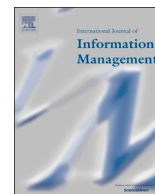




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Opinion Paper

Impacts of COVID-19: A research agenda to support people in their fight

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ABSTRACT

Grounded in the vast changes to work life (jobs) and home life that people are facing due to the COVID-19 pandemic (hereinafter COVID), this article presents five research directions related to COVID's impacts on jobs—i.e., job loss, job changes, job outcomes, coping, and support—and five research directions related to COVID's impact on home life—i.e., home life changes, children, life-related outcomes, social life, and support. In addition to this, I discuss overarching possible research directions and considerations for researchers, editors, and reviewers, as we continue our scientific journey to support people through this pandemic and beyond. I organize these directions and considerations into two sets of five each: focal groups that should be studied—i.e., underprivileged populations, different countries and cultural contexts, women (vs. men), workers in healthcare (frontline workers), elderly and at-risk—and five general issues and special considerations—i.e., role of technology as the oxygen, pre- vs. mid- vs. post-COVID studies, constraints on data collection/research due to COVID, evolution of COVID, and focus on contextualization (generalizability is irrelevant).

1. Introduction

The onset of COVID-19, hereinafter COVID, is an unprecedented time in history. It is not only a unique situation in our lifetime, but also perhaps a unique situation across generations, with a previously similar pandemic being about a 100 years ago. At the time of writing of this article in the last week of June 2020, over ten million people have been afflicted by the diseases and over half a million people have died worldwide thus far. Indeed, there have been numerous terrible events that have taken place since the last pandemic but nothing that has had the global impact quite like COVID has. Little is known about when this will actually end and the uncertainty in various ways (e.g., economy, health) surrounding this pandemic is enormous—and much may hinge on how “lucky” we are with medical management and/or finding a vaccine. The World Health Organization, the Centers for Disease Control and Prevention, and numerous healthcare organizations around the world are working hard with the ultimate goal of managing the disease and its health impacts. But, until this pandemic can be in our rearview mirror, the impacts on health, healthcare, economy, labor market, supply chain, work and home life are manifold and potentially lasting for a long time. Some estimates suggest that about 50 % of the US workforce is now working from home [as of April 2020]. Even after the pandemic passes, there may be permanent changes to workplaces and jobs, with some organizations already planning for a future with significantly expanded [relative to pre-COVID] or even nearly permanent work-from-home for its employees (e.g., Byers, 2020; Conger, 2020; Khetarpal, 2020). I see no reason to belabor the extent of the short-, medium-, and long-term impacts of this pandemic, given how much has already been written about possible impacts, and especially

given the extent of uncertainty that surrounds the future of virtually all aspects of organizational and societal functioning.

Consequent to this sweeping transformation, COVID and its far-reaching impacts present a unique opportunity for researchers in virtually every discipline, every domain, and every topic. Of these, I direct my focus to what I see as some potential opportunities for researchers in the *broader social sciences disciplines*, with an added emphasis on the *information systems discipline*—I use these terms (names of disciplines) broadly and intentionally without a strict definition because the scope of the work can be broad and necessarily interdisciplinary, especially in so far as how systems could be broad, what systems may mean to different people and organizations may be vastly different and none of those are necessarily excluded, and perhaps most importantly, it will allow for greater inclusion of ideas. Against this backdrop, I discuss specific research opportunities related to key impacts on people's work and home lives; in addition, I discuss some general issues and special considerations for researchers, editors, and reviewers. As with research agendas in general, these directions are not meant to be exhaustive but rather illustrative of key potential directions, ideas, and questions.

2. Research opportunities

The two major themes of opportunities discussed here, as noted earlier, are related to people's work lives and home lives. This is followed by a discussion of an overarching set of general issues and special considerations for researchers, editors, and reviewers. Table 1 presents a summary of these research opportunities.

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Table 1
Summary of Research Opportunities.

Broad topic/issue	Focal issues	Additional comments: Ideas/issues to study
Impacts on jobs Beyond the focal issues in the next two columns, there could be an interplay across the issues (including an interplay across constructs/groups of constructs)	Job loss	<ul style="list-style-type: none"> ● Consequences ● Searching for a new job
	Job changes	<ul style="list-style-type: none"> ● Nature of work including job demands, job control ● Personality, including technology-related traits, and its impacts
	Job outcomes	<ul style="list-style-type: none"> ● Job performance ● Job satisfaction ● Job stress ● Organizational commitment ● Employee well-being
	Coping	<ul style="list-style-type: none"> ● Coping strategies ● Role of personality
	Support	<ul style="list-style-type: none"> ● Effective support interventions ● Role of personality
Impacts on life Beyond the focal issues in the next two columns, there could be an interplay across the issues (including an interplay across constructs/groups of constructs)	Home life changes	<ul style="list-style-type: none"> ● Home demands ● Pressure on various relationships
	Children	<ul style="list-style-type: none"> ● Changes in activities of children ● Supporting children
	Life-related outcomes	<ul style="list-style-type: none"> ● Stress ● Happiness ● Life satisfaction ● Anxiety ● Depression ● Relationship satisfaction
	Social life	<ul style="list-style-type: none"> ● Changes to social life ● Feasible alternatives
	Support	<ul style="list-style-type: none"> ● Support to cope with demands
Overarching possible research directions and considerations	Focal groups	<ul style="list-style-type: none"> ● Underprivileged populations ● Different countries, different cultural contexts ● Differential impact on women vs. men ● Healthcare workers ● Elderly and at-risk groups
	General issues and special considerations	<ul style="list-style-type: none"> ● Role of technology ● Pre- vs. post-COVID studies ● COVID constraints to research in general and data collection in particular ● Evolution of COVID and need to continue research ● Focus on contextualization around COVID (generalizability is not important)

2.1. Impacts on jobs

The nature of jobs has changed enormously. The biggest and most adverse change, of course, is job loss. Another immediate change, as noted earlier, has been that most knowledge workers are working from home and may continue to do so for a long period of time. Although telework and working from home are hardly new, never before has it been the norm for large percentages of entire organizations to do so, especially not for extended periods of time. Against the backdrop of these extraordinary and potentially long-lasting changes, I call for research on five sets of issues related to jobs.

- (1) *Job loss*: Job loss is not a new topic by any means. However, more than ever before, the number of people who are unemployed has reached truly staggering levels (Kochhar, 2020) and represents one of the most serious economic concerns, with far-reaching implications that include a sense of hopelessness and consequent adverse responses. Thus, the impact of job loss is more far-reaching and the ways for the unemployed to seek work and for organizations to fill openings may be drastically different. For instance, there may be an urgent need to have working AI solutions to process the overwhelming number of job applications for each opening. Further, a recent proclamation by the US President has rendered it difficult for foreign workers to find employment (The White House, 2020) and this may present additional unique challenges. Thus, the myriad issues, created by COVID, surrounding job loss, its impacts, and possible recovery are critical to study.
- (2) *Job changes*: For many who have been fortunate to stay gainfully

employed, the nature of work has changed substantially, with an unprecedented extent of remote work. Implementing new technology in general is known to have substantial impacts on job characteristics (e.g., Morris & Venkatesh, 2010) and it can be reasonably expected that this will only be greater when technology, which is new and evolving rapidly, becomes a critical vehicle for all work and collaborations, especially among employees whose engagement in such remote work has previously been limited. Although prior research on telework is a useful starting point, there is a need to examine changing job characteristics (such as job demands and job control) and collaborations building on prior work in these domains/topics. In addition, understanding what types of jobs are most or least impacted, what types of employees (e.g., in terms of various technology-related traits such as computer anxiety, computer playfulness, and computer self-efficacy; see Venkatesh, 2000; Venkatesh & Davis, 1996) are most or least impacted, and how to [quickly] restore effectiveness of employee work without compromising other job outcomes are some of the important issues that should be investigated.

- (3) *Job outcomes*: Building on the previous point, the changes in jobs will have cascading impacts on numerous job outcomes beyond job performance to include job satisfaction, job stress, and organizational commitment. There is accumulated evidence that major changes in organizations, especially technology-enabled changes, have significant impacts on job outcomes (see Sykes, 2015; Sykes & Venkatesh, 2017; Sykes, Venkatesh, & Johnson, 2014). Such outcomes are often tightly interwoven such that there could be spiraling negative effects—e.g., increased job stress could lead to lower

job satisfaction that in turn could lead to lower job performance. That the job changes have caused enormous stress is evident from large organizations, such as Google, Cisco and Amazon, giving employees an extra day off to unplug and recharge (e.g., Bariso, 2020). Specific investigations of the impacts on job outcomes will be a critical step, relating to job changes, and how they can be effectively managed before serious and potentially irreversible detrimental consequences related to employee well-being occur. Further, this issue will need to be continually monitored and investigated, as job changes take deeper root and greater permanence and employees and organizations adapt to a new normal.

- (4) *Coping*: There is a vast body of research on coping (e.g., Bala & Venkatesh, 2013; Johnson & Hall, 1988; Karasek, 1979). A study of coping strategies used by various types of employees (e.g., tied to different personality characteristics) will be important, as it will help our understanding of which coping strategies are helpful and to which types of employees. These can serve as a basis for simple but effective employee coaching and part of organizational support—a point that is discussed further next. Such work will also add to the knowledge base on the critical topic of coping, especially if new types of effective coping strategies emerge through inductive work.
- (5) *Support*: Building on the previous point, although there is a good base of support strategies that are used by organizations, especially to support technology-related activities (see Sykes, 2015 for a review), understanding which strategies will be most pertinent to support technology-enabled work and for different types of employees (e.g., personality, technology-related traits) will be important, as they will help organizations to plan, design, develop and deploy interventions to support their employees through the tumultuous time now and prepare for possible permanent changes to workplaces/jobs in the future.

It should be underscored here that, although each of the above issues is discussed separately, there could be various interplays. For instance, job changes may interact with support to possibly impact job outcomes. Understanding such interplays will be important to enrich our understanding of the COVID phenomenon and its impacts, not to mention to holistically understand and enable recovery.

2.2. Impacts on life

COVID's impact on people's lives has perhaps been even more enormous than its impact on jobs. Reports suggest increased domestic discord, as evidenced by higher reports of domestic incidents around the world (Bettinger-Lopez, 2020) and divorce filings (Krepelka, 2020). The pressures created by COVID on people's lives are thus an urgent set of issues to address. There are some parallels between the impacts on jobs and impacts on home life—and I encourage researchers to consider such potential overlap, some of which is captured in the directions identified next.

- (1) *Home life changes*: The demands at home have changed substantially. It has resulted in a great deal of pressure on individuals and families. It is important to understand what these changes are (e.g., too much together time so-to-speak) and who (e.g., based on personality characteristics, family situations) is handling them better. Understanding these changes is a critical first step to supporting people and curbing negative impacts.
- (2) *Children*: Children are a key part of many households and they are also experiencing significant challenges and changes due to COVID. Although in some contexts, it is believed that children may be more resilient, in some ways, they face greater challenges in that they may not be able to comprehend or appreciate the gravity of the situation that has brought about the changes to their routines and

lives. As all parties navigate life in the evolving new normal, children are experiencing changes to the way attend school, how they interact with their teachers and peers as well as face changes to their domestic situations—from having limited/less time with a parent to being with them for much longer periods of time. Understanding how to best support children to help them cope will be critical for parents and educators alike. Thus, it is vital to understand the complexity of managing children of varying ages, in various family configurations, related to enforcing discipline, and helping them continue to learn and socialize.

- (3) *Life-related outcomes*: Similar to job outcomes, there are numerous general outcomes related to people's lives such as stress, happiness, life satisfaction, anxiety, depression, and relationship satisfaction that could be impacted by COVID. It is important to understand who (e.g., based on personality characteristics) is managing the situation better and how they are doing so (e.g., strategies/practices employed), as this will be important in providing critical prescriptive guidance to the challenges and harm that COVID has caused to people's lives.
- (4) *Social life*: Human beings are social animals with social needs, and their social interactions and ways to fill these needs have been crippled. Although with varying phases of opening, some people are already re-engaging in social activities per the old norms but this appears to come with a price: an explosion of COVID cases (e.g., people going to beaches and bars in Florida has led to over 10,000 cases a day at the time of writing of this article). Some cities (e.g., Philadelphia), states (e.g., Texas), and countries (e.g., India) have pulled back their opening plans. Together, these suggest that social life—even a simple thing as meeting friends for a trip to the movies may be in the distant future—has been and will continue to be significantly impacted, and understanding these impacts, finding ways to manage them effectively, and supporting interactions in the new normal will be important to bring peace, calm, and other positive outcomes.
- (5) *Support*: Friends and family are an integral part of each individual's and family's support system. The way in which support can be offered has been impacted by COVID. However, the increased job demands and home demands, as discussed earlier, would intuitively suggest that support will be more critical than ever before to handle these demands so as to not be adversely affected in terms of outcomes. Understanding what support is critical for various individual and family situations, especially within the constraints that may exist (e.g., grandparents may not be able to engage in support that takes children to the park because they are in a higher risk group due to age), will be important to provide meaningful prescriptive guidance to people.

As noted earlier regarding the impacts on jobs, here too, there will be possible interplays such as that between role of support and managing children. There may even be further interplays across the impacts, i.e., between jobs and home life, that merit attention—e.g., an examination of the job changes (e.g., changing job demands) and changing home demands that together impact various outcomes pertinent to work (e.g., job performance) and home life (e.g., stress), and further impact outcomes at the intersection of work and home lives (e.g., work-family conflict).

2.3. Overarching possible research directions and considerations

I present ten key considerations for researchers, editors, and reviewers not only as we continue research as described above, but also on other topics related to the impacts of COVID. I organize these ideas into two broad categories: focal groups of people who deserve attention; and general issues and special considerations that impact our research related to COVID.

2.3.1. Focal groups

- (1) *Studying underprivileged populations:* There is always a divide between the privileged and underprivileged. It has been particularly apparent with the onset of COVID. The underprivileged have been struck harder, with having to work in traditional workplaces, whereas the privileged (e.g., knowledge workers) have been able to be safely holed up at home. This is because the underprivileged typically hold jobs on hourly wages, that are low paying, and/or in essential services. They also may not have access to healthcare benefits in the same way that the more affluent do and thus suffer the health impacts more harshly. Early indications have indeed shown that COVID has impacted the underprivileged and minority groups more harshly (CDC, 2020). In still worse cases, the underprivileged have already experienced or will experience the loss of jobs. Even in the face of job loss, the more affluent are much more likely to have savings and/or access to financial resources that may help them tide through the difficult times but the reality of the underprivileged is far different. Thus, the issues they face could be much more serious and extend beyond those discussed earlier related to jobs—and result in alcohol abuse, domestic disputes, and suicidal ideation, among others. In sum, understanding the challenges of the underprivileged and determining how to provide support to them within their social ties, and devising NGO and governmental initiatives that go beyond financial support to help them to cope and recover are critical research directions, with potential far-reaching impacts. Without such investigations and consequent supportive broad-ranging actions, we may quite literally lose millions of underprivileged people, and not just for COVID-related health reasons.
- (2) *Studying different countries, different cultural contexts:* As is often the case, with research in general, with the explosion of research around various aspects of COVID, the western, more developed countries will be the target of significant research efforts (e.g., Muthukrishna et al., 2020). It will be important to understand differences across countries and cultures for a variety of reasons, even beyond the traditional cultural differences. There have been significant differences in the ways that different countries have approached managing the spread of COVID—e.g., China vs. Sweden vs. India vs. US. This has resulted in differences in the way in which countries are coming out of the threat of COVID. These differences in turn could have far-reaching implications for organizations, its employees, society, and citizens. It can be expected that less developed countries (LDCs) that boast democracies and have an extended lockdown (e.g., India, where, at the time of writing of this article, the lockdown has been extended into July), the impact on the tens of millions of people living in poverty or abject/desperate poverty could be much worse than the underprivileged in more developed countries, such as Germany and the US, where there may be better governmental support. It is thus crucial to focus on LDCs and examine various topics including but not limited to impacts on jobs and home life. Researchers in developed countries, with more resources, should potentially seek to partner with researchers from LDCs to study people, especially underprivileged, in LDCs.
- (3) *Unequal impact on women vs. men:* Gender differences in a variety of ways, ranging from lower pay for the same job to being passed over for promotions vs. shouldering a higher workload at home, have plagued us even in the 21st century. These differences could become even more pronounced and the impact on work-family conflict for women could increase, as home demands (including childcare—given widespread school closures, limited after-school activities, and limited child care facilities) may increase that in turn have more adverse impacts on women. Thus, the investigation of gender differences on issues surrounding work and life is critical—if as this author expects, as noted above, the impact on women is much greater, with some indications already of this being true even

in academia (e.g., Kitchener, 2020)—in order to use existing ways and/or devise new ways (i.e., traditional interventions or new interventions) of providing women with better support through this pandemic and the concomitant changes in work and home lives. A failure to understand and support women effectively could worsen the imbalance in the work force for years to come.

- (4) *Workers in healthcare:* Healthcare has always been a unique setting relative to traditional organizations. Among the most challenging jobs even in the most normal of times are in healthcare, especially those that deal with life-and-death as part of daily work routines. In the COVID era, these frontline workers are working 12-h shifts and deal with the stresses of home life that may involve a family that includes children and their associated education and elders (e.g., parents) and their care. The challenges they face make this group particularly unique and important to study, given that the work-from-home descriptions and prescriptions may not be relevant to them. Studying this group that is fighting to keep us alive and well is a critical responsibility of researchers in all domains.
- (5) *Elderly and at-risk groups:* As a new normal gets established and people even take some measured risks in returning to various activities, groups that can ill afford such risks are the elderly and other at-risk groups. Such groups will need particular attention because even the new normal, as it emerges, may not apply to them. They will need a different new normal. Understanding the changes to their lives and how to support them over the short-, medium-, and long-terms is an important moral imperative for researchers to pursue.

2.3.2. General issues and special considerations

- (6) *Role of technology as the oxygen:* The role of technology has permeated all aspects of our lives with the advent of COVID. As noted earlier, several organizations have moved almost entirely to distributed (remote, virtual) work. Social gatherings are using conferencing tools to include video at times. With travel and going to places (e.g., malls, restaurants) severely restricted for various groups, once again, technology assumes and even more important role in social lives and entertainment. Understanding the role of technology, ranging from workplace and social conferencing technologies to social media to streaming services to online games, and how it changes work and home life is critical. New norms may evolve regarding what is good/acceptable and what is bad/excessive in terms of the use of various technologies or technology-based services—e.g., streaming services. More broadly, how technology influences various facets of work and home life—and how it can be used to help and how it can cause harm are all vital issues that merit attention, as we move toward being able to work more effectively and live more happily in the ever-evolving new normal. Thus, the role of the oxygen, i.e., technology, in this phenomenon and throughout its evolution will be critical to understand.
- (7) *Pre- vs. mid- vs. post-COVID studies are essential:* Research studies conducted before COVID, especially in 2019, have gathered a wealth of data related to various phenomena and theories. As we are in the midst of COVID and we move from here to various stages of life mid- and post-COVID, comparisons of data from samples in these various stages to pre-COVID data will provide us with a critical contextual understanding, including potential boundary conditions, of established theories. Implicit in this comparison is an encouragement to collect data from the same samples, i.e., within-subjects, related to the specific theories/models to see how these models/theories need to be modified mid- and post-COVID. However, when this is not possible, between-subjects comparisons, using similar samples, should be pursued. Such theories will provide both contextual understanding (Johns, 2006, 2017) and important scoping/boundary conditions created

by COVID that may cause theories to break down that in turn helps create critical new knowledge (Alvesson & Kärreman, 2007). The pursuit of contextualization can follow guidelines of the above papers and the influential work in the information systems discipline (Hong, Chan, Thong, Chasalow, & Dhillon, 2014).

- (8) *COVID constraints*: The constraints created by COVID do not just affect our lives. They also specifically affect the way in which researchers can collect data. Many things that were previously more realistic and possible, such as running focus groups, become much more difficult and complex now. Getting face time with someone for an interview is an entirely different proposition now. The challenges, based on these constraints, can be expected to continue and even grow, as organizations restructure the way in which they operate. Authors, reviewers, and editors need to understand these constraints, especially as they evolve, as they may dictate what is realistic and feasible in terms of data collection in the future. An example of such sensitivity is the *Journal of Applied Psychology's* special issue on COVID (see ECHO Lab, 2020) noting that cross-sectional data or single-source data may not be an automatic reason for rejection [perhaps unlike in the pre-COVID world].
- (9) *COVID itself will evolve and its timeframe is unknown*: It is important for us to recognize that it has, in most parts of the world, been *only* about 4 months into this pandemic. COVID will evolve and with it, the challenges and solutions will evolve. Our lack of knowledge of a timeframe makes the challenge that much more complex. It is hard for any of us to have envisioned about 4 months back that we would be in this state now. Thus, as researchers, we need to recognize that there will be uncertainties and when we don our reviewer/editor hat, we should carry and enact that sympathy. Knowledge creation, perhaps more than ever before, will be a dynamic process, with unknown timelines and evolution patterns. Some of the knowledge created may indeed be ephemeral, as the phenomenon evolves—this will be an essential part of our scientific endeavors in this context and authors, reviewers, and editors will be well served to take note of this.
- (10) *Focus on contextualization (generalizability is irrelevant)*: One of the virtues of theories and by association empirical work is often considered to be generalizability. However, as COVID has taught us, some contexts can be unique and important to the point where generalizability becomes irrelevant. The contextual knowledge that we learn may be about the new normal, a new world that emerges—or it may be one that decidedly dissipates with say a very fortunate disappearance of the COVID pandemic. In any case, understanding COVID, with no regard for how this knowledge may generalize to the future or to various possible new normal situations, is essential throughout the evolution of COVID. A greater lesson from this is that, in any domain, contextualized knowledge can be invaluable both from scientific and practical perspectives, as noted by Johns (2006, 2017), as long as the context is important in its own right.

3. Conclusion

The COVID pandemic has created unprecedented changes to all aspects of life but this has also presented unique research opportunities. In fact, they are not just opportunities but an imperative for science to get ahead of the pandemic and provide leadership in solving what is clearly the grandest of grand challenges the entire planet and its people have faced in a very long time. This article specifically presented opportunities and focal issues for future research on five job-related issues—i.e., job loss, job changes, job outcomes, coping, and support—and five life/home-related issues—i.e., home life changes, children, life-related outcomes, social life, and support. In addition to this, I presented overarching possible research directions and considerations for researchers, editors, and reviewers, as science, especially social

science, continues to provide a complement to the pursuit of discovery of medications and vaccines. I organized these into two sets of five each: focal groups that should be studied—i.e., underprivileged populations, different countries and cultural contexts, women (vs. men), workers in healthcare (frontline workers), elderly and at-risk—and five general issues and special considerations—i.e., role of technology as the oxygen, pre- vs. mid- vs. post-COVID studies, constraints on data collection/research due to COVID, evolution of COVID, and focus on contextualization (generalizability is irrelevant). Together, these ideas present illustrations of projects that researchers can pursue to help us move toward better ways of living and coping with COVID.

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