Beliefs about Social Distancing During COVID-19 Stay-at-home Orders: A Theory-based Salient Belief Elicitation

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Abstract

Understanding the beliefs about social distancing behaviors is required to inform 2019 coronavirus disease (COVID-19) interventions that are based on theory, research, and evidence. This study investigated the salient beliefs related to social distancing. United States adults ($n = 106$) recruited from Amazon's Mechanical Turk completed an online reasoned action approach belief elicitation from April 19 to April 25, 2020. Behavioral beliefs (advantages and disadvantages), normative beliefs (approvers and disapprovers), and control beliefs (facilitators and barriers) related to social distancing were elicited via open-ended questions. A content analysis was performed, and kappa statistics revealed high levels of interrater reliability ($\alpha = 0.86\text{-}0.96$). Results revealed that a perceived salient advantage to social distancing was individual COVID-19 prevention, more so than community prevention. The most cited disadvantage was that social distancing could prevent participants from socially interacting with others, which could negatively impact mental health. Family and friends were the most mentioned approvers, while people who hold conservative ideologies and negative attitudes about COVID-19 were the most frequent disapprovers. Supply accessibility and store policies were the most listed facilitators. Results suggest three implications. First, pandemic-related public health and social marketing campaigns should focus more on individual health benefits than community health benefits. Second, digital public health interventions that address social connectedness and mental health outcomes are critical during pandemics. Third, public health scientists and practitioners should work with local and national media outlets and political leaders to create community-tailored and evidence-based information to increase adherence of mitigation strategies.

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Introduction

As of January 28, 2021, there were over 25 million cases and over 400,000 deaths related to the 2019 coronavirus disease (COVID-19) in the United States (U.S.) (Centers for Disease Control and Prevention, 2021). Although COVID-19 vaccines are being tested and implemented throughout the U.S., behavioral interventions continue to be effective in preventing COVID-19. Social distancing was the earliest COVID-19 intervention that individuals and communities adopted. Social distancing is a collection of behaviors (e.g., staying home, staying six feet apart) that are effective at reducing COVID-19 because they aim to minimize close contact (Abouk & Heydari, 2020; Centers for Disease Control and Prevention, 2020; Imai et al., 2020; Prabhakaran, 2020; Rusu, 2020). Most social distancing research examines how effective social distancing is or how compliant people are in in taking-up the behavior. Neither of

these are informed by behavior theory. Behavior theory research is necessary to understand individual and social factors surrounding social distancing, and results from such studies are essential to developing future social distancing-related interventions that could be successful in addressing future pandemics (Allegrante et al., 2020). The purpose of this descriptive exploratory study was to identify the salient, top-of-the-mind, beliefs held by the U.S. adult population regarding social distancing via a reasoned action approach (RAA) belief elicitation.

Study designs were informed by the reasoned action approach (RAA; Fishbein & Ajzen, 2010). The RAA is the newest edition of the theory of planned behavior (Ajzen, 1991) and the theory of reasoned action (Azjen & Fishbein, 1980). The RAA posits that intention is the best predictor of behavior, and three constructs predict intention: attitude, perceived norm, and perceived behavioral control. Three belief structures underlie these three constructs:

behavioral beliefs (advantages/ disadvantages) inform individuals' attitudes, normative beliefs (approvers/disapprovers) inform their perceived norms, and control beliefs (facilitators/barriers) inform their perceived behavioral control (see Figure 1). The first step in applying the RAA is to identify salient beliefs related to a behavior via a belief elicitation (Fishbein & Ajzen, 2010), thus the current study uses RAA to elicit the beliefs individuals have about social distancing. Researchers and practitioners can use belief elicitation results to inform survey development for correlational research, develop education and communication campaigns, and propose policies that address structural facilitators and barriers. The RAA was chosen because it is a validated behavior theory, it has been successful in understanding various health behaviors, and it has clear operational definitions and methods compared to other health behavior theories (Fishbein & Ajzen, 2010; Glanz et al., 2015; McEachan et al., 2016).
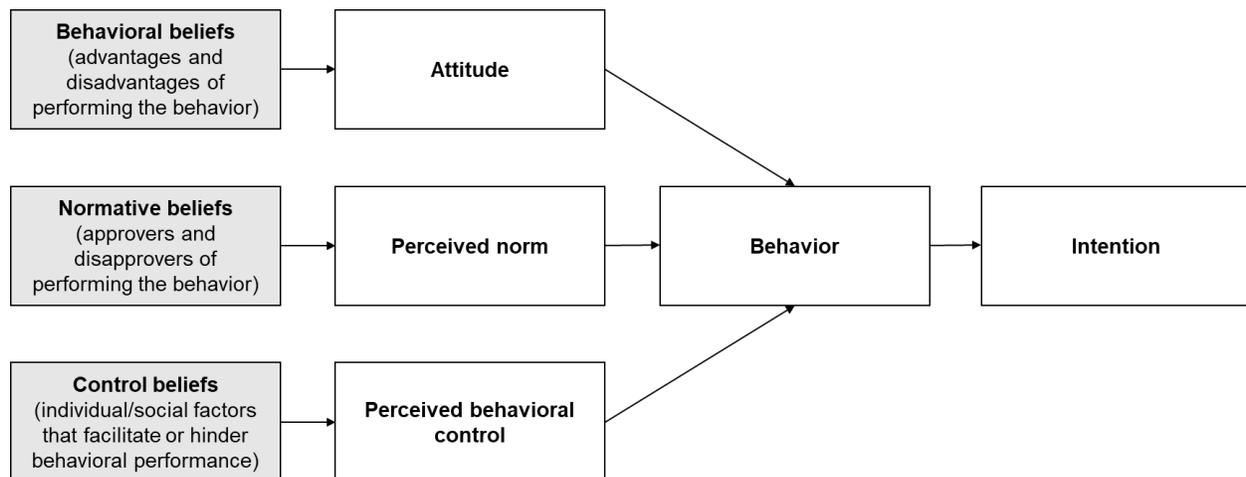

Figure 1. Reasoned Action Approach. *Note.* This study investigated salient beliefs, highlighted in gray.

Methods

Recruitment

Participants were recruited online from Amazon's Mechanical Turk (MTurk). MTurk is an online survey platform that provides a quick and inexpensive method to collect data from the public. Data were collected from April 19 to April 25, 2020. Participants were given 50 cents for participating in the screener and $3.00 for participating in the full study. Participants provided written informed consent. The Texas Tech University Institutional Review Board (#2020-303) approved all procedures.

Eligibility

Those interested in participating first completed a brief screener to assess eligibility criteria. Participants were eligible if they were 18 years or older, lived in the U.S., lived in a state that had some form of stay-at-home order, and completed all instructional manipulation checks (IMCs). Arkansas, Iowa, Nebraska, North Dakota, and South Dakota were excluded since these states lacked any form of stay-at-home order at the time of data collection. Participants had to complete several random IMCs, where they answered closed- and open-ended questions (e.g., select the fruit from the following list, please type three colors). Participants who incorrectly completed all IMCs were removed from the sample ($n = 15$). IMCs are designed to ensure participants are focused on the questionnaire (Oppenheimer et al., 2009), and research has demonstrated that it is imperative to have both closed- and open-ended IMCs (Ziegler, 2020). After data cleaning, the final sample size was 106.

Measures

Behavior. The first step in an RAA belief elicitation is to define the behavior using target, action, context, and time elements (Fishbein & Ajzen, 2010). Our behavior was "social distancing, which is you staying inside your residence except for essential needs and maintaining 6 feet from people when out from now until April 30." The term social distancing was a recommended behavior at the time of data collection (April 2020)—albeit a collection of individual behaviors (e.g., staying home except for essential needs, keeping six feet apart) that aggregately form a behavioral category (social distancing). Prior studies and public health agencies utilized the same or a similar definitions during the early phases of the pandemic given the lack of terminology consensus (Abouk & Heydari, 2020; Andersen, 2020; Cassidy-Bushrow et al., 2020; Centers for Disease Control and Prevention, 2020; Clements, 2020; Czeisler, Howard, et al., 2020; Czeisler, Tynan, et al., 2020; Imai et al., 2020; Mukherjee & Das, 2020; Pan et al., 2020; Prabhakaran, 2020; Regmi & Lwin, 2020; Rusu, 2020).

Behavioral beliefs. Behavioral beliefs were elicited with two open-ended questions: "What are the <u>advantages</u>…" and "What are the <u>disadvantages</u> of you social distancing, which is you staying inside your residence except for essential needs and maintaining 6 feet from people when out from now until April 30?"

Normative beliefs. Normative beliefs were elicited with two open-ended questions: "Who are people or groups who might <u>approve</u>…" and "Who are people or groups who might <u>disapprove</u> of you social distancing, which is you staying inside your residence except for essential needs and maintaining 6 feet from people when out from now until April 30?"

Control beliefs. Control beliefs were elicited with two open-ended questions: "What might make it easier…" and "What might make it harder for you to social distance, which is you staying inside your residence except for essential needs and maintaining 6 feet from people when out from now until April 30?"

Analysis

An inductive content analysis was used to analyze open-ended responses. First, responses were read to gain familiarity with the data. Second, responses with similar content or language were grouped to create narrow codes. Third, a codebook was created based on these narrow codes. Fourth, two coders used the codebook to code all responses independently. Kappa statistics revealed high levels of agreement: 0.92 for advantages, 0.86 for disadvantages, 0.95 for approvers, 0.96 for disapprovers, 0.95 for facilitators, and 0.87 for barriers. Fifth, a frequency analysis was performed on narrow codes and to determine whether narrow codes should be combined. After narrow codes were combined, a final frequency analysis was performed. As proposed by Ajzen and Fishbein (1980, p. 70), salient beliefs were retained if the belief was mentioned by at least 10% of the sample. Interrater reliability and frequency analyses were conducted using version 25.0 of SPSS (IBM Corp, 2016).

Results

Table 1 provides the demographic characteristics of the sample. Most participants identified as heterosexual (88.7%), white (85.8%), having an education of a bachelor's degree or higher (70.7%), and male (53.8%). The average age was 40.71 years (SD = 13.58). Approximately 42% of the participants were married. Approximately one third of participants lived in the South

(37.7%), and three quarters lived in an urban county (77.4%). Half of the participants self-reported they were liberal (50.9%). About two-fifths of participants reported it was not at all difficult for them to practice social distancing (40.6%).

Table 2 presents the perceived salient behavioral, normative, and control beliefs related to social distancing. The most listed advantage was that social distancing could prevent respondents themselves (62.3%) and other people—such as their family, friends, and the public (45.3%)—from contracting COVID-19. Concurrently, family (50.9%) and friends (38.7%) were the most referenced approvers. However, more than half of the respondents expressed that social distancing might prevent them from physically interacting with others (54.7%). Lack of physical or social interaction could intensify feeling of loneliness (29.2%), which in tandem could impact respondents' mental health (17.0%). Roughly one in ten stated that having the technology to virtually talk to their social networks (12.3%) and living with someone (12.3%) might help them continue to social distance.

About one-third of participants (30.2%) perceived that their government or government officials (e.g., state or federal government, state or federal politicians) might approve of them social distancing. Participants listed that those who protest COVID-19 mitigation policies or those who deny the existence and severity of COVID-19 might disapprove of respondents performing social distancing behaviors (21.7%). Participants noted that people and politicians who are conservative or identify as Republican might disapprove of them practicing social distancing (19.8%).

Supply accessibility (e.g., groceries, essential supplies, nonessential supplies) was a prevalent circumstance respondents described that might facilitate or hinder them from social distancing. Supplies being avail-

Table 1

Demographic Characteristics (N = 106)

	N	*%*
Sex		
Female	49	46.2
Male	57	53.8
Sexual orientation		
Heterosexual	94	88.7
Mostly heterosexual	1	0.9
Bisexual	11	10.4
Race		
Asian/Pacific Islander	12	11.3
Black/African American	1	0.9
Latinx/o/a	1	0.9
White	91	85.8
Biracial/Multiracial	1	0.9
Highest level of education completed		
High school or GED equivalent	9	8.5
Some college	17	16.1
Associate degree	5	4.7
Bachelor's degree	49	46.2
Graduate degree	26	24.5
Relationship status		
Not currently in a relationship	20	28.2
Dating and not living together	25	23.6
Dating and living together	6	5.7
Married	45	42.5
Region		
Midwest	19	17.9
Northeast	32	30.2
South	40	37.7
West	15	14.2
Urban/Rural		
Urban	82	77.4
Rural	24	22.6
Political identity		
Liberal (slightly, somewhat, or very)	54	50.9
Neither liberal nor conservative	14	13.2
Conservative (slightly, somewhat, or very)	38	35.9
Social distancing difficulty		
Not difficult at all	43	40.6
Slightly difficult	36	34.0
Difficult	6	5.7
Somewhat difficult	15	14.2
Extremely difficult	6	5.7

Table 2

Perceived Salient Beliefs of Social Distancing (N = 106)

	N	%
Advantages		
Might prevent me from contracting COVID-19	66	62.3
Might prevent others from contracting COVID-19 (e.g., family, friends, public)*	48	45.3
Might give me more time to do home activities (e.g., finish house projects, read books, watch movies)	28	26.4
Might save me money	16	15.1
Might give me more time to spend with family	14	13.2
Disadvantages		
Might prevent me from physically socializing with others	58	54.7
Might make me feel lonely or isolated	31	29.2
Might cause me financial stress	20	18.9
Might decline my mental health (e.g., depressed, anxious, sad)	18	17.0
Might make me bored	17	16.0
Approvers		
Family	54	50.9
Friends	41	38.7
Government or government officials (e.g., local, state or federal government, state or federal officials, governors)	32	30.2
Healthcare workers	20	18.9
People/Groups at risk or who are severely vulnerable to COVID-19 complications (e.g., the elderly, people with chronic conditions, people with immunocompromised systems)	17	16.0
Everyone or the public	16	15.1
Coworkers and employer	15	14.2
Neighbors and community members	12	11.3
Public health or medical science officials, organizations, and experts (e.g., scientists, the CDC, Dr. Fauci)	11	10.4
Disapprovers		
COVID-19 mitigation policy protestors and those who deny the severity or existence of COVID-19	23	21.7
Conservative or Republican people or politicians	21	19.8
No one or nobody	18	17.0
Businesses or business owners	13	12.3
Facilitators		
Having supplies be available (e.g., food, essential supplies, nonessential supplies)	22	20.8
Having COVID-19 mitigation policies in stores	20	18.9
Having online delivery options	14	13.2
Having to leave the residence less often	14	13.2
Living with someone	13	12.3
Having the technology to talk with others virtually	13	12.3

Table 2 (continued)

Perceived Salient Beliefs of Social Distancing (N = 106)

	N	*%*
Barriers		
Going to more stores because stores do not have supplies (e.g., food, essential supplies, nonessential supplies)	19	17.9
Seeing or being in a space where people are not practicing COVID-19 mitigation behaviors	18	17.0
Not having online delivery options	15	14.2

Note. Participants could list more than one belief. * *n* =11 wrote family/specific family members; *n* = 11 wrote generic others (e.g., "Keeps others safe from getting the virus"); *n* = 4 wrote we/us protection (e.g., "Helps us be protected from COVID-19"); *n* = 24 wrote generic COVID prevention to others (e.g., "I cannot spread COVID"). Because these responses referenced COVID-19 prevention from the people other than participants, these groups were collapsed.

able was the most mentioned facilitator (20.8%), while stores not having supplies was the most frequent barrier (17.9%). Respondents described that stores having online delivery options (13.2%) could be a facilitator, while concurrently not having the ability to order online could be a barrier (14.2%). Respondents were concerned with supply accessibility and the safety of accessing supplies, with 18.9% of respondents noting that stores having COVID-19 mitigation policies might make it easier for them to social distance. Simultaneously, seeing or being inside a space where people are not social distancing might make it harder for respondents themselves to also social distance (17.0%).

Discussion

Summary

Our findings indicate that the most perceived salient advantage to social distancing was COVID-19 protection for self rather than protecting others from contracting COVID-19. Leigh et al. (2020) found that their respondents' main motivation to social distance was to protect themselves (81%), followed by people they live with (49%), the general public (49%), and healthcare workers and the healthcare system. We found a similar arrangement in our study: protection of self (62%), family and the public (45%), and healthcare workers and systems (4%). Our results contrast with early COVID-19 public health messaging that centered around the two motivators of preventing COVID-19 among the com-munity-at-large and protecting healthcare workers and healthcare system resources.

Respondents listed people who are Republican, conservative, and those who protest the severity of COVID-19 as salient disapprovers. Conservatives and/or Republicans (whether that be people or counties that voted for President Trump in 2016) are more likely than Democrats to be noncompliant with social distancing behaviors and hold negative attitudes about social distancing policies (Allcott et al., 2020; Andersen, 2020; Clements, 2020; Kushner Gadarian et al., 2020; Pedersen & Favero, 2020; Rothgerber et al., 2020). Political party and ideological partisanship are not unique to COVID-19; there are political and ideological divides regarding trust in various scientific facts (Krause et al., 2019). While Republicans and/or conservatives may support a proposed

evidence-based strategy, they may distrust the scientific community—reflecting the possible importance of norms or group affiliation (Mann & Schleifer, 2020). Van Rooij and colleagues (2020) showed that descriptive social norms were positively associated with social distancing compliance. Injunctive norms could also be important, as Anderson (2020) found that counties that supported President Trump in the 2016 election saw an increase in social distancing behaviors when the president publicly supported social distancing behaviors. It may prove beneficial for political leaders and media correspondents—regardless of political party and ideology—to immediately and publicly support and comply with pandemic-related mitigation strategies. This immediate and public support may compel the population-at-large to approve and adhere to pandemic-related prevention strategies.

Respondents expressed that social distancing might negatively impact various health dimensions, such as social health, mental health, and financial health. Respondents from other COVID-19 studies have expressed declines in health dimensions, with the most substantial being social and mental health (Leigh et al., 2020). These negative impacts could be interconnected. For example, the lack of social interaction (social health) could increase the feeling of loneliness (social and mental health), which could then lead to one developing depression (mental health). Indeed, the COVID-19 pandemic has impacted multiple facets of life and industries such as education, employment, and the economy (Nicola et al., 2020). In addition, COVID-19 morbidity and mortality disparities exist between communities who currently face disparities and syndemics (synergistic epidemics) caused by structural factors (van Dorn et al., 2020; Wang et al.,

2020). Digital health interventions, whether from telehealth programs or phone applications, show promise in improving various health dimensions. However, digital health usage is low, and digital health implementation research and programs that address digital health equity are needed (Connolly et al., 2020; Crawford & Serhal, 2020).

Although perceived facilitators and barriers to practicing social distancing varied, many of the salient facilitators and barriers revolved around store policies. It is also typical for perceived facilitators and barriers to mirror each other (Fishbein & Ajzen, 2010). For example, a perceived facilitator to practicing social distancing was if stores have delivery options, so participants do not need to leave their residence or may obtain supplies with curbside pickup. Concurrently, a perceived barrier was if stores did not have delivery options, so participants would have to leave their residence and be in close proximity to others. Although no distal determinants received more than 20% of responses, respondents listed many distal determinants that were in the purview of stores, such as supply accessibility, online delivery services, and COVID-19 mitigation policies in commercial and retailer spaces. Because Americans might have spent most of their outside time in grocery and food establishments during the early phase of the COVID-19 pandemic, grocery and food establishments might be high-reach places to implement education, communication, and behavior change social marketing campaigns. In addition, health promotion and occupational health or industrial hygiene researchers and practitioners could collaborate to examine COVID-19 policies in stores, employee adherence to these policies, and employees' beliefs and factors to comply with COVID-19 mitigation store policies.

Limitations

As with any study, ours was not without limitations. First, our behavior under investigation was a behavioral category, a collection of individual behaviors. At the time of data collection, there was little guidance and consensus from the research community on defining social distancing. Our definition of staying home and being six feet apart was a similar definition to those used in other studies (Abouk & Heydari, 2020; Andersen, 2020; Cassidy-Bushrow et al., 2020; Centers for Disease Control and Prevention, 2020; Clements, 2020; Czeisler, Howard, et al., 2020; Czeisler, Tynan, et al., 2020; Imai et al., 2020; Mukherjee & Das, 2020; Pan et al., 2020; Prabhakaran, 2020; Regmi & Lwin, 2020; Rusu, 2020). The language and definition evolved during the COVID-19 pandemic, and we used the language that was prevalent during data collection.

Second, this descriptive exploratory study highlights the frequencies of beliefs rather than examining associations or causations of beliefs. Respondents wrote consequences, referents, and circumstances that might increase their intention to social distance—not what will or what has been. However, qualitative results could inform closed-ended questionnaires that could assess the association with beliefs and intention to social distance or social distancing performance. Participants participating in online belief elicitations may provide vague or one-worded answers, as was the case with salient advantages. Although family members are distinct from the local community and the national community, participants used vague words (e.g., protect others, we will not get the coronavirus) that made it challenging to interpret whom they were referencing. Future research, such as qualitative interviews or online qualitative surveys that request respondents to be specific, is necessary to parse which group is salient so these results could inform more effective social marketing interventions (e.g., family is protected from COVID-19, friends are protected, essential workers are protected).

Third, findings cannot be generalized to the U.S. adult population. MTurk is not representative of the U.S. adult population and collects smaller sample sizes (Paolacci & Chandler, 2014; Walters et al., 2018). MTurk does, however, provide a quick and inexpensive method to collect data when policies are likely to change (Salmons, 2015)—such as stay-at-home orders. Belief elicitations with groups that were underrepresented in this study may be useful, such as African Americans and Latinx Americans, rural Americans, and those who identify politically as Republicans and/or conservative.

Fourth, this study did not disaggregate between essential workers and nonessential workers because essential worker status was not assessed. Research has shown that people who are required to leave their homes or have jobs that require physical contact are less likely to—and cannot—comply with social distancing (Cassidy-Bushrow et al., 2020; Pedersen & Favero, 2020).

Implications for Health Behavior Theory

This study is the first to use an RAA belief elicitation to identify the salient beliefs of social distancing and contributes to the extant literature on this topic. Given that a salient advantage of social distancing was protecting oneself from COVID-19, pandemic-related public health and social marketing messages should focus more on individual benefits than community benefits. Future message framing research is necessary to examine which messages are effective for different priority populations. Although family and friends were prevalent approvers, it is clear from the

disadvantage responses that participants miss physically socializing with others. Policies and recommendations at the time of data collection were more stringent than today (e.g., many businesses were closed, we did not have current face-to-face mitigation protocols such as mask-wearing). This disadvantage finding highlights the importance of public health moving into digital spaces and working with interdisciplinary teams to develop digital interventions for social connectedness and mental health (e.g., app developers, human-computer interaction scientists, health behavior scientists, therapists). These digital interventions may be essential at the start of a pandemic when "day-to-day" activities are disrupted. Public health scientists and practitioners should work with local and national media outlets to create community-tailored and evidence-based information to increase their viewers' adherence to and support of mitigation strategies. In addition, public health scientists and practitioners should collaborate with local and national political leaders to create community-tailored yet scientifically accurate information for their constituents. It will be crucial for local and national political leaders to follow pandemic-related mitigation behaviors to increase their constituents' probability of engaging in these behaviors. Research is needed to understand mass media correspondents' and political leaders' beliefs and intentions to engage in multiple mitigation behaviors (e.g., collaborating with public health professionals, showing how to adhere to recommendations). Research is necessary to determine best practices for changing mass media and political leaders' behaviors.

Discussion Questions

1. We suggest that public health researchers and practitioners engage with national and local media groups to show how to perform pandemic-related mitigation behaviors. What methods can be used or be adapted to engage with these non-traditional stakeholders (e.g., mass media change methods, opinion leaders)?

2. COVID-19 mitigation behaviors are often complicated and context-specific. Examples include policy variation between and within states, with certain groups being exempted from policies and behaviors (e.g., healthcare workers, food workers), and behaviors being conditional (e.g., stay inside but can visit essential services, mask-wearing was not recommended at the beginning of the pandemic but now is recommended). What are the best approaches for studying health behaviors where definitions, terms, and evidence are changing rapidly?

Acknowledgments

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