Improving Online Communities for Stigmatized Healthcare: Countering In-Group Microaggressions and Fostering Supportive Connections

HYEYOUNG RYU, University of Washington, USA and Vanderbilt University Medical Center, USA
JAEWON KIM, University of Washington, USA
SUNGHA KANG, University of Washington, USA
WANDA PRATT, University of Washington, USA

Women face significant challenges in seeking support for sexual and reproductive health (SRH) due to cultural taboos and microaggressions, even within supposedly safe online spaces. This study focuses on unmarried South Korean women who encounter these difficulties and often risk detrimental health outcomes by avoiding timely care. To investigate how to create safer and more supportive spaces for these women, we designed a 9-week study using the Asynchronous Remote Communities method for 26 unmarried Korean women participants. We created structured and unstructured activities to encourage sharing SRH narratives, which led to increased mutual support and understanding among participants. Additionally, we designed educational and reflective interventions that helped participants recognize the nuances and harms of microaggressions. This increased awareness promoted self-reflection and supportive actions among participants. Our approach demonstrates the potential to create supportive, reflective online spaces for people from marginalized communities who face stigmatized healthcare challenges. We hope our research inspires the development of more inclusive online spaces, driving positive social change in stigmatized healthcare support.

CCS Concepts: • **Human-centered computing** → **Web-based interaction**; **Social networks**; **Empirical studies in HCI**; **Computer supported cooperative work**.

Additional Key Words and Phrases: asynchronous remote communities, stigmatized health, women's health, sexual and reproductive health, microaggression, microintervention

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1 Introduction

Many individuals turn to online communities for health information and support, expecting them to be safe spaces where they can be free of judgments, relate to others in similar situations, and receive the support they were seeking[64, 78, 89]. Such safe spaces are especially crucial when necessary, but stigmatized health care is discouraged [27, 48, 50, 51]. For instance, sexual and reproductive health (SRH) care remains a taboo topic in many sociocultural contexts [4, 45, 65, 76]. In Japanese culture, discussions about reproductive organs are considered violations of civilized morality, with sex-related behaviors outside of marriage deemed indecent and requiring silence

Authors' Contact Information: Hyeyoung Ryu, University of Washington, Seattle, Washington, USA and Vanderbilt University Medical Center, Nashville, Tennessee, USA, hyryu115@uw.edu, hyeyoung.ryu@vumc.org; Jaewon Kim, University of Washington, Seattle, Washington, USA, jaewonk@uw.edu; Sungha Kang, University of Washington, Seattle, Washington, USA, sungha24@uw.edu; Wanda Pratt, University of Washington, Seattle, Washington, USA, wpratt@uw.edu.

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or euphemism [76]. Similarly, in South Africa, cultural and gender norms prevent mothers from discussing sexuality issues with their daughters [4]. For Muslim women, marital status dictates the permissibility of reproductive health care, as sexual activity outside of marriage is largely considered taboo [65].

This study focuses on unmarried South Korean (hereafter referred to as Korean) women because many such women avoid seeking SRH care, even when symptomatic, due to the cultural stigma associated with discussing or seeking help for these issues. These women also lack in-person support from trusted individuals, such as their mothers or networks of friends and romantic partners [71]. Consequently, they seek refuge in online communities, such as women-only forums in NatePann[1], women-only communities in period tracking applications, and general health question and answer forums in Naver Jisikin[2] [71].

However, in these communities, they often face microaggressions: everyday communications that put down, insult, or invalidate them [71]. The perpetrators of these microaggressions are not only anonymous, ill-intentioned users but also fellow Korean women who, by enforcing social norms, inadvertently commit microaggressions instead of offering genuine support [17, 71]. Consequently, the low seeking of SRH-related services could increase these women's health risks, including cervical cancer, sexually transmitted infections, pelvic inflammatory disease, ectopic pregnancy, and infertility [46, 75]. Thus, there is a pivotal need to address in-group microaggressions and support the safe discussion of stigmatized SRH concerns and discussions in online spaces.

To address this need, we created an online community of 26 unmarried Korean women participants who could anonymously discuss stigmatized SRH topics through structured and unstructured activities. We conducted a 9-week study within this community to investigate in-group microaggressions.

This study offers an example of how an online community can be leveraged to reduce in-group microaggressions within a specific cultural context. Specifically, we look at the use of asynchronous remote communities for reducing in-group microaggressions, taking the case of a specific population group. By prioritizing trust and mutual support as a foundation for meaningful engagement, we contribute strategies for addressing microaggressions that emphasize creating safer and more inclusive spaces.

Our contributions include actionable insights on designing structured activities that progress sequentially, enabling participants to reflect on their roles in perpetuating microaggressions, whether as targets, perpetrators, or allies. In addition, we provide practical guidance on developing perpetrator personas for people to reflect on to foster critical engagement and accountability. These strategies encourage reflective and constructive dialogue while minimizing the fear of microaggressions, paving the way for more supportive and inclusive environments.

These findings underscore the transformative potential of creating online communities with activities that could facilitate reflection, learning, and advocacy within marginalized communities. Our work advances the field of computer-supported cooperative work (CSCW) by showcasing how such an approach can empower individuals and promote positive social change in online communities.

2 Background

In Korea, SRH remains a highly stigmatized topic, constrained by cultural history and societal norms rooted in Confucianism [74]. Confucian values emphasize patriarchal authority, female chastity, and the prioritization of family honor, which contribute to the regulation of women's sexuality and

[1]https://pann.nate.com/talk/c20024
[2]https://kin.naver.com

reinforce stigma around SRH [67]. Traditionally, SRH initiatives have focused narrowly on maternal and child health, reinforcing a perception that SRH concerns are only relevant within marriage [67]. Conservative beliefs uphold strict sexual segregation and a double standard in sexual morality, with women facing harsh expectations [73]. These deeply ingrained norms have fostered an environment of silence and shame, discouraging open dialogue in both public and private settings [73, 74].

Unmarried Korean women face distinct and intensified barriers to accessing SRH care compared to their married counterparts. Societal expectations of chastity stigmatize unmarried women who seek SRH services, often associating their health-seeking behaviors with promiscuity or inappropriate sexual activity [47, 57]. This stigma is deeply rooted in cultural norms that tie SRH concerns exclusively to marriage, perpetuating the narrative that SRH is irrelevant or even inappropriate for unmarried women [57]. While married women may face some stigma around SRH, their concerns are more likely to align with socially accepted family roles, subjecting them to less scrutiny [47, 73]. Unmarried women, by contrast, must navigate an environment where even seeking SRH care can provoke suspicion or judgment, further isolating them and hindering proactive health-seeking behavior [57, 73].

Compounding these societal stigmas are microaggressions—subtle, often unintentional comments or behaviors that reinforce stereotypes and invalidate experiences [63, 81]. Microaggressions are deeply rooted in cultural oppressions, reflecting societal norms and power dynamics that marginalize individuals based on their identity or behavior [62, 63, 71] In the context of unmarried Korean women, microaggressions frequently arise from same-group interactions, where peers, female family members, or even online community members reinforce societal stigma through judgmental or dismissive remarks [71]. For example, a woman might hear, "You just need to be confident; no one even cares about you going to the OB-GYN," trivializing her fears of judgment. Alternatively, accusatory comments like, "Why are you overreacting? Do you have inferiority issues?" blame and invalidate her concerns. These interactions, often rooted in shared cultural values and norms, perpetuate stigma, reinforce silence, and discourage unmarried women from seeking care [71, 81].

Despite their significant impact in hindering SRH access, the concept of "microaggression" is not widely recognized or discussed in Korean society. The term lacks a direct translation in Korean and is often misrepresented in limited news coverage, where it is inaccurately translated as "aggression that seems like aggression but is not aggression," undermining its true meaning as a form of aggression [34, 66]. This linguistic and cultural gap limits the recognition of microaggressions, perpetuating a cycle of underreporting and unawareness. Without the appropriate language to describe these subtle yet harmful acts, unmarried Korean women often struggle to identify microaggressions or understand their detrimental effects. To date, only one study has specifically explored microaggressions in the context of unmarried Korean women and SRH, highlighting the gap in research on this critical issue [71].

The compounded challenges of societal stigma and microaggressions uniquely affect unmarried Korean women. Societal stigma creates a broader cultural narrative that discourages women from seeking SRH care by labeling it inappropriate or unnecessary outside of marriage. Meanwhile, microaggressions occur in everyday interactions, reinforcing these stigmas in more interpersonal and immediate ways. Together, these challenges not only isolate unmarried women but also hinder their ability to proactively address SRH concerns. This study focuses on these compounded challenges, particularly the lack of awareness and recognition of microaggressions, to better understand and mitigate the barriers unmarried women face, ultimately fostering environments that support their health-seeking behaviors.

3 Related Work

In this section, we connect with four key areas of research relevant to our study. First, we review the current focus of reproductive health work in the Human-Computer Interaction (HCI) field. Second, we review the current focus of online content moderation and its effectiveness in addressing online microaggressions. Next, we examine how existing microaggression interventions primarily target inter-group microaggressions, often neglecting the in-group microaggressions that further harm marginalized communities. Finally, we explore potential directions for counteracting these harmful in-group microaggressions.

3.1 Reproductive Health in HCI

Reproductive health has become a significant area of focus within HCI, as researchers examine how technology can address intimate health needs shaped by complex social, cultural, and medical factors. Central to this body of work is the recognition of the pervasive stigma and taboos surrounding women's bodies and intimate care [1]. By advocating for inclusive and collaborative designs, researchers aim to empower marginalized voices and challenge societal norms, offering innovative approaches to addressing stigmatized reproductive health topics [32].

Efforts to validate women's experiences and promote self-expression in discussions of sensitive topics have also gained prominence [1, 9]. For example, "period-positive" technologies celebrate menstruation rather than concealing it [9], while research on menopause underscores the importance of designing holistic tools that support individuals' overall experiences, rather than solely focusing on symptom tracking [6, 44]. These approaches emphasize the value of reframing intimate health as a natural and integral part of life, countering societal tendencies to marginalize such discussions.

In parallel, online communities have emerged as vital spaces for women to seek peer support, validate their experiences, and alleviate isolation. These platforms have proven particularly valuable for individuals managing invisible conditions like infertility [16, 26] and other reproductive health concerns [3]. They provide a sense of solidarity and enable open dialogue on sensitive topics such as sexual abuse, often facilitated by the anonymity they offer [2]. Such community support becomes especially critical when women face barriers to accessing healthcare providers or feel their concerns are dismissed in medical settings.

Building on this growing body of research, our study focuses on addressing the cultural stigma and microaggressions surrounding stigmatized SRH. By leveraging culturally sensitive, technology-mediated interventions, we aim to mitigate these microaggressions and foster awareness.

3.2 Microaggression Interventions

To address the impact of microaggressions, microinterventions have been introduced [39, 82]. These interventions, carried out by the target, an ally, or a bystander, aim to improve the psychological well-being of the affected individual [82]. The primary objectives of microinterventions are to expose the microaggression, neutralize its negative impact, educate the perpetrator, and seek external support if necessary [82]. By doing so, microinterventions strive to discourage harmful behaviors and reinforce positive social norms [36, 39, 82].

However, the responsibility for detecting microaggressions and implementing microinterventions often falls on the targets and their allies [31, 81, 82]. This responsibility is particularly burdensome, as targets and allies may fear retaliation from perpetrators or may be uncertain about the most effective course of action [81, 82]. Consequently, in many online communities, moderators are tasked with filtering or removing offensive posts [28]. Despite this, current online moderation practices provide limited support for identifying microaggressions [19, 69] and justifying their

moderation decisions to other users [14, 37], thereby missing crucial opportunities to educate the community about the nature and impact of microaggressions.

This issue is exacerbated by the limited assistance that moderators receive from Artificial Intelligence (AI) models currently deployed in online communities. Predominantly, research on online content moderation has concentrated on automated content regulation [77, 90] targeting macro-norm violations [12, 13, 90], shaming tweet categories [12], and lexical variations of moderated tags within communities that promote deviant behavior [11]. These approaches focus on identifying explicit insults or discriminatory language (e.g., ethnic slurs and derogatory terms related to LGBTQ+ and disability issues) [12, 13, 77, 90], but they often fail to detect comments that unintentionally invalidate individuals' experiences or feelings due to the absence of overtly abusive language. Many forms of abusive behavior, including microaggressions, are linguistically subtle and implicit [38, 62, 84]. Identifying such subtle yet emotionally harmful abuse [83, 87] necessitates advanced reasoning capabilities. These negating comments can be particularly harmful as they may be misconstrued as supportive while actually undermining individuals' beliefs, feelings, or experiences [38].

Although Bardal et al. [5] have developed high-accuracy machine learning classifiers for detecting and categorizing microaggressions in 2023, these classifiers have yet to be integrated into existing online communities. Moreover, even with the development of effective microaggression categorization models, AI systems remain prone to errors, especially when encountering out-of-distribution examples [10]. These systems also produce false positives [42] and are subject to systemic biases stemming from flawed assumptions inherent in the machine learning process [8, 87].

Furthermore, even if the accuracy of microaggression classifiers improves, the challenge of educating offenders persists. Current AI systems are not able to reliably generate articulations of content moderation reasons; at the present time, the most achievable sense of explanation is to provide the user with a reliability score of the model's predictions [58, 88]. In other words, moderated users are left on their own to make sense of the moderation [49]. Jhaver et al. [37] investigated how users feel when their content is removed from online communities. Their findings showed that over one-third of the study participants complained about a lack of clarity as to why their contents were removed, and one-half of the participants felt unappreciated and perceived the moderation to be unjust or frustrating. Even though explanations are pivotal, as Jhaver et al. [37] and Ma et al. [49] uncovered, explanations for why content was removed or how content sorting algorithms operate are not often offered for perpetrators after content moderation [55].

In response to the current state of lacking explanations that could help educate the perpetrators, scholars such as Kiritchenko et al. [43] have proposed alternatives to mere content deletion, including strategies such as quarantining potentially abusive posts, translating abusive texts into non-abusive language, and providing counterspeech that offers logical, fact-based, non-aggressive refutations of stereotypes and misinformation present in abusive content. Moreover, Mayworm et al.[55] developed the Online Identity Help Center for marginalized social media users to understand platforms' policies and access appeal resources. However, these approaches for increasing explainability for online content moderation remain underutilized despite evidence indicating that the wholesale removal of abusive content may not effectively address underlying issues [10, 42, 43]. Consequently, the responsibility of educating offenders continues to impose a significant burden on microaggression targets and their allies [38, 62, 82, 83].

3.3 In-Group Microaggressions' Harm

Although educating offenders about intergroup microaggressions is challenging, as discussed in section 2.1, educating offenders within the same identity group as the target is even more complex. Much of the existing literature on microaggressions focuses on intergroup dynamics, where one

identity group directs microaggressions toward another, typically a more powerful or higher-status group targeting a minority group. Examples include microaggressions issued by Whites toward Blacks or men toward women [39, 81, 84]. For these intergroup microaggressions, several strategies for microinterventions have been developed [39, 82].

However, in-group microaggressions—those that occur within the same identity group—are often more harmful. These microaggressions, directed by individuals within a minority group toward other members of the same group, can significantly damage one's identity and self-worth. The harm is intensified as the perpetrator shares the same identity as the victim [63, 71].

In-group microaggressions typically stem from the internalization of oppressive sociocultural norms [63, 71]. For instance, Nair et al. [63] demonstrated how Black women feel pressured to conform to certain beauty standards and are judged based on their perceived level of "blackness." Similarly, Ryu & Pratt [71] showed how unmarried Korean women face pressure to avoid seeking SRH care before marriage and are judged by other unmarried Korean women for being overly sensitive or impatient in dealing with health issues. These in-group microaggressions can cause severe and lasting damage to the self-worth of marginalized individuals [63, 71].

Despite the significant impact of in-group microaggressions, specific interventions are not designed to counteract or prevent them. These interventions would need to address the unique dynamic where perpetrators and allies belong to the same group [39, 63, 71, 82]. Therefore, there is an urgent need to explore how to better educate offenders who inflict substantial and enduring harm on members of their own identity group.

3.4 In-Group Microaggression Interventions: Re-Defining Allies and Educating Offenders

Although significant progress has been made in developing measures for intervening in intergroup microaggressions, interventions specifically targeting in-group microaggressions have not been extensively explored. Therefore, we draw upon feminist HCI, educational moderation, and microintervention literature to envision potential directions for addressing in-group microaggressions.

Interventions targeting in-group microaggressions necessitate a fundamental shift in understanding allyship and fostering heightened awareness among participants. Traditionally, allyship involves individuals from dominant groups assisting the oppressed [21]. However, this definition can inadvertently reinforce social hierarchies and overlook the nuanced identities of individuals [59, 70]. Therefore, as others have also suggested, we re-define allies as those who challenge bias within their own affinity groups and actively support people even within their own marginalized communities [7, 85, 86].

Feminist HCI scholars emphasize the importance of re-educating potential allies by promoting comprehensive stakeholder awareness [7, 72, 85]. For instance, Sultana et al. [85] highlight design strategies that empower users from vulnerable populations to transition from potential or current perpetrators to allies. Educational moderation systems, advocated by researchers such as Myers West [60] and Jhaver et al. [37], provide explanations to offenders about the harm caused by microaggressions and offer opportunities for reflection and amendment. These systems hold perpetrators accountable while acknowledging the experiences of targets [7, 37, 60]. As Schoenebeck et al. [72] argue, punitive moderation systems fail to acknowledge the experiences of targets and hold perpetrators accountable for harm, whereas educational systems provide explanations and opportunities for learning and growth.

Furthermore, raising awareness among potential allies or perpetrators, especially those who share similar identities or have faced comparable forms of oppression, is crucial. Normalizing oppression inadvertently perpetuates microaggressions, while acknowledging and empathizing with the harm fosters resilience and growth [17, 71]. Sue et al. [82] propose an "educating the offender"

strategy, which emphasizes tactics such as appealing to shared values, fostering empathy, and differentiating between good intent and harmful impact. These tactics are essential for counteracting and preventing microaggressions. By educating individuals who may unknowingly engage in microaggressions within their own identity group, Sue et al. [82] aim to promote awareness and empathy, ultimately reducing harm and fostering a safer and more supportive environment.

Building on these principles, we aimed to create educational and reflective opportunities within online communities where unmarried women seek support on stigmatized health issues from fellow women. By encouraging learning and reflection on in-group microaggressions, our goal was to enhance allyship and awareness, ultimately counteracting and preventing such microaggressions.

4 Methods

We created an online community for unmarried Korean women using the Asynchronous Remote Communities (ARC) method to support two main objectives: (1) structured reflection and discussion on the culturally taboo topic of SRH, and (2) learning about and reflecting on in-group microaggressions related to SRH. In section 3.1, we explain how we leveraged the ARC method to create an online community for unmarried Korean women to freely discuss and reflect on stigmatized SRH and in-group microaggressions, providing support and learning in a safe and structured environment. Specifically, we look at the use of ARC for reducing in-group microaggressions, taking the case of a specific population group. Then, we describe the participant characteristics, platform selection, privacy measures, activities, study procedures, positionality statements, and analysis in the following sections. This study was approved by our institution's Institutional Review Board.

4.1 Utilizing the ARC Method to Address In-Group Microaggressions and Support Stigmatized Healthcare Discussions

The ARC method, developed by MacLeod et al. [50] and further strengthened for supporting stigmatized individuals by Maestre et al. [52], serves as an online community with structured activities for research purposes. This method allows participants to join a community focused on a shared interest and connect through activities created by researchers [20, 50, 52]. ARC is particularly useful for studies involving people facing constraints related to location, time, privacy, and stigma [20, 50, 52]. Participants can engage in the community without researchers being physically present, preserving their privacy and anonymity [20, 50, 52, 68]. This anonymity enables participants to share their thoughts and experiences freely, without inhibition due to social, cultural, and political climates [50, 52]. ARC studies benefit people from marginalized communities by creating supportive spaces for socializing, venting problems, and seeking support without identity disclosure[52]. Consequently, we identified the potential of ARC to help women safely discuss and reflect on the culturally taboo topic of SRH.

An ARC study involves a group of participants in a private online community created by the researcher, where they complete periodic activities both individually and as a group [20, 50]. These activities are based on MacLeod et al.'s [50] original set, inspired by traditional HCI research methods (e.g., focus groups, surveys, diaries, photo elicitation, and personas), and expanded by Prabhakar et al. [68] and Maestre et al. [52]. Participants can complete ARC activities at any time during the specified period (e.g., a week) [20, 50], allowing them to contemplate each topic, organize their thoughts, and articulate them through written or verbal expression, while also delving into the experiences of others. This asynchronous approach alleviates the pressure of formal, in-person research activities [50, 52, 68]. These practices enable deeper understanding and insight, fostering richer discussions and more thoughtful contributions [50, 52, 68]. As a result, many CSCW researchers have adopted the ARC method to leverage these advantages[18, 35, 56], and better understand the challenges and uncover community-sourced design directions for various needs.

Examples include technology-supported solutions for families during prolonged social isolation [56], social media privacy measures for youth [35], and relationship platforms for marginalized sapphics [18].

We deemed ARC would present a unique opportunity for participants to learn about and reflect on in-group microaggressions. Maestre et al. [52]'s study on creating ARCs for individuals with AIDS demonstrated the value of safe spaces for stigmatized populations to share experiences and engage in reflection. While ARCs have not been used to address in-group microaggressions, their potential lies in fostering allyship and expanding awareness through activities that facilitate learning and reflection. **By providing a safe environment for stigmatized individuals to connect, learn, and reflect, ARCs hold promise as interventions for in-group microaggressions, empowering participants to become true allies who support, rather than harm, in-group members.**

4.2 Participants

We recruited 26 unmarried Korean women participants, ranging in age from 20 to 34 (M = 26.8, SD = 3.1), through university research-study recruitment boards, social media, and snowball sampling. Three of the participants were recruited through snowball sampling.

As MacLeod et al. [50] emphasized, informed consent, or ensuring that the participants understood what they are consenting to, is crucial to remote studies. We used email to send our informed consent document to anyone expressing interest in the study and called each potential participant to walk through the document and answer any questions they had about the study. The consent document detailed the measures taken to ensure their privacy and data confidentiality. They were informed that all engagement data would be anonymized before analysis, with any identifying information removed. The email explained that data would be securely stored using the institution's data storage platform, which complies with institutional and data protection standards. Participants were also informed that anonymized findings may be included in publications or presentations. After the call, we asked them to send the signed document if they were interested in participating and reach out to the study team with any questions they may have had after the call ended.

All participants received primary and secondary education in Korea and were all currently living in Korea. No participants were currently married, nor had they been married before. All participants had used online communities prior to the study. In this study, we define the term *used* as not solely the active usage of posting or commenting but also the passive usage of viewing posts and comments of the participant's interest. 21 participants did not know what microaggressions were before joining the study, and 5 participants had heard of microaggressions but did not have a detailed knowledge of microaggressions. Each participant was compensated $70 for completing the study, regardless of their level of activity. Participants who completed the evaluation interview received an additional $30.

4.3 Platform Selection and Privacy

We built the asynchronous remote community on its own platform using Wix.com[3]. We chose not to use private Facebook groups because our participants preferred online communities separate from their social media accounts for seeking SRH information or advice, primarily due to privacy concerns. Also, to ensure the users' privacy when discussing a highly taboo topic, the lead researcher randomly assigned each participant a Korean pseudonym as a username that was not associated with any of the participants' names.

[3]https://www.wix.com

Participant anonymity in our study was maintained by adhering to the key principles of the ARC method. Participants used pseudonyms throughout their engagement, and all interactions occurred through an online platform that safeguarded personal identifying information from the research team. The lead researcher (first author) was the only individual with access to participants' identifiable data (e.g., name, age, email address, phone numbers), a fact explicitly communicated to the participants. The other researchers were only aware of randomly assigned participant IDs, which were generated by the lead researcher without any connections back to participants' identities.

Throughout the study, participants communicated solely with the lead researcher for any questions, concerns, or compensation-related matters. This ensured that other members of the research team were not privy to participants' specific concerns or identities. Our approach was even more secure than previous ARC studies, where participant information was shared among the entire research team. We implemented this enhanced level of anonymity to honor our participants' preference for minimal sharing of personal information.

4.4 Activities and Study Procedures

We prepared a set of activities inspired by Dunbar et al.[20]'s and MacLeod et al.[50]'s ARC method blueprint of activities prior to the study. We adapted the content of the activities to fit our study's topic of (1) supporting reflection and sharing of thoughts and experiences on SRH and (2) creating education and reflection opportunities on in-group microaggressions. We recognized that the activities might cause discomfort or unpleasantness for participants. Therefore, we encouraged them to contact us with any questions, concerns, feedback, or requests for clarification [52]. In Table 1, we elucidate the activities participants completed during their 9-week study participation, which is a typical length for ARC studies[20]. Two activities—Ask Me Anything (A10) and Diary (A11)—were available from the study start date to the study end date to facilitate socializing and communication among participants [50, 51].

For the weekly activities, we started with activities for participants to find similarities with others—Introductions (A1), Ranking of Problems (A2), Open-Ended Questions (A4), and Circle Network Diagram (A5). Although not directly related to microaggressions, these early activities were necessary to prepare participants to engage with later activities addressing more sensitive topics such as microaggressions by establishing rapport and trust within the group. By understanding similar hardships in seeking support for SRH (A1, A2, A3, A4, A5), we thought that participants would be able to open up and share more about their SRH-related concerns and experiences as shown in Maestre et al.[51]'s study. We also hoped to instill a sense of belonging in the group and camaraderie with fellow ARC participants, as found in Prabhakar et al.[68]'s study.

Then, we employed in-group microaggression education and reflection activities—Microaggression Perpetrator Personas Critique (A6) and Microaggression Counteraction Tool Evaluation(A8)—to enhance allyship and awareness among participants. Only a subset of activities, such as A6 and A8, focused specifically on microaggressions. This was a deliberate decision to avoid overwhelming participants by attempting to address sensitive topics in isolation. The non-microaggression-focused activities were facilitated to help participants foster rapport and help participants identify shared challenges, creating a supportive foundation. This groundwork was deemed essential by ARC researchers for preparing participants to engage meaningfully with the more complex and sensitive tasks introduced in A6 and A8 [24, 50, 68].

We developed A6 based on the findings of MacLeod et al. [50] and Cooper [15], which highlight that being a victim of a particular problem does not inherently grant one the ability to identify its solution. With A6, we aimed to introduce the concept of in-group microaggressions, provide opportunities to apply this knowledge, and understand the subtlety and nuance of microaggressions

Table 1. ARC Activity Descriptions. ARC Activity = Title of ARC activity. Wk = The week the activity was introduced in the study. C = The percentage of participants' corresponding activity completion. The length of an activity description does not reflect its importance. Some descriptions are longer because they include detailed explanations of the content, such as personas or prototypes, in addition to the activity instructions.

Wk	ARC Activity	Description	C
1	A1: Introductions	Participants introduced themselves without direct identifiers (e.g., name, age, address, region, contact information).	100%
1	A2: Ranking of Problems	Participants chose the relevant reasons for difficulties in seeking support for SRH care from the list of reasons and ranked the top three reasons that make it personally difficult for them to seek support.	100%
2	A3: Advice Columnist	Participants acted as advice columnists giving advice to a fictional character going through a common SRH care problem unmarried Korean women face.	100%
3	A4: Open-Ended Questions	Participants posted replies to two prompts given by the researchers. The first prompt was on the appropriate timing and place for women's health issues education. The second prompt was on how they would approach or not approach their hypothetical daughters when they are experiencing SRH care problems.	100%
4	A5: Circle Network Diagram	Participants illustrated how comfortable they were sharing information with different people by drawing circles with themselves at the center and placing people at different distances from the center.	100%
5	A6: Microaggression Perpetrator Personas Critique	Researchers explained microaggressions and their negative impacts on health. They created two perpetrator personas based on a common situation for unmarried Korean women: a friend sharing concerns about vaginitis after a long period of contemplation. The personas varied in microaggression severity, both unintentional. Persona J was sympathetic but implied that better hygiene could solve vaginitis, indirectly suggesting Target K was not clean, dismissing the complexity of the issue, and unintentionally insulting K. Persona H lacked empathy, implied blame for the condition, and dismissed the reality and seriousness of K's concern. Participants critiqued the perpetrator personas and discussed the relevance to their own lives.	100%
6	A7: Things I Wish I Knew & Photo Elicitation	Participants were asked to share what they wished they knew when they were younger, related to their SRH care. Participants were also instructed to upload 1-2 photos (self-taken or stock photos) representing the content or theme of their letter to their younger self if they were comfortable.	100%
7	A8: Microaggression Counteraction Tool Evaluation	Participants provided feedback on four microaggression counteraction tool prototypes, each designed to address the negation or invalidation of unmarried Korean women's SRH challenges on social media platforms. The prototypes included the following features: indicating the type of support needed, blocking microaggression comments with the option to view them, featuring only positive support expressions, and offering the option to change microaggression comments before posting with suggested rephrasals.	100%
8-9	A9: Debrief Survey & Reviewing Others' Responses	Participants were asked to complete a survey to debrief their experiences in the study. Also, the participants were asked to review the Q&A board and the diary board during weeks 8 and 9.	100%
1-9	A10: Ask Me Anything	Participants posted questions on SRH health issues or problems and received feedback from other participants.	58%
1-9	A11: Diary	Participants wrote down details about a specific type of women's health event as it occurs.	19%

[81, 82] by evaluating perpetrator personas rather than victim personas, and discuss how representative these perpetrator personas are of the participants' own experiences. We also wanted to provide participants time to reflect after the first in-group microaggression activity, so we conducted the second in-group microaggression activity two weeks after the first. We conducted another activity that would support understanding of similar hardships in seeking support for SRH, Things I Wish I Knew & Photo Elicitation (A7), in between the two in-group microaggression activities. The second in-group microaggression activity, A8, was conducted for further exchange of ideas on microaggression counteraction and prevention and reflection[52, 68] on how to help each other[52].

We created a discussion board for each weekly activity, with the most recent weekly activity posted on top to increase its visibility [50] (Figure 1). All activities' responses were visible to other participants except for the Debrief Survey & Reviewing Others' Responses (A9). Weekly activities were posted on the same day and time, and participants were reminded about them on the same days and times every week [52]. Additionally, reminder emails were sent three days before the activity, and participants who had not completed the activity one day before the deadline were sent another email. Each weekly activity was designed to take approximately 15 minutes to complete, being mindful of the number of steps needed to complete an activity[68]. The activity completion deadline was set to one week after the activity had been posted, but participants were granted deadline extensions upon request.

All participants completed all the weekly activities (A1-A9). After the 9-week study participation, participants were asked to participate in an optional evaluation interview that lasted approximately 50 to 60 minutes. We asked about their overall experience with the ARC, the enjoyability and difficulty of the activities, what activities supported them in thinking about and discussing the stigmatized topic of SRH, whether and how the activities helped them discuss the culturally taboo topic, and their perceptions of microaggressions. Twenty-one participants completed the evaluation interview. For the five participants who did not participate in the evaluation interview, their study participation ended after week 9.

4.5 Positionality Statement

Three of the authors are unmarried Korean women who received their primary education in Korea. The first author has used online communities to seek support for their SRH concerns. She has also conducted research on microaggression prevention, counteraction, and the empowerment of people in marginalized communities. She recognizes that her positionality influenced this study in interpreting unmarried women participants' online community usage and SRH support-seeking hardships, but also provided valuable insights into understanding in-group microaggressions and the Korean sociocultural context.

The second author has conducted multiple studies on designing for online communities and social technologies. Although she did not seek online communities for SRH concerns prior to conducting this study, she has a generally positive view of their potential to support information seeking and validation, especially for culturally sensitive or taboo topics.

The third author has not used online communities for SRH concerns, but her prior experience with microaggressions on social media platforms helped provide insights into unmarried women's subtle discrimination experiences in online communities. Additionally, her research experience with the harms and support women face in various online communities provided insights into the contextual understanding of harm and support in online communities.

The last author is a White American woman who has done extensive research in online health communities and has used such communities to seek support for her own or her family's health needs. These experiences have led her to a positive view of such online communities.

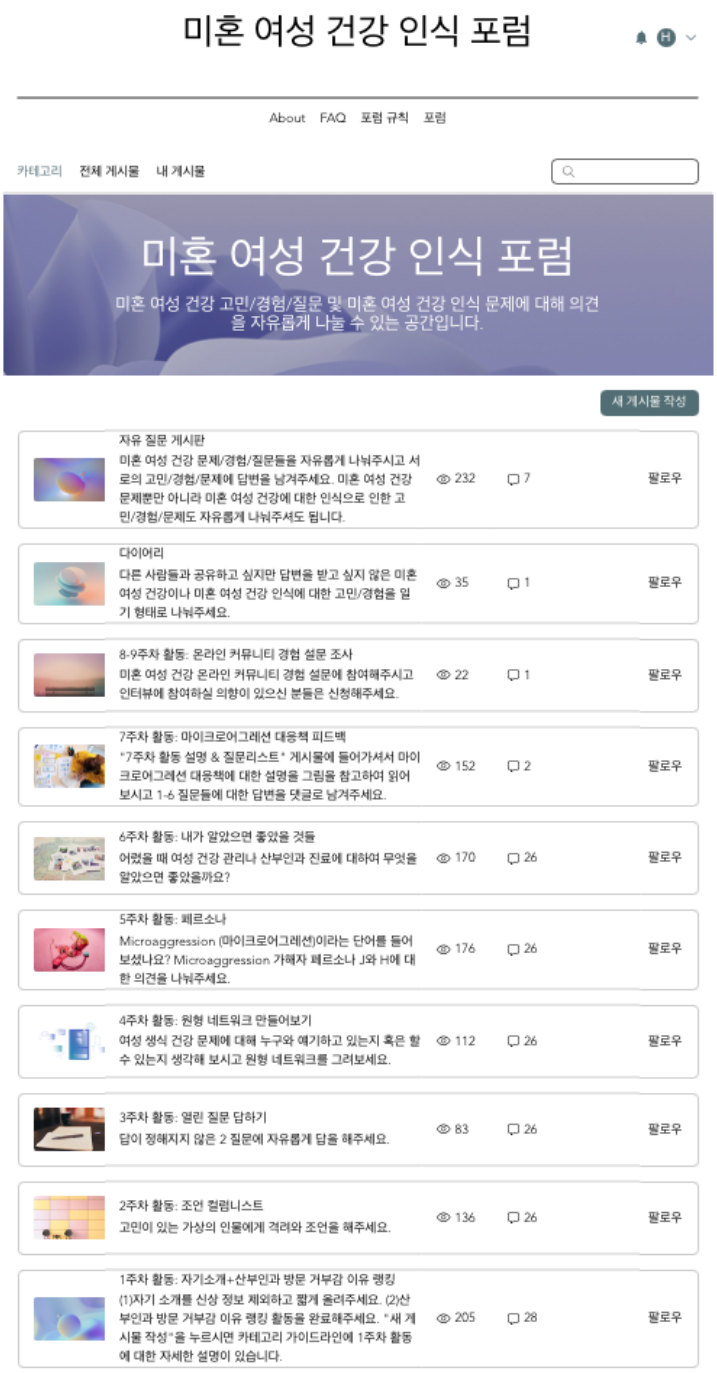

Fig. 1. Home Page of Online Community Created for This Study. Discussion boards are boxes designed with a white background and a black frame. They include an image on the left, the title and explanation text in the middle, and the number of views and posts on the right. The follow button is located on the right. The top two discussion boards were the two activities that were available from the study start date to the study end date. The third discussion board from the top is the latest weekly activity discussion board.

4.6 Analysis

We audio-recorded the evaluation interviews and used a professional transcription service to have the recordings transcribed verbatim. First, the first, second, and third authors co-coded three transcripts with the ATLAS.ti software[4] using the grounded theory approach[80]. Second, to derive codes representing dominant concepts in the data, the first author clustered related codes into overarching categories using an affinity diagramming approach, wherein she arranged coded excerpts into clusters according to similarity. To validate the coding scheme, she iterated on affinity diagramming with the second and third authors. With the codebook, the first, second, and third authors co-coded two more transcripts together and iterated on the codebook. Third, with the finalized codebook, the first author coded the remaining transcripts. Discussions were conducted with all authors at every stage to further ensure validity.

5 Findings

Our approach fostered empathy and understanding among unmarried women, educated them on the nuances and impacts of in-group microaggressions, and encouraged reflection and action, helping them recognize and address SRH care challenges and support each other as allies. In section 5.1, we describe how features we set up in the online community supported the increase of empathy and understanding amongst unmarried women. In sections 5.2-5.4, we describe how the in-group microaggression education and reflection activities, A6 (Microaggression Perpetrator Personas Critique) and A8 (Microaggression Counteraction Tool Evaluation), increased unmarried women participants' perception of in-group microaggression as a problem (section 5.2), by understanding the subtle nuance and harmful impact of microaggressions (section 5.3) and reflecting on their own or witnessed microaggression perpetration (section 5.4). In section 5.5, we describe participants' actions and plans to become better allies to fellow unmarried women. Figure 2 illustrates how the online safe space we created served as an intervention to help participants understand, notice, reflect on, and ultimately act to reduce in-group microaggressions.

5.1 Mutual Support and Understanding of SRH Challenges

Through their participation in the online community we created, participants were able to increase their mutual support and understanding towards fellow unmarried women. Participants expressed increased mutual support and understanding which they attributed to three factors: (1) the sense of safety from an anonymous yet personable identity in a small community, (2) the creation of mutual vulnerability, and (3) the perception of the online community as a supportive space.

The first was **safety from the anonymous yet personable identity in a small community**. In contrast to participants' typical online communities, many participants appreciated that we made their usernames actual Korean names that were personable but disassociated from their identity. They thought that the usernames ensured anonymity and simultaneously helped them feel closer to other participants. That factor contributed to them feeling safer engaging in our online community than in other communities.

> What I liked was that although the usernames were anonymous, they were set up as real people's names, so it was personable, but no one could guess who they were. This seemed to ensure anonymity better than other (online SRH support) communities and made me feel closer (to other participants). I liked that. - P7

The community's small size also helped women feel safe to open up and share their SRH concerns and experiences. Many participants stated they would not have opened up in larger communities because there were more chances of taunting or dismissal in those communities. Moreover, many

[4]https://atlasti.com

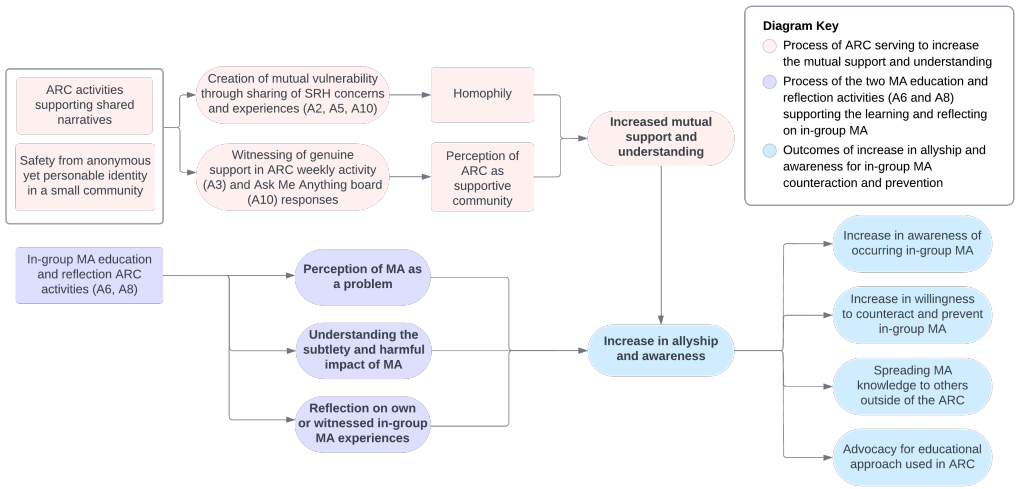

Fig. 2. Process of ARC Participation Serving as an In-Group Microaggression Intervention. The pink-colored part of the diagram, or the top two rows of components for the diagram, shows how ARC served to increase the mutual support and understanding between unmarried women ARC participants. The green-colored part of the diagram, or the bottom two rows of the diagram, show how the two microaggression education and reflection activities (A6: Microaggression Perpetrator Personas Critique and A8: Microaggression Counteraction Tool Evaluation) supported the learning and reflecting on in-group microaggressions. The blue-colored part of the diagram, or the rightmost side of the diagram, shows that the increased mutual support and understanding between unmarried women participants and learning about and reflecting on in-group microaggressions supported the four ways of the increase in ARC participants' allyship and awareness for in-group microaggression counteraction and prevention. MA is an acronym for microaggression, and SRH is an acronym for sexual and reproductive health. A2 is the Ranking of Problems activity; A3 is the Advice Columnist activity; A5 is the Circle Network Diagram activity; A10 is the Ask Me Anything activity.

participants stated that they could relate to others more than they would in larger communities, which helped foster connectivity between the participants.

> I liked that it (the online community) was small. In small communities, people are less likely to say sh**. They are more likely to be supportive, and I feel like I can relate to others on a more personal level. - P26

The second factor was the **creation of mutual vulnerability** through sharing SRH narratives in activities. Many participants thought that other participants' experiences related to SRH were similar to their own and felt relieved that they were not alone. This relief and reassurance that they were not alone in having SRH-related concerns created a sense of homophily, which made it easier for participants to trust fellow participants and further share their SRH-related concerns and experiences.

> What I thought was the most outstanding thing was that when I sometimes read other people's posts, I felt they were more mature and trustworthy. When I read about other people's experiences, I felt there were parts I could relate to, which gave me a sense of reassurance and comfort. It made me more open to sharing my stories (related to SRH). - P26

A2 (Ranking of Problems), A5 (Circle Network Diagram), and A10 (Ask Me Anything) were activities that participants stated helped them the most in becoming more willing to open up. These activities revealed how social prejudices against unmarried women seeking SRH care, deeply ingrained in Korean culture, shaped participants' concerns and behaviors. For instance, reading other participants' responses for A2 helped participants feel reassured that other unmarried women had similar concerns rooted in the social prejudice against unmarried women seeking SRH care.

> (When I read the responses for A2), it was reassuring to know others had similar concerns, especially about being hesitant to seek SRH care because of what others might say or societal judgment. – P16

Similarly, A10 allowed participants to discover that people were trying to resolve their SRH problems independently without discussing them with others, reflecting a shared cultural expectation in Korea to maintain privacy and avoid appearing improper.

> Regarding SRH issues, I realized that everyone has similar concerns. When I read other people's comments on the Ask Me Anything board (A10), I saw solutions in a similar vein, which made me think everyone has similar thoughts but they have not been talking about them much. - P25

A5 further revealed participants' limited SRH support networks, which led to many participants becoming more willing to be vulnerable and share their SRH concerns and experiences.

> The circles (concentric circles in A5 that showed with whom participants discussed their SRH concerns) that other participants made were so similar to mine. A lot of people did not or could not talk about these concerns with others. ... We all needed to open up more, including myself. – P2

These activities exposed the restrictive cultural norms in Korea that stigmatize open conversations about SRH, fostering isolation and limiting participants' ability to seek support. By highlighting shared experiences, the activities challenged these ingrained societal expectations, allowing participants to reexamine their reluctance.

The third factor was the **participants' perception of our online community as supportive**, fostered by witnessing empathetic and validating responses from other participants. Many participants' previous experiences in other online communities for SRH support included aggression, taunting, or dismissal of concerns from others, which led to their passive use of the online communities to avoid judgments.

> When I became more interested in sex or first started worrying about menstrual issues, it was hard to ask questions in online communities. I was afraid that if I posted, I would get criticizing and prejudiced comments again. Even though it was anonymous, it still hurt. ... I don't post at all now. - P16

However, while participating in our online community, many participants found that fellow women could provide meaningful support and kindness in anonymous online settings. This sense of mutual support was particularly evident in responses to A3 (Advice Columnist)—writing letters to a hypothetical unmarried woman hesitant to seek care because of the taboo associated with SRH—and A10. Through these activities, participants experienced validating and supportive responses to others' SRH concerns, a stark contrast to the dismissal and invalidation from fellow women they had often encountered in other anonymous online communities they had used for SRH support.

For instance, in A3, participants expressed the care and understanding they wished they had received themselves, creating a space where women could share their vulnerabilities and feel affirmed. This mutual exchange of support helped participants perceive the online community we

created as a safer and more supportive space, empowering them to be vulnerable and share deeply personal experiences on a culturally taboo subject.

> I remember in the second week, while looking at other people's sincere and empathetic responses (in A3) that validated the character's concerns, it occurred to me for the first time that I could receive this kind of emotional support even in an anonymous community. - P10

5.2 Recognition of Microaggressions as a Problem

We found that having participants evaluate whether the perpetrator personas in A6 (Microaggression Perpetrator Personas Critique) should be considered harmful helped them realize that well-intended words of support could indeed be damaging and that underlying biases could unintentionally surface. When participants first engaged with activity A6, 24 out of 26 recognized microaggressions as problematic. This activity led to the initial understanding that in-group microaggressions are harmful. Through evaluating the two perpetrator personas in A6, participants became aware that their well-intended words of support could be perceived as microaggressions by fellow unmarried women.

> There are cases where people think that because it is a conversation between individuals of the same gender, they won't engage in such aggressive behavior. That's why I thought this issue should be considered among same-sex peers. When it comes to SRH issues, it's not just men's behavior that's problematic. Women discussing SRH issues among themselves can also face similar problems. - P17

Moreover, by critiquing the two perpetrator personas who unknowingly propagated their own prejudices while giving advice on a friend's SRH concern, participants recognized how their own words of support could unintentionally reflect societal prejudices rooted in Korean cultural norms. This realization was profound, as many participants had not previously considered how cultural expectations for women to embody traditional ideals—such as modesty and silence—might subtly influence their interactions.

> I became aware that when I speak, I might unconsciously express biases or discriminatory thoughts without realizing it, like the characters (perpetrator personas in A6). This newly found insight was the most memorable thing for me. - P10

This realization underscores how deeply Korean societal norms influence language and behavior, often in subtle ways. By critically reflecting on these biases, participants began to question the cultural frameworks that shaped their interactions, even when their intentions were supportive.

The majority of the participants who did find microaggressions to be a problem to address were especially appreciative of activity A6, which helped them become aware of microaggressions. They felt liberated to be able to name the phenomenon that they had been seeing but were unable to define as problematic because there was no known term for it.

> In everyday life, people say things like that, but I didn't think it was a microaggression. I felt uncomfortable and negative, but I didn't know why. After learning about the concept of microaggressions, I had an aha moment, realizing that was why I felt uncomfortable. - P7

Also, they felt validated that they were not alone in finding microaggression comments to be uncomfortable and negative. Learning about microaggressions helped them articulate the emotional impact of such remarks, which they had previously struggled to express due to the normalization of dismissive attitudes in Korean culture that discourage addressing such issues directly.

> I had seen similar subtle derogatory remarks (like those in A6 perpetrator persona descriptions). ... Learning about microaggressions and seeing others also find it problematic helped me understand that it's normal for the person hearing them—or me seeing them—to feel upset. - P10

Moreover, some participants expressed surprise that microaggressions can occur within the same identity group. They said that they had never thought that women could commit microaggressions against other women.

> I didn't know that microaggressions related to women's health could occur between women. I thought they were just about race or similar issues. However, I realized that a comment like one woman telling another to 'just wash' when she has vaginitis could be a microaggression. - P3

These findings highlight how cultural norms in Korea contribute to the invisibility of microaggressions related to SRH, emphasizing the need for more awareness and dialogue. By uncovering these dynamics, participants gained a deeper understanding of how cultural stigma shapes interpersonal interactions and perpetuates harm.

5.3 Understanding of Subtlety and Harmful Impact of Microaggressions

We used two personas with varying levels of subtlety in their microaggressions. One was a microinvalidation, dismissing and negating the person with vaginitis's concerns and experience, and one was a microinsult, implying the person with vaginitis is unhygienic. Although all the activities were short and designed to take only fifteen minutes to complete, participants were able to understand the subtle nuances of microaggressions. They recognized the subtle difference and the harmful impact of the two microaggressions shown in A6.

> During the fifth week (A6) activity, I first learned what microaggressions are by looking at the examples. I don't remember if it was J or H, but I felt more uncomfortable with one over the other. Both were still harmful and subtle, but one was more dismissive and less empathetic. - P13

Furthermore, many participants were able to differentiate between good intent and harmful impact through evaluation of the two personas that had varying levels of subtlety in their microaggressions. Participants recognized that even with good intent, harmful impacts could arise and that they needed to be cognizant of the impact that could arise with well-intended words.

> It's clear someone doesn't necessarily have malicious intent, but I realized such situations (in-group microaggressions) can still occur. - P17

They also thought that the person providing support should be more aware of the impact and more careful about how they frame their support because SRH is an intimate and difficult topic to share.

> Since women's health is a private and difficult topic, it's natural for the listener to feel upset. The speaker should be careful. I thought if I were the one speaking, I should definitely be cautious. - P2

5.4 Reflection on Microaggression Experiences

We created microaggression perpetrator personas that resembled everyday situations participants might encounter (e.g., commenting on a close friend's SRH concern but unintentionally insinuating that they are dirty and that's what caused their vaginitis). We found that our approach helped participants reflect on their own experiences without feeling uncomfortable or unpleasant because

they realized that microaggressions could occur unintentionally in everyday situations. Twenty-two participants reflected on their own experiences of perpetrating microaggressions. All of them expressed that they did not feel uncomfortable or unpleasant during this reflection.

> Actually, I didn't feel particularly uncomfortable or have specific thoughts about it (reflecting on my microaggressions). I realized I often used such words in everyday life. This was shocking because I understood that, depending on the person and the situation, they could be perceived negatively. That's why it remains memorable. - P14

Instead, they were able to understand the commonalities between the perpetrator and themselves. They realized that being a microaggression perpetrator could be a common occurrence: words they often used as support or helpful responses to their friend's concerns were unintentional microaggressions.

> The activity showing real examples of microaggressions (A6) was interesting. It made it easier to reflect on whether I had ever been a perpetrator to a friend and whether I had been a target. It helped me organize my thoughts and realize I had been a perpetrator—unintentionally, of course. - P25

Participants also reflected on witnessed microaggression experiences in online communities and experiences where they had become targets of microaggressions. We made the responses for A6 shared, so participants were able to see others' testimonies of microaggression perpetration and target experiences. This made them feel they were not alone in experiencing or perpetrating microaggressions.

> While looking at other people's responses during the fifth-week activity (A6), I realized again that in Korean society, it's still rare to discuss concerns openly. People often form biases or judgments about the person sharing (their SRH concerns). This made me reflect on whether I might have been a perpetrator of such microaggressions. I also felt comfort knowing others had similar experiences of both perpetrating and being targets of microaggressions. - P24

5.5 Allyship and Awareness for Countering In-Group Microaggressions

Through education and reflection on in-group microaggressions, many participants further contemplated ways they could be allies and challenge bias within their own affinity groups.

First, participants expressed a need to be aware that microaggressions are occurring to counteract in-group microaggressions that harm fellow unmarried women. They stated that being aware of microaggressions helped them see and identify more microaggressions.

> Regarding microaggressions, I started paying more attention to whether someone's words might be offensive, given what I now know about them. - P20

Second, they assumed the responsibility of counteracting in-group microaggressions by being more willing to counteract and prevent them. They became more cautious of their own wordings of support to avoid becoming a microaggression perpetrator again. Furthermore, they expressed wanting to engage as a more active ally by directly responding to microaggression comments.

> I don't usually write posts or comments in the community, but if I see such posts (microaggressions), I thought I should respond with an awareness of the issue. When I reply, I will be more mindful of my tone and consider whether my response could be problematic. - P16

Third, a few participants spread microaggression knowledge to others outside of the ARC to increase the awareness of microaggressions outside the study. Although some participants shared with their male romantic partners, others shared with their friends to raise awareness.

> As I was learning about microaggressions, I was so shocked and talked about it with my friends. We had conversations like: Have you ever experienced that? How can we avoid it? - P19

With their increase in allyship and awareness of counteracting and preventing in-group microaggressions, many participants advocated for this educational approach offered in the ARC. All participants appreciated the opportunity to learn about microaggressions.

> *Interviewer*: Do you think it's good that others are learning about microaggressions and that it might have a positive impact on society overall?
> *P26*: Yes, I'm not sure how much it will stick with them, but knowing about it at least is better than acting in complete ignorance. I think it might help bring about positive social change. It's a bit corny, but I do hope so.

In conclusion, our study demonstrated that the interventions implemented through our online community enhanced empathy, understanding, and supportive behavior among unmarried women concerning SRH-related challenges and in-group microaggressions. These interventions included activities where participants were able to share their SRH experiences and concerns more openly, fostering a sense of solidarity and support. The educational and reflective activities on microaggressions helped participants recognize and address subtle forms of discrimination within their group, promoting a more inclusive and empathetic environment. These findings underscore the importance of structured, supportive online spaces and targeted educational interventions in empowering individuals to challenge stigma and support each other effectively.

6 Discussion

In this discussion section, we describe what design choices we made in setting up the online community with activities and how those choices impacted participants. First, we explain how we leveraged ARC to address in-group microaggressions, taking the case of a specific population group. We discuss how the activities we employed in the ARC fostered education and reflection, helping participants recognize and understand subtle forms of discrimination within their community and promoting supportive behavior (section 6.1). Second, we outline the study's limitations and suggest future research directions (section 6.2).

6.1 Intervention for In-Group Microaggressions

Through the ARC activities we designed, we facilitated awareness and reflection on in-group microaggressions, providing actionable insights for designing interventions. These activities encouraged participants to recognize and reflect on their roles in perpetuating microaggressions, whether as targets, perpetrators, or allies. Our findings offer insights for addressing in-group microaggressions in online community platforms (such as closed Facebook groups) or in structured educational settings (such as classrooms, workshops, or online courses) where participants engage in sequential activities designed to increase awareness of and reduce microaggressions.

The study aligns with feminist HCI principles that emphasize designing systems that promote self-reflection, agency, and community-driven knowledge-sharing [6]. Prior research in reproductive health HCI has shown that digital spaces serve as essential platforms for women to discuss and challenge stigma related to menstruation, infertility, and menopause [1, 9]. The findings extend this work by illustrating how structured, interactive activities can move beyond passive discussion and actively facilitate critical reflection and behavior change in addressing microaggressions within SRH discourse.

6.1.1 Laying the Groundwork for Meaningful Engagement. Establishing trust and mutual support among participants was a critical first step in our approach. Activities such as **A2 (Ranking**

of Problems), A3 (Advice Columnist), A5 (Circle Network Diagram), and A10 (Ask Me Anything) created opportunities for participants to share their experiences, recognize common challenges, and express the support they have thus far been unable to receive. We recommend including **broader engagement activities early in the process to build a foundation of trust *before* introducing microaggression-specific activities**.

This approach aligns with feminist and digital feminist perspectives, which emphasize the importance of safe, inclusive spaces for discussing reproductive health and gendered experiences [32]. Prior research has shown that online peer-support networks allow women to validate their experiences and counteract the dismissal often experienced in clinical or societal contexts [2]. Similarly, our findings highlight that creating structured opportunities for storytelling and mutual validation within an online community helps participants feel more prepared to engage in deeper conversations about microaggressions later in the study.

In our study, these activities fostered a sense of community, helping participants view each other as reliable sources of support. Also, it revealed the **cultural invisibility of struggles** faced by unmarried women. Many participants believed their challenges—such as hesitancy to seek care or discomfort discussing SRH—were unique to them, unaware that these concerns were widely shared. This invisibility, shaped by societal taboos, left participants feeling isolated and unsupported. This reflects how the positionality of the participants, shaped by gender expectations and social norms, affected their ability to recognize shared struggles, reinforcing the need for structured interventions that create space for reflection and validation [7, 29]. Activities like A2, A3, A5, and A10 disrupted this invisibility by creating opportunities for shared validation. Participants described feeling reassured upon discovering that their concerns were not only common, but also shaped by the same societal pressures, challenging the internalized belief that their experiences were abnormal.

To achieve similar results in an online community, moderators could initiate "Share Your Story" threads or collaborative advice-sharing prompts to facilitate storytelling and sharing of challenges which supports building trust, feelings of belonging and supportiveness, and engagement in online spaces [23, 25, 79].

To similarly encourage students in educational settings, group projects or storytelling exercises could help them find commonalities and build rapport. Establishing mutual support and trust early ensures participants feel safe and supported, laying the groundwork for deeper reflection and meaningful discussions on microaggressions.

6.1.2 Encouraging Reflection and Accountability Using Relatable Scenarios and Perpetrator Personas. The study highlights the **cultural invisibility of microaggressions** in Korea, where participants were often unaware of the harm caused by subtle, dismissive remarks from fellow women. Although they frequently recalled feeling uncomfortable in such situations, they were surprised to learn that microaggressions could occur within same-gender groups. This lack of awareness reflects a broader absence of discourse around intragroup biases in Korea, where hierarchical and collectivist values often discourage open confrontation [33].

The A6 (Microaggression Perpetrator Personas Critique) activity encouraged participants to address this invisibility by critically examining how internalized cultural norms shape their interactions. By engaging with these subtle biases, participants developed a deeper understanding of how societal expectations influence interpersonal dynamics, particularly among women. These findings align with feminist discussions on positionality, illustrating how internalized norms shape individuals' perceptions of microaggressions and emphasizing the importance of interventions that encourage critical reflection on one's role within a social hierarchy [6, 30].

Relatable examples of microaggressions were essential in reducing defensiveness and encouraging self-reflection among participants. A6 incorporated everyday interactions, such as conversations

with close friends or online comments, that participants found non-threatening and easy to relate to. This aligns with feminist HCI's use of provocative design strategies to promote critical self-reflection and disrupt harmful social norms [6]. Similar to prior feminist HCI interventions that have employed interactive storytelling and digital provocations to challenge reproductive health stigma [9], our approach utilizes relatable, real-world scenarios to help participants recognize their own roles in perpetuating or addressing microaggressions. Thus, we recommend using relatable scenarios and perpetrator personas to make the topic approachable and foster critical sensibility.

Relatable scenarios reflect participants' lived experiences, cultural or social contexts, and everyday interactions. These scenarios evoke recognition and connection, making it easier for participants to reflect on their own behaviors. For example, situations involving unintentional remarks by close friends or casual online discussions resonated strongly with participants in this study. The everyday nature and unintentional framing of these scenarios helped participants feel less defensive while fostering a sense of accountability. Contextually grounded and familiar examples are crucial for promoting self-awareness and empathy in reflective exercises [40, 54].

Perpetrator personas also played a particularly critical role in supporting these reflections. By presenting microaggressions through perpetrator personas, participants could focus on understanding the broader social dynamics at play without feeling personally attacked. To be effective, perpetrator personas should incorporate specific design characteristics:

(1) **Unintentionality**: Depict actions stemming from unconscious biases or unintended behaviors. Framing these actions as unintentional reduces defensiveness, encouraging participants to focus on the impact rather than their morality or intent [83].
(2) **Specificity**: Provide clear and detailed situations that participants can easily analyze. For instance, a scenario showing a well-meaning but dismissive comment during a group conversation allows participants to examine how similar behaviors might occur in their own lives.
(3) **Context Relevance**: Align personas with participants' cultural and social contexts to ensure resonance. For example, scenarios involving close friends or community interactions reflected the lived realities of unmarried Korean women in our study, making the personas more engaging and impactful.
(4) **Nuanced Motivations**: Include the motivations behind the perpetrator's actions, such as intending to support someone but inadvertently invalidating their feelings. This encourages participants to empathize with the persona while critically evaluating their own actions.
(5) **Neutral Presentation**: Use non-judgmental language and tone to present the personas. Avoid accusatory framing to ensure participants approach the material constructively and without defensiveness.
(6) **Emotional Accessibility**: Design personas to be emotionally manageable, ensuring they challenge participants without overwhelming them. Grounding personas in everyday scenarios that feel familiar helps maintain this balance.

By incorporating these characteristics, perpetrator personas provide a non-threatening way for participants to reflect on their own behaviors. They enable participants to understand that microaggressions often arise unintentionally, shifting the focus from blame to accountability and growth.

In practice, online communities could include scenarios that depict common but unintentional microaggressions, framed through relatable personas. Moderators could facilitate discussions on how these situations resonate with participants' own experiences. In classrooms, instructors could integrate persona-based activities where students analyze scenarios from multiple perspectives, fostering mutual support and a deeper understanding of microaggressions.

Using **relatable and unintentionally harmful scenarios**, alongside perpetrator personas, designers can **reduce defensiveness and encourage participants to reflect honestly** on their behaviors and biases.

6.1.3 Supporting Microaggression Education With Sequential Reflection Opportunities. Our findings demonstrated the value of structuring activities sequentially, particularly when addressing microaggressions. Activities like A6 (Microaggression Perpetrator Personas Critique) and A8 (Microaggression Counteraction Tool Evaluation) worked effectively as a sequence because they built on one another to deepen participants' understanding and reflection. We recommend **structuring microaggression reflection and education activities to follow a sequence that progresses from initial recognition to critical evaluation and actionable insights, spaced at least two weeks apart to allow meaningful reflection**.

Prior work in reproductive health HCI has emphasized that fostering behavioral change requires sustained reflection and engagement rather than one-time interventions [44]. Our findings contribute to this work by showing that a similar scaffolded approach is necessary when addressing microaggressions. The structured reflection activities spaced over multiple weeks provided participants with repeated opportunities to process their experiences, reducing defensiveness and encouraging sustained shifts in awareness and accountability. These findings align with feminist pedagogy principles that emphasize the importance of iterative learning and situated knowledge [7].

The subtle nature of microaggressions makes them difficult to recognize and process without sustained engagement[63, 71, 81]. A6 provided participants with relatable scenarios to identify microaggressions and begin initial reflection, creating a foundational understanding of these behaviors. Building on this, A8 encouraged participants to critically evaluate countermeasures, promoting accountability and actionable strategies. By spacing these activities at least two weeks apart, participants had time to internalize their understanding, revisit their reflections, and approach solution-focused discussions with greater depth. This iterative approach aligns with research emphasizing the importance of scaffolded reflection and gradual progression for processing complex social issues [22, 83].

Earlier activities (e.g., A2, A3, A5) laid the groundwork for creating a trusting environment but were not directly focused on microaggressions. In contrast, A6 and A8 offered repeated, structured opportunities for participants to reflect on microaggressions, evaluate their own behaviors, and explore strategies for change. Reflection at these stages was essential for helping participants connect abstract concepts to their lived experiences and for fostering a deeper sense of personal accountability.

For moderators in online communities or educators in structured classrooms, combining sequential activities with targeted opportunities for reflection can guide participants through the complexities of microaggressions step-by-step. Early activities should focus on building trust and fostering microaggression recognition, while later activities can incorporate prompts and scenarios that deepen critical reflection and explore actionable countermeasures. Spacing these activities over at least two weeks ensures participants have adequate time for introspection and sustained engagement.

By adopting these design strategies, educators and community leaders can **empower participants to critically reflect on their behaviors unintentionally hindering other women's imperative SRH care and build stronger, more empathetic connections with their peers.** Moreover, these design strategies align with calls from reproductive health HCI research to design educational tools that not only provide information but also foster self-reflection and behavior change [1].

6.2 Generalizability and Future Work

While our study focuses on in-group microaggressions, the design strategies outlined in Sections 6.1.1, 6.1.2, and 6.1.3 have broader applicability to addressing microaggressions in general. The approach in Section 6.1.1, which fosters trust and shared experiences, is particularly valuable in contexts where individuals face invisibility in seeking care and support—whether due to out-group microaggressions related to stigmatized topics or in-group microaggressions within those same settings [22, 41]. The structured reflection opportunities in Section 6.1.3 can also support individuals in recognizing and addressing microaggressions over time, making them useful for interventions targeting both in-group and out-group dynamics [81, 82].

However, some strategies are particularly suited for addressing in-group microaggressions. Section 6.1.2 focuses on making microaggressions visible within a shared cultural or social context, where individuals may not recognize certain behaviors as harmful due to internalized norms [61, 81]. The use of perpetrator personas in this section helps participants critically examine microaggressions within their own group while reducing defensiveness, an approach that is especially relevant in collectivist cultures or close-knit communities where direct confrontation is discouraged [53, 82]. Additionally, the strategies for addressing cultural invisibility in Sections 6.1.1 and 6.1.2 are particularly relevant for in-group settings, where struggles and biases often remain unspoken or normalized [22, 41]. While these insights can inform broader microaggression interventions, their framing and intent are particularly designed to challenge and reshape in-group dynamics.

This study opens new avenues for future research by addressing several important limitations. Because our study was the first attempt to use ARC as an intervention specifically for addressing in-group microaggressions, we aimed primarily to observe increases in awareness and potential allyship among participants who could be targets, allies, and perpetrators simultaneously. Our primary focus was understanding whether these awareness and allyship changes could be achieved, which was a challenging and complex endeavor. While the study successfully highlighted short-term increases in awareness and allyship, it did not track these changes over an extended period, leaving these shifts' long-term sustainability and impact unexamined. Future research should focus on long-term tracking of both awareness and allyship changes to better understand their persistence and overall effectiveness.

Furthermore, this study was focused specifically on unmarried Korean women, which may limit the generalizability of the findings to other marginalized populations. Future research should examine the application of similar ARCs in a broader context to determine whether the effects on awareness, allyship, and behavior changes can be achieved across different cultural and demographic groups. Such future studies would help in understanding the broader applicability and effectiveness of ARCs as an intervention for in-group microaggressions in diverse marginalized communities.

7 Conclusion

This study demonstrates how online communities can effectively address in-group microaggressions within a specific cultural context, offering actionable strategies for fostering trust, mutual support, and meaningful engagement. By designing structured activities that guide participants to reflect on their roles, whether as targets, perpetrators, or allies, we provide a pathway for reducing microaggressions and encouraging constructive dialogue.

Our approach to creating perpetrator personas as a tool for fostering accountability and critical engagement contributes to new methods for designing safer and more inclusive spaces. These insights have the potential to inform the development of new tools that prioritize empathy, reflection, and accountability in digital interactions. Furthermore, our findings open avenues for future research

to explore how these strategies can be adapted and scaled across different cultural contexts and online platforms.

We hope this work inspires researchers to build on these strategies, exploring innovative ways to create digital spaces that foster mutual support, accountability, and social change. By leveraging these insights, we can collectively re-imagine online environments as transformative tools for addressing microaggressions and advancing inclusivity in online communities.

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