Promoting Interdependent Privacy Preservation in Social Media via an Ethics of Care

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ABSTRACT

Interdependent privacy (IDP) violations among users occur at a massive scale on social media, as users share or re-share potentially sensitive photos and information about other people without permission. Given that IDP represents a collective moral concern, an ethics of care (or "care ethics") can inform interventions to promote online privacy. Applied to cyber security and privacy, ethics of care theory puts human relationships at the center of moral problems, where caring-about supports conditions of caring-for and, in turn, protects interpersonal relationships. This position paper explores design implications of an ethics of care framework in the context of IDP preservation. First, we argue that care ethics highlights the need for a network of informed stakeholders involved in content moderation strategies that align with public values. Second, an ethics of care framework calls for psychosocial interventions at the user-level aimed toward promoting more responsible IDP decision-making among the general public. In conclusion, ethics of care has potential to provide coherence in understanding the people involved in IDP, the nature of IDP issues, and potential solutions, in turn, motivating new directions in IDP research.

1. THE CHALLENGE

The concept of privacy reflects society's moral value system that individuals ought to have selective control of access to the self to maintain autonomy and minimize vulnerability [1]–[4]. In addition to being an ethical issue, privacy management is an interpersonal endeavor as people actively participate in the preservation or violation of others' privacy [5], [6]. This is especially true in social media, where interdependent privacy (IDP) violations are a common pathway through which users influence one another's privacy. IDP violations refer to a broad class of scenarios where people's privacy is influenced by the actions of others [7], [8]. For the present paper, we focus on a particularly common source of potential IDP violations that occur when social media users share or re-share potentially sensitive images or information of another person without consent, for example, location, medical information, drug or sexual history, embarrassing moments, or otherwise personal data. This type of IDP violation occurs at a massive scale in social media [9], meaning that violations not only impact individual victims, but they also shape the broader culture of social media sharing. With ubiquitous online sharing, these privacy risks are omnipresent and of central concern to the general population [10].

Even though users generally report wanting to provide consent prior to being posted about [11], in practice, social media users often do not obtain permission [12]. This can leave the referenced individuals feeling helpless in protecting their own identity, reputation, and personal privacy [13]. IDP violations can occur in the context of text and image sharing, both of which are commonly used to disseminate sensitive information about other people. Images often include clearly identifiable information (i.e. face) and can be easily altered and spread to unintended audiences, further violating the individual's privacy and autonomy [14]–[16]. IDP violations are often associated with malicious users who direct their efforts toward upsetting or provoking others. However, well-intentioned users may incidentally participate in IDP violations when they post about other people without their consent or proper consideration of the other person's privacy preferences. IDP violations can occur due to having insufficient information, misunderstandings, emotionally driven decision-making, or differences in users' privacy standards [12], [17].

Given that IDP represents a collective moral concern, an ethics of care (or "care ethics") can inform interventions to promote online privacy. Ethics of care theory is a philosophically-informed framework that utilizes normative ethics as a means to inform moral action in interpersonal contexts [18], [19]. Care ethics pertains to networks of people who have varying degrees of dependence and interdependence with others in their network and has to do with safeguarding and promoting the interests of network members [19]. Applied to cyber security and privacy, ethics of care theory puts human relationships at the center of moral problems [20], where caring-about supports conditions of caring-for and, in turn, protects interpersonal relationships [21].

This position paper explores the relevance of care ethics to IDP, where IDP provides coherence in understanding people involved in IDP and the nature of IDP issues. We also outline primary design implications that follow from an ethics of care framework in the context of IDP preservation. Next, we draw connections between care ethics and IDP, highlighting the ways in which care ethics uniquely informs theory and practice of IDP preservation. We outline how care ethics calls for a network of informed stakeholders involved in content moderation strategies that align with public values. In addition, care ethics supports the need for psychosocial interventions disseminated to the general public for the purpose of supporting more responsible IDP decision-making. We include discussion of future research directions, where research scientists are uniquely positioned to facilitate an IDP care ethics.

2. A SOLUTION: ETHICS OF CARE

Instead of the traditional idea that agents aim to act ideally across all moral situations, care ethics emphasizes that decision-making

often requires involvement and investment in one another's circumstances [22]. For example, ethics of care contrasts with duty ethics, where morality is fundamentally about equity that stems from impartially-applied universal principles [23]. Conversely, ethics of care avoids depersonalization by supporting empathy, harmonious relations, and consideration of individual needs. In this way, care ethics allows for a holistic and contextual approach to moral decision-making, as opposed to a universal and reductionist approach [24].

Gilligan [25] originally conceptualized of care ethics as a feminist response to typical masculine values that appeared to drive many other ethical frameworks, where previous frameworks emphasized values of individualism, justice, and rationality. It has been argued that these traditional ethical approaches tend to favor those in power [26], where what is just is emphasized over relational ties and caring [25]. Notably, care ethics does not preclude the use of rules alongside care, which can ameliorate potential challenges to the approach, such as the fact that the urge to care does not ensure effective care giving [27]. Instead, ethics of care asserts that effective decision-making is facilitated by a fusion of both rational and emotional considerations within interpersonal contexts [24].

An important aspect of care ethics is the idea that people generally possess a biological tendency to care, and caring-about (i.e., the attitude of caring) can be fostered, in turn, to support caring-for others (i.e., the behavior of caring) [28]. This notion contrasts individualistic perspectives that emphasize human autonomy and freedom from the interventions of others [29]. Rather, in care ethics, a more balanced approach to independence and interdependence is considered. Relational autonomy is the notion that people are able to be autonomous due to their interdependency and relations with each other, such that independence occurs within social embeddedness [30]. In the context of care ethics, individual attitudes and behaviors are taken into consideration in the context of an interdependent network of users. This perspective is consistent with the notion of IDP, where individuals have the right to personal privacy and autonomy, even in the context of social networks.

Care ethics is a lesser-known ethical framework but has been examined in the context of cyber security and privacy [31], [32]. Blanken-Webb and Cloutier [21] note that, despite the call for increased examination of ethics in cyber security, there is no commonly accepted ethical framework in the field, let alone codified standards. They propose ethics of care as a means of promoting responsibility among engineers for the products they design. Along these lines, Cohn's [33] examination of ethics in artificial intelligence (AI) notes that blanket statements about what is or is not ethical and who should be prioritized within a system is problematic—not to mention the general focus on AI optimization and innovation over inequities and harms. Rather than reducing ethics to a set of rules, ethics of care in AI focuses on attending to the context of each problem and supporting caring relationships and is thus better suited to address the complexities of AI concerns.

Although not the only relevant ethical framework to online privacy, care ethics aligns with IDP in the following ways. First, consistent with a care ethics focus on interdependent relationships, IDP violations typically occur within social networks as users routinely influence one another's privacy by sharing or re-sharing information about each other. Social media networks bind together families, friends, and colleagues [21]. Second, in line with care ethics' holism, IDP preservation requires considering the multidimensional nature of social media communication [34], where context may be the difference between harmful versus benign social media posts. For example, publicly sharing a photo of a person engaging in illicit drug activity may have vastly different consequences based on the individual's privacy preferences, culture, social group, and occupation. A celebrity may gain notoriety by a photo depicting them using an illicit substance, whereas a low-income parent may experience the same situation as a threat to their employment or child custody. Third, care ethics has been connected to stakeholder theory to emphasize corporations' moral and social responsibilities to relevant individuals and groups [35]. Care ethics binds the interests of diverse stakeholders (e.g., social network corporation and user) to allow for collective action, in this case, IDP preservation. Lastly, although care ethics incorporates a "care" component, it allows for rational, rule-based action [24]. This is particularly relevant to IDP, where content moderation strategies are deployed at user, corporation, and government levels, for instance, rule-based algorithms for identifying harmful content.

3. DESIGN IMPLICATIONS
3.1 Social alignment
A complication with an effective ethics of care is having the "right" set of values and care in the "right" way with sensitivity and skill [22]. Identifying shared values and solutions is especially challenging in the context of social media, where the interdependent relationships central to an ethics of care span governments, corporations, and large networks of users. The "Contract for the Web" [36] highlights these three key stakeholder groups as central to upholding standards of online privacy and security. Consistent with the concept of IDP, the contract highlights privacy concerns, civil discourse, and a respect for human dignity being central to "making our online world safe and empowering for everyone" [36].

Adopting the "right" set of values to care in the "right" way may sound like an impossible task, but care ethics suggests that a key step is cultivating a shared understanding among stakeholders regarding, for example, what constitutes an IDP violation and how to intervene. A care ethic is relational and centers on being attentive and attuned with affected individuals and groups and examining concerns within social relationships, correcting the "ethnocentrism" common to other ethical frameworks [37]. In introducing a care ethics framework, Gilligan [25] emphasized that what is absent from many ethical considerations is the human voice. It may be desirable, to some extent, to work toward formalized definitions and principles. However, this is not an appropriate starting point when considering ethics in problematic interpersonal contexts that are new, poorly-understood, and highly complex [21], [38]). Instead, interested parties must be receptive to understanding the perspectives and experiences of those most impacted by the technological systems they engage with.

In the context of online privacy, social media users, corporations, and governments play a central role in defining network privacy and have a collective interest in its monitoring and safeguarding, meaning it is essential that content moderation be informed by users' privacy ethics. Social alignment theory describes the connection between individual and organizational goals [39]. Key to social alignment is the idea that progress depends on shared meanings. More specifically, that social alignment can be facilitated by capturing how people perceive a given issue, identifying misalignment between stakeholder groups, and disseminating information to support informed decision-making. Misalignments that are critical to address occur at the overall goal level (e.g., private vs. non-private data sharing) and, due to different

preferences and restrictions that stakeholders take as given, do not easily change [40], [41].

An IDP care ethics depends on social alignment, or the shared understanding of what constitutes an IDP violation. Social alignment is essential for avoiding false positives (i.e., censoring harmless or even beneficial online content) and false negatives (i.e., failing to protect users from harmful IDP violations). Moreover, in the context of users' sharing other people's potentially sensitive photos and other information without permission, understanding both average and variable privacy preferences is key. Identifying users' average privacy preferences represents a reasonable starting point. However, basing social action on users' average privacy preferences may neglect the interests of those most concerned with their own privacy if, hypothetically, most users tend to engage in harmful IDP violations. For that reason, it is essential to develop an understanding of the range of privacy preferences held by diverse users.

User privacy preferences also relate to desired mechanisms for influencing sharing behavior. Researchers have explored Dissuasive and Precautionary mechanisms to prevent multiparty privacy conflicts (MPCs) [42]. Dissuasive mechanisms aim to prevent users from sharing photos without consent, whereas precautionary mechanisms automate collaborative practices by forcing users to work with other data subjects to limit MPCs. By incorporating an empathy-arousing warning, the dissuasive mechanism can pass the message that sharing without consent has the potential to harm an individual. Dissuasive mechanisms aim to encourage users to reflect on their behavior and increase user awareness by making them think twice before sharing. Notably, this work has observed differences based on gender and age related to the use of dissuasive and precautionary mechanisms [42], further emphasizing the need to take into account diverse user preferences.

Furthermore, cultivating a shared understanding of IDP requires assessing the real-world risks of IDP violations based on individual users. Risks range from feelings of distress, worsened mental health, harassment, and other personal and professional consequences that may occur when someone's sensitive information is shared within social networks without permission [43]–[45]. In addition, it is likely that users' IDP attitudes and behaviors evolve over time or even differ based on social media platform, meaning that IDP attitudes and behaviors require contextualization. This is demonstrated by various research showing how feedback loops influence user activity. For example, Amon and colleagues have found that parents are more likely to share information about their children when their peer networks encourage such activity [12]. Thus, applying care ethics for IDP preservation—especially having the right set of values and caring in the right way—hinges on our understanding of users' perspectives of IDP and its real-world consequences, determining how privacy attitudes map onto social media activity, and understanding the context of different privacy-related attitudes and behaviors.

Cultivating social alignment requires a strong base of research scientists to study and disseminate information regarding IDP attitudes, behaviors, and consequences of IDP violations. Research in this area is likely to benefit from a mixed-method approach, where qualitative research is especially useful for generating new insights and amplifying the voices essential to an ethics of care. Quantitative research, in this context, is useful for capturing both average and variable privacy attitudes and behaviors, providing a holistic view of the user experience.

Moreover, IDP researchers and stakeholders can benefit from being trained in principles of care ethics, how it differs from other types of ethics, and its applicability to IDP preservation in social media. Although researchers are generally encouraged to adopt an objective approach, care ethics is consistent with the notion that research often occurs in response to a need and is oriented toward practice [46]. It follows that engineering solutions for privacy protections requires consideration of user needs and appropriate responding (i.e., caring-about and caring-for), where training in care ethics may enhance feelings of professional responsibility. The concept of social alignment also indicates a need for stronger partnerships between social media community members, corporations, policy makers, and researchers, where connections must serve to amplify the voices most affected by IDP and socially align stakeholders on key IDP issues.

3.2 Bottom-up psychosocial interventions

In addition to the obstacles of developing the right values and caring in the right way, a primary concern is how to promote caring in the context of social media networks. Caring-about has been identified as a kind of caring that "best applies to cyber-security," as it lays the strongest foundation for caring-for [21], [47]. Along these lines, a significant gap in the privacy literature was identified by Pinter et al. [48] in their review of 132 privacy articles: few studies have gone beyond identifying self-reported privacy attitudes to establish novel intervention strategies to change the status quo. Social media users already make some efforts to protect one another's privacy [49] but demonstrate generally "lax attitudes" toward IDP violations [50], which raises questions about how to facilitate more responsible sharing attitudes and behaviors.

IDP research has yet to take full advantage of health and social science literature documenting the significant advantages of large-scale public-oriented interventions for promoting welfare via prevention strategies. Current IDP interventions are largely top-down, such that the impetus is primarily on corporations and governments to regulate social media privacy (e.g., algorithmic approaches and human content moderation), with limitations including scalability and major policy inconsistencies [51]. In contrast, bottom-up psychosocial interventions target change at the level of the individual via social influence and have the advantage of being preventative, readily disseminated to large audiences, and have been highly efficacious in addressing other large-scale social issues outside the realm of privacy. Bottom-up interventions empower communities to leverage their collective social norms and values to enact change [52], where change among a critical mass has the potential to influence broader societal norms [53].

The anti-smoking campaign is a paradigmatic example of an effective bottom-up psychosocial intervention, with messaging deployed nationwide to the general public and demonstrated effective in preventing smoking uptake [54] and reducing overall smoking prevalence [55]. However, the efficacy of anti-smoking messages vary, with emotional and personal stories leading to greater behavioral changes compared to information-based approaches like quitting strategies [55]. Additional successful examples include sex education [56] and the 'me too' movement in social media, where influential messages disseminated to the public resulted in broader awareness and change in attitudes and behaviors. In the realm of computer science, a number of studies have examined stories as a way to improve users' personal security behaviors online, with cyber security research indicating that stories are effective in improving security setting use and reducing personal disclosures [57].

Despite the significant promise of such bottom-up psychosocial interventions, failure to complete thorough empirical testing prior to implementation can result in wasted resources (e.g., $1.3 billion United States D.A.R.E program [58])) or backfire by producing counter-intuitive effects that invalidate the intervention altogether (e.g., pregnant women drink alcohol more after viewing reminders to not drink [59]). Along these lines, Amon and colleagues demonstrated in a series of studies that prompting people to consider the privacy of others on social media *increases* the likelihood of IDP violations [60]. Although the aforementioned privacy intervention backfired by increasing sharing of negative information about others, the findings suggest that psychosocial interventions can alter social media sharing decisions.

The relative effectiveness of different interventions depends on a number of situational factors [61], including existing attitudes [62], ideologies [63], and quality of evidence [64]. Therefore, there is continued need for empirical testing of bottom-up psychosocial intervention strategies to promote safe online decision-making, as it remains unclear how messages about social media privacy serve to promote or undermine an IDP ethics of care. Interventions focused on prevention—eliminating privacy violations at the source (i.e., user)—are key to promoting privacy, civil discourse, and a respect for human dignity online.

Once empirical testing of intervention messaging is complete, the ad-based nature of the Internet [65] lends itself to engaging the public in an IDP care ethics. Effective advertising can stop us from our daily activities, make us feel a range of emotions, and even change beliefs and behavior [66]. Following from the public health literature and other social movements, information for the purpose of social influence may be disseminated through advertisements (e.g., anti-smoking campaign), public education programs (e.g., sex education), or by social media users themselves (e.g., 'me too' movement).

Although the present work emphasizes the need for an informed public to engage in IDP care ethics, a bottom-up psychosocial approach does not preclude the use of additional intervention strategies for IDP preservation. Returning to connections drawn between care ethics and stakeholder theory [35], care ethics emphasizes engagement of IDP-relevant users, corporations, and policy makers in caring-about to promote caring-for. Caring-for will inevitably look different based on the action capabilities of the stakeholder, where a diversification and integration of approaches may be most effective in limiting harmful IDP violations. For example, in addition to user (e.g., tactful inattention [67]) and corporate (e.g., algorithmic) approaches to content moderation, many social media platforms allow for input from users in 'flagging' potentially harmful material for review. Flagged content may be further moderated through the use of corporate-enacted algorithms or human content moderation workers, who make the decision regarding whether or not the material should be removed.

Researchers have also developed tools to improve user privacy management, such as the ELVIRA project, which uses a computer agent to develop user-specific sharing policies based on user values [68]. The agent is designed based on "human value theory," which identifies the optimal sharing policy for the user. Mosca et al. [68] proposed to justify the optimal solution through argumentation, enabling explainability and promoting the concept of "multiparty privacy." Hence, communication channels can provide users a voice in identifying potential IDP violations, and an opportunity for joint content moderation by users and corporations is afforded.

Additional communication between user and social media platform may follow an IDP violation to influence future sharing behavior.

For example, the Justice Framework's use of retribution or rehabilitation to educate users after a violation [69] provides a targeted intervention as a consequence of a previous violation, with the goal of applying penalties proportionate to the offense. In response to a lack of approaches that consider IDP violations, Niksirat et al. [69] proposed that victims be included in determining IDP violation consequences. The proposal suggested creating a communication channel between two parties, including the MPC subjects and MPC invader, to hold people accountable for their actions.

More broadly, social media corporations have also been exploring the use of pop-up messages that display when users participate in potentially harmful social media activity [70]. For example, to combat the spread of disinformation and misinformation related to COVID-19, Facebook introduced pop-up messages next to links containing misleading information about the pandemic [71]. Similarly, by integrating automated detection of information sharing about others (e.g., images, memes, and videos) and introducing passive nudges on the social media platform, it is possible to plant the seed of ethics of care among social media users.

Thus, stakeholders can engage in caring-for separately, find opportunities for joint action, or embed user decision support tools. In line with an ethics of care framework, IDP preservation requires us to encourage conditions that lead to caring behavior, where a variety of caring behaviors may support IDP preservation [22].

4. CONCLUSIONS

IDP represents a collective moral concern that requires government, corporations, and users to participate in an ethics of care to safeguard the benefits of the web and prevent unnecessary harm. Current strategies for combating IDP violations tend to be primarily reactive versus preventative and are limited in scalability by largely relying on corporations to enact them. An ethics of care framework emphasizes the need for social alignment between users, corporations, and government, where stakeholders hold a shared meaning of IDP and its consequences. In addition to current interventions enacted by government and corporations, next-generation interventions are needed that are preventative and target IDP at the level of the user. Specifically, following from successful large-scale public health intervention literature, bottom-up psychosocial interventions have the potential to transform how information is shared and responded to by users, creating a 'critical mass' and changing the landscape of social media sharing norms. Bottom-up psychosocial interventions will serve to complement the array of intervention strategies that may be successfully enacted by government, corporations, and users to provide caring-for. More research is needed to empirically validate bottom-up psychosocial strategies before they are employed at large-scale. In conclusion, ethics of care has potential to provide coherence in understanding the people involved in IDP, the nature of IDP issues, and potential solutions, in turn, motivating new directions in IDP research.

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