

**Perceived Concerns versus Actual Benefits of Demographic Self-Disclosure in Online
Support Groups**

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Abstract

Millions of U.S. adults join online support groups to attain health goals, but the support the groups provide depends on the social ties that members form, and ties are often too weak. These online groups with their wide geographic reach are frequently demographically diverse which tends to undermine social ties, but why? Using a field study of online quit-smoking groups, we ask if online support group members hide their dissimilar demographics because they are concerned this may weaken their ties. Consistent with the homophily principle, we find evidence of this. However, we also find that acts of self-disclosure of demographic differences actually strengthen ties, which then facilitates support group members' health goal attainment. In other words, social ties in online groups are weak not because members are demographically dissimilar, but because they are reluctant to self-disclose their dissimilarities; but if they do self-disclose, this itself breeds interpersonal connection, trumping any dissimilarities. Data on two types of dissimilarity, dyad-level difference and group-level minority status, and supplemental data from three experiments, provide convergent support for our findings.

Online support groups bring together people who pursue similar goals and seek peer support toward attaining them (Bradford, Grier, & Henderson, 2017; Centola & van de Rijt, 2015; Coulson, 2005; Zhang, He, & Sang, 2013). Online support groups number in the hundreds of thousands in the U.S. (Wright, 2016), with 14 million adults participating in health-oriented groups alone in 2018 (National Cancer Institute, 2018). Hosting of health support groups is an important part of business for online platforms such as Facebook and Instagram, which is particularly valuable because the group profiles enable precise targeting of advertisements to users' health interests (Rooderkerk & Pauwels, 2016; Schumann, von Wangenheim, & Groene, 2014; Wiertz & de Ruyter, 2007).

Online support groups tend to have broad geographic reach and to be open and inclusive; consumers are encouraged to join regardless of where they live or of their demographic or social background (Chan, Li, & Zhu, 2015; Zeng & Wei, 2013). As a result, online support groups tend to be more demographically diverse than face-to-face support groups (Lieberman, Wizlenberg, Golant, & Di Minno, 2005; Naylor, Lamberton, & West, 2012; Wu, Fan, Wu, & Zhao, 2014). This creates a remarkable challenge. On the one hand, members of online support groups need to strengthen their ties beyond superficial acquaintance to effectively support each other in the pursuit of goals they joined the groups to attain (Centola, 2010). On the other hand, research based on the homophily principle has shown that demographic diversity inhibits the formation of strong ties in online support groups (Centola, 2011; Centola & van de Rijt, 2015; Lieberman, et al., 2005), with similar effects reported in other online groups. For instance, Naylor et al. (2012) found that, in online brand communities, photos of demographically dissimilar members elicited less interest from new members relative to silhouettes that disguised dissimilar demographics.

The challenge of demographically diverse online groups has primarily been addressed by relying on the homophily literature (Centola, 2011). Homophily is the well-documented tendency of interpersonal similarities to breed social connection and interpersonal differences to divide (Lazarsfeld & Merton, 1954; McPherson, Smith-Lovin, & Cook, 2001). In other words, the more similar two people are, the more likely they are to form and strengthen a social tie; and conversely, ties between dissimilar people tend to be rarer and weaker. Applying the logic of homophily, it has been shown that interested members of online support groups may benefit from being segmented into demographically homogenous subgroups to foster stronger ties (Centola & van de Rijt, 2015; Lieberman, et al., 2005). However, this type of segmentation may not always be feasible or desirable, given the number of demographics that may divide people online, the time and effort it may take to create online groups matched on all possible demographics, and the sensitivities that may be involved in segregating by demographics.

However, another possibility is afforded to online groups because, unlike face-to-face groups, members are free to hide their demographics (Nosko, Wood, & Molema, 2010). Because demographic differences can inhibit ties only to the extent that people are aware of them, the logic of homophily suggests that hiding demographic differences may foster stronger ties. Therefore, it has also been suggested that online groups may want to leave undisclosed or ambiguous any member demographics that may possibly divide them (Naylor, et al., 2012; Ren, Kraut, & Kiesler, 2007).

In the current research, we seek further understanding of and solutions to the problem of weak social ties in demographically diverse online support groups, by studying this problem through the theoretical lens of self-disclosure. Self-disclosure is “any information about oneself that a person verbally communicates to another person” (Collins & Miller, 1994), which can be

either descriptive (e.g., demographics) or evaluative (e.g., personal failures). The importance of self-disclosure in promoting interpersonal liking is well-established in the literature (Collins & Miller, 1994; Moon, 2000, 2003a, 2003b; Ren, et al., 2007). Self-disclosure of descriptive demographics may be especially critical for relationship-building online, because of the paucity of visual and other cues that in offline settings convey demographics (Desjarlais, Gilmour, Sinclair, Howell, & West, 2015; Nguyen, Bin, & Campbell, 2012). Moreover, consumers online have unusually high control over self-presentation in their user names and profiles regarding whether and how accurately to self-disclose their demographics (Forman, Ghose, & Wiesenfeld, 2008; Karimi & Wang, 2017; Nosko, et al., 2010; Toma, Hancock, & Ellison, 2008).

Relying on insights from the self-disclosure literature (Sprecher & Hendrick, 2004; Sprecher, Treger, Wondra, Hilaire, & Wallpe, 2013), we examine the possibility that in online support groups, where demographics are often unknown unless self-disclosed, the familiar homophily pattern in which similarities attract and differences alienate may not necessarily materialize. Because self-disclosure increases mutual liking and facilitates interaction (Collins & Miller, 1994; Cozby, 1973; Worthy, Gary, & Kahn, 1969), self-disclosers may strengthen their ties not only when they reveal demographic similarities to other group members, but also when they reveal demographic differences. Stronger ties may then help self-disclosers accomplish the beneficial behavioral changes that they seek social support for in the groups (Centola, 2010).

We also examine the possibility that online support group members may not take full advantage of the interpersonal benefits of self-disclosure (Collins & Miller, 1994). Extrapolating from experiences of homophily in everyday life (Kleinbaum, Stuart, & Tushman, 2013; Reagans, 2005, 2011), people may be concerned that self-disclosing their demographic differences online will weaken their ties, and so they may choose to hide their differences instead. In everyday

interaction, demographically dissimilar people often feel excluded (Bassili, 2003; Carroll J. Glynn, Andrew F. Hayes, & James Shanahan, 1997; Noelle-Neumann, 1974; Phillips, Rothbard, & Dumas, 2009), irrelevant (Forman, et al., 2008; Rosario, Sotgiu, De Valck, & Bijmolt, 2016), and lacking common ground (Naylor, et al., 2012) and influence (Rosario, et al., 2016).

The social ties in online support groups may therefore be weakened not by members' reluctance to socially connect with demographically different others as the homophily literature suggests, but rather by their unwillingness to actively self-disclose being demographically different from a dyad partner or the group's majority (Bassili, 2003; Carroll J Glynn, Andrew F Hayes, & James Shanahan, 1997). However, if members overcome their reluctance and self-disclose being demographically different, they may actually form stronger ties and enhance their goal attainment in the online support group. Indeed, this is what our findings show, from our field study of online quit-smoking groups and our three experiments simulating weight-loss support groups. These studies provide convergent evidence that members of online support groups do, in fact, tend to avoid self-disclosing their demographic differences because they are concerned this will weaken their ties. But contrary to these concerns, we find that acts of self-disclosure of demographics, even demographic differences, strengthen ties, which then facilitates group members' health goal attainment. Our field research on online quit-smoking groups was conducted as preliminary testing for the US government's smoke-free.gov website and the results are already being implemented to improve these online groups.

Overall, our results suggest that administrators of online support groups who wish to promote members' social integration within the group and attainment of well-being goals should encourage members to self-disclose their demographics, even dissimilar demographics. Our research also makes theoretical contributions to the homophily literature (Lazarsfeld & Merton,

1954; McPherson, et al., 2001) by showing that demographic differences, rather than pulling people apart, may actually bring people together, when such differences are actively self-disclosed, because of the interpersonal impact of self-disclosure (Collins & Miller, 1994).

Theory and Hypotheses

Demographic Homophily

Homophily is a well-documented feature of human interaction. Across a variety of relationship types and similarity dimensions, ties are stronger and more likely to form between similar than between dissimilar people (Marsden, 1987, 1988; McPherson, et al., 2001; Verbrugge, 1977). Research has given particular attention to demographic homophily. Due to the deep cultural significance of demographic traits such as gender, race, and age, homophily based on these traits pervades human interaction (Kleinbaum, et al., 2013; Reagans, 2005, 2011; Ridgeway, 1997).

Research has pointed out two main origins of demographic homophily. On the one hand, demographically similar people are attracted to the same social settings and therefore get more opportunities to interact (Feld, 1982; Kleinbaum, et al., 2013). On the other hand, people have a psychological preference to interact with similar others (Marsden, 1987, 1988; McPherson & Smith-Lovin, 1987). This preference exists not only because similarities breed connection, but also because differences breed alienation. People tend to interact less with dissimilar others because they are less likely to share common interests, values, cultural tastes, and knowledge bases (Reagans, 2005, 2011). Dissimilar others also appear foreign, unknown, and unpredictable (Lynch & Rodell, 2018). As a result, people often view potential interactions with others who

differ from them demographically as both challenging and non-beneficial (McPherson & Smith-Lovin, 1987; McPherson, et al., 2001).

However, the research that documented homophilous demographic preferences mostly examined face-to-face settings. In face-to-face interaction, people have little or no control over others' awareness of their demographics. Gender, age, and race are almost invariably obvious from visual cues (Marsden, 1987, 1988; McPherson, et al., 2001; Reagans, 2005, 2011; Verbrugge, 1977). Less salient demographics such as marital status may be apparent from wedding rings and surnames, and employment status may be revealed by clothing and behavior (Harrison, Price, Gavin, & Florey, 2002).

Inhibited Self-Disclosure of Demographic Differences

Awareness of dyad partners' demographics cannot be assumed universally, across all demographic traits and interpersonal settings. Religion or sexual orientation may be hidden or misrepresented in face-to-face interaction (Griffith & Hebl, 2002; Ragins, 2008; Ragins, Singh, & Cornwell, 2007). In online settings, including online support groups, the lack of face-to-face contact keeps even visible demographic traits hidden unless they are disclosed. Self-disclosing or hiding one's demographic information in such settings is a matter of individual choice (Tidwell & Walther, 2002).

We reasoned that people's experience of demographic homophily in offline settings may influence their decision to disclose or to withhold their demographic information online. In face-to-face settings in everyday life, many people have witnessed the amply demonstrated tendency of demographic differences to hinder social ties (Kleinbaum, et al., 2013; Reagans, 2005, 2011; Ridgeway, 1997). They may have also experienced other adverse effects of ties weakened by

demographic dissimilarities, including lower social integration (Harrison, et al., 2002; Tsui & O'Reilly, 1989), less group cohesion and cooperation (Harrison, Price, & Bell, 1998; Riordan & Shore, 1997), and reduced group commitment (Riordan & Shore, 1997; Tsui, Egan, & O'Reilly, 1992). Acting on their awareness of these adverse demographic homophily effects, members of online support groups may withhold demographic information when disclosing it would reveal their demographic dissimilarity from others.

Moreover, the literature on relational demography has distinguished two consequential types of demographic dissimilarity: a person may be different from a specific dyad partner and/or from the group's majority (Tsui, et al., 1992; Tsui & O'Reilly, 1989; Tsui, Porter, & Egan, 2002; Wagner, Pfeffer, & O'Reilly, 1984). This literature, which has focused on workplace demographics, notes that dyadic dissimilarity and minority status are independent constructs (Avery, McKay, & Wilson, 2008); e.g., in a male-dominated workgroup, female dyads are gender-similar but dissimilar from the majority. Both dyadic dissimilarity and minority status have similar tie-weakening effects (Harrison, et al., 1998; Riordan & Shore, 1997). Therefore, members of online support groups who discover that they are either dissimilar to a dyad partner or have minority status in the group on a demographic may be concerned that self-disclosing the demographic will weaken their ties and avoid doing so. Accordingly, we tested these hypotheses:

HYPOTHESIS 1 (H1). In online support groups, members will be less prone to self-disclose their demographics when they differ in these demographics from dyad partners or from the group's majority.

HYPOTHESIS 2 (H2). In online support groups, members will be more concerned that self-disclosing demographics may weaken their ties when they differ in these demographics from dyad partners or from the group's majority.

Demographic Self-Disclosure and Tie Strength

Tie strength is the potency of a bond between two members of a social network, and it has been studied extensively in both face-to-face contexts (Baer, 2010; Friedkin, 1980; Granovetter, 1973; Marsden & Campbell, 1984) and in online contexts (Gilbert & Karahalios, 2009; Jones, et al., 2013; Petróczy, Nepusz, & Bazsó, 2007; Rooderkerk & Pauwels, 2016; Shriver, Nair, & Hofstetter, 2013). If the usual demographic homophily effect that has been repeatedly observed in face-to-face interaction is replicated in online interaction, the bonding of similarities and the alienation of dissimilarities will be reproduced in online support groups (Marsden, 1987, 1988; McPherson, et al., 2001; Verbrugge, 1977). Then, relative to the neutral condition of no self-disclosure, self-disclosures that reveal demographic similarities between potential dyad partners will strengthen online ties and self-disclosed demographic dissimilarities will weaken them.

Self-disclosure research suggests at least two ways, however, in which online self-disclosure may strengthen ties even when it reveals demographic differences. First, there is ample evidence that self-disclosure of personal information increases interpersonal liking (Ren, et al., 2007; Sprecher, et al., 2013). People who self-disclose more tend to be liked better; they also like others better as a result of having self-disclosed to these other parties (Collins & Miller, 1994; Cozby, 1973; Worthy, et al., 1969). Furthermore, the initial self-disclosure tends to trigger reciprocal self-disclosure and thus a potentially self-reinforcing cycle that enhances mutual liking (Sprecher, et al., 2013). Forman et al. (2008) found that liking may also extend to the content generated by the self-discloser: online reviews receive more positive ratings when they contained the author's identity information.

The self-disclosure literature further suggests that the link between demographic self-disclosure and increased liking may not depend on whether similarities or differences are self-disclosed. Studies that examined self-disclosure of atypical identity elements found that this too enhanced interpersonal liking (Cozby, 1972; Ren, et al., 2007; Sprecher, Treger, & Wondra, 2012; Trepte & Reinecke, 2013). Liking, in turn, relates to social closeness; interpersonal ties are stronger among people who like each other (Nelson, 1989; Van Hove & Lievens, 2009). Thus, by increasing liking, self-disclosure of demographic differences may strengthen ties.

Yet another reason why self-disclosure of demographic differences may strengthen ties is because awareness of others' demographics facilitates social interaction, while identity concealment or ambiguity conveys inauthenticity and disrupts interaction (Lynch & Rodell, 2018). These effects may persist even when self-disclosers reveal demographic differences rather than similarities. Studies show that self-disclosers impede social interactions in the workplace even when they fail to disclose atypical or potentially stigmatizing identities, such as a lesbian, gay, or bisexual orientation (Griffith & Hebl, 2002; Ragins, 2008; Ragins, et al., 2007).

In sum, because self-disclosure increases mutual liking and helps resolve the identity ambiguity that disrupts social interaction, people in online groups who self-disclose their demographics may strengthen their ties with other members even when they disclose demographic differences. The literature indicates that self-disclosure increases liking among both parties; self-disclosers like the witnesses of their self-disclosure more, and the witnesses in turn like the self-disclosers more (Collins & Miller, 1994; Cozby, 1973; Worthy, et al., 1969). The strengthening of ties may therefore be a combination of two effects: self-disclosers may increase their contribution to tie strength, and so may dyad partners who witness the self-disclosures. To

distinguish the effect of self-disclosing from the effect of witnessing others' self-disclosures, we tested this next pair of hypotheses:

HYPOTHESIS 3a (H3a). In online support groups, when members self-disclose their demographics, they will contribute more to the strength of their ties with dyad partners. This effect will persist whether or not they self-disclose demographic difference from dyad partners, and whether or not they self-disclose belonging to the group's demographic minority.

HYPOTHESIS 3b (H3b). In online support groups, when members self-disclose their demographics, their dyad partners will contribute more to the strength of their ties. This effect will persist whether or not they self-disclose demographic difference from dyad partners, and whether or not they self-disclose belonging to the group's demographic minority.

Demographic Self-Disclosure and Goal Attainment

Weak and strong ties are conducive to different types of goals. Weak ties help to diffuse simple ideas and codified behaviors (Centola, 2010; Friedkin, 1980; Granovetter, 1973; Hansen, 1999) and they facilitate creativity (Baer, 2010; Perry-Smith, 2014; Zhou, Shin, Brass, Choi, & Zhang, 2009). In contrast, strong ties are needed when the spread of information or a behavior requires complex contagion, meaning that repeated contact is needed for full transmission to occur. For example, strong ties facilitate complex knowledge exchange (Tortoriello, Reagans, & McEvily, 2012), information about job-seekers' fit to positions (Garg & Telang, 2018; Van Hove & Lievens, 2009), employee citizenship behavior (Bowler & Brass, 2006), and within-organization social movement mobilization (Krackhardt, 1992). The goals that people seek in online health support groups typically require lifestyle changes, and strong ties that are built on repeated interpersonal interaction should help to sustain mutual support and positive influence

among the members who are striving to achieve these lifestyle changes (Centola, 2010). This leads us to our final hypothesis:

HYPOTHESIS 4 (H4). In online support groups, self-disclosers of demographics will be more likely to attain goals that they joined the groups to pursue; and tie strength will mediate the positive relationship between demographic self-disclosure and goal attainment.

We conducted four studies to test our hypotheses. Study 1 used field data from online support groups for quitting smoking which were set up as exploratory tests for the US government's smokefree.gov website. This field study examined whether the relationships among demographic differences, demographic self-disclosure, tie strength, and goal attainment that were hypothesized in H1, H3a, H3b, and H4 occurred in real-life online support groups. To assess the directions of causality, we reexamined the hypotheses in controlled experiments that simulated interaction in online weight-loss support groups. Study 2 retested H1 and tested H2, Study 3 retested H3a, and Study 4 retested H3b. H2 on concerns about self-disclosures being tie weakening was examined only experimentally, in Study 2. In the field study, such concerns were not expressed in smokers' online posts, and being real-time these concerns were not measurable in the periodic surveys we used. H4 on goal attainment was assessed in the field study only, because the short time span of an experiment does not enable realistic observation of long-term health goal attainment like smoking abstinence or weight loss.

Study 1

Overview of Field Study Approach and Participants

We analyzed field data from eight Twitter support groups of adults trying to quit smoking. The members were recruited within the continental United States with ads displayed when people searched on Google for topics related to quitting smoking. Each online support group had twenty members and lasted for three months. Participants' demographic information was collected in a preliminary survey. Participants' self-disclosures in posts and tie strength were coded at the end of the groups' lifespan, based on the content of all their posts. The groups were closed to the public, but all posts were visible to all members, including all acts of self-disclosure. To test H1, we considered if group members' dyadic dissimilarity and/or minority status on demographics related to their lower self-disclosure of those demographics. To test H3a and H3b, we investigated how demographic self-disclosure in the online support groups related to tie strength for each possible dyad, and whether this relationship depended on the self-discloser's dissimilarity to the dyad partner or minority status in the group. To examine H4, we conducted a mediation test to determine whether tie strength mediated a positive relationship between demographic self-disclosure and attainment of the goal of smoking abstinence.

All group members, except no-shows who left no trace of participation, were included in the final sample which contained 118 people. Consistent with our focus on the strengthening of ties, rather than initial formation of ties, we created a complete list of cases where two people in the sample formed a tie of minimal strength which could be potentially strengthened, i.e., sent at least one post addressed to the partner. There were 535 such dyadic cases.

H1: Methods and Results

Data Structure. The dependent variable in H1, demographic self-disclosure, was an individual-level attribute that was measured separately for four demographics: gender, age,

marital status, and employment status. These were the only four demographics that were frequently self-disclosed in the online support groups. The measurement of self-disclosure was thus replicated four times for each of the 118 individuals, yielding 472 records.

Measures. Two trained coders recorded demographic self-disclosures of gender, age, marital status, and employment status in the posts of the online group members. We focused on self-disclosures in the posts because our groups were set up on Twitter which at the time did not allow personal profile descriptions or photos. Because the posts were visible to everyone in the group, self-disclosures counted regardless of the post's addressee. Here are examples of demographic self-disclosures: "I am Nancy and a mom of 2" (gender); "Being at work is easier for me than when I'm at home" (employment status); "Newly married and the hubbie doesn't have a job" (marital status); "I'm almost 45 & been smoking 1/2-1 1/2 pks daily since age 15!" (age). Inter-coder agreement on whether the self-disclosure was made was 99% for each demographic; while inter-coder agreement on the content of the post was 100% for age group (5 year intervals), 98.4% for gender, 94.4% for marital status, and 96.5% for employment status.

After coding the self-disclosures in the posts, we created a binary indicator of demographic self-disclosure, coded as 1 if the person self-disclosed the respective demographic and as 0 otherwise ($M = .56$, $SD = .50$). In addition, for each demographic and each person, we calculated an index of dyadic demographic difference, with 1 indicating that all dyads in which the person was involved were dissimilar and 0 indicating no dissimilar dyads ($M = .53$, $SD = .26$). For example, if 8 of the 20 dyads in which a person was involved were mixed-gender, the index for gender dissimilarity was 0.4. Finally, we created a binary indicator of minority status, coded as 1 for each demographic if the person belonged to the group's minority and as 0 otherwise ($M = .16$, $SD = .37$). Because the members of all groups were predominantly female

(64.7%) and employed (72.3%), members with these demographics were coded as belonging to majorities, while members who were male and not employed were coded as belonging to minorities (Avery, et al., 2008; Ragins, et al., 2007; Riordan & Shore, 1997). Because no group had a clear marital or age minority, all cases for these demographics were coded as 0. Just about half the members were married (56.3%), and their ages ranged from 18 to 58 years (mean = 35.7). Ethnicity was rarely self-disclosed, so we did not consider this demographic, but 91.5% of the participants were Caucasian. To calculate the indices of demographic dissimilarity and demographic minority status, we required knowledge of each person's demographics, which we obtained from a preliminary demographic survey that was conducted as part of the field study.

Results. H1 posited that people who were demographically dissimilar from online dyadic partners or belong to the demographic minority in the group would be less prone to self-disclose the respective demographic. We examined these two bivariate relationships in generalized mixed models. Because the self-disclosure outcome is binary, we specified the models as logistic regression. The first model included the dyadic dissimilarity index (between-subject), the demographic factor (within-subject), and their two-way interaction as predictor variables (see Table 1). This model revealed a main effect for dyadic dissimilarity on self-disclosure: consistent with H1, dyadic dissimilarity on a demographic reduced self-disclosure of that demographic ($B=-5.58$, $F(1, 464)=26.02$, $p<.01$). There was no main effect of demographic $F(3, 464)=1.89$, NS) and no significant dyadic dissimilarity \times demographic interaction ($F(3, 464)=2.53$, NS), indicating that the negative effect for dyadic dissimilarity on self-disclosure was statistically comparable across the four replicate demographics.

[INSERT TABLE 1 HERE]

The second model included the minority status factor (between-subject), the demographic factor (within-subject), and their two-way interaction as predictor variables. This model found a main effect of minority status on self-disclosure: consistent with H1, minority status on a demographic was associated with a lower self-disclosure of that demographic ($B=-2.90$, $F(1, 464)=31.79$, $p<.01$). The significant main effect of demographic ($F(3, 464)=27.50$, $p<.01$) evidenced that the four demographics were self-disclosed with unequal frequency, with age having the lowest frequency ($p < .05$). There was also a significant minority status \times demographic interaction ($F(3,464)=8.28$, $p<.01$) because, while minority status was associated with lower self-disclosure across all four demographics, the effect was stronger for gender ($p < .01$) than for employment status ($p < .05$).

H3a and H3b: Methods and Results

Data Structure. The dependent variable in H3a and H3b, individual contribution to tie strength, was a dyad-member variable. It was measured for each member of the 535 dyads. Accordingly, the dataset included 1070 cases representing each dyad member's individual contribution to tie strength.

Measures. The predictors variables in H3a and H3b were the share of self-disclosures that revealed demographic difference from the dyad partner, and demographic minority status from the group, respectively. We computed the share of focal dyad member's self-disclosures which revealed difference from the dyad partner based on male versus female, employed versus unemployed, married or living with an intimate partner versus not, or more than five versus less than five years apart in age. For example, if someone self-disclosed all four demographics and was dissimilar from the dyad partner in three of the four, their share of dissimilarity self-

disclosures was 0.75. In the rare cases where the focal dyad members self-disclosed no demographics (43 out of 1070), they could not possibly convey any information on dyadic dissimilarity. We used mean imputation to fill in the values of the share in these cases; in the absence of concrete information, the mean represents the baseline expectation that the dyad members were demographically different.

We used a similar approach to compute the share of each member's self-disclosures which revealed minority status in the group based on gender, employment, marital, and age. For example, if someone self-disclosed all four demographics and was in the minority on gender and employment, their share of dissimilarity self-disclosures was 0.5. A 0.5 share was the maximum for minority self-disclosures because participants could only experience being in the minority for gender and employment as discussed above.

The dependent variable, tie strength, involves three dimensions: contact frequency, contact duration, and closeness (Baer, 2010; Granovetter, 1973; Perry-Smith, 2014). Because these dimensions tend to be highly correlated (Hansen, 1999; Nelson, 1989; Tortoriello, et al., 2012), it is common for network studies to use contact frequency as the measure of tie strength (Nelson, 1989; Tortoriello, et al., 2012). We similarly used contact frequency, which is readily observable and has been shown to be correlated with closeness on social media (Jones, et al., 2013). Tie strength was coded by two trained research assistants, who reviewed every post. If the recipient of the post was specified, or the coders judged from its content and timing that it was addressed to a specific recipient, tie formation between the sender and the recipient of the post was recorded. Posts addressed to the entire group did not count toward tie formation or tie strength. The inter-rater agreement was 92%. The two components of tie strength, meaning the contributions to total strength by each member of the tie, were then computed. To test H3a, we

computed the contribution to tie strength by the focal dyad member (the self-discloser) as the count of posts this member sent to the dyad partner. For H3b, we computed the dyad partner's contribution to tie strength as the count of posts this partner sent to the focal dyad member.

Results. H3a posited that demographic self-disclosure would be positively related to the self-disclosers' contribution to tie strength and that this relationship would not depend on whether self-disclosers revealed demographic difference from the dyad partner, or whether they revealed belonging to the group's minority. H3b posited the same for the contribution to tie strength by the self-discloser's dyad partner. Because the dependent variables in H3a and H3b were count measures, we used negative binomial models to test these hypotheses. Also, observations in these models could not be assumed to be independent because each person may appear in multiple dyads, resulting in underestimated standard errors (Kenny, Kashy, & Cook, 2006). To address this problem, we corrected the standard errors for clustering on both dyad members (Cameron, Gelbach, & Miller, 2011; Kleinbaum, et al., 2013).

The results for our various models are shown Table 2. Consistent with H3a, the relationship between the dyad member's self-disclosure and the dyad member's contribution to tie strength was positive and significant (Model 1a: $B=.459$, $SE=.075$, $p<.01$; Model 3a: $B=.478$, $SE=.083$, $p<.01$). This positive effect persisted when the self-disclosure x share of self-disclosures about dyadic dissimilarity interaction effect was included in the model (Model 2a: $B=.416$, $SE=.102$, $p<.01$), and when the self-disclosure x share of self-disclosures about minority status interaction effect was included in the model (Model 4a: $B=.505$, $SE=.089$, $p<.01$). Also, no interaction effects with the self-disclosure variable were significant, evidencing that the relationship between the dyad member's self-disclosure and the dyad member's contribution to tie strength did not vary with the share of dyadic dissimilarity self-disclosures (Model 2a:

B=.119, SE=.178, NS) or the share of minority status self-disclosures (Model 4a: B=-.262, SE=.325, NS).

[INSERT TABLE 2 HERE]

We replicated this entire pattern of results when we considered as the outcome the partner's contribution to tie strength (see Table 2). We replicated the entire pattern of results once again, when we substituted total tie strength as the dependent variable (not shown in Table 2), because total tie strength is the sum of two dyad members' contributions.

H4: Methods and Results

Data Structure. H4 predicted that self-disclosure of demographics, by strengthening ties, would increase goal attainment. Because goal attainment was an individual-level outcome, we examined H4 with the dataset of individual group members (N = 118).

Measures. One week after the group started, members set a target date to quit smoking. Goal attainment was recorded if the member consistently reported not smoking during the past week in surveys at 7, 30, and 60 days after their quit date (Brown, et al., 1998; Lakon, et al., 2016; Pechmann, Delucchi, Lakon, & Prochaska, 2017; Prochaska, Hall, Delucchi, & Hall, 2013). Goal non-attainment was recorded if a participant reported smoking on any of the three surveys. Demographic self-disclosure was measured as the count of demographics that the individual self-disclosed. The strength of the individual's ties was measured as the total count of posts exchanged between the focal individual and his or her dyad partners.

Results. To test H4, we conducted mediational tests using Hayes macro for SPSS, Model 4, with 5,000 bootstrap samples (Hayes, 2013). These tests confirmed that self-disclosure of demographics related positively to tie strength (B=1.43, t=9.74, p<.001) and that tie strength

related positively to goal attainment ($B=.003$, $Z=2.83$, $p<.01$). Moreover, tie strength mediated the positive effect of self-disclosure on goal attainment (indirect effect: $B=.004$; 95% CI .002, .008). This result is shown in Figure 1.

[INSERT FIGURE 1 HERE]

Study 2

Overview

Study 2 was a controlled experiment that retested H1 and tested H2. We examined whether people who were placed in situations of dyadic dissimilarity and/or minority status on a demographic would inhibit self-disclosure of that demographic, and whether they would express more concern that demographic self-disclosure would weaken their ties. The research design was a 2×2 factorial with two fixed and randomized binary factors: the participant's demographic dissimilarity to a dyad partner (dissimilar vs. similar) and the participant's demographic minority status in the group (minority vs. majority). We used marital status as the demographic in this and our other two experiments. Marital status was the most frequently self-disclosed demographic in the field study, ensuring a conservative experimental test of self-disclosure inhibition hypothesized in H1 and H2. We decided against using gender, to rule out the possibility that the stronger ties that we observed from self-disclosing differences in the field study was due to heterosexual (male-female or female-male) preferences rather than the act of self-disclosure.

Methods

Participants. We recruited 462 participants from MTurk, screening for U.S residents who were Facebook users and therefore more likely participate in online social support groups.

Participants were 56.1% female, 59.5% married, and 78.8% Caucasian, and 68% reported using social media for at least one hour daily.

Manipulations. Participants were shown eight posts, one from each member of an online weight-loss support group. We used weight loss as the context, rather than smoking cessation, because weight loss goals and weight loss groups are more common. By design, the group members' usernames were ambiguous, and the profile pictures were anonymous silhouettes. A perceivable majority was created in the group, by indicating in six of the eight posts that its writer was married or, alternatively, unmarried. Participants then saw a ninth post which contained a self-disclosure of marital status and were told that they were in conversation with the writer of this post. This dyad partner was randomly assigned to report being either married or unmarried. All displayed ninth posts were identical, except for the reference to married or single status. (See the Methodological Details Appendix for details.) Using each participant's own marital status, we classified the participant as being dissimilar or similar to the dyad partner, and having minority or majority status relative to the group, on marital status (Avery, et al., 2008; Naylor, et al., 2012; Ragins, et al., 2007; Riordan & Shore, 1997). The number of participants in each of these four conditions ranged from 108 to 125.

Measures. We measured self-disclosure inhibition by asking: "When replying to this group member, how likely are you to disclose your marital status?" The Likert scale ranged from 1 (extremely unlikely) to 7 (extremely likely) and was reverse-coded for the analysis. We measured the proneness to self-disclose as a perceived likelihood rather than as a behavior because interaction in experimental conditions was found to be too transitory to induce unprompted acts of self-disclosure. We measured the concern that self-disclosure may weaken ties by averaging two items ($\alpha = .94$): "Are you concerned that the group members might not

talk to you as much, if you disclose your marital status?” and “Are you concerned that the group members might not like you as much, if you disclose your marital status?” The Likert scale for both items ranged from 1 (not at all concerned) to 7 (extremely concerned).

Results

Test of H1. We tested H1 and H3 using 2×2 omnibus ANOVAs. Consistent with H1, the results showed that people inhibited self-disclosure of demographic difference. There was a significant main effect of dyadic dissimilarity on self-disclosure inhibition ($F(1,458) = 31.80, p < .000$), indicating that participants self-disclosed less if they were dissimilar from their dyad partner ($M = 4.15$ vs. 3.10). There was also a main effect of minority status ($F(1,458) = 4.11, p = .043$), showing that participants self-disclosed less if they were in the minority in the group ($M = 3.81$ vs. 3.44). There was no significant dyadic dissimilarity \times minority status interaction effect ($F(1,458) = .60, p = .441$).

Test of H2. Consistent with H2, we found a main effect of dyadic dissimilarity on the concern that self-disclosure might weaken ties ($F(1,458) = 6.65, p = .010$). Participants were more concerned that self-disclosure might weaken ties if they were dissimilar from their dyad partner ($M = 2.33$ vs. 1.98). We also found a main effect of minority status ($F(1,458) = 15.23, p < .001$) indicating that participants' concern was greater when they belonged to the group's minority ($M = 2.42$ vs. 1.89). There was no significant two-way interaction effect between dyadic dissimilarity and minority status ($F(1,458) = .283, p = .595$). See Figure 2.

[INSERT FIGURE 2 HERE]

Study 3

Overview

Study 3 was a controlled experiment that was designed to retest H3a. We manipulated whether the participant self-disclosed a demographic to a dyad partner, the participant's dissimilarity to the dyad partner, and the participant's minority status and measured the outcome of tie strength. Thus the research design was a $2 \times 2 \times 2$ factorial with three fixed and randomized binary factors: the participant's demographic self-disclosure (present vs. absent), the participant's demographic dissimilarity to a dyad partner (dissimilar vs. similar), and the participant's demographic minority status in the group (minority vs. majority). We examined the effect of self-disclosure on the length of the post written by the person to their dyad partner, and whether this effect was moderated by the participant's dyadic dissimilarity or minority status. Consistent with study 2, we used marital status as the demographic.

Methods

Participants. We recruited 222 participants from MTurk, screening for U.S. residency and users of Facebook as in study 2. The participants were 57% female, 58.1% married, and 77.9% Caucasian, and 66.7% reported using social media for at least one hour daily.

Manipulations. Participants were shown the same eight posts as in Study 2, from members of an online support group for weight loss, with ambiguous usernames and profile pictures. A perceivable majority was created in the group, by indicating in six of the eight posts that its writer was married or, alternatively, unmarried. Then, participants read a ninth post from a dyad partner who self-disclosed being either married or unmarried. Participants were randomized to self-disclose their own marital status to this dyad partner, resulting in 117 participants in the self-disclosure condition and 105 in the no self-disclosure condition. Using

participant's reported marital status, we coded their dyadic dissimilarity or similarity relative to the dyad partner, and minority or majority status in the group, on marital status.

Measures

Self-Disclosure. Participants in the self-disclosure condition were asked to write about their own marital status to their dyad partner: "Please tell this last group member about your own personal marital status, and how you feel your own marital status might affect your weight loss. Also, explain why you feel this way. Write as much as you would like, but write at least 2-3 sentences in the box below." Participants in the no self-disclosure condition were asked to talk only about factual information to their dyad partner: "Please tell this last group member a scientific fact about weight loss, and how you think this scientific fact might affect your weight loss. Also, explain why you think this way. Write as much as you would like, but write at least 2-3 sentences in the box below." The participants were randomly assigned to one of these two conditions, to rule out the spurious correlation between self-disclosure and tie strength due to sociability or other possible confounding variables.

Outcome Measure. To capture the participants' contribution to tie strength, we invited them to write an optional additional post to their dyad partner: "Please write something else to this member." Tie strength was measured as the word count in this additional post (Gilbert & Karahalios, 2009; Rooderkerk & Pauwels, 2016).

Results

Manipulation and Confound Checks. First, we checked the self-disclosure manipulation. We found that all participants who were asked to write about their marital status did so, and all

reported the same status as they had indicated in their survey responses. Likewise, all participants who were asked to write about factual information did so, with none discussing marital status.

Next, we examined whether our self-disclosure manipulation had affected the number of words written in response to the prompt to discuss marital status or facts. A $2 \times 2 \times 2$ omnibus ANOVA verified that our self-disclosure manipulation had no confounding effect on the number of words written in response to the manipulation prompt (self-disclosure effect, $F(1,214) = 2.29$, $p = .132$; $M = 48.59$ versus 53.35).

Test of H3a. Using a $2 \times 2 \times 2$ omnibus ANOVA, we tested H3a, which posited that demographic self-disclosure, even if people were demographically different from dyad partners or from the majority, would enhance self-disclosers' contribution to tie strength. The results supported H3a. We found the expected main effect of the participant's self-disclosure on tie strength ($F(1,214) = 10.99$, $p = .001$). When a participant self-disclosed a demographic, their additional post to their dyad partner was longer than when they did not self-disclose the demographic ($M = 19.37$ versus 13.83 words).

There was no self-disclosure \times dyadic dissimilarity interaction effect ($F(1,214) = 2.49$, $p = .116$) or self-disclosure \times minority status interaction effect ($F(1,214) = 1.35$, $p = .247$), and no three-way dyadic dissimilarity \times minority \times self-disclosure interaction effect ($F(1,214) = .23$, $p = .633$). Likewise, as expected, there was no significant main effect of dyadic dissimilarity ($F(1,214) = .42$, $p = .518$) or minority ($F(1,214) = .01$, $p = .919$), and no dyadic dissimilarity \times minority interaction effect ($F(1,214) = .23$, $p = .633$). Self-disclosers wrote more than non-self-disclosers in the additional message, regardless whether they were dyadically dissimilar ($M = 20.15$) or similar ($M = 18.60$) to the dyad partner, or whether they had minority ($M = 18.49$) or

majority status ($M = 20.26$) in the group. Figure 3 shows the mean post lengths across the five experiment conditions.

[INSERT FIGURE 3 HERE]

Finally, we examined the content of participants' additional posts to their dyad partners, and 97.7% offered advice and/or encouragement for weight loss, 1.3% wrote nothing, and 1% wrote about marital status. Thus, when invited to write an additional post, nearly all participants engaged in the tie-strengthening behavior of providing peer support for their partner's goal.

Study 4

Study 4 was a controlled experiment to retest H3b, which predicted a main effect of the partner's demographic self-disclosure on the participants' contribution to tie strength, that was not moderated by the self-disclosers' dyadic dissimilarity or minority status. The participants in study 4 were asked to react to a post ostensibly written by a dyad partner in an online support group for weight loss. The partner's post was randomly manipulated to either include or not include a self-disclosure of marital status. The research design was a 2×2 factorial with two fixed and randomized binary factors: the participant's demographic dissimilarity to a dyad partner (dissimilar vs. similar) and the participant's demographic minority status in the group (minority vs. majority). Here, the outcome was the participant's contribution to tie strength based on the partner's self-disclosure.

Methods

Participants. We recruited 252 participants from MTurk, using the same screeners as previously. Participants were 50.8% female, 63.5 % married, and 83.3% Caucasian, with 65.5% reporting use of social media for at least one hour daily.

Manipulations. Participants were shown eight posts, which were identical to the posts used previously. These posts indicated that the majority of group members were either married or single, which was determined at random. Participants then read an additional post from a ninth person, their dyad partner. Based on random assignment, this ninth person either self-disclosed their marital status (married or single) or did not. The self-disclosure and non-self-disclosure posts were identical in word count. If the ninth person self-disclosed, this person was coded as being in the majority in the group (married with others married, or single with others single), or in the minority in the group (married with others single, or single with others married). Additionally, the ninth person was coded as being dissimilar to the participant (both married or both single) or similar (one married, one single), based on the participant's own marital status. There were 128 participants in the self-disclosure condition and 124 in the no self-disclosure condition.

Outcome Measure. We invited participants to respond to the post by the ninth member: "Imagine you decide to respond to this last group member. How might you respond to this last member? Please type your response to this member below." Writing a response was optional. Tie strength was measured as the word count in this response.

Results

A one-factor ANOVA found the predicted positive main effect for self-disclosure on tie strength ($F(1, 250) = 6.82, p = .010$). The responses to a post that contained self-disclosure of a

demographic were significantly longer than to a post that did not contain the self-disclosure ($M = 34.59$ versus 27.19 words). This difference in word length was significant at $p < .01$ whether or not the participant was demographically similar to the self-discloser, and whether or not the self-discloser was in the minority. A two-factor ANOVA within the self-disclosure condition further confirmed that the length of the response was not affected by whether or not the self-disclosure revealed dyadic dissimilarity ($F(1, 121) = .003, p = .955$), or whether or not it revealed minority status ($F(1, 121) = 1.95, p = .166$). There was no significant interaction effect between dyadic dissimilarity and minority status ($F(1, 121) = .17, p = .679$). In sum, consistent with H3b, the participant's contribution to tie strength was higher when their dyad partner self-disclosed, irrespective of whether the member self-disclosed being demographically similar or dissimilar to the partner, or being in minority or majority in the group (see Figure 4).

[INSERT FIGURE 4 HERE]

General Discussion

Summary of Findings and Theoretical Contributions

This research studied online support groups, in which consumers seek support for valued activities and behaviors. Online support groups tend to have wide geographic reach and to be open and inclusive and, as a result, they are often demographically diverse (Lieberman, et al., 2005). Diversity has a potential to weaken groups by inhibiting homophilous tie formation (Centola, 2011; Centola & van de Rijt, 2015; Lieberman, et al., 2005; Naylor, et al., 2012; Thelwall, 2009). Hence, it has been argued that administrators of online support groups may want to limit diversity (Centola, 2010, 2011; Centola & van de Rijt, 2015) and refrain from disclosing members' demographic diversity (Naylor, et al., 2012; Ren, et al., 2007).

Our findings indicate a striking discrepancy between people's perceptions of self-disclosure effects, perhaps based on their experiences of homophily offline, and the reality in online groups, where self-disclosure of demographics becomes optional. Online group members tend to refrain from self-disclosing dissimilar demographics due to concerns this will weaken their ties. But in contrast to this, we find that when members do self-disclose their demographics, even demographic differences, they formed stronger ties; they write more and longer posts to others, and others posted more in reciprocation. Moreover, in online support groups, stronger ties relates to higher likelihood of attaining the group's well-being goal, e.g., abstaining from smoking. Thus, members' concerns about self-disclosing demographic dissimilarities due to negative homophily effects are unfounded; instead of weakening social ties, self-disclosure of demographic differences actually increases stronger social ties that result in health benefits.

Our study extends the scope of homophily theory to increasingly common online settings where demographic traits must be self-disclosed to be known. We show that, in such online settings, the familiar patterns of homophily observed and theorized in face-to-face settings may not be replicated. In contrast to extensive evidence in face-to-face settings (Lazarsfeld & Merton, 1954; Marsden, 1987, 1988; Reagans, 2005, 2011; Verbrugge, 1977), and in contrast to our study participants' concerns, we find that actively self-disclosed demographic differences may not weaken ties. Instead, online support group members' ties strengthen not only when they self-disclose demographic similarities, but also when they self-disclose demographic differences.

Managerial Implications

Our work identifies practical recommendations for addressing the problem of weak ties which demographically diverse online support groups tend to face (Centola, 2011; Centola & van

de Rijt, 2015; Lieberman, et al., 2005). Whereas past work has suggested that self-disclosure online is more frequent, as compared to offline settings (Belk, 2013), our findings indicate that, in demographically diverse online support groups, self-disclosure may actually be lower than is needed for optimally supporting group members' social ties and goal attainment. Hence, administrators of online support groups may want to think of creative ways to encourage self-disclosures of demographics among diverse members.

For instance, administrators may encourage members to post detailed personal profiles, selfie photos and videos, and personal daily stories. Online support groups may also consider mandating self-disclosing behaviors, as some online groups already do (Karimi & Wang, 2017). In addition, administrators of online support groups may want to directly combat members' concerns about self-disclosing demographic differences by explaining to them that any self-disclosure will help them to form stronger online ties.

Administrators of online support groups may further strengthen ties and enhance member well-being by tackling dyadic dissimilarity and minority status, the two factors that we found to deter demographic self-disclosure and thus weaken social ties. To address reluctance to self-disclose on account of dyadic dissimilarity, organizers may want to facilitate the discovery of demographically similar partners, e.g., through member searches or buddy systems (Centola & van de Rijt, 2015; Ren, et al., 2012; Ren, et al., 2007). To counteract reluctance to self-disclose due to minority status, organizers may want to consider creating demographically homogeneous subgroups when this is feasible and desirable (Lieberman, et al., 2005).

Future Research Directions

This research provides evidence that members of online support groups may be averse to self-disclosing any diverse demographics to others. Past research has documented that people may refuse to disclose demographic information to marketers, if they do not perceive an adequate payback (Forman, et al., 2008; Moon, 2000; White, 2004). However, we study self-disclosures to other consumers, not to marketers. Unlike prior studies that have found that consumers tend to reciprocally self-disclose (Desjarlais, et al., 2015; Forman, et al., 2008), we observe non-reciprocation if consumers discover they are demographically diverse from others. Thus, we recommend that future research look for other instances of self-disclosure avoidance and non-reciprocity, because these behaviors may be more common than the literature suggests.

Our findings also indicate that when consumers join online support groups, they may not volunteer their demographic information to combat the lack of individuating cues, as some of the online literature suggests (Desjarlais, et al., 2015; Nguyen, et al., 2012). Instead, members may withhold their demographics when they feel different from other members, weakening online ties and undermining online support group viability. Thus we recommend more research on approaches to encouraging demographic self-disclosure in diverse online support groups.

In particular, researchers may want to examine if mandating online self-disclosures of demographics will strengthen ties, similar to the voluntary self-disclosures studied here. In addition, researchers may want to examine if self-disclosures in posts, profiles, pictures and videos are equally beneficial, or if some self-disclosure formats are more useful than others. Furthermore, studies may want to explore potential limits to online self-disclosures, and when and why these might cross the line from beneficial to harmful. We hope that by demonstrating that online group members misperceive the costs of self-disclosures of demographic differences, and do not recognize the benefits, we will stimulate more research on this paradox.

Table 1. Relationships between Dyadic Dissimilarity and Self-Disclosure, and between Minority Status and Self-Disclosure: Mixed Logistic Models

	F	Beta
<i>Model 1: Demographic Dissimilarity</i>		
Intercept ^a	12.27**	---
Dyadic dissimilarity ^a	26.02**	-5.58**
Demographic ^b	1.89	---
Dyadic dissimilarity × demographic ^b	2.53	---
<i>Model 2: Minority Status</i>		
Intercept ^a	19.08**	---
Minority status ^a	31.79**	-2.90**
Demographic ^b	27.50**	---
Minority status × demographic ^b	8.28**	---

Note. N = 472 (118 individuals × 4 demographics). ^a df = 1, 464; ^b df = 3, 464 **p* < 0.05, ***p* < 0.01

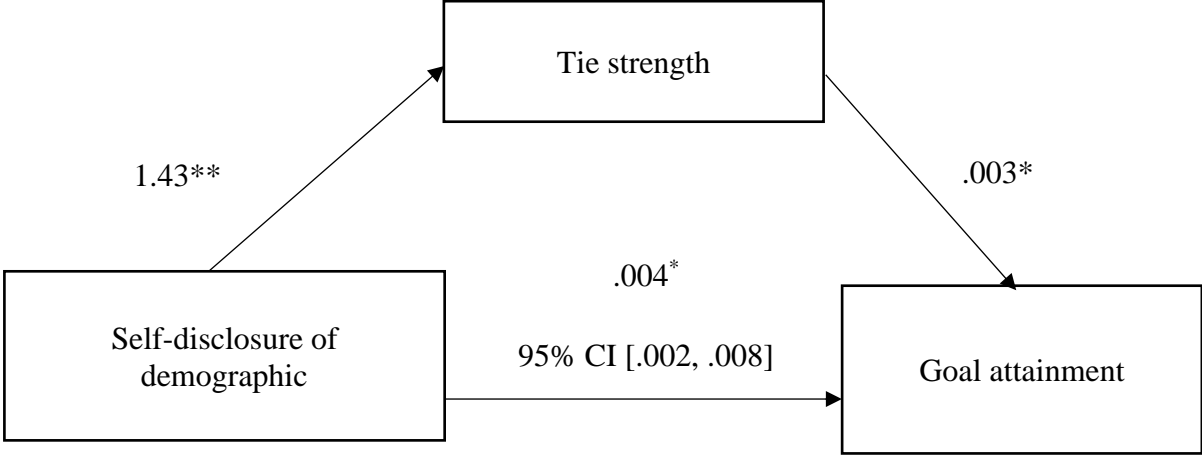
Table 2. Bivariate Relationship between Self-Disclosure and Tie Strength, with Moderating Effects of Dyadic Dissimilarity and Minority

Status: Negative Binomial Models

	DV = Contribution to Tie Strength by Focal Dyad Member				DV = Contribution to Tie Strength by Dyad Partner			
	Model 1a	Model 2a	Model 3a	Model 4a	Model 1b	Model 2b	Model 3b	Model 4b
Self-disclosure by focal dyad member	0.459** (0.075)	0.416** (0.102)	0.478** (0.083)	0.505** (0.089)	0.270** (0.057)	0.269* (0.114)	0.272** (0.053)	0.315** (0.064)
Dyadic dissimilarity	-0.046 (0.181)	-0.319 (0.413)			-0.185 (0.174)	-0.191 (0.363)		
Self-disclosure × dyadic dissimilarity		0.119 (0.178)				0.003 (0.185)		
Minority status			0.235 (0.319)	0.668 (0.585)			0.051 (0.310)	0.694 (0.599)
Self-disclosure × minority status				-0.262 (0.325)				-0.403 (0.261)
Intercept	0.254 (0.241)	0.354 (0.283)	0.164 (0.252)	0.106 (0.257)	0.887** (0.200)	0.890** (0.253)	0.781** (0.147)	0.690** (0.161)

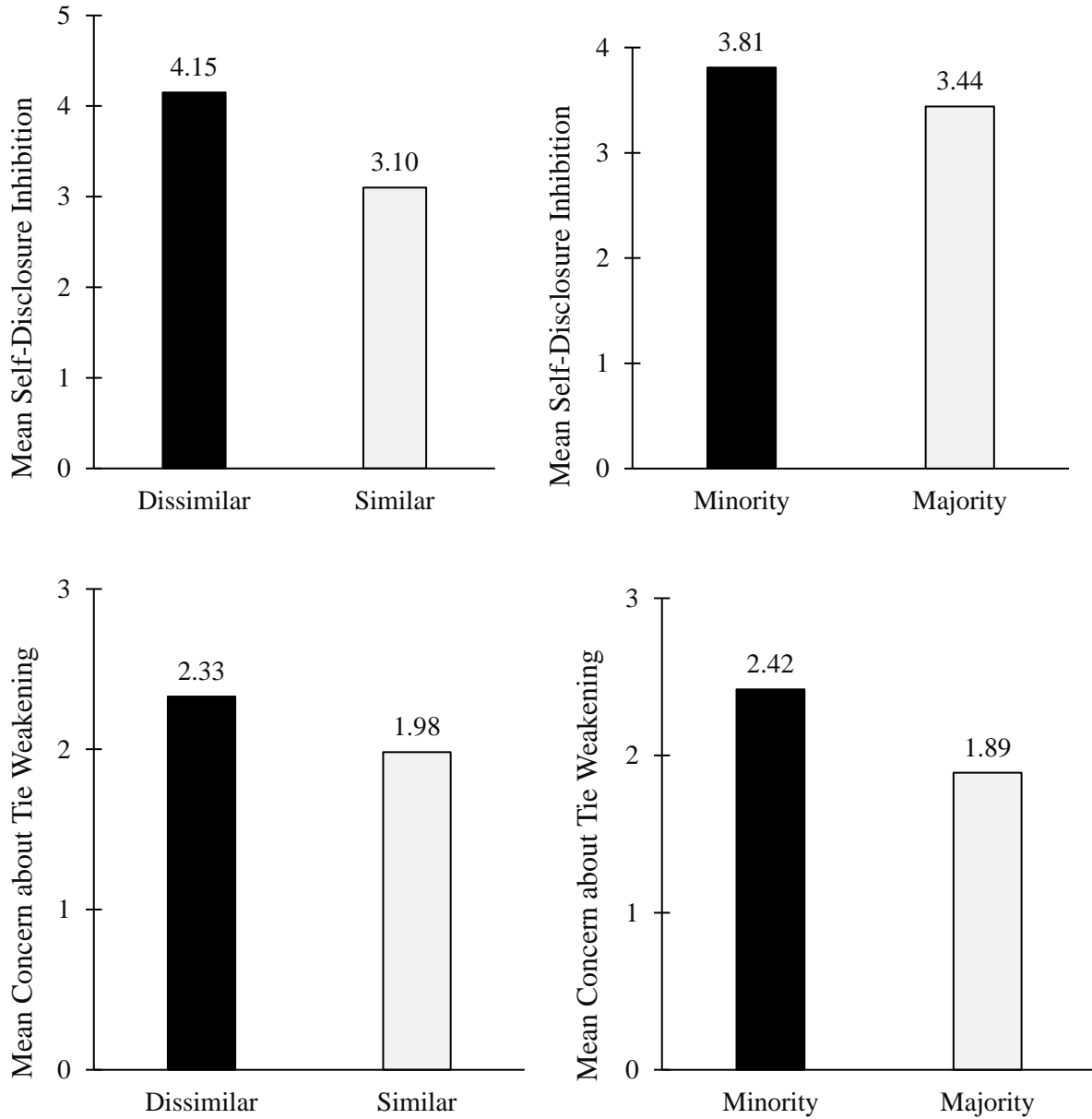
Note. N = 1070 dyad members. Standard errors corrected for clustering on both dyad members are in parentheses below the respective coefficient estimates. * $p < 0.05$, ** $p < 0.01$

Figure 1. The Relationships Among Self-Disclosure, Tie Strength and Goal Attainment in Study 1 Based on Hayes Model 4



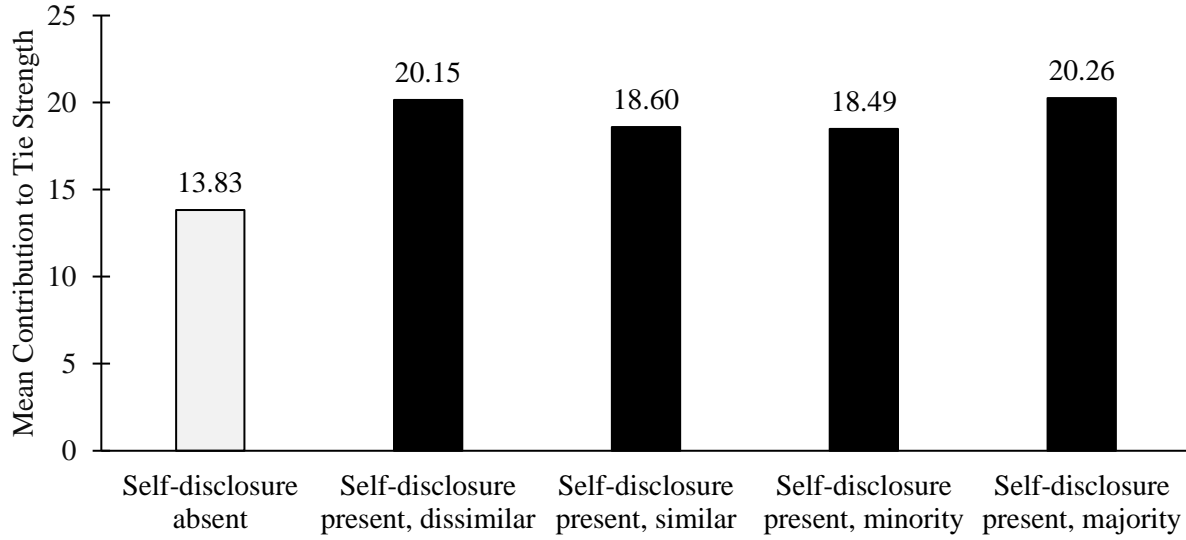
* $p < .05$, ** $p < .001$.

Figure 2. The Effects of Dyadic Dissimilarity and Minority Status on Concern that Self-Disclosure Will Weaken Ties, and on Self-Disclosure Inhibition, in Study 2



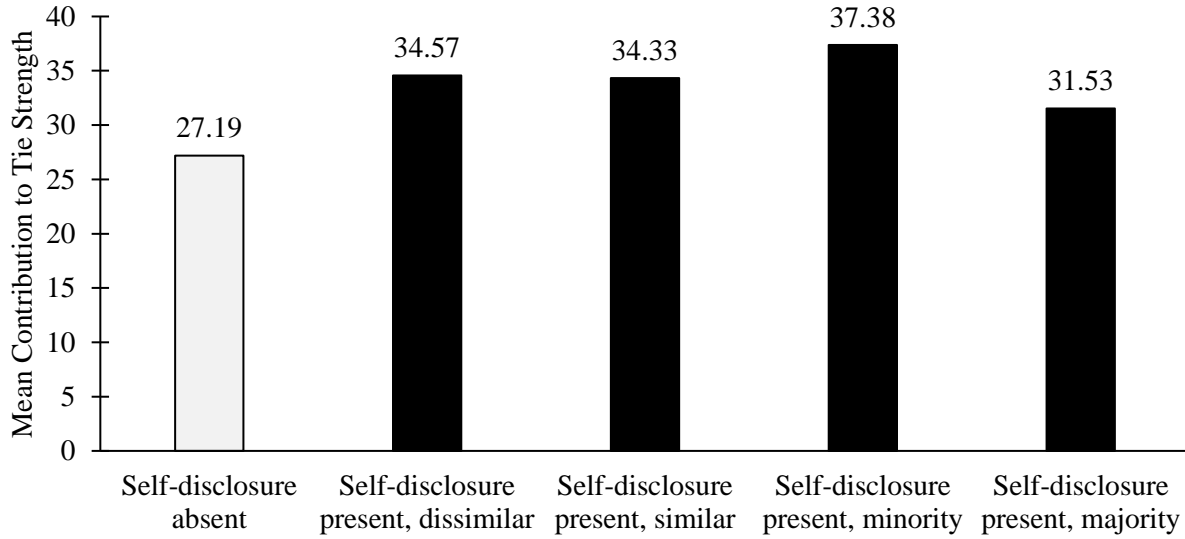
Note. All differences are significant at $p < .01$.

Figure 3. The Positive Effect of Marital Status Self-Disclosure on Self-Discloser's Contribution to Tie Strength (Word Count in Posts) in Study 3



Note. All means are different from the self-disclosure absent condition at $p < .01$. No other means are different from each other at $p < .10$.

Figure 4. The Positive Effect of Marital Status Self-Disclosure on Contribution to Tie Strength (Word Count in Posts) by Self-Disclosure's Partner in Study 4



Note. All means are different from the self-disclosure absent condition at $p < .01$. No other means are different from each other at $p < .10$.

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