breaking the unwritten rules of online intimacy, as well as victim-blaming those who they felt broke common-sense norms of safe sexting. Adolescents responded with gratitude to emotional and esteem support, as well as concrete advice that helped them navigate difficult situations or relationships. Yet, comments that gave negative feedback about a teen’s relationship was often taken defensively, and advice to end relationships was often rejected. When peers took a neutral tone and told the teen to calm down, talk about their feelings, and set healthy boundaries, advice were more readily accepted. Together, these findings suggest that youth are self-organizing to converge on guidelines and norms around safe sexting practices but are having trouble framing their support and advice in a way that it is readily accepted.

2 BACKGROUND

In this section, we review the past research literature concerning adolescent sexual development and online sexual experiences and discuss online social support for adolescent sexual experiences.

2.1 Adolescent Sexual Development and Online Sexual Experiences

Risk-taking and impulsivity are benchmarks for adolescence, along with self-exploration and an increase in sexuality [37]. Exploring one’s sexuality is a normal and healthy part of adolescence [66], and emerging technologies provide teens more outlets to explore and gain experience in relationships and sexual experiences [19]. Teens in their early adolescence, however, still need to gain maturity and social experiences, as engaging in sexual activity could have negative long-term consequences [49]. One prevalent type of online sexual experiences for teens is sexting [54]. Though sexting has been widely studied, most literature focuses on motives, prevalence, and negative consequences [18] such as psychological issues [9,37] and cyberbullying [57]. In addition to sexting [37,64], research has focused on risks such as grooming [6,45,71] initiated by strangers or predators, who use techniques such as manipulation and flattery to lure victims into harmful situations [26,71].

As Pinter et al. [51] pointed out, previous research often examines adolescent online sexual experiences by relying on self-reports [37,59], which may not be reflective of their actual

experiences. Researchers have recommended moving away from relying on teens' self-reports of their online risk experiences [52] to incorporate more objective sources, such as digital trace data (e.g. social media posts) to reduce self-report bias. In comparison with self-reports, digital trace data provides an unfiltered view into the online experiences of participants [1,27,55,56]. A few studies [16,31] use digital trace data to investigate sexual risks. For example, a quantitative content analysis of MySpace identified types of information youth may post publicly that can lead to their information being misused [31]. Another study investigated a sample of 200 offenders chatting with undercover officers and carried out an analysis of chats, emails, and social media posts [16]. Both studies focus on risk from strangers. The first example investigated teen experiences, but from a public profile where teens might not share content freely. The second study lacked real adolescent accounts. A more recent study [54] utilized adolescent posts on a peer support platform to understand online sexual experiences for which teens sought support for. It found that although teens received more sexual solicitations from strangers, they were able to more easily reject those requests compared to solicitations from people they knew [54]. Therefore, we extend this research by examining online social support and advice given to teen regarding online sexual experiences with people they already know and for which they seek advice on how to navigate. We utilize digital trace data from an online peer support platform as it is more reflective of teens' online behaviors and experiences than self-report data.

2.2 Online Social Support for Adolescent Sexual Encounters

Previous research [21,63,70] shows online social support for sensitive topics such as sexuality, sexual health, and sexual experiences is important for teens as they might not feel comfortable receiving professional help or talking to their parents about these topics [30,73]. They might also feel limited when talking to peers due to rigid norms and expectations they can circumvent online [20]. Besides, the majority of teens who face romantic relationship difficulties do not seek offline help due to fear of judgment, concerns about confidentiality, or lack of knowledge about available support [34]. They turn to online social support when they feel more comfortable interacting with people they do not know offline [20].

Previous research [3,48] utilized online trace-data for uncovering help-seeking and responses to sexual assault/abuse disclosures, but not all focused on teens' online sexual risk disclosures. For instance, Andalibi et al. [4] used mixed methods to understand self-disclosure on abuse-related posts and the relationship to anonymity on Reddit. They found that throwaway accounts are significantly more likely to engage in seeking support, and men are significantly more likely to use these kinds of accounts than women when posting about abuse. In follow-up work, Andalibi et al. [3] investigated responses to online sexual abuse-related disclosures on Reddit and found that anonymity enables opportunities for reciprocal sensitive disclosures and support. They also found posters that seek direct support are less likely to receive unsupportive or aggressive comments. Moors and Webber [48] analyzed questions and answers on Yahoo! Answers containing disclosures of sexual assault to find patterns of support seeking and responses for sexual assault victims. They found that survivors abused by people close to them when they were under the age of puberty utilized the medium the most.

Other researchers [63] examined teens' online peer responses to sexual health and relationships. Kim et al. [34] analyzed anonymous responses to posts about relationship difficulties such as controlling partners and break-ups and found teens often advise peers to

terminate relationships, rather than seek help or communicate [34]. They also found females are given advice to seek help or break up and move on more often than males [34]. Suzuki and Calzo [63] investigated a moderated health support website to understand the types of health, sexuality, and relationship questions teens asked and types of support they received. They were provided advice in the form of opinions (63%), actionable advice (44%), concrete information (37%), personal experiences (33%), and emotionally supportive comments (12%). Kim et al. [34] suggested more research is needed to investigate teen interpretations of different advice and support to understand which are valid and useful.

Overall, the CSCW community has a longstanding history of studying how people seek and receive support through computer-mediated communication. This has become a core area of study within the field of social computing. Although previous work provides insights about adolescent support seeking behavior, as well as their responses concerning their sexual health and romantic relationships, they have not specifically investigated teens' online sexual experiences with people they know which our research investigates further. In this paper, we tackle a problem space in the intersection of social support and adolescent online sexual experiences by identifying youth-focused beliefs about safe sexting by analyzing how they give advice and support to others. We contribute to the literature by providing insights about how teens seek support online concerning their online sexual experiences with people they know, rather than with strangers. We provide insight about social support received about these issues, and how adolescents respond to the support they receive. Furthermore, rather than focusing only on problems related to online sexual experiences teens deal with, we analyze support they receive using a social support typology as a lens and discuss how teens respond to this support. Importantly, we utilize digital trace data from teens which could be more reflective of their experiences online than self-reports. We also provide actionable recommendations for facilitating the exchange of positive advice and support on anonymized online peer-support platforms to enable safer adolescent online sexual experiences.

3 THEORETICAL FRAMEWORK OF SOCIAL SUPPORT

We used the framework of social support developed by Cutrona and Suhr [14] who created and validated their social support behavior codes when studying marital dyads. This coding system includes five main types and 23 subtypes of support: **Information Support** includes *Advice* to offer ideas or suggest actions, *Referral* to other people or sources that can help, situation *Appraisal* to reassess or redefine the situation, and *Teaching* in and providing information, facts, or news about situation or skills needed to deal with it. **Tangible Assistance** includes *Loan*, offering to perform a *Direct Task*, or an *Indirect Task*, offering *Presence* through active participation, and expressing *Willingness* to help. **Esteem Support** includes *Compliments*, *Validation*, and agreeing with the recipient's perspective, and *Relief of Blame* to alleviate feelings of guilt. **Network Support** includes *Offering Access* to companions, offering *Presence* to spend time with recipient, and reminding about the availability of *Companions* similar in interest or experience. **Emotional Support** includes stressing closeness and love in *Relationships*, *Physical affection*, promises of *Confidence*, expressing *Sympathy* for the recipient's situation, *Listening* and making *attentive comments*, expressing *Empathy* or personal situation communicating understanding, and *Encouragement* to provide the recipient with hope and confidence, and *Prayer* [14].

This framework was previously used in an online setting by Braithwaite et al. [10] who used it to study messages on a bulletin board to gain more understanding of the support persons with disabilities received. One objective was to determine if an existing taxonomy developed in other social support contexts can, in modified form, account for the diversity of messages posted online. They found Cutrona and Suhr [15] framework to be the most generalizable for online settings [10] compared to Barbee and Cunningham [7] framework that could not be reliably implemented due to its partial reliance on nonverbal messages and overlap among some categories. We selected this framework because Cutrona and Suhr [15] derived their category system from a review of the social support literature and it is generalizable and tested on online settings (e.g., [3,10,13,14]), such as peer support received for sexual abuse disclosures [3]. We adopted this framework to investigate the context of online social support concerning teens' online sexual experiences with people they know. We discuss more in the method section on how we applied this framework for our study.

4 METHODS

In this section, we introduce the data collection methods used in the study, including a description of the dataset, or data scoping process, and the considerations for research ethics. Next, we introduce our data analysis approach, including how we coded social support comments and support seeking posts. Then, we explain how we coded OP replies to the support they received.

4.1 Data Collection

We licensed a de-identified dataset from a mental health peer support platform that caters primarily to adolescents and young adults. To protect the identity of the adolescents included in our data analysis, we anonymized the name of the platform. Like most social media websites, on this platform, users can post content and comment on the posts of others. These interactions are semi-anonymous: users only share a photo and screen name with others. Users have the option to post with their username or anonymously so that the post cannot be traced back to their profile. The dataset included over 5 million posts, 15 million comments, and metadata, such as reactions (e.g., like, heart, mood) between 2011 and 2017. Most posts were in English, but the nationality of the poster was not a variable in the dataset. The platform is moderated, although the ratio of moderators to users is low (0.00007). Users can flag posts or comments they find inappropriate, and moderators review flagged content. Moderators and admins can suspend users, and admins can ban those that breach guidelines. Flagged posts or comments were not filtered out of our dataset.

4.1.1 Considerations for Ethics

As the dataset consisted of open-ended responses on sensitive issues, all researchers completed the IRB CITI Training for working with human subjects before accessing the dataset. Additionally, we submitted a research protocol to our university's Institutional Review Board (IRB). However, they determined this research was exempt from human subjects' review as personally identifiable information such as usernames were removed from the dataset by the service provider before it was shared with the research team. For extra precaution, we made sure the quotes provided in this paper are anonymized and paraphrased: Data was disguised, for example, by removing verbatim quotes that could be linked back to the person, removing pseudonyms used, and introducing false details that do not matter in the context [12]. While the dataset included the self-professed age and gender of participants, we did not need to invoke our status as mandated child abuse reporters during this project. Furthermore, as posts and comments included potentially disturbing content,

we took care to discuss mental health issues with the research team. They were encouraged to take breaks if needed and to discuss concerns or issues as they arose, so that the safety and well-being of all team members stayed intact.

4.1.2 Dataset Scoping

To scope the dataset down to a feasible size for qualitative analysis, we adopted the process from Razi et al. [54]. First, we ran a query to identify posts that a) were made by minors between the ages of 13-17 who are in the transitional stage from childhood to adulthood [74], b) that contained both online terms (e.g. Facebook, Tinder, chat, message, cyber) and sexual terms (e.g., sex, naked, rape, dick, pussy, blowjob, cum). For online terms we searched for popular social media platforms between the years 2011 to 2017 [46]. For sexual terms, we used sexual jargon used by teens [65]. In addition, we read through posts to add more relevant sexual and online terms through an iterative process. This filtered the dataset to 8,163 posts by 6,268 teens. Posts were divided among five research assistants that coded each post for relevancy in pairs.

A post was coded as relevant if: 1) it involved an online sexual risk experience, 2) the experience involved someone the original poster knew personally, and 3) they sought support for the situation. If the post did not meet these criteria, it was coded as irrelevant. The reason for this criteria is that it has been shown that adolescents have the most difficult time rejecting sexual solicitations from people they know [54]. We defined support seeking in line with Barbee [7] who included both direct support seeking (explicitly ask for help) and indirect support seeking (hints that a problem exists). Two independent coders coded 10% of the posts to form a consensus of the categories; IRR (Cohen's Kappa) ranged from a substantial (0.71) to a complete agreement (1.00). We calculated Cohen's Kappa Interrater Reliability that resulted in a substantial agreement (0.71) [61]. After forming consensus, we identified 837 posts as relevant. To be able to analyze what kind of social support teens received concerning these online sexual experiences, and how they engage with the support, we retrieved all the comments (N=4,501) on the relevant posts. 3,050 (68%) of these comments were made by other users and 1,451 (32%) were replies by original posters.

4.2 Data Analysis Approach

In this section, we describe the methods used for our qualitative analysis.

4.2.1 Social Support on Adolescent Support Seeking Posts

We first conducted a thematic analysis [11] of 3,050 comments made by anonymous peers. We prepared a codebook based on the classification of social support by Cuthrona and Suhr [10,15] introduced in section 2.1. The codebook is shown in **Table 1**. We removed some subcategories of social support included in the original classification but not visible in our data because of the online nature of the platform. These included Emotional Support through Confidentiality, and Tangible assistance through Loan and Active Participation through physical presence. We also merged subcategories of social support uncommon in our data. In Tangible Assistance category Access (offer to provide access to new companions) was merged with Companions (remind of availability of companions similar in interest or experience), under Performing Tasks Direct Task (offer to perform a task in response to a need or request) and Indirect Task (offer to perform a task not in response to a need or request) were merged to Performing Tasks. We also added additional codes not included in the social support framework. They included Mood Boosters that emerged from the data as a way to lighten the mood by joking or sending memes. In addition, we added a category for "Other" comments not expressing support. They included negative comments (i.e. trolling, bullying), and empty comments, duplicates and random characters.

Table 1 Codebook for Social Support (N=3050) in Adolescent Support Seeking Posts

Category	Subcategory	Examples
Information Support (69%, N=2,103)	Advice (58%, N=1,210)	"Then it is for the best to talk to him - good luck!"
	Appraisal (55%, N=1,155)	"If he doesn't understand it, then he isn't worth it"
	Referral (6%, N=136)	"Call 911. It will be ok but you should go see a doctor"
	Teaching (2%, N=50)	"If she shows the police, he can get arrested. It's a felony."
Emotional Support (36%, N=882)	Listening (27%, N=326)	"That is interesting"
	Understanding (23%, N=205)	"i was in the same situation as you a couples years ago..."
	Sympathy (16%, N=144)	"I'm so sorry - I hope you feel better <3"
	Encouragement (19%, N=167)	"Stay strong sweetie"
	Phys. Affection (14%, N=122)	"*hugs* there there"
	Mood Boosters* (6%, N=50)	"*blares cop sirens* Allright where is he?"
	Relationships (5%, N=46)	"People need emotional support, and that's a part of a bf/gf job. To actually care"
Esteem Support (13%, N=404)	Validation (71%, N=285)	"ignore max. u did the right thing doll"
	Compliments (22%, N=87)	"np u seem really cool an like a caring person"
	Relief of Blame (21%, N=84)	"honestly its not your fault..."
Network Support (7%, N=199)	Presence (74%, N=148)	"I'm here for you love."
	Companions (28%, N=56)	"Sometimes we feel we're alone in this world... But this platform is a good example that we can still come together."
Tangible Assistance (4%, N=130)	Willingness (88%, N=115)	"If you want to talk sweetie, my kik is [...] xxx"
	Tasks participation (18%, N=23)	"Give me her Facebook and I will call her a f'ing cunt"
Other* (10%, N=294)	Negative* (22%, N=64)	"it's your own fault. You're the one who's stupid."
	Not fitting (78% N=230)	e.g. Empty messages, duplicates or a random characters

* Indicates addition to the original codebook

We allowed codes to overlap or be double-coded. To calculate inter-rater reliability, three coders coded the same 10% of the comments (N=305). Cohen's Kappa ranged from 0.71 to 1.0 (substantial to complete agreement). After Cohen's Kappa was calculated researchers discussed posts they had different codes to come to a consensus. Three research assistants proceeded to code the remaining comments. After initial coding, the first author went through the comments in different post categories to identify emerging themes. These themes were discussed between all authors, and a narrative synthesis was prepared, illustrating results with quotes.

4.2.2 Emergent Support Seeking Scenarios

Next, we conducted a thematic analysis of 837 posts in our dataset. The purpose was to identify issues concerning online sexual experiences with people that they know that adolescents seek support for in peer support platforms (RQ2). To develop the codebook for support seeking posts, three coders sat together to go through and discuss individual posts to come up with initial codes and descriptions for scenarios teens seeking help in. They were discussed between all researchers involved in the project, and similar codes were merged once consensus was reached. The codebook is presented in **Table 2**, ordered by prevalence.

Two coders proceed to code the same 12% of these posts (n=100) to determine inter-rater reliability. Cohen's Kappa ranged from 0.75 to 1.0 (substantial to complete agreement). After Cohen's Kappa was calculated, researchers gathered to discuss posts they had different codes for and came to a consensus.

Table 2 Codebook for Adolescent Support Seeking Posts by Type of Scenario (N=837)

Scenarios	Description	Example Posts
Engaged in Sexting (45%, n=380 posts)	Poster has engaged in online sexual experiences with someone they know, or they have been accused of doing so.	<i>"I like sending nudes and "m safe but my friends tell me to stop... I don't want to feel like it's wrong just because of what they said."</i>
		<i>"There are rumors that I sext and send nudes. How low can people go [...] I don't want to go to school"</i>
Being Solicited to Sext (33% n=276)	Poster is interested or solicited to engage in sexting, or received unsolicited contact	<i>"My boyfriend wants me to send him a nude on Snap. The last time i rrefused he blocked me. What should I do?"</i>
		<i>"is it OK to send half naked pictures to your boyfriend?"</i> <i>"my ex thinks its funny to send his friends to sexually harrass me in messages. Then he asks if we can get back together "</i>
Others' Sexting (22%, N=181)	Poster discusses online sexual experiences of significant other, friend or family member.	<i>"My cousin sent nudes to a guy who turned out to be her ex. He's threatening to send them to others. What do we do?"</i>

Three research assistants proceeded to code the rest of the posts. After the initial coding was complete, summary results of support seeking posts was obtained. First author proceeded to do further analysis of support seeking posts in each category, identifying emerging themes concerning issues teens are seeking support for. These themes were discussed between all authors, and a narrative synthesis was prepared, illustrating the prominent themes with quotes.

4.2.3 Adolescent Responses to Peer Support

The final step in our analysis was to carry out qualitative thematic analysis of 1,451 original poster replies to peer comments under their own posts. This was done in order to find out how adolescents responded to the peer support they receive (RQ3). To develop the codebook for responses three coders sat together to go through and discuss the responses and develop initial codes. Codes were discussed between all researchers involved in the project, similar codes were merged once a consensus was reached. The codebook used is presented in Table 3, ordered by prevalence.

Table 3 Codebook for Adolescent Responses (N=1451) to Social Support

Theme	Subcodes	Example Comments
Engaging (44%, N= 636)	Gratitude (37%, N=233)	<i>"Thank U that was really nice of you☺"</i>
	Other/listening (17%, N=111)	<i>"0-0"</i>
	Question (15%, N=98)	<i>"Have you got kik?"</i>
	Agreement (12%, N=76)	<i>"I guess you're right"</i>
	Connecting (6%, N=40)	<i>"If you want to talk, I'll message you on my actual account"</i>
	Defensive (9%, N=55)	<i>"why are you saying lol it's not funny"</i>
	Amusement (4%, N=23)	<i>"lmaooo"</i>
Explaining (43%, N=631)	Explains situation (77%, N=484)	<i>"I sent him a pic of my face . We talk on kik and my profile pic is me he knows how I look like but he doesn't know my last name"</i>
	Explains Mood (23%, N=147)	<i>"Yeah, I'm just a little annoyed"</i>
Updating (13%, N=184)	Situation unchanged (48%, N=88)	<i>"thank you. it sucks and I feel the same. He says it's all in the past so it doesn't matter. It still gets to me :/"</i>
	Situation improved (22%, N=41)	<i>"Okay I blocked him thanks guys"</i>
	Mood unchanged (26%, N=47)	<i>"lol thanks but I feel really worried"</i>
	Mood improved (4%, N=8)	<i>"Thank you I am feeling better"</i>

We found three themes within posters' replies. *Connecting* included replies from the poster that did not provide explanations or updates but signaled engaging with peers for example by asking questions, providing social media handles and expressing agreement, disagreement, amusement, or gratitude. *Explaining* included offering an explanation to the situation described in the post, or the mood/emotional state of the poster. *Updating* was done when the poster wanted to let the thread know how their situation or the mood/emotional state evolved since the post. Each response by the poster to their post was coded in one column in an Excel file. One response could only be coded into one theme.

To calculate inter-rater reliability, three coders proceeded to code the same 10% of the poster replies to comments under their posts (145 replies). As due to the COVID-19 pandemic the coders were unable to work in the same space and discuss coding in real-time, the inter-rater reliability of responses to peer support was lower than for the peer comments and original posts: Cohen's Kappa ranged from moderate to substantial agreement (~0.5-0.7). After Cohen's Kappa was calculated researchers had an online meeting to discuss posts they had different codes for and came to a consensus. Three coders coded the rest of the replies included in our dataset.

After initial coding, summary results of poster responses was obtained. First author proceeded to do further analysis of adolescent responses, identifying emerging themes. These themes were discussed between all authors, and narrative synthesis was prepared, illustrating prominent themes with quotes.

5 RESULTS

The posts in our dataset were made by 721 unique adolescents aged 13-17. The average age of the posters was 15.5 years. Adolescents whose posts were included in our dataset were mostly females (77%, N=652). Social support comments included in our analysis were made by 1,655 unique users of the platform whose average age was approximately 19 (STD=6.5), the gender distribution is 58% females (N=962), 35% male (N=572), and 7% (N=121) identified their gender as non-binary or preferred not to disclose. Although we scoped the posts based on age, we did not filter the comments on the posts by age. Male users were more engaged in commenting (22% more) on posts rather than posting on the platform. This information was provided with the dataset and came from the users' profiles. Out of the relevant comments only 0.5% (N=15) were flagged by moderators and 0.85% (N=26) comments were deleted. In the sections below, we first present our results concerning the social peer support given in different support seeking scenarios (**RQ1** & **RQ2**). We conclude by presenting our results relating to how adolescents respond to the social support that they receive (**RQ3**). We present our findings in descending order based on frequency.

5.1 Information Support for Negative Outcomes

Information support was the most common category of social support across all scenarios (69% of all comments, N=2103). It was present in 66% of comments to teens seeking support after engaging in sexting (N=855), in 76% to teens solicited or interested to engage (N=879), and in 64% to teens discussing other people's experiences (N=369). Across scenarios information support included comments conveying advice (58%, N=1210), appraising the situation (55%, N=1155), referring to others for help (6% N=136) or offering teaching (2%, N=50). It emerged in posts where teens expressed concern about concrete negative outcomes related to online sexual

experiences, or already experiencing them. Negative outcomes included for example being pressured, sextortion after engaging, partner engaging with others, and privacy breaches such as nudes shared with others than intended.

5.1.1 Appraising Relationships and Giving Advice

Advice was present in 56% of information support given to teens who had engaged in online sexual experiences (N=476), in 62% to teens solicited to engage (N=543) and in 52% to teens discussing other people's experiences (n=191). Situation appraisals were present in 55% of information support to teens who had engaged (N=466), in 51% to teens who were solicited (N=451), and in 65% to teens discussing others' experiences (N=238). Advice was often preceded by, or intertwined with a situation appraisal. Because of this, we discuss these categories together.

Teens that had engaged in sexting and sought to mitigate negative outcomes such as privacy breaches, were helped to evaluate the severity of the situation and their relationships:

"If he pressured, he isn't your friend. You'll be ok your face is not in it, just a lesson" P1: Female, 16 year-old

In cases where the teen experienced negative outcomes such as bullying or rejection after engaging, or if they were not recognizable in any content leaked, they were advised to cease contact and ignore people involved, or block them on social media:

"You can't undo a mistake. Stop texting if he replies, block + ignore" P2: Female, 13-year-old

A reoccurring piece of advice was to urge teens to end relationships deemed unhealthy, such as those with an older partner, or with someone using them for nudes:

"Leave him, he doesn't respect you and i bet he does not love you, just want pleasure" P4: Female, 15-year-old

Teens that had been solicited to engage (but had not yet engaged) were encouraged to evaluate the level of trust in their partner before sexting in order to avoid negative outcomes:

"Do you trust your boyfriend? Are you cool taking a chance that it is sent to others or posted online? If you have even slight doubts i suggest don't do it." P5: Female, 14 year-old

Those who expressed trusting their partner were given concrete advice on how to engage safely. Many considered using services like Kik or Snapchat that allow for disappearing messages. Still, a common advice was cropping out your face from photos in order to leave no evidence. Some suggested leaving something to the imagination, instead of sending full nudes:

"You should wear clothes that hug your figure. Give him an idea of what your body looks like. If you go nude and he breaks up with you, there will be those floating around" P6: Male, 26 year-old

Teens that were not interested in engaging were urged to be honest about their feelings in order to negotiate safe boundaries. Saying no should not negatively impact a healthy relationship:

"If he doesn't respect your feelings he doesn't respect you. If you feel like he'll be angry or pressure you get outta there gurrlll." P7: Female, 16 year-old

Solicitations from people teens were not involved with, such as friends or school mates were typically deemed inappropriate. Commentary often urged teens to block or flag such requests,

and even included advice to make fun of the person, or forward inappropriate requests to others:

“Eww what a desperate guy! Tell him to shove it up his ass, he’s gross.” P8: Female, 20 year-old
“Post it all over social media and send it to his mom” P9: Female, 15-year-old

Teens discussing sexual experiences of others were often dealing with issues involving their significant other, such as them exchanging nudes with people outside of the relationship. This was often likened to cheating in peer comments:

“In my eyes it is considered cheating. I don’t think it’s very faithful” P10: Female, 17 year-old

While some urged the teens to discuss the issue over with their partner, more often they were advised to end things to avoid further heartache:

“Kick him where the sun doesn’t shine and dump him. He’s a complete trash girl. Once a cheater always a cheater. He doesn’t deserve you” P11: Female, Unspecified age

In general, peers helped teens appraise how much damage sexting might pose to their reputation or relationships, and to appraise whether relationships should continue or discontinue. They gave advice to help mitigate concrete negative outcomes related to sexting or to avoid them altogether. Teens solicited to engage were advised to wait until they are ready, and with a person they trust and love. Behavior such as bullying, pressuring someone to engage, sending unexpected solicitations and engaging with multiple partners was condemned. Teens were advised to end unhealthy relationships and to take protective actions, such as reporting or blocking unwanted contacts.

5.1.2 Referring to Adults When in Serious Trouble

Referral to other people or sources for help was present in 7% of information support given to teens that had engaged (N=60), in 6% to teens who were solicited (N=50) and in 7% to those discussing other people’s experiences (N=26). Across scenarios peers advised teens to contact a trusted adult if negative outcomes of online sexual experiences were estimated to be severe, or if there was a potential for severe outcomes in the future. This included situations, such as engaging with a person who is older, sextortion, harassment, or nudes being circulated where they were identifiable:

“The cops can do something. I’m not sure... You could just ignore them. Or tell you parents. It’s embarrassing but not as much as naked you on the Internet” P12: Male, 21 year-old

Most often teens were asked to tell their parents or to contact the police. When experiencing issues such as continuous bullying in class, or photos and rumors spreading around their school, teens were also suggested to contact the school authorities or a teacher they can trust:

“You should have gone to your teacher, they would have sorted it. But you’ve gave him photos of you. If I was you I would go talk to the teacher tomorrow morning” P13: Male, 88 year-old

In the case of depression or suicidal thoughts (expressed by the original poster, or more often someone else they were posting about), peers were often supportive but also advised the teen to turn to a trusted adult or health care professional instead of managing alone:

“She’s 13 so you may want to tell an adult. She’s talking about suicide. If she tries to kill herself she needs to go to the hospital.” P14: Unspecified/Non-binary gender, 14 year-old

In general, teens were advised to contact a trusted adult when peers estimated their situation is so severe that they should not deal with it on their own. In these cases, peers stressed that any humiliation is a smaller risk than the possible harm caused by not doing so.

5.1.3 Teaching about Legal and Technical Issues

Teaching was present in approximately 4% of information support given to teens that had engaged (N=33), in 1% to teens that had been solicited (N=12) and in 1% to teens discussing other people's experiences (N=5). Discussions turned to teaching when peers assessed the teen to lack knowledge about legalities involved in engaging in sexting as a minor. For example, peers taught teens that sextortion is illegal, and they can report the person doing so:

"Report them for blackmail. It is illegal, she'll be arrested for a felony" P15: Male, Unspecified age

Peers also took educated teens about issues such as what constitutes as child pornography, and what the possible legal consequences of distributing child pornography are:

"Not to scare you. :(but depending on where u live sending boobies or nudes is a felony, makes you a sex offender... In some places it's a misdemeanor" P16: Male, 17 year-old

Teens that were interested in engaging but unsure how to best go about it also received information about technical deficiencies of services offering disappearing messages. This included apps like Snaphack that lets users save disappearing messages without senders' knowledge. Teens were also reminded that anything they post online is stored somewhere and there is a chance the content resurface later:

"Ne aware those pix might not be saved by him, but there have been people who hacked snapchat and real ease them. they aren't gone forever" P18: Unspecified/Non-binary gender, 16 year-old

In general, teens were given information about legalities related to sexting, such as what constitutes as sextortion or harassment, and what the consequences of distributing child pornography can be. Those who expressed interest to engage were given information about potential weaknesses of technologies and precautions to take.

5.2 Emotional Support for Hurt Feelings

Emotional support was the second most common category of social support (36%, N=882). It was present in 31% of comments to teens that had engaged (N=403), 25% to teens that had been solicited (N=291) and 32% to teens discussing other people's experiences (N=188). It was present in comments conveying listening (27%, N=326), understanding (23%, N=205), sympathy (16%, N=144), encouragement (19%, N=167), physical affection (14%, N=122), mood boosters (6%, N=52) and the importance of relationships (5%, N=46). It was inspected under posts where teens indicated mixed or distressing feelings related to online sexual experiences such as sadness, anger, confusion, and self-harm or suicidal thoughts.

5.2.1 Attentive Comments to Show Someone is Listening

Listening was present in 35% of emotional support to teens that had engaged (N=139), in 43% to teens that had been solicited (N=124) and in 34% to teens discussing other people's experiences (N=63). Across all scenarios listening included comments signaling someone was there reading the posts, tuning in. Because of the nature of the data (digital vs spoken), listening was difficult to code, however we noted it through comments express someone being interested in hearing more about what teens are going through:

"I'd love to hear what happened next" P19: Male, 14 year-old

In addition, we saw it in small attentive comments that have no purpose but to show that someone is listening them by providing some forms of reactions:

"oh shiTe" P20: Male, 14 year-old

In general, comments signaled the teen that they were not dealing with the situation alone, but someone is tuning in to support and to discuss. Often these short comments led to further discussions and providing the teen additional forms of support.

5.2.2 Sharing Personal Experiences to Say "Me Too"

Showing understanding through personal experiences was present in 24% of emotional support to teens who had engaged (N=97), in 21% to teens that had been solicited (N=62) and in 25% to teens discussing other people's experiences (N=46). Personal experiences were shared to convey peers can relate to what teens are going through, and that they will get over any hurt feelings:

I know how hurtful this is. I've been there and regretted my decisions, but there are more days ahead to look forward to" P21: Female, 30 year-old

For teens already engaged in online sexual interactions, personal experiences were typically used to illustrate possible further negative outcomes if they continue in an unhealthy relationship with someone who treats them badly:

"I've had that happen but I was too stupid and too much of a coward to dump him so he kept bullying me and I sent him nudes.... don't be like me break up before it's too late" P22: Female, 17 year-old

For teens solicited to engage, they were also used to illustrate what can go wrong if they engage without taking necessary precautions, or with someone who is not trustworthy:

"I sent a video to a guy - my boyfriend and others saw it. What a mess... It was nearly posted on Facebook. Still haunts me. I can't say don't do it, it's your life.. Make sure you trust hiim." P23: Female, 14 year-old

In general, most experiences shared emphasized the negative outcomes, and lead to cautionary advice like urging teens to break up relationships before they get hurt. Personal experiences were used to illustrate worst case scenarios if the advice given is not followed.

5.2.3 Encouragement to Demand Respect in Relationships

Offering encouragement was present in 21% of emotional support given to teens who had engaged (N=83), in 16% to teens that had been solicited (N=46) and in 20% to teens discussing other people's experiences (N=38). The peers tried to provide the teens with hope and confidence. Comments conveying encouragement usually emerged related to the need for love and trust in relationships. Because of this we also present them together with comments coded relationships, present in 4% emotional support. In peer comments teens were told to value themselves, respect their bodies and to remember that they deserve to be treated well. This included encouraging teens indicating distressing or negative emotions to remember that they deserve to be treated with respect:

"Keep your head up, guys like that are worth nothing. Just don't hurt yourself remember you deserve better and you're special" P24: Female, 16 year-old

When dealing with cheating partners or solicitations, teens were encouraged to trust their own judgement, to have respect for themselves, and wait until they are in a good relationship:

“Awesome you respect yourself and didn't send nudes. He wasn't worth it. You'll find a boy who will treat like a princess. Give the respect you deserve. Stay strong lovely” P25: Female, 18 year-old

In general, teens were encouraged to have self-respect and to remember they deserve trusting relationships, with a person who respects their decisions. Those going through relationship trouble were encouraged to believe they are better off alone than in an unhealthy relationship.

5.2.4 Expressing Affection and Care

Expressing physical affection virtually was present in 18% of emotional support to teens who had already engaged (N=71), in 12% to teens who were solicited (N=36) and in 8% to teens discussing other people's experiences (N=15). We adapted physical affection from the original framework to capture virtual signs that represent physical affection. Across all scenarios we identified this in comments that included symbols such as X's and O's, or emoji's expressing kisses and hugs. In the following example a peer gives advice, and adds three X's at the end to represent hugs:

“Call him or meet him it's the best way love xxx ... tell him how you feel, if you dont trust him dont do it again!” P26: Female, 16 year-old

In our dataset, messages conveying just physical affection were rare. Instead like in the example above it was combined with another form of social support, such as empathy, sympathy or advice.

5.2.5 Sympathy to Those That Have Been Treated Badly

Expressing sympathy was present in 17% of emotional support given to teens that had engaged (N=70), in 13% to those who had been solicited (N=37) and in 20% to those discussing other people's experiences (N=37). Across scenarios, it was common in posts where the teen was telling their story and venting out feelings, not necessarily asking for help. Peers responded by expressing pity and sadness over what they are going through:

“I'm so sorry :(hope you feel better <3” P27: Female, 13 year-old

Usually sympathy was combined with condemning the actions or the personality of people who wronged the teen:

“What a bag of dicks...I'm so sorry” P28: Female, 13 year-old

“What a douche, forget now. Don't entertain that shit.” P29: Male, 15 year-old

In general, actions that went against codes of conduct of sexting such as pressuring someone to engage, using them for nudes, sexting with others while in a relationship, and sharing nudes with others were condemned. Like in the example above, sympathies were on the side of the person who had been wronged.

5.2.6 Lightening the Discussion with Mood Boosters

Mood boosters such as memes and jokes were present in 4% emotional support to teens that had engaged (N=15), in 7% to teens who were solicited (N=18) and in 9% to teens discussing other people's experiences (N=17). Across categories they were posted to lighten the mood of those indicating feeling blue. They were also seen in posts where the situation was appraised to be more funny than serious and others saw an opportunity to make jokes. Often this was the case

in posts discussing other people's experiences, such as accidentally seeing sexts or nudes meant for others:

"Mommy I just witnessed dad's soldier of love please eyewash ASAP." P32: Female, 17 year-old

In our data, mood boosters such as this were often standalone comments by those who did not continue to engage further in the comments thread, or provide other kinds of social support.

5.3 Esteem Support for a Bruised Ego

Esteem support comprised 13% of all social support (N=404). It was present in 15% of comments for teens that had engaged (N=188), 11% of comments for teens solicited to engage (N=127) and in 15% of comments for teens discussing other people's online sexual experiences (N=89). Across all scenarios it was provided in the form of validation (71%, N=285), compliments (22%, N=87) and relief of blame (21%, N=84). It was inspected under posts where teens expressed emotions like sadness or guilt, or if they were feeling bad about their personality or appearance.

5.3.1 Validating It is Normal to Feel Hurt After Negative Experiences

Validating the perspective of the teen, acknowledging their feelings was present in 65% of esteem support for teens that already engaged (N=123), in 73% to teens that had been solicited (N=93), and in 78% to teens discussing other people's experiences (N=69). It was usually provided to those dealing with negative emotions, for example of sexts were shared more widely than intended:

"Being upset is to be expected, but not the end of the world. I understand hating feeling exposed and vulnerable." P33: Female, 19 year-old

Those teens who had felt pressured to engage, and frustrated that the other person did not respect their decision to not engage, were told it is ok to feel frustrated after being treated that way:

"I know the exact feeling that you just described. I hate when a guy asks me for nudes and they make me feel like shit when I tell them no." P34: Female, 14 year-old

Those that had found out their significant other was sexting with others, were assured it is not acceptable and it is fine to feel mad about it:

"You deserve better than cheaters. you're right, even if it is just msgs, it's cheating." P34: Female, 13 year-old

In general, peers condemned actions of others that caused the teen to have negative emotions related to online sexual experiences such as sharing photos sent in confidence, sexting with others while in a relationship, or pressuring them to engage. They offered validation that it is fine to feel hurt, confused, sad, angry etc. in these situations. Validation was usually combined with other types of support, such as encouraging the teens to respect themselves, or providing them advice on how to deal with the situation.

5.3.2 Relieving the Blame of Those Feeling Guilty

Relief of blame was present in 26% of esteem support to teens that had engaged (N=49), in 21% to teens that had been solicited (N=27) and in 9% to teens discussing other people's experiences (N=8). It was provided to those expressing mixed feelings concerning online sexual experiences, and included comments alleviating feeling of guilt. Some were wondering if engaging will make

them a bad person. Others felt guilty after engaging. Peers assured them sexuality is nothing to be ashamed of, and it is fine to engage with a trusted partner:

“I don't get it!! What's there to be ashamed of? Don't be.” P35: Male, 25 year-old
“Dont be ashamed, you brought him pleasure.” P36: Male, 63-year-old

Teens whose privacy had been breached or that were bullied were reminded that while they could have engaged in a safe way, it still not make them a bad person:

“We all make mistakes. It's what you do about those mistakes. I don't believe that it's your fault, nor that you are a slut, prostitute, etc.” P37: Male, 16-year-old

Some felt guilty if they wanted to turn down a solicitation – They were wondering if engaging is expected in a relationship, and if refusing makes them a bad partner. Peers explained there is nothing wrong in waiting, and if a partner does not understand it is not their fault:

“Tell him it makes you uncomfortable and want to stop. if he continues say you have to go and wait till he apologizes. It's not your fault or anything like that” P38: Female, 15-year-old

In general, teens were wondering if engaging is acceptable, and looking for boundaries to when it is appropriate to engage and when to say no. Peers assured them that while there is nothing wrong in engaging with someone they trust, it is also fine to refuse and their partner should respect that. Relief of blame was often combined with encouraging teens to trust their judgement, and advice on how to engage safely.

5.3.3 Complimenting to Boost Self-Esteem of Those Who Feel Unattractive or Rejected

Compliments were present in 21% of esteem support provided to teens that had engaged (N=40), in 22% to teens that had been solicited (N=28), and in 21% to teens discussing other people's experiences (N=19). It was inspected in posts where teens brought up issues such as low self-esteem and a fear of rejection. These issues might be keeping them from engaging after they were solicited or interested. For others, they emerged after engaging, for example, if their partner stopped replying. Comments often included complimenting their appearance and personality to make them feel better:

“You are stunning! I gravitated to you, such revolutionary potentials! X” P39: Man, 21-year-old

Those whose significant other had engaged with others often wondered if they were not enough for their partner. They were offered compliments, to reassure they are good just the way they are:

“You aren't worthless, you're worth the world - if she can't see that, than she doesn't deserve you. you're amazing xx” P40: Female, 15 year-old

In general, compliments were offered to those dealing with self-esteem issues or feelings of rejection that kept them from engaging, or surfaced afterwards as a result of a negative outcome. Peers attempted to boost their self-esteem by complimenting their appearance or personality.

5.4 Network Support to Form Friendships

Network Support was an uncommon category of social support (7% of all comments, N=199). It was present in 9% of all comments to teens that had engaged in online sexual experiences (N=116), in 4% to teens that had been solicited (N=45), and in 7% to teens discussing others online sexual experiences (N=38). Across scenarios, it was inspected when peers took an

interest in the teen or their story. They might have found the situation interesting, or the teen similar in personality or experiences. Network support was inspected in on comments signaling Presence (74%, N=148): present in 78% of all network support offered to teens who had engaged posts (N=91), in 71% to those that had been solicited (N=32) and in 66% to those discussing other people's experiences (N=25). Presence was inspected in comments offering to be there for the teen and talk further:

"If you ever need anyone to talk to, I'm here for you." P41: Female, 18-year-old

It was also given by offering Companionship (28%, N=56): present in 25% of network support to teens that had engaged (N=29), in 31% to those that had been solicited (N=14) and in 34% to those discussing other's experiences (N=13). Companionship was inspected in comments where teens were asked to contact them privately through the platform or services like Snapchat or Instagram:

"I've been through same. If you want to talk sweetie, my kik is [.]" P42: Female, 21-year-old

In general, network support was provided by offering to connect in more privately through the platform, or through other social media, indicating to the teen that presence and companionship are available from people with similar experiences.

5.5 Tangible Assistance to Retaliate Against Wrongdoers

Offering tangible assistance was the least common category of social support in our dataset (4% of all comments, N=130). It was present in 6% of comments to teens that had engaged (N=77), in 2% to teens that had been solicited (N=22), and in 5% to teens discussing other's experiences (N=31). It was inspected under posts where the teen expressed a concrete negative outcome after engaging.

It included comments expressing willingness to help (88%, N=115): present in 95% of tangible assistance offered to those who had engaged (N=73), in 82% to those who had been solicited (N=18) and in 77% to those discussing other's experiences (N=24). Often commenters expressed they'd like to help in a situation they sympathize with, but are unsure how to:

"I'd love to help. Not sure how" P43: Male, 16-year-old

It also included performing direct or indirect tasks to help the teens (18%, N=23): present in 12% of tangible assistance offered to teens who had engaged (N=9), in 27% to those that had been solicited (N=6) and in 29% to those discussing other's experiences (N=9). Tasks were usually ones that could be carried out online, and involved contacting the person who has caused the teen harm or heartache, for example flooding their inbox with hate mail:

"I Kik'd him and I'm going to beat him" P44: Female, Unspecified age

While expressing willingness to help or carrying out tasks related to the situation was rare, it was visible in posts where the teen was experiencing tangible negative outcomes after engaging. Many times, commenters expressed to seek retaliation by asking teens to share social media handles or names of persons who harmed the teens. Peers were expressing willingness to punish them or taking actual action by contacting or harassing that person back on the teen's behalf.

5.6 Reminding the Teens to Accept Some of the Responsibility

Comments that did not fit the social support categorization comprised 10% of all comments (N=294). They comprised of 12% comments to teens who had engaged (N=152), 8% to those that had been solicited (N=90), and 9% to those discussing other's experiences (N=52). Across scenarios they mostly were duplicates, empty messages, or series of random characters (78%, N=230). However, they also included Unsupportive or Negative comments (22% N=64).

Unsupportive or negative comments comprised 30% of other comments to teens that had engaged (N=45), 16% to teens who were solicited (N=14) and 10% to teens discussing other people's experiences (N=5). They were mostly inspected under posts of those teens that had already engaged and suffering concrete negative outcomes. They were for example urging the teens to take some responsibility of outcomes such as privacy breaches:

"The "shit happens" attitude is probably why you didn't see it coming. You gotta inspect people learn to spot bullshit." P45: Male, 20-year-old

This kind of commentary also occurred when peers appraised the situation, and thought the teen had behaved unacceptably toward others, for example by engaging with someone who is taken:

"You're selfish. How about his girl? Sucks for her. If he would've done the same to you, you would be hurt, right? Plus you shouldn't waste your time, he's playing you. He's your ex for a reason and has a gf." P46: Unspecified age and gender

Negative commentary was also inspected under posts where teens rejected advice given, for example to break up current relationships:

"Stop being stupid. It's not that hard, stop complaining and do it." P47: Female, 15-year-old

We found only 15 comments from our dataset that had moderation flags. Two of these comments are coded as negative/unsupportive in our analysis. One was coded unsupportive, as the commenter mentions that reading that post is waste of his time. The other insulted the teen posting:

"hahahaahahahhaah retarded teenager" P48: Male, 15-year-old, flagged by moderators

Other comments flagged by moderators included those that did not include a negative or unsupportive tone. For instance the following comment was under a post from a girl that expressed her partner does not want her anymore after engaging, and she experiences mental-health issues:

"u don't deserve that hate guys that use girls. I'm not like that u can be happy, take time to find the right guy have sex with yr lover not randos, that treat u bad. no lady deserves that" P49: Male, 19 year-old, flagged by moderators

In general, comments negative in tone were mostly inspected after the teen had already engaged online. Bullying or name calling was not common. Instead commenters were urging teens to take responsibility for negative outcomes that had occurred, or pointing out if they believe the teen had been acting in an inappropriate manner towards others.

5.7 Adolescent Response to Peer Comments

We analyzed 1451 teen responses to comments under their posts and identified three primary categories: Engaging with the peers (44%, N=636), Explaining their situation or mood (43%,

N=631), and Updating peers about how their situation or mood had evolved (13%, N=184). Distribution of teen responses into response categories is displayed in **Table 3** (method section).

5.7.1 Engaging with Commenters and Expressing Gratitude

Engaging with peers was the most common response type. It comprised 46% of responses of teens that had engaged in online sexual experiences (N=305), 43% of those solicited to engage (N=211) and 42% of those discussing other's experiences (N=181). Across scenarios Engaging included expressing Gratitude for support (37%, N=233), making attentive comments indicating teens are Listening and following the discussion (17%, N=111), asking Questions to clarify something (15%, N=98), expressing Agreement with peers (12%, N=76) and Connecting by sharing social media handles (6% N=40). Teens were also responding Defensively (9% N=55) and showing Amusement related to something mentioned in the discussion (4% N=23).

Overall, when teens received Information support or Tangible assistance that helped them navigate a difficult situation such as dealing with unsolicited contact, bullying or privacy breaches, they responded in a grateful manner:

"Thank you so much for your advice, I really appreciate this from the bottom of my heart" P50: Male, 17-year-old

Emotional support provided to those suffering from distressing feelings such as heartbreak or sadness, and esteem support provided to those suffering from self-esteem issues was also met with gratitude. Teens wanted to let peers know how much it means that someone has taken the time to read what they are saying, and connect with them:

"Things u said are really nice. I repeat myself but thank you for taking the time of your day to write those even tho I am just a stranger in the internet." P51: Unspecified/Non-binary, 16 year-old

It was common for peers to advise teens to block or ignore bullies and end relationships that are causing negative outcomes. However, teens often responded in a defensive manner to the advice urging them to cut contact if the person was someone they cared for:

"I know he's done mean stuff but I like him. He's perfect can't get over it" P52: Female, 15-year-old

Teens were more likely to agree with advice when it was to the direction of continuing relationships with people that they had interest in, or that urged them to discuss any issues bothering them:

"I'll ask him why he did it, thanks all of you!" P53: Female, 13-year-old

Teens asked clarifying questions when they did not fully understand advice or information given, or if they wanted to learn more about personal experiences described. Some also pondered about possible consequences if they follow given advice. For instance, a girl expressed she is in love with someone that treats her like a friend with benefits. After peers advise her to move on and focus on school and finding a relationship with someone who loves her, she wonders:

"What if I find someone else that I like, that I developed a relationship with, but she tells me she loves me for real? I'm scared that's going to happen." P54: Female, 15-year-old

Others were asking for further support and validation, when trying to negotiate what are the boundaries related to acceptable online sexual behavior:

*"I try to convince myself it was harmless fun. i mean, it's just tits? Plenty girls do that and worse. I don't judge them because its their choice and I do it too. I just feel like i lack self-respect. I'm not a sl*t, i don't think. Mistakes don't define us, right?" P55: Female, 16-year-old*

In general, across scenarios teens engaged with their peers a great deal. They made attentive comments to show they are tuning in, asked clarifying questions, and reacted with amusement to attempts to lighten the mood. They shared their social media handles with those offering companionship and presence as a form of network support. They reacted with agreement and gratitude towards information support that helped them mitigate or avoid negative outcomes, as well as esteem and emotional support that helped them deal with distressing emotions. Advice to break up important relationships met in a defensive manner, while advice given to discuss conflicting feelings with their partner was more readily accepted.

5.7.2 Explanations to Receive Better Advice

Explanations given to peers comprised 45% of responses of teens that had engaged in online sexual experiences (N=302), 40% of those that had been solicited (N=200) and 45% of those discussing other's online sexual experiences (N=181). Across scenarios teens provided explanations about the concrete situation (77% N=484) or, less often, their emotional state (23%, N= 147).

Teens that had already engaged or were seeking help for a friend often provided additional details of the concrete situation where they experienced negative outcomes, such as privacy breaches in:

"My face isn't in it. i dont think he would tell anyone," P56: Female, 16 year-old

They also provided explanations of reasons they would reject advice given, such as struggles they would have blocking or ignoring someone.

"Blocking would be hard, he knows my snap, Kik, Insta and phone. + we go to the same school."
P57: Female, 14-year-old

Teens that had been solicited or whose partner is engaging with others, provided explanations about the level of trust in their relationship, but also about struggles they had rejecting advances in fear of hurting the other person:

"I've hinted I don't want to do it it but mostly just ignore it.... I don't want to say anything that will make things awkward between us... I can't lose him..." P58: Female, 17-year-old

Providing explanations about mood was less common, across scenarios it was done in cases where the teen indicated distressing emotions on their post, and peers probed the situation further:

"I love him and I'm broken hearted. can't sleep, can't eat, stomach pains and can't concentrate... Having him helped me. I'm worse without him" P59: Female, 16-year-old

In general, providing explanations of the situation was more common than returning to discuss emotions or feelings. Teens often dealt with concrete negative outcomes, and when peers asked clarifying questions to help appraise the situation they answered to receive better information support. In contrast, teens expressing distressing emotions were more likely to be met with emotional support or esteem support, rather than probing questions about their situation, or why they might be feeling the way they are.

5.7.3 Updates on What Happened or What They Did

Providing updates to peers comprised 9% of responses of teens that had engaged in online sexual experiences (N=63). It was more common for teens that had been solicited (17% N=84), and for teens discussing other's online sexual experiences (13%, N=37). Across scenarios, updating occurred when teens were letting the thread know there has been no change in the situation (48% N=88) or mood (26% N=47) since posting. It was less common to report improvement in the situation (22% N= 41) or mood (4% N=8).

Teens returned to the threads to let peers know they had followed advice concerning how to avoid or mitigate negative outcomes, such as blocking unwanted solicitations or bullies in social media:

"I reported and blocked him then changed my username on all media" P60: Female, 15-year-old

Some reported back if their relationships or situation had improved after following advice such as discussing their feelings with their partner, indicating they are feeling better. For instance, after rejecting a romantic partner asking nudes a teen was worried she had been rejected. Peers advised her to ask the boy why it took him a longer to reply and she returns to give a relieved update:

"You were right hehe he said he was sorry that his phone had died :3!" P61: Female, 13-year-old

It was common for the teens to keep engaging if their situation has not improved, or if advice received so far is not helping, for example concerning distressing emotions or refusing solicitations:

"I keep saying to stop asking. But he keeps saying that he would do anything for me, and that he if I really cared about him I would do anything also" P62: Female, 17 year-old

In general, providing updates on the situation or mood that had not changed was more common than returning to give positive updates. In other words, teens were more likely to keep engaging with peers when they were still in need of support and further advice.

6 DISCUSSION

In this section, we first discuss implications for research based on our findings and how they relate to the existing body of work, and then implications for design of peer support platforms for teens. We finish the section by discussing the limitations of our work and paths for future.

6.1 Social Support Received

The most common categories of support were information support (69%) offered to teens trying to mitigate or avoid negative outcomes, as well as emotional support (36%), offered to those experiencing distressing feelings. Emotional support is more likely to be given in stressful circumstances not subject to the recipients' control [13], and as such we believe these results to be in line with both Cuthrona and Suhr [15] work showing information support is the most prominent form of support provided to those experiencing stressful events, and Braithwaite et al. [10], who saw persons with disabilities outside of their control often receive emotional support.

Other forms of support included esteem support (13%), offered to those feeling guilty, unattractive or rejected, to boost their confidence and importance as a person [10] and network support (7%) which included offering companionship outside the platform. Like in previous

research in online communities [10], networks support was more prominent than in the original research [14]. This is not surprising as the platform aims to connect teens to those with similar experiences. Tangible assistance (4%) was the least common category of support in our data: Many expressed willingness to help but were unsure of how to go about it in an online environment. A novel finding was that teens were asking for help to retaliate against persons that have hurt them, and peers responded by carrying out tasks such as harassing them online. While this sometimes emerged as a successful strategy, for example to stop someone from posting photos online, it has potentially negative connotations –Teens were harassing people who harassed them, taking an eye-for-an-eye approach. This is something we have not seen discussed previously, and we believe it warrants more research.

The affordance of the platform provided teens the opportunity to post in threads using their username or anonymously that cannot tie back to their profile, and we saw them actively discuss their online sexual experiences. This aligns with prior research [2,3] showing users are more likely to discuss stigmatizing topics using anonymous ("throwaway") accounts. Our findings resonate with findings from Andalibi et al. [3] who found more support seeking for sensitive topics was detected for users of throwaway accounts. Prior work also suggests that when observing a stigmatizing disclosure online, users might be unwilling to disclose personal experiences in support because of privacy concerns [53,67]. The affordances of the platform may have influenced results in a way that most comments were supportive and there were only a few negative comments.

6.2 Norms of Social Support Varies by Scenario

While support remained the same across most scenarios, we saw variety in information support and emotional support depending on whether teens had already engaged in sexting or not. Teens dealing with negative outcomes after engaging, or who received unexpected or unwanted solicitations were often told to ignore or block persons causing them distress, and to end unhealthy relationships. This is in line with previous research suggesting adolescents often advise others to end relationships, rather than seek help or communicate [34]. Peers shared personal experiences to empathize, and to show negative outcomes are only temporary. In contrast, those solicited to engage were often asked to evaluate the love and trust in their relationship and provided tips on how to engage safely if they choose to do so. Unsupportive comments were rare in our dataset, but mostly targeted those that had engaged in online sexual experiences. They urged teens to take some blame for negative outcomes, which can be seen as a form of victim blaming. As research suggests negative feedback about sensitive topics could leave survivors vulnerable to predators [48], we believe the effects of unsupportive commentary on peer support platforms warrants more research.

Interestingly, while most came to the platform to seek advice on mitigating or avoiding negative outcomes, and their experiences led to cautionary advice, they also reassured each other there is nothing wrong in engaging with someone you care about. Furthermore, they engaged in moral discourse about consensual, ethical sexting (e.g. protection of partner's privacy), emphasized the importance of self-respect, and encouraged each other to be kind, respectful and honest. This supports the finding that online sexual experiences are considered normal, appropriate part of relationships [54]. Furthermore, it suggests peer support can contribute to formation of social norms (i.e. collective representations of acceptable conduct [39]) around online sexual behavior. While the platform empowered teens to engage in

supportive discourse without potentially judgmental adult voice [30,34,73], teens themselves condemned some behaviors as deviant. This included starting too early, engaging with an older partner or engaging with multiple partners. This might be partly due to how platform affordances shape self-disclosure, which existing research supports [2,67].

6.3 Teens Engagement and Expressing Gratitude to Social Support

Teens responded with gratitude to emotional and esteem support, in line with previous research suggesting nurturing social support leads to high recipient satisfaction [14]. It is promising that we observed reciprocity effect where when people share intimate experiences, responses tend to be equally intimate [32], which associates with positive mental health.

Teens also responded with gratitude to information support where their situation was estimated to be less severe than they thought, or that helped them mitigate or avoid negative outcomes. However, they were cautious when advice urged them to approach trusted adults for support. In line with previous research, they were not comfortable talking to adults about these topics [30,73]. Some feared humiliation, others mentioned being afraid adults will not believe them, or will be disappointed. Teens also reacted defensively to advice urging them to end relationships they valued. This illustrates the importance of message framing. Previous research has investigated whether it is more effective to emphasize potential benefits (gains) of accepting healthcare advice, or the negative effects (losses) of not accepting it [58]. Research suggests emphasizing benefits is more persuasive than emphasizing negative effects when accepting advice carries a minimal risk [58]. Conversely, advice emphasizing negative effects is more readily accepted when the risks of *not* taking it are greater than those of taking it [23]. In our context peers met adolescents with cautionary tales and warnings often based on personal negative experiences, and many were not ready to accept their advice, because hurt emotions and the distress of the break-up [44] felt like a greater risk than potential damage an unhealthy relationships [29]. We believe that more research is warranted to investigate the effect of message framing concerning online sexual experiences or teens, and how to best support them negotiate boundary conflicts within relationships [22].

We saw teens actively engaging with the community while they were in need of support, providing explanations or discussing developments. It was less common to provide updates if their situation or emotional state improved. Likely many visit the platform and engage with peers when they are in need of support, rather than treat it as a community they are actively involved in.

Overall, our results demonstrate the potential teens could have powerful social support networks, and we believe that instead of focusing on risky aspects of adolescent online sexual experiences and their negative outcomes (identifying problems), more research should investigate how to improve social support for adolescent online sexual experiences (finding solutions).

6.4 Implications for Design

While peer support platforms are designed to facilitate peer response, it might be difficult for adolescents going through developmental changes [28], to assess the accuracy of information presented, or reliability of persons they engage with. For example, we saw comment threads where adults in their twenties, thirties and even sixties were offering support to teenagers expressing sexual trauma, encouraging them to think they have not done anything wrong in

engaging and complimenting their looks. One solution to protect adolescents and avoid further negative interactions is for peer support platforms to provide robust content moderation and information support. However, it is not always feasible to employ personnel to moderate the whole platform, for example in cases where it is run by a non-profit and there are monetary restrictions present. Another restrictive factor might be the sheer size of the community and the volume of posts and comments to moderate. A more feasible way could be to give users a chance to vote up or down advice. Those shown to provide helpful support could be rewarded with higher ranks to indicate trustworthiness. Collective judgements of social groups have been shown to be more accurate compared with the judgements of an individual [69]. However, retrieving relevant high quality content requires large amounts of manually labeled data (i.e. a lot of users voting actively) [8] which limits its usefulness on small platforms. Furthermore, without moderation focus is on the network, not the content [8]: On social media, witty messages or popular opinions are voted up, while unpopular opinions are less likely to be highly scored [69]. Despite this, we feel investigating the usefulness of voting systems combined with supervision is worthwhile on peer support platforms, where in addition to helping users identify those that provide good advice, it can also help them identify trolls, or users whose advice has been shown to be erroneous or unhelpful.

While teens seeking help for a friend dealing with mental health issues were often referred to a trusted adult, teens who indicated struggling with issues themselves were more often met with emotional support. It would be ideal to have the platform moderated by trained professionals that are able to provide help to teens expressing such serious issues, however, this might be difficult to implement. A more feasible way could be to allow users to flag profiles potentially at risk. This approach has its limitations too. Relying on the network may be susceptible to malicious users with an ulterior motive [69], looking to manipulate the system for fun, personal profit or for mischief. Because of this, supervision would be needed to go through flagged users before taking steps for example to refer them to other sources for help. Self-reporting features could also be embedded, for example asking users using certain keywords in their posts to answer questions about how they are feeling, if they find support helpful and if they still need more help. While self-report of present and past behavior may result in reporting bias [75], combined with activity logs, it could prove valuable and allow moderators to identify those in danger that should be connected to a professional. At the very least, this approach could be used to provide them links to other sources such as mental health hotlines automatically.

Peer support platforms could also try to engage users in voluntary training to enable them to provide support that will be more readily accepted, for example by teaching them how to frame advice. Trained peers could receive perks such as moderator badges, or a certificate stating they have worked as volunteers on the platform. Previous research concerning social support in healthcare and mental health indicated training improves communication skills and increases knowledge of roles, boundaries and supports available, and importance of self-care [35]. Training enables peers to give better support, but also helps them grow [17]. In our context, peer supporters should acknowledge the boundaries of the care they can provide but we certainly see their potential to help develop problem-solving, decision-making, and coping skills. Trained peers could for example provide steps for reporting privacy breaches, or self-care after breakups. In more worrying cases, they should be instructed to contact professionals provided by the platform. We acknowledge that developing and maintaining this kind of peer

training would require resources, but could be feasible for example in collaboration with non-profit mental health organizations catering to teens.

In our paper, we focused on discussing design implications to peer support platforms. However, we believe our results especially concerning teen worries related to sexting and advice on how to engage safely are relevant also to those designing new messaging applications targeting teens, or improving existing ones. We envision features that enable safer sexting for example by allowing to easily obscure faces before sending images when nudity is detected. We would also include features that embody advice and support in the technology teens are using, such as prompts asking them to first evaluate their relationship with the person they want to send nudes to, or checklists of things they can do if they regret sexting, or if they believe a privacy breach. We suggest designing such features in collaboration between adolescents and experts on adolescent sexual health to provide features that are both useful and relatable. Engaging the adolescents in the development would strengthen their participation in issues concerning their own life.

In the end, we wish to point out that from the point of view of children's rights, it is crucial to recognize and acknowledge sexual development as a natural part of adolescence. Instead of trying to control or restrict adolescents' online sexual experiences too much we should aim to enhance their supply of accurate information and offer them opportunities for self-expression and participation combined with adult support and awareness.

6.5 Limitations and Future Work

Posts included in our dataset were made by persons who specified their age to be 13-17, and our results are most generalizable to this age group. More research would be warranted concerning the effects of online social support on different age groups as their concerns for online sexual experiences might be different [42]. Digital trace data included in our analysis rarely contained information about the teen's feelings, motivations, thoughts, and/or struggles in relation to the context in which a post was made. We also rarely saw updates concerning how the situation changed over time. While analyzing this data provided researcher independent glimpse into this topic, other methods are needed for more focused studies. It would be interesting to combine analysis of digital trace data with follow-up interviews to get a richer picture on the effects of online social support concerning online sexual experiences. Qualitative inquiry is fundamentally interpretive so we cannot say we were gathering and generating facts about how adolescents seek and receive support through peer support platforms, and how they respond to it. Instead, we engaged in a process where we noted themes as significant, noted but ignored others as insignificant, and possibly missed some potential themes [40]. We also noticed that females sought support more often than males. In general, boys were more engaged in providing support than seeking it. While this might be partly because women more often seek support than men [36,50], it might also be partly because of issues such as sexual double-standards [38], or slut-shaming [5]. More research could be warranted on gender differences concerning how adolescents seek and receive support on online sexual experiences.

7 CONCLUSION

In this paper, we investigated how adolescents turn to online social support to seek help concerning their online sexual experiences with known others, what types of support they receive, and how they respond to the support. Peers (mostly other adolescents and young

adults) provided advice about how to handle negative online sexual experiences with known others by giving advice on how to mitigate long-term repercussions of such actions, often based on their own past negative experiences. They also provided emotional support by letting the original posters know that they were not alone (e.g., letting them know it happened to "me too") and should not blame themselves. A key implication of these findings is that these situations seemed to occur regularly, and youth were converging on a subset of advice and norms about how to handle such situations in a way that supported one another. Yet, in some cases, peers resorted to retaliating against persons who broke these norms and victim-blaming those who failed to engage safely by telling them to take responsibility for their own actions. Teens replied with gratitude to emotional support and advice that helped them engage safely, however, they reacted defensively when peers were critical of their relationships. Together, our findings suggest that youth are self-organizing to converge on a subset of guidelines and norms around safe sexting practices but have trouble framing their advice. Therefore, in this paper, we contributed to the existing body of knowledge by identifying youth-focused beliefs about safe sexting through analyzing the ways in which peers give advice and support to others. We also provided actionable recommendations for facilitating the exchange of positive advice and support on anonymized online peer-support platforms.

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