


Positive and Negative Impacts of the COVID-19 Pandemic on Relationship Satisfaction in Male Couples

American Journal of Men's Health
May-June 1–14
© The Author(s) 2021
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/15579883211022180
journals.sagepub.com/home/jmh


Alison R. Walsh^{1,2}  and Rob Stephenson^{1,2} 

Abstract

Little is known about the impact of the coronavirus pandemic and control measures on gay, bisexual, and other men who have sex with men (GBMSM) couples. The goal of this study was to investigate individual-level relationship satisfaction during the COVID-19 pandemic in a sample of 209 coupled GBMSM in the United States. We analyzed reported happiness and feelings about a relationship's future and assessed the odds of changing relationship happiness and investment associated with pandemic-related life changes (pandemic-related employment change; COVID-19 illness; high-risk of severe illness), using logistic and multinomial logit models. Fifty-five percent of participants ($N = 114$) reported that their relationship happiness had not changed during the pandemic, but 30% ($N = 62$) reported increased relationship happiness. 25% ($N = 53$) reported they had become more invested in their relationship's future during the pandemic, and only one participant reported decreased investment. The odds of increased relationship investment was significantly associated with pandemic-related employment change (adjusted odds ratio (aOR), 95% confidence interval (CI): 2.19 [1.04, 4.61]) and increased sex during the pandemic (aOR: 4.38 [1.55, 12.41]). Those with a pandemic-related employment change also had significantly higher odds of increased relationship happiness than those without a change (aOR: 2.10 [1.01, 4.35]). COVID-19 cases that reported being at higher risk of serious COVID-19 disease had higher odds of decreased relationship happiness than high-risk non-cases (aOR: 6.58 [1.10, 39.39]). Additional research in this area is warranted to minimize the long-term impacts of the pandemic on coupled GBMSM.

Keywords

COVID-19, gay, bisexual, and other men who have sex with men, relationship satisfaction, pre-existing conditions, mental health

Received January 20, 2021; revised April 16, 2021; accepted May 11, 2021

The 2020 coronavirus pandemic has significantly disrupted nearly all aspects of daily life in the United States and worldwide. COVID-19, sheltering-in-place, lockdown orders, and related economic consequences are substantially influencing people's ability to work, socialize, and participate in normal activities. Thus, the pandemic and associated interventions are having widespread effects on our collective mental, physical, and social health (Xiong et al., 2020). The direct and proximal effects of the coronavirus pandemic on gay, bisexual, and other men who have sex with men (GBMSM) and other sexual minorities are of particular public health importance. Sexual minorities are more likely to work in employment sectors have been notably impacted by the pandemic, both in terms of job loss (e.g., restaurant employees; office maintenance workers) and greater

exposure to COVID-19 (e.g., grocery store workers; home health care aids) (Human Rights Campaign Fund, 2020). In 2017, 65% of sexual minorities had a pre-existing condition compared to 51% of the general population (Baker et al., 2017); these higher morbidity levels disproportionately increase the risks of COVID-19 infection

¹Center for Sexuality and Health Disparities, University of Michigan, Ann Arbor, MI, USA

²Department of Systems, Populations and Leadership, University of Michigan School of Nursing, Ann Arbor, MI, USA

Corresponding Author:

Alison R. Walsh, Department of Systems, Populations and Leadership, University of Michigan School of Nursing, 400 N Ingalls St., Ann Arbor, MI 48109, USA.

Email: walshar@umich.edu



and serious illness (Centers for Disease Control and Prevention (CDC), 2020a; Chatterjee et al., 2020) and mental distress during the pandemic in this vulnerable population (Iob et al., 2020; Salari et al., 2020; Salerno et al., 2020; Wang et al., 2020). In addition, the widespread closures of many in-person healthcare and supportive services may be disproportionately affecting sexual minorities (Chatterjee et al., 2020; Gonzales & Loret de Mola, 2021; Stephenson et al., 2021), further raising the potential for long-term negative health outcomes in these populations. Recent research by Stephenson et al. (2020) suggests that many GBMSM, particularly older and lower socioeconomic status GBMSM, have particularly high perceptions of COVID-19 severity (Stephenson et al., 2020), and therefore may be more likely to discontinue or postpone necessary healthcare treatment and screenings (e.g., HIV testing/treatment, cancer screenings) in order to mitigate their COVID-19 risk. Collectively, the combination of pre-existing mental, physical, and social risk factors and the differential effects of the pandemic on sexual minorities make GBMSM particularly vulnerable to the substantial negative mental and physical consequences of the pandemic.

Social distancing measures and their associated changes on social and romantic relationships may contribute to the pandemic's long-term effects in GBMSM populations. The unprecedented challenges to creating and maintaining social connections during the pandemic may have multi-pronged effects. First, limited opportunities for in-person social interactions may be increasing mental distress during this time, such as loneliness, anxiety, and depression by reducing social support (Esterwood & Saeed, 2020; Lahav, 2020; Xiong et al., 2020). In addition, sheltering-in-place measures, including the shift towards working from home and limited activities with non-household members, are placing greater importance on existing romantic partnerships, as individuals seek comfort and support from their partners during this stressful time. This increased reliance on romantic partners has the potential to both positively and negatively affect relationship functioning, which in turn, may impact individual health. The changes to intimate and social connections are particularly relevant during this time, as healthy romantic relationships and marriages can be protective against physical and mental morbidities, and mortality whereas relationship conflict and poor functioning can have negative health effects (Birditt & Antonucci, 2008; Bruce et al., 2019; Liu & Upenieks, 2020; Robles et al., 2014). For example, early studies of the COVID-19 pandemic and lockdowns suggest that healthy relationships may be protective against depression during this global health crisis (Pieh et al., 2020). As researchers have identified an association between mental health conditions

and vulnerability to COVID-19 (Taquet et al., 2021), relationship quality may therefore indirectly protect against coronavirus infection. The protective nature of healthy intimate relationships is likely especially important for sexual minorities, given the aforementioned potential for disproportionate harms during this time. Although there is growing evidence that heterosexual couples and romantic partners are experiencing changes to their relationship quality related to the pandemic (Fetters, 2020; Pietromonaco & Overall, 2020; Stanley & Markman, 2020; Vieira et al., 2020; Williamson, 2020), little is known about the specific short- and long-term effects of the COVID-19 pandemic on romantic relationships among sexual minorities.

In creating a framework and toolkit for examining the pandemic's proximal relationship effects, Pietromonaco and Overall (2020) suggest that external stressors related to the pandemic will likely increase interpersonal conflict within relationships, the extent of which may be moderated by pre-existing relationship quality and satisfaction; characteristics; and vulnerabilities. Previous research has reported that major, unanticipated high-mortality events, such as terrorist attacks, can be experienced as global, existential threats—this type of reaction can positively impact relationship quality by increasing emotional attachment and the need for secure partnerships, particularly in the short-term (Mikulincer & Shaver, 2007). In contrast, crises that involve longer-term, tangible consequences spread across local populations (as opposed to global), such as natural disasters, can have the opposite short-term effect, exacerbating conflict(s) and introducing chronic stress into relationships (Pietromonaco & Overall, 2020). The uncertain trajectory and high mortality rate of the COVID-19 pandemic, could result in some couples experiencing relationship gains as partners rely on each other for emotional and physical support. The social and economic stress of pandemic-control measures may lead to outcomes akin to those after a localized natural disaster—reduced dyadic functioning and maladaptive coping mechanisms. During the COVID-19 pandemic, we can anticipate that external stressors, such as fear of COVID-19 illness, as well as the economic and social disruptions related to mitigation strategies, will differentially impact couples depending both on their pre-pandemic relationship quality and functioning and their ongoing personal experiences of the pandemic. Current research into how the pandemic is impacting heterosexual relationships support these predicted mixed effects, with some couples experiencing worsening relationships and others seeing improvement. A report on mental health, relationships, and COVID-19 among coupled Australians identified a net improvement in relationship quality during the pandemic, particularly among cohabitating partners (Biddle et al., 2020). Similarly, Williamson

et al. (2020), examined relationship satisfaction among 654 U.S. adults during March/April 2020 and reported that higher positive coping skills moderated how stressors influenced relationship satisfaction and interpersonal conflict. Williamson et al also noted that those with more functional relationships were more forgiving of their partner's negative behaviors, attributing changes to external, as opposed to intrinsic, factors. In contrast, a Chinese survey of young people during the pandemic reported that 37% of individuals in monogamous partnerships reported declining relationship quality during the pandemic (Li et al., 2020).

Although there is a growing number of studies examining heterosexual relationships in the context of COVID-19, research into GBMSM relationships during this time has generally focused on sexual behavior and HIV risk factors (McKay et al., 2020; Sanchez et al., 2020; Stephenson et al., 2021), as opposed to relationship functioning. The protective nature of healthy intimate relationships may be especially important for sexual minorities, who have high rates of pre-existing conditions that put these populations at greater risk for serious COVID-19 illness than the general U.S. population (Sanchez et al., 2020). Although little is known about the GBMSM's relationship satisfaction during this time, research in this area is of critical importance and may contribute to maintaining and improving health in this vulnerable population. The goal of this study was to investigate current self-reported relationship satisfaction during the COVID-19 pandemic, as compared to pre-pandemic satisfaction, in a sample of coupled GBMSM in the United States. We analyzed self-reported individual-level subjective measures of relationship satisfaction—relationship happiness and feelings about a relationship's future, and assessed the odds of changed individual-level happiness and relationship investment associated with pandemic-related life changes, in a sample of coupled GBMSM.

Methods

Data Collection and Study Population

Data for the current study was collected via online survey from July to September, 2020. Participants were recruited via email from two previous (2017–2018) HIV-related male couples studies—Project [blinded for review purposes] and the [blinded for review purposes] Study. Ethical approval for the current study was given by the University [blinded for review purposes] Institutional Review Board [blinded for review purposes]. Eligible individuals were those who had participated in either of the previously completed studies and also met the current project's eligibility criteria. Project Nexus and CHAPS participants were: (1) ≥ 18 years; (2) identified as

cisgender male; (3) in a sexual relationship with a man for ≥ 6 months ([blinded for review purposes]) or ≥ 3 months ([blinded for review purposes]); and (4) had internet access. [Blinded for review purposes] participants also: (1) had not had an HIV test in the past 3 months; (2) did not report severe intimate partner violence (IPV) or coercion within the past year; (3) were willing to receive rapid home HIV test kits; and (4) self-reported concordant HIV-negative or HIV serodiscordant. [Blinded for review purposes] participants also had to have reported condomless anal sex with their primary partner within the last 3 months. These previous-study participants ([blinded for review purposes] $N = 666$; [blinded for review purposes] $N = 799$) were recruited into the current study via emailed invitations linking to an eligibility questionnaire which inquired about their relationship status. If an email recipient reported they were no longer in a relationship with the partner with whom they had participated in the previous study, the email recipient was asked if they were in a relationship with a different man (≥ 6 months duration). If so, the respondent could provide this new partner's contact information, which was used to send an eligibility survey link to the new partner ($N = 15$). Eligibility criteria for the current study was: (1) ≥ 18 years; (2) identified as cisgender male; (3) internet access; (4) not feeling coerced to participate in the study; and (5) in a sexual relationship with a man for ≥ 6 months. All eligible respondents were then emailed a link to the study's survey. All emails and links contained embedded identifiers that were used to link data from partners; identifiers were based on couples linked in the previous studies or created for those with "new" partners. Surveys were sent to all eligible respondents, regardless of their partner's participation. Out of 1479 invitations, 298 completed the eligibility survey. Of these, 8 (2.69%) were did not report a primary male partner/relationship and were ineligible. Among eligible respondents, 223 (76.90%) completed the current study and 209 (93.72%) of those provided complete data for this analysis—109 individuals and 50 male partner-dyads. There were no statistically significant demographic differences between included and excluded samples.

Dependent Variables

Self-reported relationship investment and happiness were used as measures of individual-level relationship satisfaction. Each respondent was asked to select the statement that best described their *current* level of optimism and investment in the future of their relationship with their primary male partner, from a list of six responses (e.g., *My relationship can never succeed and there is no more that I can do to keep the relationship going*; see

Table 1. Individual Self-Reported Relationship Characteristics, Satisfaction Measures, and Changes During the COVID-19 Pandemic, Among 209 Coupled Gay, Bisexual, and Other Men Who Have Sex with Men (GBMSM; 50 Partner-Dyads and 109 Individuals), United States, July–September 2020.

Relationship characteristics and satisfaction	N (%) or Mean \pm SD
Current degree of happiness in relationship with partner (1: Extremely unhappy; 4: Happy; 7: Perfect).	5.07 \pm 1.23 ^a
Current happiness in relationship with partner compared to pre-COVID-19 pandemic	
Reduced significantly	5 (2.39)
Reduced somewhat	28 (13.40)
No change	114 (54.55)
Increased somewhat	50 (23.92)
Increase significantly	12 (5.74)
Current feelings about the future of relationship with partner	
My relationship can never succeed and there is no more that I can do to keep the relationship going.	0 (0)
It would be nice if it succeeded, but I refuse to do any more than I am doing now to keep the relationship going.	0 (0)
It would be nice if my relationship succeeded, but I can't do much more than I am doing now to help it succeed	8 (3.83)
I want very much for my relationship to succeed and I will do my fair share to see that it does.	35 (16.75)
I want very much for my relationship to succeed and I will do all I can to see that it does.	109 (52.15)
I want desperately for my relationship to succeed and I would go to almost any length to see that it does.	57 (27.27)
Current feelings about relationship's future compared to pre-COVID-19 pandemic	
Less invested in relationship's success	1 (0.48)
No change	155 (74.16)
More invested in relationship's success	53 (25.36)
Relationship length (years)	8.25 \pm 5.41
Married	
Yes	131 (62.68)
No	78 (37.32)
Positive Interaction Patterns ^b	20.91 \pm 4.77 ^c
Change in anal intercourse (AI) frequency during pandemic ^d	
Decrease	70 (33.49)
Same	114 (54.55)
Increase	25 (11.96)

^aMedian: 5; Interquartile range (IQR): 2.

^bPositive Interaction sub-scale of the Communication Patterns questionnaire-Short Form (CPQ-SF; summed value range: 9–27; higher values indicate higher mutual discussion, expression, and negotiation with partner.

^cMedian: 21; IQR: 7.

^dCompared to 3 months prior to the pandemic.

Table 1 for complete list of response choices). Respondents were then asked to report how their personal, current feelings about the future of their relationship compared to their feelings prior to the COVID-19 pandemic, choosing from the following three statements: *I am less invested in our relationship's success now; My feelings about our relationship's future have not changed; I am more invested in our relationship's success now.* As only one respondent selected the negative response, responses were dichotomized into “Less/same investment in relationship's future” and “More invested in relationship's future” categories for analysis purposes.

Individual-level reported relationship happiness was measured with a single item, 7-factor question; the question and response choices are presented in Table 1. Participants were then asked to compare their relationship happiness with pre-pandemic happiness (*reduced*

significantly; reduced somewhat; no change; increased somewhat; increased significantly). For analysis purposes, negative and positive responses were each collapsed, resulting in three categories—lower, same, or higher relationship happiness.

Independent Variables

Participant age (in years), race and ethnicity (dichotomized as Non-Hispanic White and Black or African American; Native American or Alaskan Native; Asian; Native Hawaiian or Pacific Islander; Hispanic; Other or Multi-racial), educational attainment (dichotomized as less than college degree and college degree or higher), and employment (dichotomized as employed full- or part-time and unemployed). Respondents also reported their marital status and relationship length, in years.

Table 2. Selected Responses to the Open-Ended Question, “Is There Anything Else You’d Like to Share with Us About Your Relationship During the COVID-19 Pandemic that Wasn’t Covered in This Survey?” Responses Were Used to Identify Independent Variables Potentially Relevant to Individual Relationship Satisfaction Among Gay, Bisexual, and Other Men Who Have Sex with Men (GBMSM), in a Sample of 209 Coupled GBMSM (50 Partner-Dyads and 109 Individuals) Surveyed July–September 2020, United States.

Individual responses

- “there was more tension at the beginning when we started spending a lot more time together, but the pandemic has also helped us become more familiar with each other and learn to discuss more healthily”
- “we are actually spending a lot more time together than we were before. we also know to give each other space and privacy when needed or sense the other needs it.”
- “Our relationship has always been built on a strong foundation of trust and communication, and it feels even more so with such concentrated time together.”
- “Our relationship strengthened during the height of the pandemic because my partner also worked remotely so he no longer had a long commute which impacts his day-to-day mood. We got along very well because we were well rested and both had ample time at home together although we missed being able to go out and travel.”
- “Me being able to work from home has allowed us more time together, which has actually been nice given the situation.”
- “It has exacerbated existing stressors and created new ones, as we hold differing opinions on physical distancing and sheltering in place voluntarily. I tend to be more cautious while he is not, while has been stressful for me.”
-

We identified additional independent variables that could potentially be associated with the analyzed relationship satisfaction outcomes by assessing common themes among open-ended responses to the question: *Is there anything else you’d like to share with us about your relationship during the COVID-19 pandemic that wasn’t covered in this survey?* The relevant qualitative responses tended to ascribe changes in relationship satisfaction to social distancing and sheltering-in-place measures, as presented in Table 2. Working from these themes, we selected four additional independent variables for analysis: positive interaction communication patterns; working from home during the pandemic; cohabitation; and sheltering-in-place. Participants reported working from home at any point during the pandemic and whether they cohabitated with their partner currently, or at some point during the pandemic. Additionally, individuals reported “sheltering-in-place” behavior between March 1, 2020 and their survey response date. Positive interaction communication patterns were assessed using the positive interaction subscale of the Communication Patterns Questionnaire-Short Form (CPQ-SF), a 9-point Likert, 3-item sub-scale (summed value range: 9–27) that measures individual perceptions of positive communication patterns within a romantic partnership (Futris et al., 2010); higher values indicate higher mutual discussion, expression, and negotiation.

Additional pandemic-related stressors and behaviors that have previously been associated with relationship characteristics and quality were measured: employment change (Balzarini et al., 2020; Biddle et al., 2020; Halliday Hardie & Lucas, 2010; Schmid et al., 2020; Vinokur et al., 1996; White & Rogers, 2000); chronic/

pre-existing health conditions (associated with higher risk of serious COVID-19 illness) and COVID-19 case history (Hagedoorn et al., 2000; Rapelli et al., 2020; Traa et al., 2015; Whisman et al., 2004); and changes in substance use (Stephenson et al., 2021) and anal intercourse (AI) frequency (Shilo & Mor, 2020; Stephenson et al., 2021). Respondents reported whether they had a pandemic-related change in employment (fired/laid off/furloughed from [their] job/or lost work, still employed but at reduced hours/workload, or other change); those who responded affirmatively were considered to have experienced pandemic-related employment changes. Respondents who reported either a positive coronavirus test, experiencing symptoms of COVID-19 illness (coughing, shortness of breath or difficulty breaking, fever, chills, muscle pain, headache, sore throat, and/or new loss of taste or smell (Centers for Disease Control and Prevention (CDC), 2020b)), and/or self-isolating due to COVID-19 symptoms were categorized as COVID-19 cases. Individuals also reported any health conditions that could increase individual risk of severe COVID-19 illness (HIV/AIDS, ≥ 65 years, cardiovascular and/or lung conditions, cancer treatment, dialysis, liver disease, severe obesity, smoking/vaping, or other unspecified condition (Centers for Disease Control and Prevention (CDC), 2020a)). Changes in alcohol use during the pandemic were assessed with a single question asking respondents to report how their drinking had changed during the pandemic (decreased significantly, decreased slightly, no change, increased slightly, increased significantly). Finally, participants reported if they had AI with their primary partner more, less, or with the same frequency as the three months prior to the pandemic.

Analysis

Distributions of all noted variables were assessed (mean \pm standard deviation (*SD*) or *N* (%)). Although the dataset contained 50 couples (*N* = 100 individuals), all analyses were conducted at the individual level to maximize sample size and utilize data from all respondents, regardless of whether their male partner had also participated in the study; outcomes were modeled with mixed regression models to account for correlated data/non-independence between the dataset's pairs of partners. The association between noted independent variables and the odds of an individual reporting that their personal investment in their relationship and its future had increased during pandemic was assessed with crude mixed logistic regression models and a single, fully-adjusted mixed logistic model. The odds of an individual reporting increased or decreased relationship happiness during the pandemic were assessed via crude mixed multinomial logit models and a single, fully adjusted mixed multinomial logit model, with no reported change in relationship happiness as the comparison group for the multinomial happiness outcome. As 95.22% of respondents (*N* = 199) reported living with their partner, we did not include this as an independent variable in analyses. Additionally, we investigated potential effect modification. We hypothesized that the association between employment and relationship satisfaction was modified by working from home during the pandemic and/or having a pandemic-related employment change. We also hypothesized that being at higher risk of serious COVID-19 illness modified the effect of COVID-19 illness on the subjective relationship satisfaction outcomes. Interaction terms with statistically significant unadjusted Type III effects and/or β estimates were included in each outcome's fully adjusted mixed model. The results, or fixed effects, of the mixed logistic and multinomial logit models are presented as crude and adjusted odds ratios (OR), with corresponding 95% confidence intervals (CI). CIs that did not span the null value (1) were considered statistically significant.

Results

The study sample's sociodemographic characteristics and life changes related to the COVID-19 pandemic are presented in Table 3. The sample's average age was 35.94 \pm 9.17 (mean \pm *SD*) and the majority of the sample was non-Hispanic White (*N* = 162; 77.51%) and employed (*N* = 175; 83.73%). Over half of participants reported working from home at some point during the pandemic (*N* = 133; 63.64%), and 36.84% (*N* = 77) reported changes to their employment due to the pandemic. The majority of respondents (*N* = 164; 78.47%) also reported some period of "sheltering-in-place" between March 1,

Table 3. Distributions of Sociodemographics and COVID-19 Pandemic-Related Life Changes, Among 209 Coupled Gay, Bisexual, and Other Men Who Have Sex with Men (GBMSM; 50 Partner-Dyads and 109 Individuals), United States, July–September 2020.

Characteristic	<i>N</i> (%) or Mean <i>SD</i>
Age	35.94 \pm 9.17
Race	
Non-Hispanic White	162 (77.51)
Other/multi-racial ^a	47 (22.49)
Education	
No college degree	45 (21.53)
College degree	164 (78.47)
Employment	
Full- or part-time	175 (83.73)
Unemployed	34 (16.27)
Pandemic-related employment change ^b	
Yes	77 (36.84)
No	132 (63.16)
Work from home during pandemic (at any point)	
Yes	133 (63.64)
No	76 (36.36)
Shelter-in-place ^c	
Yes	164 (78.47)
No	45 (21.53)
Covid-19 case ^d	
Yes	37 (17.70)
No	172 (82.30)
Higher risk of serious COVID-19 illness ^e	
Yes	77 (36.84)
No	132 (63.16)
Change in alcohol consumption during pandemic ^f	
Same/lower consumption	144 (68.90)
Increased consumption	65 (31.10)

^aBlack or African American; Native American or Alaskan Native; Asian; Native Hawaiian or Pacific Islander; Hispanic; Other or Multi-racial.

^bLost employment and/or reduced workload/hours; other unspecified change.

^cBetween March 15, 2020 and survey completion date.

^dSelf-reported positive coronavirus test; isolated due to coronavirus infection; and/or reported symptoms consistent with COVID-19 illness (coughing, shortness of breath or difficulty breathing, fever, chills, muscle pain, headache, sore throat, and/or new loss of taste or smell) between March 1, 2020 and survey completion date.

^eSelf-reported \geq 1 of the following conditions: HIV/AIDS; \geq 65 years; cardiovascular and/or lung conditions; cancer treatment; dialysis; liver disease; severe obesity; smoking/vaping; or other unspecified condition.

^fCompared to 3 months prior to the pandemic.

2020 and their survey date. Approximately one third of the sample (*N* = 65; 31.10%) reported increased substance use during the pandemic. Close to one fifth of respondents (*N* = 37; 17.70%) reported testing positive for the coronavirus or having symptoms consistent with

coronavirus infection and 36.64% ($N = 77$) reported being at high risk of serious COVID-19 illness due to age or a pre-existing condition. Of those who reported being at high risk of serious COVID-19 illness, 32.43% ($N = 12$), reported having been a confirmed or suspected COVID-19 case.

The distributions of reported relationship characteristics and satisfaction indicators are presented in Table 1. Respondents' relationships were predominately long-term; the average relationship length was 8.25 ± 5.41 years, and 62.28% ($N = 131$) of the sample was married. On the CPQ-SF positive interactions sub-scale, respondents scored an average of 20.91 ± 4.77 , out of a maximum of 27; this result represents overall medium to high levels of positive interaction and communication between individual respondents and their partners. The majority of participants reported having AI with their partner with approximately the same frequency as before the pandemic ($N = 114$; 54.55%), and of the remaining participants, close to three-quarters reported decreased AI frequency ($N = 70$; 33.49% of total). The average degree of relationship happiness was 5.07 ± 1.23 , with a maximum of 7 (perfect) and a minimum of 1 (extremely unhappy), an indication of largely "happy" relationships in the study sample. Participants generally reported no change in their relationship happiness during the pandemic ($N = 114$; 54.55%), but close to one-third reported somewhat ($N = 50$; 23.92%) or significantly ($N = 12$; 5.74%) increased happiness. A minority of respondents reported decreased happiness during the pandemic (somewhat reduced: $N = 28$; 13.40%; significantly reduced: $N = 5$; 2.39%). In terms of feelings about their relationship's future, the entire sample reported investment in their relationship's success, with 52.15% ($N = 109$) selecting the response, "I want very much for my relationship to succeed and I will do all that I can to see that it does." Compared to pre-pandemic feelings, 74.16% ($N = 155$) reported their investment in their relationship's future had not changed, and 25.36% ($N = 53$) reported becoming more invested in their relationship's future during the pandemic. Only one (0.48%) participant reported reduced relationship investment.

Table 4 presents the crude and adjusted odds of increased investment in a relationship's future associated with sociodemographic and relationship characteristics, and pandemic-related events and changes (compared to lower or unchanging investment). In the crude and fully adjusted models, the majority of static variables were not significantly associated with the outcome. Additionally, none of the hypothesized interactions (employment change/working from home and employment status; high-risk status and COVID-19 illness) were significantly associated with changes in relationship investment (crude models) and thus were not included in the fully

adjusted model. In the crude, univariate models, having a pandemic-related employment change and increased pandemic AI frequency were independently associated with greater odds of increased investment in one's relationship and its future success; decreased AI frequency was not significantly associated with the outcome. It does not appear that either of these associations were confounded by covariates; both predictors were not substantially attenuated after adjustment. The adjusted odds of increased relationship investment among those with pandemic-related employment changes was 2.19 times higher (95% CI: 1.04, 4.61) than those without, and among those who reported more frequent AI with their partner during the pandemic, the odds of increased relationship investment were 4.38 times higher (95% CI: 1.55, 12.41) than those with similarly frequent AI before and during the pandemic.

Table 5 presents the results of the crude and fully adjusted mixed multinomial logit models of individually-experienced increased or decreased relationship happiness during the pandemic. In the crude and fully adjusted models, the majority of static variables were not significantly associated with either level of the outcome. The interaction between COVID-19 case and high risk of serious COVID-19 illness was associated with significantly higher crude odds of decreased relationship happiness, and was thus included in the fully adjusted model. The other two hypothesized interactions were not statistically significant and therefore not included in the fully adjusted model. After adjusting for covariates, increased relationship happiness was significantly associated with age and pandemic-related employment change. For each year over the study's minimum age of 19 years, the adjusted odds of increased relationship happiness decreased by 5% (OR 95% CI: 0.90, <1.0). Having had a pandemic-related employment change (as opposed to no change) was associated with 2.10 times higher adjusted odds (95% CI: 1.01, 4.35) of increased happiness with one's relationship during the COVID-19 pandemic.

Among those at high risk of serious COVID-19 illness, self-reported COVID-19 cases had 6.58 times higher adjusted odds of decreased relationship happiness during the pandemic (95% OR: 1.10, 39.39) than non-cases. However, among non-high-risk individuals, being a COVID-19 case was not significantly associated with decreased relationship happiness (crude and adjusted models). In the crude models, pandemic-related employment change and self-reported increased AI frequency during the pandemic were both significantly associated with higher odds of decreased relationship happiness during the COVID-19 pandemic. These associations appear to have been confounded by covariates, as both variables were substantially attenuated and no longer statistically significant in the fully adjusted multinomial model.

Table 4. Results of Unadjusted Logistic Mixed Models and One Fully-Adjusted Logistic Mixed Model, Presented as Crude and Adjusted Odds Ratios (OR; aOR) of Increased Investment in One's Relationship's Future During the COVID-19 Pandemic, Compared to Lower or No Change in Investment in One's Relationship's Future, in an Online Sample of 209 Coupled Gay, Bisexual and Other Men Who Have Sex with Men (GBMSM; 50 Partner-Dyads and 109 Individuals), Collected July–September, 2020. The Fully Adjusted Model Included All Listed Variables.

Characteristic	OR (95% CI)	aOR (95% CI)
Age ^a	0.97 (0.93, 1.01)	1.0 (0.96, 1.05)
Race		
Non-Hispanic White	Reference	Reference
Other/multi-racial ^b	0.88 (0.39, 1.95)	0.87 (0.36, 2.08)
Education		
No college degree	Reference	Reference
College degree	1.07 (0.47, 2.40)	0.78 (0.32, 1.92)
Relationship length (years)	0.92 (0.85, 1.00)	0.93 (0.84, 1.03)
Married		
Yes	0.87 (0.44, 1.73)	1.04 (0.46, 2.36)
No	Reference	Reference
Employment		
Full- or part-time	1.08 (0.44, 2.61)	1.02 (0.36, 2.83)
Unemployed	Reference	Reference
Pandemic-related employment change ^c		
Yes	2.20 (1.15, 4.22)*	2.19 (1.04, 4.61)*
No	Reference	Reference
Work from home during pandemic (at any point)		
Yes	1.66 (0.79, 3.48)	1.68 (0.69, 4.14)
No	Reference	Reference
Shelter-in-place ^d		
Yes	0.69 (0.31, 1.50)	0.50 (0.19, 1.27)
No	Reference	Reference
Covid-19 case ^e		
Yes	0.76 (0.30, 1.93)	0.90 (0.33, 2.43)
No	Reference	Reference
Higher risk of serious COVID-19 illness ^f		
Yes	0.94 (0.47, 1.88)	0.88 (0.40, 1.93)
No	Reference	Reference
Positive Interaction Patterns ^g	1.02 (0.96, 1.10)	1.02 (0.94, 1.10)
Change in alcohol consumption during pandemic ^h		
Same/lower consumption	Reference	Reference
Increased consumption	1.71 (0.83, 3.55)	1.12 (0.51, 2.49)
Change in anal intercourse (AI) frequency during pandemic ^h		
Decrease	1.77 (0.86, 3.64)	1.78 (0.79, 4.01)
Same	Reference	Reference
Increase	4.09 (1.60, 10.48)*	4.38 (1.55, 12.41)*

* $p < .05$.

Abbreviations: Confidence Interval (CI).

^aReference value is minimum age of study sample (19 years).

^bBlack or African American; Native American or Alaskan Native; Asian; Native Hawaiian or Pacific Islander; Hispanic; Other or Multi-racial

^cLost employment and/or reduced workload/hours; other unspecified change.

^dBetween March 15, 2020 and survey completion date.

^eSelf-reported positive coronavirus test; isolated due to coronavirus infection; and/or reported symptoms consistent with COVID-19 illness (coughing, shortness of breath or difficulty breaking, fever, chills, muscle pain, headache, sore throat, and/or new loss of taste or smell) between March 1, 2020 and survey completion date.

^fSelf-reported ≥ 1 of the following conditions: HIV/AIDS; ≥ 65 years; cardiovascular and/or lung conditions; cancer treatment; dialysis; liver disease; severe obesity; smoking/vaping; or other unspecified condition.

^gPositive Interaction sub-scale of the Communication Patterns questionnaire-Short Form (CPQ-SF; summed value range: 9-27; higher values indicate higher mutual discussion, expression, and negotiation with partner.

^hCompared to 3 months prior to the pandemic.

Table 5. Results of Unadjusted Multinomial Logit Mixed Models and One Fully-Adjusted Multinomial Logit Mixed Model, Presented as Crude and Adjusted Odds Ratios of Increased and Decreased Happiness in Relationship, Compared to No Change, During COVID-19 Pandemic, in an Online Sample of 209 Coupled Gay, Bisexual and Other Men Who Have Sex with Men (GBMSM; 50 Partner-Dyads and 109 Individuals), Collected July–September, 2020. The Fully Adjusted Model Included All Listed Variables.

Characteristic	Increased happiness		Decreased happiness	
	OR	aOR (95% CI)	OR	aOR (95% CI)
Age ^a	0.96 (0.92, <1.0)*	0.95 (0.90, <1.0)*	0.95 (0.91, 1.00)	0.94 (0.89, >1.0)
Race				
Non-Hispanic White	Reference	Reference	Reference	Reference
Other/multi-racial ^b	1.25 (0.60, 2.62)	1.05 (0.47, 2.36)	1.25 (0.50, 3.14)	1.01 (0.35, 2.86)
Education				
No college degree	Reference	Reference	Reference	Reference
College degree	1.12 (0.52, 2.44)	0.69 (0.26, 1.86)	0.84 (0.33, 2.20)	1.27 (0.40, 4.03)
Relationship length (years)	0.98 (0.93, 1.04)	1.05 (0.96, 1.14)	0.95 (0.88, 1.03)	1.00 (0.89, 1.11)
Married				
Yes	0.86 (0.46, 1.65)	0.90 (0.43, 1.91)	0.84 (0.38, 1.82)	1.48 (0.54, 4.07)
No	Reference	Reference	Reference	Reference
Employment				
Full- or part-time	1.49 (0.59, 3.79)	1.18 (0.41, 3.36)	0.59 (0.23, 1.52)	0.58 (0.19, 1.75)
Unemployed	Reference	Reference	Reference	Reference
Pandemic-related employment change (at any point) ^c				
Yes	1.87 (0.98, 3.57)	2.10 (1.01, 4.35)*	2.82 (1.03, 5.05)*	1.80 (0.74, 4.39)
No	Reference	Reference	Reference	Reference
Work from home during pandemic				
Yes	1.90 (0.96, 3.76)	2.16 (0.87, 5.36)	0.90 (0.41, 1.97)	0.97 (0.34, 2.75)
No	Reference	Reference	Reference	Reference
Shelter-in-place ^d				
Yes	1.46 (0.67, 3.18)	1.22 (0.48, 3.08)	1.41 (0.53, 3.78)	1.08 (0.33, 3.54)
No	Reference	Reference	Reference	Reference
Covid-19 case ^e (at higher risk of serious illness ^f)				
Yes	1.73 (0.77, 3.93)	1.71 (0.28, 10.33)	2.45 (1.01, 6.27)*	6.58 (1.10, 39.39)*
No	Reference	Reference	Reference	Reference
Covid-19 case ^e (not at higher risk of serious illness)				
Yes	1.04 (0.55, 2.00)	2.14 (0.79, 5.96)	1.79 (0.81, 3.92)	2.10 (0.50, 8.83)
No	Reference	Reference	Reference	Reference
Positive Interaction Communication Patterns ^g	1.00 (0.94, 1.07)	1.01 (0.94, 1.09)	0.94 (0.87, 1.02)	0.96 (0.88, 1.06)
Change in alcohol consumption during pandemic ^h				
Same/lower consumption	Reference	Reference	Reference	Reference
Increased consumption	0.87 (0.45, 1.67)	0.79 (0.37, 1.70)	0.68 (0.20, 1.61)	0.93 (0.33, 2.51)
Change in anal intercourse (AI) frequency during pandemic ^h				
Decrease	2.23 (0.90, 5.51)	1.13 (0.52, 2.45)	0.44 (0.05, 3.70)	2.37 (0.94, 5.96)
Same	Reference	Reference	Reference	Reference
Increase	1.32 (0.65, 2.68)	2.28 (0.86, 6.03)	3.15 (1.30, 7.16)*	0.54 (0.06, 4.83)

* $P < .05$.

Abbreviations: Confidence Interval (CI).

^aReference value is minimum age of study sample (19 years).^bBlack or African American; Native American or Alaskan Native; Asian; Native Hawaiian or Pacific Islander; Hispanic; Other or Multi-racial^cLost employment and/or reduced workload/hours; other unspecified change.^dBetween March 15, 2020 and survey completion date.^eSelf-reported positive coronavirus test; isolated due to coronavirus infection; and/or reported symptoms consistent with COVID-19 illness (coughing, shortness of breath or difficulty breathing, fever, chills, muscle pain, headache, sore throat, and/or new loss of taste or smell) between March 1, 2020 and survey completion date.^fSelf-reported ≥ 1 of the following conditions: HIV/AIDS; ≥ 65 years; cardiovascular and/or lung conditions; cancer treatment; dialysis; liver disease; severe obesity; smoking/vaping; or other unspecified condition.^gPositive Interaction sub-scale of the Communication Patterns questionnaire-Short Form (CPQ-SF; summed value range: 9–27; higher values indicate higher mutual discussion, expression, and negotiation with partner.^hCompared to 3 months prior to the pandemic.

Discussion

This study examined how the first five to seven months of the COVID-19 pandemic affected individual relationship satisfaction among GBMSM in committed, long-term relationships, in the United States. We observed that men in same-sex relationships were differentially impacted by the pandemic and its myriad social, economic, and health impacts. Generally, the study sample reported that they had been able to maintain, or even improve, their relationship investment during the early part of the pandemic. These results suggest that committed male couples in the United States may be resilient in the face of significant, long-term external stressors. This finding echoes previous COVID-19 relationship studies in heterosexual couples, which have reported that many couples have not experienced substantial changes in relationship quality (Biddle et al., 2020; Williamson, 2020; Xiong et al., 2020); in our study, among men who reported changed relationship satisfaction, only a small minority reported reduced happiness and/or investment in their relationship's future during the pandemic. In free-responses, many participants reported that the lifestyle changes they had made to lower coronavirus transmission and risk, such as reduced travel and working from home, had improved their feelings regarding their partnership, as they had been spending more time with their partner on a day-to-day basis. This qualitative result was not borne out in the study's models, as neither working from home nor sheltering-in-place were significantly associated with either of the improved relationship satisfaction outcomes. However, the noted significant association between more frequent sex and relationship investment may represent these self-reported increases in togetherness and intimacy during the pandemic, to some degree.

This study determined that GBMSM's individually-experienced pandemic-related employment change was significantly associated with improved relationship satisfaction. Personal economic changes, that is, reduced or lost employment (and likely income), were associated with both increased individual relationship investment and happiness. This is in contrast with research positing that economic hardship tends to diminish relationship functioning and success, likely by increasing conflict and reducing intimacy (Halliday Hardie & Lucas, 2010; Vinokur et al., 1996). In a recent report of Australian couples (Biddle et al., 2020), and a study of 3,600 individuals from the Americas, Europe, Africa, and Asia (Balzarini et al., 2020), researchers identified associations between worsening financial strain and worsening relationship quality during the COVID-19 pandemic. However, there is also evidence that subjective relationship measures, such as affection and satisfaction, can be positively impacted by financial strain (White & Rogers, 2000). A

previous study of approximately 4,000 coupled individuals reported that receiving government assistance increased relationship quality and affection for one's partner (Halliday Hardie & Lucas, 2010). In the United States, the March 2020 CARES act extended and increased unemployment benefits nationwide (H.R.748 - 116th Congress (2019-2020): CARES Act, 2020)—this safety net may have resulted in increased relationship satisfaction, as noted in Hardie and Lucas (2010), or it may have mitigated and/or postponed the negative impact of lost jobs and income on individual relationship satisfaction and couples' overall relationship quality. Given the extremely high U.S. unemployment rate during the pandemic (U.S. Bureau of Labor Statistics, 2020a, 2020b), those experiencing job loss during this time may have been more likely to attribute their change in employment to broader circumstances as opposed to personal failure, thus somewhat lessening negative impacts on mental health, and in turn, relationships. This hypothesis recalls previous speculation that widespread, global, existential threats can foster attachment and closeness in relationships (Mikulincer & Shaver, 2007; Pietromonaco & Overall, 2020). In addition, although 37% of respondents reported that the pandemic had impacted their employment, close to 84% of respondents reported being employed (either full- or part-time) at the time of survey. This suggests that a large proportion of the study population whose employment was negatively affected by the pandemic may have experienced less financial stress than those dealing with long-term joblessness, thus blunting previously identified associations between job loss, economic stress, and negative relationship outcomes.

We identified only one statistically significant (adjusted) predictor of decreased happiness with one's relationship during the first five to seven months of the pandemic—having had COVID-19; this relationship was only significant among those who reported being at higher risk of serious illness. This result may reflect complex relationships between pre-pandemic mental, physical, and social health; COVID-19 illness; and isolation's effects on mental and relationship health. Multiple studies have propounded significant associations between pre-existing physical conditions and psychological distress during the pandemic (Iob et al., 2020; Rapelli et al., 2020; Salari et al., 2020; Wang et al., 2020). These psychological conditions may further increase risk of COVID-19 illness in vulnerable GBMSM populations—early pandemic research has observed that those with pre-existing psychiatric conditions are more susceptible to coronavirus infection (Taquet et al., 2021). This appears to be a bidirectional association, as COVID-19 cases may also be two times more likely to be diagnosed with a psychiatric disorder following COVID-19 diagnosis than non-COVID-19 cases (Taquet et al.,

2021). Thus, individuals with pre-existing physical conditions could be more likely to: (1) suffer from mental health issues during the pandemic; (2) contract the coronavirus; and (3) suffer from severe COVID-19 illness—all of which may result in more profound mental distress. Consequently, high-risk populations may be disproportionately vulnerable to COVID-19's cumulative negative mental health consequences than those without pre-existing conditions. This individual effect, then, in turn could spill over into lower relationship satisfaction (Randall & Bodenmann, 2017). These associations could be particularly pronounced in GBMSM, given that sexual minorities may be experiencing notably high levels of anxiety and depression during the pandemic (Flentje et al., 2020; Suen et al., 2020), in addition to their higher rates of high-risk conditions. This hypothesis falls in line with previous research on chronic and/or life threatening conditions within marriages/partnerships, which have long asserted complex relationships between illness, individual mood, and relationship quality, particularly when subjectively assessed by the sick partner (Birditt & Antonucci, 2008; Boeding et al., 2014; Galinsky & Waite, 2014; Hagedoorn et al., 2000; Rolland, 1994). In addition, research has noted that the multi-directional pathways between individual mood, disease, and relationship functioning and satisfaction can be modified by perceived partner support. This presents an alternative (or perhaps additional) underlying mechanism for the current study's identified association between lower relationship happiness and COVID-19 illness among high-risk cases. If high-risk COVID-19 cases in our study were more seriously ill than non-high-risk cases, these individuals may have also had increased adherence to isolation recommendations and/or experienced enforced isolation via hospitalization. Thus, these high-risk cases may have been especially socially isolated and less able to maintain in-person partner support and overall social support while ill, both of which could potentially impact individual relationship satisfaction. Within couples dealing with stress, individual coping can be buoyed or diminished by dyadic coping mechanisms (Bodenmann, 2005; Falconier et al., 2015)—COVID-19 cases who were isolated from their partners in addition to their larger support system(s) could have had particularly diminished coping resources. Indeed, a recent study of pandemic stressors and relationship satisfaction claimed that perceived partner responsiveness lessened the negative impact of COVID-19 stressors on relationship quality (Balzarini et al., 2020). Although Balzarini et al.'s study did not investigate COVID-19 illness as a stressor, it does present a reasonable explanation for our study's finding. Overall, it is likely that our study's results regarding high-risk COVID-19 cases reflects a gallimaufry of interactions and multi-directional

relationships between pre-existing physical conditions, mental health, COVID-19 illness, social isolation, and partner intimacy and support. Further research into the interplay between these factors in GBMSM and other vulnerable populations is warranted; exploring strategies to facilitate emotional intimacy and support in couples when physical interaction and in-person support carries significant COVID-19 risks (or is impossible due to hospitalization) could have profound impacts on both physical and mental health among high-risk GBMSM.

While a relatively small percentage of study respondents reported decreased happiness in their relationship, this did not appear to translate into decreased investment in their relationship's future. Indeed, only one surveyed individual reported decreased investment in their relationship and its future, although approximately 15% of respondents reported being less happy in their relationship during the pandemic. In addition, our models did not identify any pandemic-related life changes that were significantly associated with both increased relationship happiness *and* relationship investment (after adjusting for covariates). In combination, this implies that individual GBMSM who developed negative feelings towards their partner and their relationship during the early part of the current global health crisis did not necessarily have correspondingly negative feelings about their relationship's future. Individuals may be experiencing negative emotions towards their partners during the pandemic but expect their relationship to improve or "bounce back" as the pandemic progresses and/or post-pandemic, or as individual circumstances change. This result may be a reflection of the current study population's sociodemographics—generally employed, White, middle-aged men in long-term partnerships; pre-pandemic stability and privilege may have had a protective effect in this population. In addition, given the continued wide-spread impacts of the pandemic in the United States (as of early 2021), we speculate that relationship optimism may have waned over time and thus may not represent the current state of individual satisfaction of men in long-term GBMSM relationships.

The current study was not without limitations. Its cross-sectional design limits our ability to infer directionality and thus, we cannot say whether, for instance, increased AI frequency was a result of increased individual investment in a relationship's future or if increased investment led to more frequent AI within a relationship. We were unable to investigate dynamic changes in relationship satisfaction across the pandemic's trajectory; it is likely that the ongoing pandemic and related stressors' impact on relationship quality may be different now and in the future than it was in earlier stages. As noted, previous studies have asserted that pre-existing relationship characteristics may explain some of the differential

impacts of the pandemic on couples. We were unable to examine these factors, however, without measures of pre-pandemic relationship functioning. In addition, given the study population of long-term (≥ 6 months) male couples, these results may not be generalizable to single GBMSM, those in shorter-term relationships, and/or to populations with different sociodemographic characteristics. This study examined the impact of individual pandemic-related stressors on self-reported, subjective relationship assessments; we did not have a large enough sample of complete couples (i.e., both partners) to adequately analyze how the pandemic's impact on one partner may have shaped the other's relationship satisfaction and contributed to a couple's shared pandemic experience and overall relationship quality. Future GBMSM couples research could expand upon our results by incorporating data from both partners—for example, measuring the association between one partner's COVID-19 illness on the other's relationship satisfaction, or assessing dyadic concordance on relationship satisfaction to approximate objective relationship quality.

Collectively, this study suggests that GBMSM in committed, long-term partnerships may be differentially affected by stressors and changes during the coronavirus pandemic. Couples facing economic changes may be strengthening their bonds due to shared hardship whereas those with partners living with high-risk pre-existing conditions may be primed for disproportionate reductions in relationship satisfaction, at least in the short-term. As more GBMSM have higher rates of underlying, high-risk conditions, this population is particularly vulnerable to serious illness and death from COVID-19 compared to the general U.S. population. The results of the current study suggest these increased morbidity and mortality risks may also result in additional mental and physical burdens among coupled GBMSM by negatively impacting individual, subjective experiences within committed partnerships. This result is particularly important given that the current study's population was generally privileged (in terms of race/ethnicity, high employment levels, etc.). Within the GBMSM community, populations with significant pre-pandemic vulnerabilities, such as racial and ethnic minorities, and/or those with lower pre-pandemic relationship functioning, may be particularly susceptible to significant health, economic, and personal pandemic-related outcomes. The interactions between pre-pandemic and COVID-19 experiences and vulnerabilities could consequentially change the associations between relationship satisfaction and pandemic-related stressors; the current study provides a jumping off point for larger-scale research into the interactions between long-term external stressors and GBMSM's relationship satisfaction and functioning. In terms of practical applications, mental health and supportive programs during

the pandemic should consider targeting high-risk individuals and COVID-19 cases within vulnerable GBMSM couples, for both research and intervention, to have maximal impact—especially as cases, hospitalizations, and deaths continue to rise in the United States. In addition, as this study's results reflect data from the summer of 2020, there is a critical need for continued research into the short- and long-term effects of the COVID-19 pandemic on GBMSM's relationship satisfaction in order to mitigate potential negative impacts and capitalize on positive impacts. Building on the optimistic results of the current study, continued investigation into GBMSM couples' relationship resilience during the pandemic could lead to broadly generalizable insights about healthy and functional relationships.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work is supported by the National Child Health and Human Development of the National Institutes of Health under award number R01HD078131. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Ethical Standards

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

ORCID iDs

Alison R. Walsh  <https://orcid.org/0000-0002-6123-5730>

Rob Stephenson  <https://orcid.org/0000-0002-9239-2640>

References

- Baker, K., Singh, S., Mirza, S., & Durso, L. (2017, July 6). The Senate health care bill would be devastating for LGBTQ people - Center for American Progress. Retrieved January 12, 2021, from Center for American Progress website: <https://www.americanprogress.org/issues/lgbtq-rights/news/2017/07/06/435452/senate-health-care-bill-devastating-lgbtq-people/>
- Balzarini, R. N., Muise, A., Zoppolat, G., Di Bartolomeo, A., Rodrigues, D., Alonso-Ferres, M., & Slatcher, R. B. (2020). *Love in the time of Covid: Perceived partner responsiveness buffers people from lower relationship quality associated with Covid-related stressors*. <https://doi.org/10.31234/osf.io/e3fh4>

- Biddle, N., Edwards, B., Gray, M., & Sollis, K. (2020, July 8). Mental health and relationships during the COVID-19 pandemic. Retrieved January 11, 2021, from <https://csmr.cass.anu.edu.au/research/publications/mental-health-and-relationships-during-covid-19-pandemic>
- Birditt, K., & Antonucci, T. C. (2008). Life sustaining irritations? Relationship quality and mortality in the context of chronic illness. *Social Science and Medicine*, 67(8), 1291–1299. <https://doi.org/10.1016/j.socscimed.2008.06.029>
- Bodenmann, G. (2005). Dyadic coping and its significance for marital functioning. In T. A. Revenson, K. Kayser, & G. Bodenmann (Eds.), *Decade of behavior. Couples coping with stress: Emerging perspectives on dyadic coping* (pp. 33–49). American Psychological Association. <https://doi.org/10.1037/11031-002>
- Boeding, S. E., Pukay-Martin, N. D., Baucom, D. H., Porter, L. S., Kirby, J. S., Gremore, T. M., & Keefe, F. J. (2014). Couples and breast cancer: Women's mood and partners' marital satisfaction predicting support perception. *Journal of Family Psychology*, 28(5), 675–683. <https://doi.org/10.1037/fam0000019>
- Bruce, L. D. H., Wu, J. S., Lustig, S. L., Russell, D. W., & Nemecek, D. A. (2019). Loneliness in the United States: A 2018 national panel survey of demographic, structural, cognitive, and behavioral characteristics. *American Journal of Health Promotion*, 33(8), 1123–1133. <https://doi.org/10.1177/0890117119856551>
- Centers for Disease Control and Prevention (CDC). (2020a, June 25). Certain medical conditions and risk for severe COVID-19 illness. Retrieved July 1, 2020, from <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions>
- Centers for Disease Control and Prevention (CDC). (2020b, June 25). Symptoms of Coronavirus. Retrieved July 1, 2020, from <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>
- Chatterjee, S., Biswas, P., & Guria, R. T. (2020). LGBTQ care at the time of COVID-19. *Diabetes and Metabolic Syndrome*, 14(6), 1757–1758. <https://doi.org/10.1016/j.dsx.2020.09.001>
- Esterwood, E., & Saeed, S. A. (2020). Past epidemics, natural disasters, COVID19, and mental health: Learning from history as we deal with the present and prepare for the future. *Psychiatric Quarterly*, 91, 1121–1133. <https://doi.org/10.1007/s11126-020-09808-4>
- Falconier, M. K., Jackson, J. B., Hilpert, P., & Bodenmann, G. (2015, December 1). Dyadic coping and relationship satisfaction: A meta-analysis. *Clinical Psychology Review*, 42, 28–46. <https://doi.org/10.1016/j.cpr.2015.07.002>
- Fetters, A. (2020, July 17). Move in? Get divorced? The pandemic forces couples to decide. *The New York Times*.
- Flentje, A., Obedin-Maliver, J., Lubensky, M. E., Dastur, Z., Neilands, T., & Lunn, M. R. (2020). Depression and anxiety changes among sexual and gender minority people coinciding with onset of COVID-19 pandemic. *Journal of General Internal Medicine*, 35(9), 2788–2790. <https://doi.org/10.1007/s11606-020-05970-4>
- Futris, T. G., Campbell, K., Nielsen, R. B., & Burwell, S. R. (2010). The communication patterns questionnaire-short form: A review and assessment. *The Family Journal*, 18(3), 275–287. <https://doi.org/10.1177/1066480710370758>
- Galinsky, A. M., & Waite, L. J. (2014). Sexual activity and psychological health as mediators of the relationship between physical health and marital quality. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 69(3), 482–492. <https://doi.org/10.1093/geronb/gbt165>
- Gonzales, G., & Loret de Mola, E. (2021). Potential COVID-19 vulnerabilities in employment and healthcare access by sexual orientation. *Annals of LGBTQ Public and Population Health*, 2(2), LGBTQ-2020-0052. <https://doi.org/10.1891/lgbtq-2020-0052>
- H.R.748 - 116th Congress (2019-2020): CARES Act., (2020).
- Hagedoorn, M., Kuijer, R. G., Buunk, B. P., DeJong, G. M., Wobbes, T., & Sanderman, R. (2000). Marital satisfaction in patients with cancer: Does support from intimate partners benefit those who need it the most? *Health Psychology*, 19(3), 274–282. <https://doi.org/10.1037/0278-6133.19.3.274>
- Halliday Hardie, J., & Lucas, A. (2010). Economic factors and relationship quality among young couples: Comparing cohabitation and marriage. *Journal of Marriage and Family*, 72(5), 1141–1154. <https://doi.org/10.1111/j.1741-3737.2010.00755.x>
- Human Rights Campaign Foundation. (2020). *The lives and livelihoods of many in the LGBTQ community are at risk amidst COVID-19 crisis (Issue Brief)*. Retrieved from https://assets2.hrc.org/files/assets/resources/COVID19-IssueBrief-032020-FINAL.pdf?_ga=2.28739710.31208041.1622212132-1647923612.1622212132
- Iob, E., Frank, P., Steptoe, A., & Fancourt, D. (2020). Levels of severity of depressive symptoms among at-risk groups in the UK during the COVID-19 pandemic. *JAMA Network Open*, 3(10), e2026064. <https://doi.org/10.1001/jamanetworkopen.2020.26064>
- Lahav, Y. (2020). Psychological distress related to COVID-19 – The contribution of continuous traumatic stress. *Journal of Affective Disorders*, 277, 129–137. <https://doi.org/10.1016/j.jad.2020.07.141>
- Li, G., Tang, D., Song, B., Wang, C., Qunshan, S., Xu, C., & Cao, Y. (2020). Impact of the COVID-19 pandemic on partner relationships and sexual and reproductive health: Cross-sectional, online survey study. *Journal of Medical Internet Research*, 22(8), e20961. <https://doi.org/10.2196/20961>
- Liu, Y., & Upenieks, L. (2020). Marital quality and well-being among older adults: A typology of supportive, aversive, indifferent, and ambivalent marriages. *Research on Aging*. <https://doi.org/10.1177/0164027520969149>
- McKay, T., Henne, J., Gonzales, G., Quarles, R., Gavulic, K. A., & Garcia Gallegos, S. (2020). The COVID-19 pandemic and sexual behavior among gay and bisexual men in the United States. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3614113>
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. Guilford Press.
- Pieh, C., O'Rourke, T., Budimir, S., & Probst, T. (2020). Relationship quality and mental health during COVID-19 lockdown. *PLOS ONE*, 15(9), e0238906. <https://doi.org/10.1371/journal.pone.0238906>
- Pietromonaco, P. R., & Overall, N. C. (2020). Applying relationship science to evaluate how the COVID-19 pandemic

- may impact couples' relationships. *American Psychologist*. <https://doi.org/10.1037/amp0000714>
- Randall, A. K., & Bodenmann, G. (2017, February 1). Stress and its associations with relationship satisfaction. *Current Opinion in Psychology*, *13*, 96–106. <https://doi.org/10.1016/j.copsyc.2016.05.010>
- Rapelli, G., Lopez, G., Donato, S., Pagani, A. F., Parise, M., Bertoni, A., & Iafrate, R. (2020). Postcard from Italy: challenges and psychosocial resources of partners living with and without a chronic disease during COVID-19 epidemic. *Frontiers in Psychology*, *11*, 3559. <https://doi.org/10.3389/fpsyg.2020.567522>
- Robles, T. F., Slatcher, R. B., Trombello, J. M., & McGinn, M. M. (2014). Marital quality and health: A meta-analytic review. *Psychological Bulletin*, *140*(1), 140–187. <https://doi.org/10.1037/a0031859>
- Rolland, J. S. (1994). In sickness and in health: the impact of illness on couples' relationships. *Journal of Marital and Family Therapy*, *20*(4), 327–347. <https://doi.org/10.1111/j.1752-0606.1994.tb00125.x>
- Salari, N., Hosseini-Far, A., Jalali, R., Vaisi-Raygani, A., Rasoulpoor, S., Mohammadi, M., & Khaledi-Paveh, B. (2020, July 6). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: A systematic review and meta-analysis. *Globalization and Health*, *16*. <https://doi.org/10.1186/s12992-020-00589-w>
- Salerno, J. P., Williams, N. D., & Gattamorta, K. A. (2020). LGBTQ populations: Psychologically vulnerable communities in the COVID-19 pandemic. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(S1), S239–S242. <https://doi.org/10.1037/tra0000837>
- Sanchez, T. H., Zlotorzynska, M., Rai, M., & Baral, S. D. (2020). Characterizing the impact of COVID-19 on men who have sex with men across the United States in April, 2020. *AIDS and Behavior*, *24*, 2024–2032. <https://doi.org/10.1007/s10461-020-02894-2>
- Schmid, L., Wörn, J., Hank, K., Sawatzki, B., & Walper, S. (2020). Changes in employment and relationship satisfaction in times of the COVID-19 pandemic: Evidence from the German family Panel. *European Societies*, *23*(S1), S743–S758. <https://doi.org/10.1080/14616696.2020.1836385>
- Shilo, G., & Mor, Z. (2020). COVID-19 and the changes in the sexual behavior of men who have sex with men: Results of an online survey. *Journal of Sexual Medicine*, *17*(10), 1827–1834. <https://doi.org/10.1016/j.jsxm.2020.07.085>
- Stanley, S. M., & Markman, H. J. (2020). Helping couples in the shadow of COVID-19. *Family Process*, *59*(3), 937–955. <https://doi.org/10.1111/famp.12575>
- Stephenson, R., Chavanduka, T. M. D., Rosso, M. T., Sullivan, S. P., Pitter, R. A., Hunter, A. S., & Rogers, E. (2020). Contrasting the perceived severity of covid-19 and HIV infection in an online survey of gay, bisexual, and other men who have sex with men during the U.S. COVID-19 epidemic. *American Journal of Men's Health*, *14*(5). <https://doi.org/10.1177/1557988320957545>
- Stephenson, R., Chavanduka, T. M. D., Rosso, M. T., Sullivan, S. P., Pitter, R. A., Hunter, A. S., & Rogers, E. (2021). Sex in the time of COVID-19: Results of an online survey of gay, bisexual and other men who have sex with men's experience of sex and HIV prevention during the US COVID-19 Epidemic. *AIDS and Behavior*, *25*, 40–48. <https://doi.org/10.1007/s10461-020-03024-8>
- Suen, Y. T., Chan, R. C. H., & Wong, E. M. Y. (2020). Effects of general and sexual minority-specific COVID-19-related stressors on the mental health of lesbian, gay, and bisexual people in Hong Kong. *Psychiatry Research*, *292*, 113365. <https://doi.org/10.1016/j.psychres.2020.113365>
- Taquet, M., Luciano, S., Geddes, J. R., & Harrison, P. J. (2021). Bidirectional associations between COVID-19 and psychiatric disorder: retrospective cohort studies of 62 354 COVID-19 cases in the USA. *The Lancet Psychiatry*, *8*, 130–140. [https://doi.org/10.1016/S2215-0366\(20\)30462-4](https://doi.org/10.1016/S2215-0366(20)30462-4)
- Traa, M. J., De Vries, J., Bodenmann, G., & Den Oudsten, B. L. (2015). Dyadic coping and relationship functioning in couples coping with cancer: A systematic review. *British Journal of Health Psychology*, *20*(1), 85–114. <https://doi.org/10.1111/bjhp.12094>
- U.S. Bureau of Labor Statistics. (2020a, May 8). Employment situation news release. Retrieved October 31, 2020, from Economic News Releases website: https://www.bls.gov/news.release/archives/empsit_05082020.htm
- U.S. Bureau of Labor Statistics. (2020b, October 2). Employment situation news release. Retrieved October 31, 2020, from https://www.bls.gov/news.release/archives/empsit_10022020.htm
- Vieira, P. R., Garcia, L. P., & Maciel, E. L. N. (2020). The increase in domestic violence during the social isolation: What does it reveals? *Revista Brasileira de Epidemiologia*, *23*, e200033. <https://doi.org/10.1590/1980-5497202000033>
- Vinokur, A. D., Price, R. H., & Caplan, R. D. (1996). Hard times and hurtful partners: How financial strain affects depression and relationship satisfaction of unemployed persons and their spouses. *Journal of Personality and Social Psychology*, *71*(1), 166–179. <https://doi.org/10.1037//0022-3514.71.1.166>
- Wang, Y., Kala, M. P., & Jafar, T. H. (2020). Factors associated with psychological distress during the coronavirus disease 2019 (COVID-19) pandemic on the predominantly general population: A systematic review and meta-analysis. *PLOS ONE*, *15*(12), e0244630. <https://doi.org/10.1371/journal.pone.0244630>
- Whisman, M. A., Uebelacker, L. A., & Weinstock, L. M. (2004). Psychopathology and marital satisfaction: The importance of evaluating both partners. *Journal of Consulting and Clinical Psychology*, *72*(5), 830–838. <https://doi.org/10.1037/0022-006X.72.5.830>
- White, L., & Rogers, S. J. (2000). Economic circumstances and family outcomes: A review of the 1990s. *Journal of Marriage and Family*, *62*, 1035–1051. <https://doi.org/10.1111/j.1741-3737.2000.01035.x>
- Williamson, H. C. (2020). Early effects of the COVID-19 pandemic on relationship satisfaction and attributions. *Psychological Science*, *31*(12), 1479–1487. <https://doi.org/10.1177/0956797620972688>
- Xiong, J., Lipsitz, O., Nasri, F., Lui, L. M. W., Gill, H., Phan, L., & McIntyre, R. S. (2020). Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *Journal of Affective Disorders*, *277*, 55–64. <https://doi.org/10.1016/j.jad.2020.08.001>