"Help Me:" Examining Youth's Private Pleas for Support and the Responses
Received from Peers via Instagram Direct Messages

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ABSTRACT

Although youth increasingly communicate with peers online, we know little about how private online channels play a role in providing a supportive environment for youth. To fill this gap, we asked youth to donate their Instagram Direct Messages and filtered them by the phrase "help me." From this query, we analyzed 82 conversations comprised of 336,760 messages that 42 participants donated. These threads often began as casual conversations among friends or lovers they met offline or online. The conversations evolved into sharing negative experiences about everyday stress (e.g., school, dating) to severe mental health disclosures (e.g., suicide). Disclosures were usually reciprocated with relatable experiences and positive peer support. We also discovered unsupport as a theme, where conversation members denied giving support, a unique finding in the online social support literature. We discuss the role of social media-based private channels and their implications for design in supporting youth's mental health.

Content Warning: This paper includes sensitive topics, including self-harm and suicide ideation. Reader discretion is advised.

CCS CONCEPTS

• **Human-centered computing** → **Human computer interaction (HCI)**; **Social media**; **Computer supported cooperative work**; • **Empirical studies in HCI**;

KEYWORDS

Social Support, Youth, Adolescents, Teens, Instagram Data, Mentoring

1 INTRODUCTION

As social media allows for frequent interactions with multiple social connections, from close friend groups to strangers online, young people have adopted it as a newer means for support seeking [29]. Social media has become ubiquitous for adolescents and emerging adults (the developmental stages between the ages of 13 and 21), where communication with peers happens online more frequently than face-to-face [22]. Outside their immediate social networks, youth also seek support anonymously from strangers online, especially for stigmatized or sensitive subjects that would not be the norm to talk about with people they know [4]. Implied in these behaviors is the need to make negative self-disclosure to receive the necessary support, guidance, and resources, needed for one's sense of well-being and social acceptance [23]. Researchers [39, 56] found that such disclosure behavior is linked with increased social support received and, in turn, improved psychological well-being. Psychological well-being through disclosure can shift depending on the interpersonal characteristics and factors, the topic's sensitivity, the disclosure's level, and the disclosure's authenticity [56]. This relationship between self-disclosure and psychological well-being has emerged as a critical area to examine as social media has become one of the major places where people, particularly youth, increasingly share their emotions and seek social support online [39].

Surprisingly, however, there is limited understanding of how social media provides a platform for youth to find support. A few studies examined youth support-seeking using publicly available social media content, which was also limited to the specific topics of support-seeking behavior, such as sexual experiences [29, 52]. Frison and Eggermont [19] reported how youth seek social support on Facebook using self-reported methods [19]. For adult populations, there have been many self-reported surveys and content analyses on how social support is carried out on social media, specifically on Instagram. Some examples include examining the posts with hashtags related to depression [5], Diabetes (e.g., #T1Dlookslikeme) [32],

or suicide [6]. However, self-reports are prone to social desirability and recall biases [18, 24].

Researchers have focused on analyzing Instagram for its functions around surveillance, documentation, coolness, creativity [58], or self-disclosure in public space [26]. Yet, most studies on Instagram, even outside the context of social support, have analyzed publicly available data. As Goffman's "Presentation of Self" explains [21], public discourse on social media reveals substantially different disclosure levels and presentations on help-seeking and support behaviors, compared to what might be exchanged in private settings. Little research has been done, most notably due to privacy concerns and logistical challenges, examining how support is exchanged in private online conversations, especially among youth.

Social media-linked private messaging platforms (SMPM) (e.g., Instagram's Direct Messaging (DM), Facebook Messenger) can easily go back and forth between private and public spaces, allowing users to communicate privately about publicly posted content without the eye of the public. Studying youth disclosures on SMPMs will help us better understand how peer support happens on social media. In this paper, we investigate the following research questions:

- **RQ1.** *(a) How do youth initiate peer support conversations in private messaging platforms on social media (i.e., Direct Messages, DMs) and (b) with whom do youth engage with?*
- **RQ2.** *What are (a) the topics for which youth sought support and (b) the types of support they received via SMPMs?*

These research questions were formulated and addressed through an investigation of 336,760 Instagram DMs across 82 conversations using a mix of thematic analysis and deductive coding on self-disclosure and social support. We found that the conversations often started for casual reasons, and others were for seeking or offering help. The most disclosed topics included concerns about mental health and relationships, to which others shared relatable experiences and gave informational (e.g., coping strategies) and emotional support (e.g., empathy). Our study contributes to the Human-Computer Interaction (HCI) research community in several ways:

- This is the first study to provide insights into support exchanges shared through the social media-linked private messaging platforms (SMPM) among youth.
- This paper provides insights into dynamics and topics youth discussed in their unmoderated social support exchanges and online self-disclosures of youth followed by implications for design in supporting youth mental health.
- The results bring implications for designing systems based on the unique benefits and potential challenges of SMPM-based support for youth.

2 RELATED WORK

2.1 Social Support Needs of Youth

As youth attempt to be more autonomous from their parents and look for peers for behavioral and social cues to model [43], researchers investigated how peer support might moderate prosocial behaviors [38], schooling [17], physical health such as diabetes

[36] or physical activity [28], or self-acceptance of sexual orientation [59]. For instance, Morrison et al.[43] studied Latino youth's transition to middle school and their involvement in antisocial and prosocial behaviors. They found that social support was a critical predictor of school engagement. Similarly, researchers compared how and when these various sources of support are effective. In a sample of urban youths exposed to community violence, peer support was found to predict lower anxiety [1]. Also, research showed actively engaging with peers online about their mental health concerns was associated with an increased likelihood of seeking formal mental health care [55].

These social support exchanges can be better achieved when there are ample opportunities for self-disclosure. However, given the sensitivity, risks, and stigma of what youth often go through (e.g., sexual identity, risky behavior, unsafe sex), finding ways to enable healthy self-disclosure would be vital in facilitating the support youth needs. It would be critical to understanding healthy self-disclosure and how it related to the effect of psychological well-being and perceived social support.

2.2 Self-disclosure and Psychological Well-being

Yang and Brown [39] presented online self-disclosure and presentation to vary on four dimensions: *Breadth* refers to the amount of self-information revealed; *depth* indicates the intimacy of the presented information (e.g., emotions, weaknesses, etc.); *positivity* reflects how positive or negative the presented information is; *authenticity* relates to how authentic the self-representation is. Recent evidence showed accurate and authentic self-disclosure could benefit general well-being and improve self-esteem [54]. Genuinely disclosing oneself can predict greater perceived social support and increased support being enacted by others [35]. On the other hand, inaccurate and inauthentic self-disclosure can increase perceived stress and impair social connection [25].

The effects of self-disclosure on well-being largely depend on the valence of the content disclosed. *The capitalization process* [20] explains how people rearrange their memories related to the content being shared by others. This process would make people feel more positive when hearing positive emotional disclosure and more negative when hearing negative emotional disclosure [69]. Internet culture is biased by the 'positivity norm,' where people share positive content more than negative disclosures [67]. Positive disclosures are often reinforced with positive feedback and more social support, leading to feelings of connectedness [5]. Negative disclosure, on the other hand, may discourage others from responding because of the positivity norm and the capitalization process [10]. Such lack of feedback can lead to feeling ostracised, and reduced well-being of the person who shared negative disclosure [39].

In this light, such bias and reinforcement toward positive self-disclosure in online social environments bring challenges to psychological well-being, especially for populations like youth, who go through many personal psychological challenges yet pervasively use social media for much of their communications with peers [62]. Researchers consider online authenticity often unreachable or possible only with a personal cost, especially for those with marginalized identities and challenging life experiences [27]. These

findings reveal that we need safe platforms for youth to share authentic, negative disclosure responses with appropriate support. To such a platform, there needs to be a better understanding of how youth disclose themselves to garner and receive support.

2.3 Online Peer Support for Youth

Peer support has been increasingly investigated in the HCI literature and within SIGCHI research community [4, 9, 46], specifically in how people with similar interests exchange support over social media through videos, blogs, and online forums, or Twitter [8]. Past research showed the importance of support being exchanged through social media and how technology design can further facilitate positive experiences, leading to heightened perceived support, increased quality of life, or increased self-efficacy [64]. However, the populations examined mainly have primarily focused on the adult population, often for supporting specific health, such as chronic illness [68].

HCI researchers have also investigated the design and implementation of moderated peer support to facilitate support for youth in specific situations such as the youth with intellectual disability [7], children surviving cancer [37], or youth living with human immunodeficiency virus (HIV) [34]. Although depending on the context, peer support could have different effects; for instance, it could be distressing when the support is judgemental and disrespectful [63]. Therefore, studying how youth peer support happens in social media without moderating specific topics is essential.

Finally, a few studies [19, 44, 48] that considered social support for youth used self-reported data such as surveys or interviews, which are prone to recall and social-desirability biases [18, 24]. For instance, Frison and Eggermont [19] conducted a survey and structural equation modeling. They found that daily stress positively predicted youth social support seeking through Facebook, and if the support was received, it decreased adolescents' depressed moods. But in case it was not precise, their depressed mood increased. There have only been a few studies [15, 29, 30, 52] on youth population online peer support using their digital trace data, but they are on specific issues such as youth online sexual risks [14, 15, 29, 52]. Thus investigating support-seeking behaviors using social media trace data would give unfiltered insights into the natural interactions of youth.

Accordingly, as it is essential to investigate digital trace data to get an unfiltered view of how social support happens in online spaces, studies examined exchanges that are publicly available, such as comments to YouTube videos [45], Reddit posts [13], or other publicly available online forums [61] partially due to logistical constraints of data collection and privacy. However, these approaches provide limited insights into how support is sought and given in private spaces. Public conversations fundamentally differ from those happening in private space [42], and we know little about how support is being exchanged in private conversations, especially among youth. Collecting private user data is challenging due to the privacy and ethics of human subjects, especially for youth, since further measures such as parental consent and assent for minors younger than 18 and reporting potential child abuse should be accounted for [2, 50].

In this paper, we address this significant gap in the literature regarding how youth exchange peer support through private conversations on Instagram.

3 METHODS

In this section, we explain our dataset, report youth participants' demographics, how we filtered relevant conversations for qualitative analyses, how we coded for how the conversation started, the relationship of participants, the topics of self-disclosure, and support types.

3.1 Dataset and Ethics

This project is a secondary analysis of a dataset [51] originally collected for a project on unsafe and risky conversations on Instagram among youth. For more information on how the dataset was collected and how challenges regarding ethics and data privacy were addressed please review [51]. The dataset included Instagram Direct Messages (DMs) from 189 youth ages 13-21 who were English speakers based in the United States and had an active Instagram account currently for at least 3 months during the time they were a teen (ages 13-17), exchanged DMs with at least 15 people, and had at least 2 DMs that made them or someone else feels uncomfortable or unsafe. The participants filled out an online survey about their social media and personal experiences and demographics and were asked to download their Instagram data and upload it to a web-based system.

We took the utmost care to protect the privacy and confidentiality of the participants and other conversation members in the DMs and made sure to remove identifiable information when presenting the results. As stated in the dataset's IRB protocol and consent forms, we are mandated child abuse reporters, but we are not actively reading all conversations to find any sign of potential child abuse/neglect. For other risk types such as suicide ideation, since we were using historical data, it did not constitute an imminent risk to the youth. In these types of conversation threads that we found, we made sure to look at the rest of the thread to check if the conversation member is fine and also considered the time stamp. In the results section, we anonymized and altered some of the quotes (e.g. the ones including personal life stories) to ensure participants' confidentiality. In paraphrasing quotes, we tried to keep youth's original informal online chat format, to reflect the natural way of how youth chat online. Since they are private conversations, they are not reverse searchable.

3.2 Participant Demographics

The youth participants had an average age of 16 years old and were mostly female (69%), some were males (21%), a few were non-binary (9%), and the rest choosing not to provide their gender. Participants' sexual orientations included in order heterosexual or straight (47%), bisexual (29%), homosexual (11%), or preferred not to self-identify (13%). Their race included Caucasian/White (41%), African American/Black (20%), Asian or Pacific Islander (14%), and Hispanic/Latino (6%), and mixed races or who preferred not to self-identify (19%). Instagram use included several times a day (51%), every day or almost every day (22%), several times an hour (19%), once or twice a week (4%), less than once a month (2%), and less

than once a week (1%). We had participants from 31 states including Florida (15.8%), California (12.5%), and Indiana (2.6%).

3.3 Data Scoping and Relevancy Coding

The dataset included over 7 million messages, so we needed to scale down the data to a feasible size for qualitative analysis. Thus, we focused our work on conversations that included messages to seek help. To achieve this goal, we used initial search terms, such as 'help', 'refer', 'mentor', etc. Through refining the keywords and exploring the conversations, we found that these words were too general and resulted in many irrelevant conversations. From iterative exploration, we found 'help me' to be returning the most relevant conversations. Therefore, we ran an SQL query on the database to search for conversations that included the phrase 'help me,' which resulted in 756 messages within 456 conversations (comprised of 2,470,022 messages) from 105 unique youth participants.

We first coded these conversations for relevancy, which resulted in 82 conversations with 336,760 messages donated by 42 unique youth participants. We considered the conversations to be relevant when the conversation involved topics that might lead to emotional or mental health impacts, broadly defined. As a result, we excluded 374 conversations from the total of 456 conversations that were not relevant because the 'help' in this conversation context was not something that required self-disclosure or implying a literal meaning of help (e.g., "my mom is blasting music and im now deaf. Plz help me") (N = 210). Also, many meant to ask for help with homework when they mentioned 'help' in their conversations (e.g., "can u help me with french I've never understood the goodness size thing") (N = 101). Other irrelevant conversations (N=62) were about asking for logistical, home improvement, or technical solutions (e.g., "My water filter is leaking. Somebody help me.") (N = 62).

3.4 Data Analysis Approach

To understand the triggers for how support was first initiated (RQ1a) and with whom youth participants engaged for support (RQ1b), we employed a thematic analysis. To first contextualize the data, we analyzed how the conversations (N=82 relevant conversations) began (i.e., Conversation triggers based on the very first DMs exchanged that were at the top of the conversation thread) and inferred the conversation members' relationships from the messages. In these messages, we looked for any signs of intimacy for romantic relationships, whether they introduced themselves to one another in the conversation, which would mean they met online, or whether they cited common people in the offline world (e.g., classmate's name). Table 1 displays the resulting codebook and example definitions of each code for RQ1a and RQ2b.

Similarly, we leveraged a thematic analysis to examine what topics youth disclosed for support (RQ2a). The team initially examined ten 'help me' conversation threads together, which included over 200 messages (Approx. 20 messages per conversation thread that included the keyword 'help me' and provided context), to define the initial list of larger topic themes. The primary coder then applied these topic themes to the rest of the conversations while detailing subtopics. The team cooperated to iterate, revise, and finalize the emerging subtopics. For instance, the topics around dating were redefined as 'romantic relationships' and what was

Table 1: RQ1a and RQ1b: Codebook for conversation triggers, topic of these triggers, and potential relationships of the members based on N=82 relevant conversations.

Dimensions	Codes	Definitions and Examples
Conversation Triggers	Continuing conversations (N=37, 45%)	Conversations that appeared to be a continuation of a conversation first started elsewhere. They often lacked prerequisite contextual information and started as if in the middle of a previous conversation (e.g., "*I know, right?*")
	New conversations (N=29, 35%)	Conversations at their inception that were started to discuss a particular topic (e.g., the first message of the conversation thread starts with: "*Welcome, this is a group chat for …*")
	From Instagram Posts (N=10, 12%)	Conversations that appeared to be triggered from a public Instagram post (e.g., "*Oh my gosh I love your posts so much!!*")
	Checking-in (N=6, 7%)	Conversations that were initiated because someone wanted to check on another. (e.g., "*How are you doing?*")
Conversation Type	Casual Conversations (N=77, 94%)	Members started conversations based on common hobbies and interests. (e.g., about manga, fantasy novel writing, cheating ex)
	Support Seeking (N=5, 6%)	Conversations started specifically for support seeking or giving (e.g., "*You need to talk bro?*" or "*I need help*")
Relationship Types	Friends to Acquaintances (N=42, 51%)	Acquaintances, classmates, friends with an established offline relationship. For instance, members refer to names of other students in the "*history class.*"
	People Who Met Online (N=20, 24%)	The conversation starts with introducing each other as if they met for the first time, or refers to another online community they met from, while later conversations show they never met each other in person.
	Romantic Relationships (N=9, 11%)	Conversations between romantic partners, calling each other "*baby*" and exchanging other expressions of intimate familiarity

considered bullying vs. argument among friends. We conducted an affinity diagram to reassess the grouping of larger topic themes, which included: (1) negative disclosures, (2) relationships, (3) daily life issues, and (4) abuse. We then identified the support types under each topic to understand what support types of conversation members received for each topic. Table 2 shows this cross-coding analysis.

Table 2: RQ2a: Topics shared by conversation members and support types exchanged. The support types were mutually inclusive.

Topics of disclosure	Support Type	Example
Mental Health Concerns (N=50, 61%) **(Includes the subtopics of anxiety, depression, suicide,loneliness, etc.)**	Emotional Support (N=40, 80%)	"I'm proud of you for being alive and breathing despite the internal and/or external struggles you experience. You're def not alone in your feelings…"
	Information Support (N=39, 78%)	"Ok so it's that u should surround urself w people who love and support u and respect u"
	Tangible Assistance (N=25, 50%)	"If you need any help with anything tell me"
	Esteem Support (N=23, 46%)	"You're no idiot" "It's not only your fault"
	Network Support (N=15, 30%)	"Don't do that sweetie, I'm here please don't cry"
	Unsupport (N=5, 10%)	"first-it isn't that deep, you shouldn't of brought it up again it really wasn't a huge deal. if I'm honest with you"
Relationship (N=39, 48%) **(Includes family, Romantic Relationship, Friendship, Argument, Criticism, etc.)**	Information Support (N=32, 82%)	"Tell them how you are feeling, and if they don't understand and carry on block them, even your ex-friends, you don't need that"
	Emotional Support (N=30, 77%)	"You'll find someone, give it some time"
	Tangible Assistance (N=22, 56%)	"Right who wants me to make a group w them and us all beat them up"
	Esteem Support (N=17, 44%)	"I understand and it's not stupid but just like he is immature and makes very childish comments/has no really true opinion of their own and flows along everyone around them"
	Network Support (N=12, 31%)	"And in that case, that's what I'm here for love :)"
	Unsupport (N=2, 5%)	"Sometimes you're just difficult" "And sometimes you won't listen to what I have to say. And that can be frustrating."
Daily Life Issues (N=22, 27%) **(Includes work, school, physical health problem, finance, etc.)**	Information Support (N=21, 95%)	"So stay up, like binge something or play games" "Then tomorrow night you'll be really tired so you'll sleep early"
	Emotional Support (N=16, 73%)	"I know it's draining to workout after hearing something like that but I love how you push through and work to better yourself"
	Tangible Assistance (N=10, 45%)	"We have been working together and fixing that slowly it's going to take time, but we are doing that"
	Esteem Support (N=8, 36%)	"it is not your fault at all. sometimes we let our feelings cloud our judgment."
	Network Support (N=3, 14%)	"I understand how you're feeling and I'm here if you want to ask questions or just let out anything you want to say"
	Unsupport (N=1, 5%)	"I know sorry. But I can't. I'm spending too much money on the divorce. It's hard now that's why I can't help"
Abuse (N=9, 11%) **(Includes harassment, violence, abuse, bully, etc.)**	Information Support (N=9, 100%)	"Oh, there are people who care about you"
	Emotional Support (N=8, 89%)	"It hurts me to see how scrambled you are"
	Tangible Assistance (N=6, 67%)	"I'll cover costs if there are any issues with that. We need to get you help"
	Esteem Support (N=6, 67%)	"Good thing is you stopped the fight"
	Network Support (N=4, 44%)	"Then ask for help I'm here if you need me"
	Unsupport (N=1, 11%)	"I'm not in a talkative mood."

For RQ2b, we drew from the 'Social Support Framework' by Cutrona and Suhr [12] and employed a deductive coding process based on their framework. The codebook (See Table 3) consisted of various categories of peer support, including Information Support, Emotional Support, Tangible Assistance, Esteem Support, and Network Support. The information support code included the subcodes of advice (e.g., advice giving), situation appraisal (e.g., teaching or clarifying concepts), and referral to other people or sources (e.g., mention people or sources to go to). The emotional support code consisted of subcodes such as encouragement, understanding or empathy, listening, sympathy, or prayer. The tangible assistance code included subcodes on the willingness to offer future assistance, active participation (e.g., offering to be with the recipient through the situation or join them in action that reduces the stress), direct task (e.g., directly dealing with the recipient's situation), loan (e.g., offering money), or indirect task (e.g., taking over the recipient's other responsibilities while the recipient is under stress). The

Table 3: RQ2b: The Support Types on Instagram Direct Messaging Platform Among the Conversation Members

Support Type (N=82 conversations)	Subtype	Example
Information Support (N=65, 79%)	Advice (N=51, 78%)	"If you have anxiety like me I find that having some simple responses ready to say helps me"
	Situation Appraisal (N=38, 58%)	"Part of the problem is that they do not listen so its like my words fall on deaf ears"
	Referral to other People/Sources (N=4, 6%)	"Can you call your parents?"
Emotional Support (N=60, 73%)	Encouragement (N=46, 77%)	"it's stressful i know. but you can learn and you have time"
	Understanding or Empathy (N=34, 57%)	"Listen, I understand how u feel. Ppl u care about that come into ur life and just pickup and leave is bull shit"
	Listening (N=23, 38%)	"If u need to talk again I'll probs be up all night"
	Sympathy (N=15, 25%)	"I'm sorry he put u through that"
	Confidentiality (N=3, 5%)	"Can u not show this to anyone" - "I won't I promise"
	Physical Affection (N=2, 3%)	"Poor you I wish I could hug you tight"
	Memes, Jokes (N=2, 3%)	"Welp I'm gonna spam memes so yeah" (Send meme images)
Tangible Assistance (N=41, 50%)	Willingness (N=35, 85%)	"I gotta go but please if you ever need help emotionally, contact me"
	Active Participation (N=15, 37%)	"I can ask her about it if you want"
	Direct task (N=9, 22%)	"either you tell someone about this or I will"
	Loan (N=2, 5%)	"Listen, any time you need help (money), and you will need it, ask me"
	Indirect task (N=2, 5%)	"If you want book recommendations lmk"
Esteem Support (N=36, 44%)	Compliments (N=18, 50%)	"I think you['re] doing an amazing job..."
	Validation/ Acknowledging Feelings (N=15, 42%)	"You seemed really depressed last time we talked"
	Relief of Blame (N=15, 42%)	"It's not all your fault"
Network Support (N=21, 26%)	Presence (N=21, 100%)	"Whatever your overthinking its ok im here for ya....me to im way to sensitive"
Unsupport (N=9, 11%)	Miscellaneous (N=5, 63%)	"No I don't even look at them" "Because when I try and be supportive, you lash out at me"
	Declining to Give Help (N=4, 50%)	"i genuinely cannot help you"
	Bullying or Blaming (N=4, 50%)	"first- it isn't that deep, you shouldn't have brought it up again it really wasn't a huge deal. if i'm honest with you" "And sometimes you won't listen to what I have to say. And that can be frustrating."
	Questioning (N=3, 38%)	"How do u know u really care" "And why do you think he doesn't care"

esteem support code included the subcodes of compliments, validation and acknowledgments, and relief of blame. The network support code included the subcodes of presence (e.g., offering to be present for support), offering access to networks, and raising the potential of others with similar interests or backgrounds. Not all codes were associated with our datasets, such as offering access to networks and raising the potential of others with similar interests or backgrounds. We added the "unsupport" category, which referred to when the conversation members were unwilling to provide support, blame, question, or bully the other members in the conversations.

Below, we report the results regarding what the peer support conversations look like in DMs among youth and their confidants, what kind of relationship they were in for exchanging support, and how they disclosed concerns and received (or did not receive) support.

4 RESULTS

We first situate the findings by giving an overview of the selected conversation threads, walking through how the conversation thread began (RQ1a), followed by what potential relationships the conversation members [1] had in each thread (RQ1b). We then review the disclosure topics and the support types exchanged in these conversations (RQ2).

4.1 The Overview of the Support-Seeking Conversational Data

After removing irrelevant conversations, 82 conversations donated from 42 unique youth participants remained with 336,760 messages (min: 83, max: 13,770, Mean=3,265, SD=3,612 messages per conversation). Youth participants could be involved in several conversations with a maximum of 8 conversations (min: 1, max: 8, Mean=5.7, SD=1.42). Each conversation thread ranged from 2 to 37 conversation members (Mean=5.7, SD=7.9). The length of the conversations were anywhere between 15 hours to 1,641 days (Mean=381, SD=441).

4.2 How do youth initiate peer support conversations in private messaging on social media (RQ1a)?

The majority of the conversations started as *casual conversation* (N=77, 94%) and the rest were either members *reaching out to help*, or *seeking help* (N=5, 6%) (See Table 1). The casual conversation consisted of members starting conversations based on common hobbies and interests because they could be connected through following each other or encountering over a comment thread of a public post.

We also looked at what seemed to have triggered the members to start the conversation thread that later involved support seeking topics. We identified four types of conversation triggers: 37 (45%)

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[1]We use 'conversation members' to refer to everyone in the conversation, including the youth participant who donated the conversation. Because of the way we processed anonymization for private protection, we do not know which one of the participants in the conversation data were the youth participant who donated the data.

were ***continuing conversations*** from other places such as Instagram comments or offline, 29 (35%) were starting ***new conversations***, 10 (12%) were something that ***members saw on Instagram posts***, and 6 (7%) were ***checking in*** to see how they were doing.

In all of these cases, regardless of how the conversation started, it unfolded into a support conversation at one point. For instance, the C1 conversation that started with a casual remark of, *"Oh my gosh I love your posts so much!!"*, evolved into sharing social anxiety experiences: *"I'm worried they're going to attack me for running the IG page and I'm scared"*. To this disclosure, the other member shared strategies for coping with social anxiety: *"If you have anxiety like me I find that having some simple responses ready to say helps me."* In C7, two people met at a convention and one of them reached out casually to check-in. This conversation thread later included support exchanges on anxiety, loneliness, and sleeping habit issues. In C67, a member saw a concerning post about another member and started the conversation, to which the members discuss what to talk to therapists about. Similarly, in C30, a member checks in with another member, who was distressed, and the conversation starting member continues to probe and attempts to help:

> *A: hey are u okay?*
> *B: I f[—]ed up...I came back to apologize but it sorta backfired... I felt attacked and it put me back into the space of being suicidal...I didn't wanna be suicidal or guilt trip anyone, all I wanted was to be heard...Im literally crying because I feel bad.*
> *A: what do u think u f[—]ed up on?* (C30)-March 2021

In starting group conversations, it helped to disclose their concerns of interests on their Instagram. For instance, C13 was a group thread among 7 people who met online with a common concern that their ex cheated on them. For those who met online like the C13, sharing information through the larger Instagram platform was key to getting to know each other better: *"I'm kinda ok. If you check my recent post you can see how I feel haha"*.

4.3 With whom do youth engage with for support? (RQ1b)

Out of 82, the majority of the conversations were between two people (N=61, 74%). Twelve conversations (15%) had over 10 people in each conversation. The rest were between 3 and 10 people in each conversation (N=9, 11%). These people had varying degrees of relationships, from ***romantic relationships*** (N=9, 11%), ***close friends*** (N=9, 11%), ***acquaintances*** (e.g., distant friends or classmates; N=42, 51%), or ***people who met online*** (N=20, 24%) (See Table 1). These relationships were evident from the conversations. Some examples include referring to names of other students in the "history class", introducing each other's names and locations at the beginning of the thread, or calling each other "baby" and exchanging expressions of romantic intimacy. Among those who seemed to know each other offline, not all members seemed to be as close or have known each other well, even with the high level of self-disclosure when they[2] were seeking help and the other member would offer support:

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[2]We use 'they' for all pronouns of the members given that we do not have information on the gender identity of every member in the conversations.

> *A: You got it girl, just hold ur head high and keep yo shoulders back. Message me any time throughout the day if u need to :D I know we dont know each other well but I am intensely loyal, its something not many people know about me because I dont actually befriend people often because I have trust issues but we definitely have similar beliefs. And as woody says u got a friend in me.*
> *B: Okay thanks [anon] that means so much* (C1)-July 2019

The 'A' member from C1 explicitly stated that they do not know each other well, but that did not stop them from being 'a friend' to message 'any time'. Even with a big group conversation with 13 boy band fans who met online later exchanged negative emotional disclosure and willingness to support:

> *A: Love that this group chat was created and none of us have said anything lol*
> *B: lol i was waiting for someone to say thatttt*
> *C: Hahaha where are y'all from??*
> *D: London how about you*
> *E: Ireland*
> *F: i'm from the US lol*
> *...*
> *H: I started listening to them when I wasnt really in a great time and they helped me get through a lot of stuff*
> *G: aww well i hope you are okay now. the boys have helped me through touch times as well*
> *H: I'm still getting through it but ik the boys are always there to help me*
> *G: you can always talk to us as well* (C6)-July 2020

C6 shows a typical supportive dynamic that we observe in online communities. However, other close friend relationship from C19 showed more complex valence in the messages they exchanged:

> *A: I'm expelled from school*
> *B: What did you do this time?*
> *A: I [shared self-harm behavior at school]*
> *B: I'm not surprised* (C19)-July 2019

As C19 showed, closer relationships could walk the fine line between sarcastic negativity while still being supportive. As will be further analyzed later in the next section, C19 conversation involved many suicidal messages as well as abuse topics, and B continued to support as immediately as they can.

Support exchange conversations were situated within often informal, mundane conversations, sometimes in a large group setting and sometimes between two people with varying degrees of strengths and types of relationship. Even if conversations began specifically due to the support giver reaching out to the person because of concerns about what the person has posted on social media, these support conversations eventually became a mix of informal, mundane conversations and dynamically changed their status as a peer support thread.

Below, we walk through the coding results on the topics of self-disclosure and support types being exchanged around in these conversation threads.

4.4 What are (a) the topics for which youth sought support and (b) the types of support they received? (RQ2)

As shown in Table 2, the conversations we analyzed included largely four themes of topics on self-disclosure (RQ2a) in the order of its prevalence: (1) *mental health concerns*, (2) *relationship issues*, (3) *daily life issues*, and (4) *abuse*. In all of these topics, *informational* and *emotional support* were the majority of support types (RQ2b) that the participants received after the disclosure, followed by *tangible assistance*, *esteem support*, and *network support* (See Table 3). In the subsections below, we further expand on how these support types unfolded and varied based on the conversation topics. Although very few, the *unsupport* category existed for all topics.

4.4.1 Mental Health Concerns: Being Available Anytime, Showing Affirmations, and Being Relatable. In the conversation parts that were coded as **mental health concerns**, which took the most portion among topics (See Table 2, N=50, 61%), disclosure topics ranged from more common, everyday emotional challenges, such as feeling anxious about making new friends to risky conversations, such as eating disorders or suicidal thoughts. In response to these self-disclosure messages, others in the thread responded with *emotional* (N=40, 80%) and *information support* (N=39, 78%), *tangible assistance* (N=25, 50%), *esteem support* (N=23, 46%), *network support* (N=15, 30%), or *unsupport* (N=5, 10%).

We observed many mental health concerns at levels that would be difficult to be disclosed publicly, such as suicidal and self-harm topics. For instance, C19 is a conversation between two people with close friends but with a potential romantic relationship. This conversation was mostly about one member sharing suicidal and self-harm attempts:

> A: Hey can we talk baby I need help imma about to commit suicide like litterly can't stop thinking about it cause I'm going to the [place] tommarow I'm probably gonna jump
> B: Don't do it...Talk to me
> A: Sorry I'm gonna
> ... B: you wouldnt have told me if you wanted to jump. If you wanted to be saved
> A: No I'm just realizing I'm scared and upset and need help (C19)-March 2019

To check if the conversation member was fine after expressing suicide ideation, following up on the C19 conversation, we observed that the conversation continued for days and the member mentioned that they could not jump. Similarly, one of the two members who met online because of interest in music later shared suicidal, mental health concerns, and abuse, to which the other member offered they can talk to them anytime, offering tangible support:

> A: I have trust issues. I had to take care of my younger siblings and been bullied by people at school. We had no one to take care of us and sometimes we had no food.
> B: Oh, u've been through so much ... if u ever wanna talk don't hesitate (C34)-November 2017

A few minutes later they joked about another topic and continued a mundane talk such as favorite music and eating pizza.

However, later during nighttime the conversation evolved into a sex talk. Mundane talk followed, after which B continued to share support whenever A disclosed negative emotions: *"B: Its fine, everyone has those moments where the stress catches up to you"*. These members became romantic supporters within the 24 hours they first introduced each other over DM and even if they never met each other:

> A: I'm like protective over you, your so many hours away and I like you so much and its weird as shit
> B: I know, I've never felt this way for someone I've never met in person (C34)- Nov 2017

As shown in C34 and C19, suicidal and other serious negative topics were mixed in with mundane, casual, or even romantic talk. However, they immediately responded with the other member to ensure the harm does not occur or reinforce that they will be available to talk at any time. Others in these conversations would tell them to stop or show social acceptance (e.g., *"Oh, just don't commit suicide, there are people who care about you"*) and continued to check on them like a member did with their friend going through eating disorder (C11). The members also shared negative disclosures around negative body images, anxiety, and panic attacks: *"i big ugly"* (C22); *"i feel like i'm constantly on the verge of a heart attack"* (C40); *"I just wish people weren't homophobic. I'm literally so confused so closeted so lost"* (C62).

To these disclosures, other members responded with affirmations, reinforcements, and advice with relatable experiences. In a group chat of 15 people, two members responded to a member disclosing about negative body image: *"nO. You is attractive. Both of y'all"* *"Y'all is beautiful"* (C22). Other conversations included sharing advice with own honest, relatable experience:

> i would tell you what i did to get better but i also left my main stressor in my life since march, am on happy pills, and go to therapy. i think the only thing i did myself was fake a positive mindset every day at school until it turned into a real one (C40)-August 2020
> u can't let that scare u. there'll always exist homophobic people (C62)-Oct 2020

The member who disclosed mental health concerns also show appreciation for those who helped to share their own struggles to provide relatable support:

> thank you [anon] that means a lot. i'm sorry about your issues. i felt bad i'd been missing meetings. ... thank you for checking it means a lot knowing you care. (C11)-May 2020

The support-giving member in C11 also later shared their own struggles about school work, potentially to make the conversation less unidirectional, but a mutually supportive relationship. This type of 'mutual support' seemed to be a critical balance that the support relationship members had. This concept shows up in a conversation among 15 people (C41), where in fact a member denies to help a member who said they needed help because they were 'sad':

> A: I need help. I'm sad
> B: im not going to give you some bullshit obvious advice
> A: give me the bullshit obvious advice please
> B: that's wasting both of our time. i genuinely don't

have any useful advice for you. maybe its because i'm in a bad mood or tired or idk but i'm being serious when i say i cannot help you
A: are you mad at me because i'm being high mainte-nance (C41)-August 2020

The C41 showed the 'unsupport' type we discovered in 5 out of 50 conversations with mental health concerns topic. Members denied to help when they themselves were not in situations to help, like B in C41 mentioned they may be *'in bad mood'*, or when they did not have *'useful advice'*. A was asking whether B was not supportive because A was *'being high maintenance'*, showing the mutuality of support that the members seemed to walk a fine line with.

4.4.2 Relationship Support: Peer Authority, Reciprocity, and Objective Advisory. The participants also increasingly disclosed **relationship issues** (See Table 2, N=39, 48%), mainly around their family members, romantic relationships, friendships, and criticisms toward others. Subtopics included trust issues, loneliness, and insecurity about sex. This topic was also mainly supported with **information and emotional support** (82% and 77% respectively), and **tangible assistance** and **esteem support** also provided much help for this topic (56% and 44% respectively).

C10 was a two-person conversation thread representing many of the relationship-related topics discussed by the members. One member disclosed their bisexuality and insecurity about body image and sexual orientation with their partner:

> *A: Do you mind if i talk about something else?*
> *B: Sure go ahead*
> *A: You know how I'm bi right? Well lately I've been more attracted to guys than girls. I still think some girls are attractive but only sometimes. I don't want this to be just a phase like my mom told me. And I get it, I'm young and it's good to experiment with different things and I'm not supposed to know what I like yet but still... I just feel invalid as a bisexual if I'm not equally attracted to both genders...(C10)-July 2020*

The shared content here involves not only stigma but also the member was unsure about their gender identity and wanted validation on how to approach it. Such experience was not something they could easily post publicly about. Others would also have a hard time mutually disclosing and giving feedback in public if they were not open about their gender identity. However, because it was a private space, the other member B was also able to respond to A's request:

> *B: You're allowed to be bisexual and have a preference. All that bisexual means is that you're attracted to more than one gender but it can't be in different ways or amounts. Having different amounts of attraction doesn't make you any less valid. As for it being a phase, that's not true. Sexuality is fluid and can change ... I used to identify as bi and I got mad when I got told it was a phase by people but over time with conversations, I was able to educate and inform to get to a place is understanding. The beauty of being bisexual is that it*

can encompass so many different feelings and mean different things to different people. (C10)-July 2020

Here, B repeatedly validated A's concerns and spoke with the authority that only a peer with similar experiences could provide. A in C10 thanked for the advice and asked if they can *"talk about one more thing"* and *"promise this is the last one"* as if asking for help is burdening the other member. They continued to ask about *"loving my body for what it is."* The expressions the member used to disclose negative self-image were harsh:

> *A: I'll never be able to look at myself in the mirror and believe that I'm beautiful or that anyone will love a fat pig like me... my body is just so disgusting and gross and ugly... I'm worthless and undeserving of love... I'll never be confident or successful either. (C10)-July 2020*

A from C10 then continued to talk about concerns about having sex with their partner. A then apologized for their disclosure but revealed how hard it is to keep it to themselves, showing such authentic disclosure to be highly therapeutic. To these messages, B wrote equally long messages about acknowledging the difficulty of body positivity and shared strategies for *'loving my body'*.

Other subtopics in relationships were about pleasing others at school (C43), trust issues (C44), or loneliness (C45). As part of the C43 conversation, to a member sharing concerns about pleasing others at school, the other member gave advice and emotional support. This advice-giving member presented as someone less close than the friends who the help-seeking member has trust issues with:

> *I dont know your specific history with your friends but I've learned that if people dont value you and recip-rocate your commitment to friendship, then you are usually better off just stepping away from the friend-ship. It doesnt always have to mean abandoning them but taking a step back from the friendship can give you room and help you be happier ... it doesnt sound like your friends really deserve you. (C43)-Sep 2020*

Peers who the members met online because of shared inter-ests would become peer supporters often for relationships that the members have offline at school, with family, or with romantic rela-tionships. Such online friends did not personally know members' offline friends, so they became objective but helpful peer supporters and advisors to whom the disclosure could be easily made.

Not every time, however, the members unconditionally sup-ported each other. Although extremely few (2 out of 39) members experienced not being able to receive the support they needed in the relationship topic conversations. For instance, in a two-person chat between classmates (C39), a member questioned the intent of a disclosure another member made about their parents who did not believe mental health *'is a thing'*:

> *A: are you asking why you feel ashamed?*
> *B: I FEEL ASHAMED BECAUSE MY PARENTS LITER-ALLY TAUGHT ME THAT DEPRESSION AND ANXI-ETY AND ANY MENTAL ILLNESSES ARE BAD...*
> *A: ... isn't [another person] the one to ask for help (C39)-Jan 2021*

In this conversation, A questioned whether another friend was someone B could talk to regarding their relationship with the parents. To this, B responded they *'ask her for help all the time'* and did not want to overwhelm her, so they felt like *'sometimes i need to ask someone else'*. A resorted to asking whether B went out for a walk but did not address the parent relationship B disclosed.

4.4.3   Daily Life Issues: Too Mundane or Personal to Exchange Support Publicly. The participants sought help around work, school, physical health problems, and financial issues in their everyday lives (N=22, 27%). Some examples included issues at work, school, finances, or physical tiredness. These members received social support in all forms (Table 2), where gaining **information and emotional support** took the most place (95% and 73% respectively).

For instance, driving was a big topic given their age, and some were learning to drive. Driving was anxiety-inducing for A, to which B reaffirmed they also feel the same way, to make A not feel like they are alone. B then helped A to be encouraged to think A need to *'start out small and learn'* and be optimistic about the future, providing esteem support:

> A: *my anxiety is so bad today i feel like there something sitting on my chest i just wanna go home. i was driving earlier which i think that's what triggered it :/*
> B: *i feel u. driving makes me overwhelmed too.*
> A: *i'm so mad at myself. i wanted to drive but i couldn't even get out the neighborhood*
> B: *one day it will be like 2nd nature to you. you'll be driving down the highway and get to your destination and be like "how did i even get here" bc you zoned out and you'll feel that little sense of accomplishment. but to do that you have to start out small and learn. and maybe today is going down a couple streets*
> A: *thank you [2 heart emojis]* (C64)-March 2021

As such, daily life issues might be too mundane to post publicly, and casual ways of sharing became a point of reassurance of the romantic relationship of the C64 members. Other examples included one member sharing concerns about money and another offering to help whenever needed (C53). Such conversations about financial difficulties and exchanging money are inappropriate for a public conversation because of their personal nature, while the private messaging platform here llows such exchange to happen.

There was one case of unsupport in this topic area. In C63, two people met online and shared their experiences of breaking up with their boyfriend and spouse. After a month, one shared their pay got delayed, and they needed help getting their mother a gift. The other member denied supporting it, explaining they were also in financial hardship.

4.4.4   Support for Abuse: Giving Permission to Negatively Self-Disclose. A few conversations (N=9, 11%) included **abuse** topics with subtopics of harassment, rape, violence, or bullying. These topics were met with **information support**, with most receiving **emotional support** and **tangible support** (89% and 67%). There was one **unsupport**.

For instance, the C55 conversation between two friends started because one member had to help teach the other how to create certain profile messages on Instagram. However, the conversation later disclosed abusive content, including suicidal thoughts (to make sure the participant was fine we checked the later conversations) and self-harm:

> A: *I cut and I got pills to kill myself, ... I just haven't used them yet ... Wen I cut it feels good - I can't feel my other pains.* (C55)-October 2020

These disclosures came out after A said '*'I hate [anon]]'* and member B said: *"Why. Let it all out."*, providing emotional support. Even if the members created a two-person DM to ask questions about how to set up a certain profile on Instagram, a member indirectly asked permission to do negative self-disclosure by revealing their emotions about a parent, and the other member offered them to disclose fully.

These disclosures and being available to listen to negative self-disclosures played a critical role in building trust and intimate, supportive relationships between the members. Offering to listen to negative self-disclosure itself became a form of social support. When these shared experiences were mutual, peer support would be established with the stronger ground, given the fundamental building block of peer support is having had similar experiences. In most conversations, any given member switched from being a help seeker to a support giver and vice versa. Before even mentioning the topic, some would ask for permission to talk about their struggles after the current topic is done.

On the other hand, the example below is from the C19 we mentioned earlier as a long thread that spanned four months and did not have such a mutually supportive relationship. Most of the time, A disclosed self-harm and abuse, and B responded immediately and attempted to help. At one point, A and B argued whether A's disclosure that A is at a bridge for a suicidal attempt was true. Accordingly, when A wanted to share pictures of self-harm, B was not in a 'talkative mood' and refused to respond with support:

> B: *i can't watch you jump.*
> A: *DONT*
> B: *I will call the police to there right now.*
> B: *This has gotten to be too much*
> B: *Ok you lied. You sent [anon] a picture saying you were home. What the f[–]k*
> B: *How many f[—]ing other times did you lie.*
> ...
> A: *Im givving myself stiches*
> B: *I don't wanna see that.... And [anon] just got home and I'm fighting with [anon], so I'm not in a very talkative mood in sorry* (C19)-March 2019

The conversation shows an example of unsupport, how one member could not provide support anymore after a repetitive witnessing of negative self-disclosure of a close friend. Not being in a talkative mood meant B was not available to continue the conversation, meaning B did not allow A to disclose the self-harm image A asked to reveal by sharing they are now *'giving themselves stitches'*.

Overall, we went over how conversations formed to become a support exchange and the relationships among conversation members on Instagram DMs. The major topics of exchanged support evolved under mental health concerns and relationship topics which mainly received informational and emotional support. Next, we

discuss the implications of the findings in terms of different dimensions of online self-disclosures and provide implications for designing support-friendly technologies.

5 DISCUSSION

By studying Instagram's Direct Messaging data, we found that the social media-linked private messaging platform (SMPM) proved to be a good medium for youth to initiate and share negative self-disclosures for the purpose of receiving peer support. The conversations initially began as a casual conversation, which then moved back and forth between support exchange and casual conversations (RQ1a). The youth made such disclosures mostly in dyadic conversations with peers, such as close friends, romantic partners, or classmates (RQ1b). The findings from RQ1 established an important background context for understanding how the support exchange emerged, who were the conversation members, and their existing relationships that enabled support exchanges. The support conversations included broad topics spanning from daily life issues to heavy, deep topics, such as self-harm (RQ2a). A mix of all support types, but most frequently information and emotional support, has been shared. In some cases, however, the members had a hard time being able to provide support because they did not know how to help, or because they felt the disclosure was inauthentic (RQ2b). These exchanges happened with unspoken rules around permission. For the disclosure—support exchange to work with breadth, depth, and authenticity, the support exchanges were mutual and available. Below, we expand on these lessons, followed by implications for design.

5.1 Unspoken Rules of Peer Support: Permission and Transient Nature of Support Conversations (RQ1)

Our findings were unique in a number of ways compared to the majority of research on online social support, where the social support has been described to form around a specific need among strangers (e.g., online diabetes community, online community on self-harm). First, in our data, peer support happened among youth with existing relationships or those who met online through common interests on hobbies and activities. As such, the support exchanges often emerged out of casual conversations because of the close relationships the members developed by connecting over common interests (RQ1a). Second, the majority of the support conversations happened between dyadic pairs of acquaintances, including those youth met online, as well as romantic partners, rather than in group chats (RA1b). Such intimate space would facilitate disclosing negative experiences and bringing authentic support exchanges. Lastly, although this private platform is open to anyone to use, the support conversations did not include any family members as part of the disclosure confidants. This further highlights the critical nature of online peer-support in the lives of youth.

At the same time, the members and their confidants had unspoken rules and norms for when disclosure and support could appropriately become available. As we saw from C11, where unsupport happened because the member was *'high maintenance'*, or the fact that the members constantly ask for permission to self-disclose—e.g., *'I hate [anon]]'*, *'I'm giving myself stitches'*—show

that there are agreed expectations that disclosures had to be met with the permissions of the other confidant, such as *'spill it out'* for the support exchange to establish.

5.2 SMPM: A Space for Negative Disclosure, Leading to Broad, Deep, and Authentic Peer Disclosures and Support (RQ2)

The support exchanges naturally emerged from negative disclosure of the support-seeking member. Literature in online social support describes positivity bias inherent in people's disclosure online, which describes how people tend to share more positive forms of disclosure over negative experiences. The majority of the topics shared in our data were negative topics and relationship issues. Positivity bias did not happen in the private space of SMPM. Rather, SMPM was a safe space for increased negative self-disclosure. Luo explains three dimensions of online self-disclosure that are critical to enhanced personal connection[39]—breadth, depth, and authenticity. Authenticity in this context refers to disclosing sensitive information and sharing not just positive experiences but also negative experiences. All three of these dimensions were all strongly presented in our data.

Breadth. The members shared a broad set of topics, from daily life issues of schooling to serious mental health concerns, such as abuse and suicidal attempts. This breadth of topics enabled a more casual, informal context in which the members naturally disclosed concerns and received support. Such an informal environment addresses the challenges of mental health support that formal, clinically focused approaches involving clinicians and experts induce in terms of stigma in populations such as youth [31]. As you can see from C6, multiple topics spanning from fandom, boys, music were included in a single thread. As such, the support conversations each consisted of one giant thread, where multiple topics and support types fluidly entered and stopped. At the same time, disclosures, support-seeking messages, and support-giving messages spontaneously emerged out of context. Within each conversation, small distinct conversation pairs started and stopped at different time points, and no designated person was considered a help seeker or giver.

Depth. SMPM allowed members to access both public-facing disclosure on social media and private messages, where one can privately ask to further expand on what was shared publicly. This is a unique function that SMPM has over other private chat platforms, such as texting. SMPM generates new and wider peer support connections because of its public-facing platform, where people can follow content of similar interests. Almost half of our 'help me' conversations were either new conversations or triggered by posts on Instagram, and a quarter was from people they met online. The ability to connect with anyone you know, regardless of whether you have their contact information, also facilitated more distant friends to become peer supporters. The public-facing side of SMPM was a conversation starter, engaging in deeper conversations, and a place to grow new peer support networks.

Authentic Disclosures. The members being peers by age or having common experiences and interests potentially further enabled grounds for authentic disclosure. Because of the private setting and the fact that the other confidant also had common experiences and

the trust that the confidant would immediately respond allowed for authentic, negative disclosure. However, at the same time, the authenticity of this disclosure was challenged in some cases, especially when the members had mutual connections with other people. One member found out from a friend that the other member's statement of being on the bridge for suicidal attempts was untrue. This incident led to unsupport. Perhaps that is why strangers who meet online can receive better support, aligning with what the literature shows about disclosure and anonymity [11]. Such mixed results about how honest members wanted to be toward other confidants bring insights into whether the private messaging environment is truly equal to the 'backstage' that Goffman's Presentation of Self describes [21]. At some level in these private messages, the level of authenticity was still adjusted depending on the context and needs of the disclosing member, and certain role-playing occurred.

Not just an authentic disclosure, but we also observed an honest refusal to help. Such unsupport behavior is rare in online social support literature, where the passive non-response is regarded as unsupport [13]. Such lack of feedback is what drives more negative implications on negative online self-disclosure [13] and is a challenge.

5.3 Mutuality and Availability in Peer Support and Unsupport

Not just in the case of disclosure but also for giving support, SMPM allowed for authentic and immediate support. Unlike supporting messages in public online spaces, the private nature of SMPM allowed for negative disclosure from the confidant's side as well. Such mutual sharing of negative experiences is the core part of social support [66]. This observation is evident from C10, where the confidant mutually disclosed concerns around gender identity. Similarly, in C11, when the support-seeking member shared their struggle for school work, the confidant shared similar struggles. In C41, the confidant also shared they were in a 'bad mood', stating that thus they cannot support the other member. In all of these conversations, the support-seeking member did not explicitly ask whether the confidant also had similar experiences. However, the confidant used their similar experience to provide the support the youth needed. Such mutuality established through the bidirectional sharing of negative experiences can help youth maintain a critical balance that a supportive relationship needs. Even in the case of unsupport, it was not mainly a negative challenge but part of the authentic, fluid nature of peer support among youth in SMPM.

Next, we turn to insights for reinforcing what is working well and addressing shortcomings in peer support among the youth.

5.4 Implications for Technology Interventions Using Social Media Linked Private Messaging Platforms

Although conversation members provided various support types to each other, we noted some points that need scalable, automated help that could be provided without interfering with the support quality we revisited above about SMPM due to its unmoderated nature. Unfortunately, we observed many conversations involving suicide and self-harm-related messages. Research shows that such disclosure might relate to youths looking for validation and social

acceptance [41]. For some of these instances, peer support would not be sufficient. Systems need to distinguish these self-harm and suicidal thoughts regarding what cases are benign and what cases need immediate help. However, we should consciously avoid transforming such systems into surveillance systems. Engaging youth and experts in co-designing the intervention process to manage such crises would be helpful.

Besides, we found that conversation members often tried to get permission to ask for support or share something so as not to overwhelm others. Based on this finding, automatic support from conversational agents powered by Artificial Intelligence could help conversation members to know how balanced they are in exchanging support and when they would need extra support based on the frequency of exchanges and direction of the changes. The automatic agents could help conversation members with guidance to additional resources when the other person refuses to support or provides unsupportive comments. In addition, more features could be integrated to facilitate these support conversations for youths, such as automatically providing connection suggestions for youth with similar issues or backgrounds, especially for those lacking support. Again concrete identity and background-checking procedures should be devised for safety.

We also noted that youths took the initiative and felt comfortable sharing their issues and vulnerabilities in private, unmoderated settings. However, their peers often did not know how to help. This finding suggests that semi-private, anonymous, moderated, and intervenable spaces are also needed. This kind of space would enable youth to get support from strangers or professionals in a way that is both productive and safe. Future work can engage youth, clinical experts, youth advocates, and any stakeholders in designing these aids using participatory design methods with human-centered approaches [53, 60]. Additionally, our findings showed that support exchange conversations started by commenting and expressing about media shared on the platform. The conversation members often referred to publicly posted posts and continued conversations from those contents. Image-based platforms like Instagram provide heightened intimacy and connectedness feelings compared to text-based platforms [47]. Youth support exchange online spaces could benefit from integrating image-based sharing features so that users can dynamically move between private and public spaces to continue conversations. Existing work in using images to detect the psychological status of users [40] and online risks [3] can also benefit from being integrated to provide richer information about when and how support can be provided.

5.5 Limitations and Future Work

As we had a large dataset of DMs from youth participants, we used a keyword search to find relevant conversations feasible for qualitative analysis. Our data might not be extensive in retrieving all support exchanging conversations. Future work could devise other systematic approaches to filter such relevant data. DM is tied to a social media platform with users with certain age groups [65]. Coupled with this characteristic of DM and youth's developmental need for independence [16] might influence who the youth would regularly communicate with using the platform. Since our data was based on Instagram with its unique affordances [33], such as

being more prevalent among particular groups, e.g., college students and women [57], other platforms with different features and characteristics for unsupervised private support, need to be studied in the future. Also, since our data was based on the participants who volunteered to participate with a specific type of experience, our findings are influenced based on the types of messages they received. Qualitative research does not aim to generalize but for transferability, where the findings shed light on other applications and contexts. Assessing the generalizability and reproducibility of this research is not applicable in this approach [49]. For future work, more work can be done to use mix-methods to understand how conversation members' demographic information (e.g., age, gender, race) affects different support-seeking styles and topics among youth. Furthermore, we should examine, if possible, other social media platforms and their DMs to examine whether similar patterns apply in support of exchange topics, motivations, and norms.

6 CONCLUSION

Overall, our study highlighted how to support exchange conversations start to evolve and form based on the relationships of the people involved in conversations with youth. Our findings underscore the importance of social media-linked private messaging platforms (SMPMs) for youth support exchange. The results unveiled implications around self-disclosure and social support dynamics in online peer support for youth and opportunities for design.

ACKNOWLEDGMENTS

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