Attitudes towards Online Community Support Initiatives during the COVID-19 Pandemic: A Survey in the UK

Conference or Workshop Item

Attitudes towards Online Community Support Initiatives during the COVID-19 pandemic: A Survey in the UK

Min Zhang
School of Computing & Communications, The Open University, United Kingdom
min.zhang@open.ac.uk

Camilla Elphick
School of Psychology and Counselling, The Open University, United Kingdom
camilla.elphick@open.ac.uk

Richard Philpot
Psychology, Lancaster University, United Kingdom
r.philpot@lancaster.ac.uk

Zoe Walkington
School of Psychology and Counselling, The Open University, United Kingdom
zoe.walkington@open.ac.uk

Lara Frumkin
School of Psychology and Counselling, The Open University, United Kingdom
lara.frumkin@open.ac.uk

Blaine A. Price
School of Computing & Communications, The Open University, United Kingdom
b.a.price@open.ac.uk

Graham Pike
School of Psychology and Counselling, The Open University, United Kingdom
graham.pike@open.ac.uk

Mark Levine
Psychology, Lancaster University, United Kingdom
mark.levine@lancaster.ac.uk

Bashar Nuseibeh
School of Computing & Communications, The Open University, United KingdomLero - The Irish Software Research Centre, University of Limerick, Ireland
bashar.nuseibeh@open.ac.uk

Arosha K. Bandara
School of Computing & Communications, The Open University, United Kingdom,
arosha.bandara @open.ac.uk

ABSTRACT

The COVID-19 pandemic has pushed unexpected hardship on the health, environment, economic, and social-political governance of the entire human population. Local communities have adopted new ways of communicating and connecting to support each other. This paper reports people's attitudes towards online community support initiatives (OCSIs) during the COVID-19 pandemic based on a survey conducted in the UK. Our analysis of responses from 699 participants suggests the increased use of social media sites and OCSI engagement since the pandemic, and that people had positive attitudes towards the OCSIs, but improvements were still required. We suggest four design implications to alleviate the challenges of using OCSIs.

CHI '22 Extended Abstracts, April 29–May 05, 2022, New Orleans, LA, USA

ACM ISBN 978-1-4503-9156-6/22/04…$15.00
https://doi.org/10.1145/3491101.3519830

CCS CONCEPTS

• **Human-centered computing** → Human computer interaction (HCI); Empirical studies in HCI.

KEYWORDS

COVID-19, OCSI, mutual aid, community support

ACM Reference Format:
Min Zhang, Camilla Elphick, Richard Philpot, Zoe Walkington, Lara Frumkin, Blaine A. Price, Graham Pike, Mark Levine, Bashar Nuseibeh, and Arosha K. Bandara. 2022. Attitudes towards Online Community Support Initiatives during the COVID-19 pandemic: A Survey in the UK. In *CHI Conference on Human Factors in Computing Systems Extended Abstracts (CHI '22 Extended Abstracts), April 29–May 05, 2022, New Orleans, LA, USA.* ACM, New York, NY, USA, 7 pages. https://doi.org/10.1145/3491101.3519830

1 INTRODUCTION AND RELATED WORK

Since the infectious disease COVID-19 was announced as a pandemic by the WHO (World Health Organization) on 11th March 2020, many countries implemented social distancing measures and regional and national lockdown. It has been acknowledged that this pandemic has significantly affected economic conditions, as well as physical and mental health globally [14]. Remarkably, there is also evidence that the COVID-19 pandemic has also prompted '*catastrophe compassion*' [27], which refers to prosocial behaviors during times of crisis such as natural disasters and terrorist attacks.

During the COVID-19 pandemic, there has been a surge in community support initiatives and mutual aid groups [10]. For instance, in the UK, 750,000 people registered to be a National Health Service (NHS) Volunteer Responder within three days of the first call for volunteers [12].

With increasing attention on coping with the COVID-19 pandemic [2, 3, 7, 11, 13, 16, 21], people adopted a plethora of digital tools and technologies either for shifting offline activities to online or for complementing offline activities. For example, public health sectors have deployed contact-tracing applications in response to the need to trace those who may have been in physical proximity to confirmed cases [1]. Community support initiatives also adapted quickly by using digital technologies such as Zoom and Skype for online group calls, and Google Drive for shared collaborations. Social network platforms have played essential roles in connecting people and information sharing during the pandemic [26]. Tsao et al. [22] reviewed 81 studies of social media data conducted from November 2019 to November 2020 and found that social media had been used for disease control, surveillance, and for disseminating information. Based on the observations of 851 mutual aid groups using Facebook and Google Drive, Knearem et al. [8] suggested the design implications for pandemic-related mutual aid platforms, such as standardizing help requests and providing mechanisms for validating user profile and promoting conversational interaction. To the best of our knowledge, little literature explores the public's attitudes towards the online community support initiatives (OCSIs) during the COVID-19 pandemic.

Our goal was not to explore how people use ICT technologies to support mutual aid efforts during the COVID-19 pandemic, rather our study emphasized getting an initial understanding of people's awareness and attitudes towards the OCSIs at the time of crisis. Specifically, we asked the following research questions: 1) how did the public feel about the use of OCSIs? 2) what design features on OCSI platforms were important for supporting the community effectively during the crisis? We conducted an online survey in the UK from the first day of lockdown in the UK between 23rd March 2020 to 5th July 2021. In this paper, we report the preliminary findings based on responses from 699 participants. We also suggest several design implications for technologies that serve to facilitate community self-support in the time of crisis.

2 METHOD

An online survey was conducted in the UK via the online survey platform Qualtrics. Participants were recruited via the research group website (https://citizenforensics.org/study., survey circle (https://www.surveycircle.com., and via social media using official university accounts and those of the researchers. Participants were recruited between 23rd March 2020 and 5th July 2021. We asked questions about social media use and online community support initiative engagement before and since 11th March 2020 (when COVID-19 has been announced as a pandemic by WHO) and attitudes towards the government's actions. This was followed by an open-ended question asking participants to describe positive experiences/feelings/thoughts since COVID-19 started and finally demographics. Participants were given the option to withdraw their participation at any time. 699 participants responded to the survey questions, 520 participants provided their age, which ranged between 16 and 80 (mean age of 43 years old), 515 participants disclosed their gender (420 female, 88 male, 5 non-binaries, 2 transgender), and 184 participants did not report their gender. Most participants had a university education (44.9%), followed by postgraduate (27.8%), college (18.9%), and secondary education (8.1%). Thematic analysis [5] was used to analyze the responses of open-ended questions. Participants were assigned unique participant numbers between P1 and P699, and gender and age were also reported.

3 FINDINGS

The preliminary findings focus on people's attitudes towards social media use, the experience of OCSIs (including satisfaction, challenges, and desired design features), followed by their positive experiences during the pandemic.

3.1 Attitudes towards Social Media Use

Findings show that the most popular social media platform is WhatsApp (81.4%), followed by YouTube (74.4%), Facebook (72.3%), Instagram (51.9%), and Twitter (41.6%) (see Figure 1). The frequency of Internet use among participants increased after the WHO announced COVID-19 as a pandemic. Specifically, the number of participants who reported using the Internet serval times a day increased from 54.6% to 68.5%, an increase of 13.9%. COVID-19 related media consumption also increased over this period, from 21.9% to 49.6%.

The use of social media differed before and since the announcement of the pandemic. First, many participants reported using social media sites with increased frequency since the pandemic was announced. For example, "*drastically increased*" or "*tripled use*" (P99, F, 25; P44, M, 68) were reported, and this might be because "*practicing strict social distancing and self-isolation for consecutive weeks...I spend approximately 10-12+ hours browsing different social media sites and spend roughly 2-4hours daily watching the news for COVID-19 updates.*" (P99, F, 25). Second, participants reported new or different purposes for using social media sites since the pandemic: **giving other people information** rose by 25.9%; **finding out about local businesses** rose by 14.9%; and **keeping updated on local news or events** rose by 14.3%. Participant P6 (F, 49) reported different purposes for using social media before (for organizing private events) and since the pandemic (for work), and participants were "*more likely to post comments now than before*" (P135, F, 50), "*chat with people normally wouldn't on a regular basis*" (P219, F, 55), and "*using social media (YouTube) for fitness*" (P285, F, 30).

Whilst there were challenges such as "*scammers and fake news*" (P109, F, 42) and "*distressing with a lot of negativity*" (P458, F, 27), social media was considered to be a positive place by most participants. Comments included "*Although there are always trolls online, the majority of people have also become more caring, helpful, and supportive online*" (P224, F, 45), "*whilst negative. . . many people feel relatable and it has been fun to relax and find new interesting things e.g., feel-good/positive Instagram accounts, YouTube channels*" (P233, F, 21). Some participants also rejoined social media platforms, i.e., "*I had deleted Facebook for several months prior to the pandemic as a*

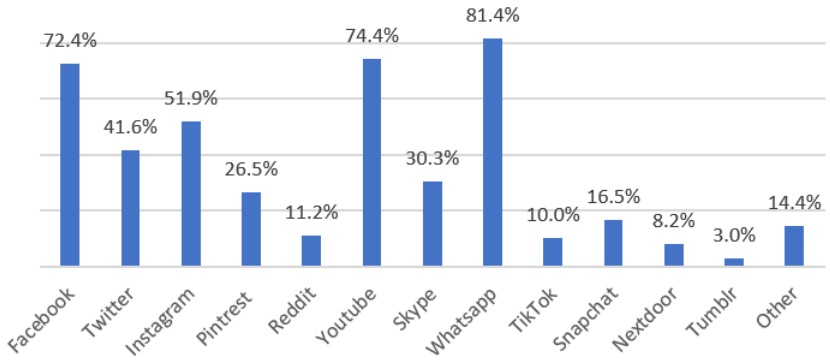

Figure 1: The social media sites used by 699 participants.

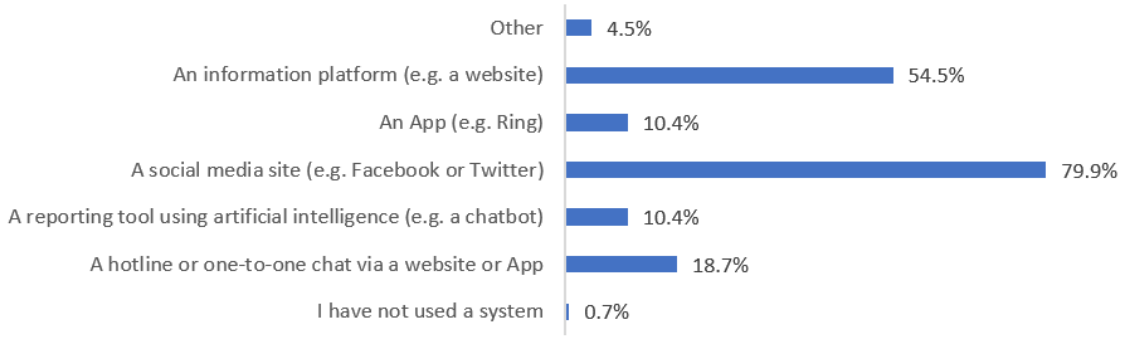

Figure 2: The type of systems that people used to join OCSIs.

'social media break', however, reactivated it when the lockdown was announced to keep in touch/see the reactions of others on my social media" (P177, F, 30).

3.2 Attitudes towards Online Community Support Initiatives

Our survey shows that 67.8% of participants thought people in their community provided support to others. Community support initiatives were set up via websites or social media groups (e.g., *Facebook, WhatsApp, Nextdoor, Instagram, Reddit*) to carry out practical and mental support. Digital technologies were adopted to take requests from people who needed help and/or to organize volunteering in their local area, e.g., pairing vulnerable people living along with volunteers (P120, F, 29).

The findings show that awareness and engagement of OCSIs increased since 11th March 2020: 71% of participants reported that they have seen or heard of OCSIs, an increase of 46% compared with before the pandemic was announced. They also demonstrate the increasing number of participants who engaged with OCSIs before the pandemic was announced (26%) compared with after it was announced (41%). From Figure 2, social media sites were the most popular systems used for taking part in OCSIs during the pandemic (79.9%), followed by information platforms (54.5%), then digital hotlines or one-to-one chats (18.7%). The word cloud (Figure 3) generated from 128 participants' knowledge of specific OCSIs systems indicates that Facebook and websites of community support groups were two main digital channels for community support initiatives to promote and provide mutual aid.

3.2.1 Satisfaction of Using OCSIs. Our findings show that most participants were positive towards using OCSIs: 66% of 189 participants who engaged in OCSIs reported gaining positive experience from OCSIs. For example, participants noted that OCSIs were "*working really well"* (P112, F, 64), "*almost everyone gets at least some help if they ask for it*" (P224, F, 45), "*Being part of the community without needing to leave my house*" (P12, F, 66). "*I have found this* (OCSI*) immensely helpful and engaged in activities outside of those I would normally participate in. This is a good way of maintaining contact whilst being isolated*" (P42, F, 54).

Our preliminary data analysis shows 230 participants disclosed their emotions associated with OCSI engagement: the majority reported that OCSIs made them feel calmer (81.3%), more empowered (86.5%), and more reassured (87.4%). 228 participants provided satisfaction ratings of using online technology for community support, and it is seen that most participants (57%) were satisfied with the OCSIs (see Figure 4. Avg= 3.5 out of 5, mode =4).

3.2.2 Challenges of OCSIs. Three main challenges of using OCSIs were highlighted. First, our participants had **privacy concerns** when considering joining OCSIs, i.e., P223 (F, 52) concerned to be identified online and she considered to do volunteering "*where she*

Figure 3: The word cloud generated based on OCSI systems seen or heard of by 128 participants who experienced OCSIs.

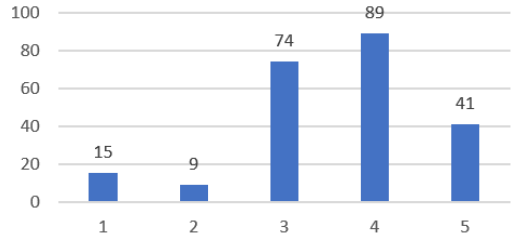

Figure 4: The distribution of satisfaction ratings of using OCSIs from 228 participants (1=lowest, 5=highest).

is likely to be at least identified online". One co-chair of OCSIs (F, 58) indicated her worries about information sharing: "*I am wary of new initiatives. . .newcomers are able to take data from the vulnerable which is a worry and a threat for exploitation and crime.*" Second, the **digital exclusion** of vulnerable populations was mentioned. As participant P86 (F,54) claimed: OCSI "*falls short when elderly people do not have this technology or access to technology and leaves them vulnerable and open to mental health issues*"; "*. . .flyers through letterboxes* (are) *more effective at reaching the elderly than online*" (P13, F, 49). Participant P643 (F, 65) listed the disadvantages of using digital technology, which might have biases: "*The problem with relying on technology is that it misses out on many older people. The government takes too much notice of Twitter which does not reflect the views of the majority.*" Third, **misinformation** was reported as causing concerns which need official verifications from official sources, such as the government. For instance, "*issues like school opening, testing, and lockdown on the places like Twitter and Mumsnet, I've no evidence that it's actually initiated by the government*" (P449, F, 45)); Participant P348 (F,44) encouraged involvement from the government: "*I think the government can usefully review what communities and groups can and are achieving via social media and websites/support groups and so on; then they can learn how they can support/inform and add value to the group activities rather than police them or fire off meaningless 'help' or government edicts...*" Participants also mentioned other reasons for not joining OCSIs, including "*do not know a good one [OCSI]*" P588 (F, 67), no time to involve in OCSI due to own role of key workers or caring responsibilities.

3.2.3 Important Features of OCSIs. 534 Participants also rated the importance of functionalities and expected features that OCSIs should support, see Figure 5. It is found that including blind/deaf accessibility, level of autonomy control (including allowing users to choose the level of anonymity and to engage at any time), and referral to professional resources were rated by most participants as very important features of effective OCSI platforms.

3.3 Community Spirit and Positivity

Our survey asked participants to "*think about positive experiences, thoughts, and feelings that you have had since* COVID-*19 started to impact your life*". Findings show that 264 participants reflected on positive experiences during the COVID-19 pandemic towards themselves, family, community, and the environment. It was surprising to find a great presence of positive community spirit and a sense of community (which amounted to 29% of 264 participants who responded to this question). Comments included: people "*being more friendly*" (P111, F, 56), "*showing concern for one another*" (P195, F, 61; P187, F, 65), and "are *happy to chat in the street*" (P125, F, 64), "*know neighborhoods better*" (P179, F, 62; P212, F, 64). The elderly felt being "*looked after and important to the community*" (P6, F, 49). "*So many people have reached out to check on me. Many people have offered me help.*" (P224, F, 45). Compared with pre-pandemic, "*community feeling*" (P50, F, 21), "*sense of community*" (P80, F, 20), and "*community spirit*" has improved (P49, F, 60; P140, F, 21), "*it has brought people in the community together that do not know each other and wouldn't otherwise had met or speak*" (P175, F, 28).

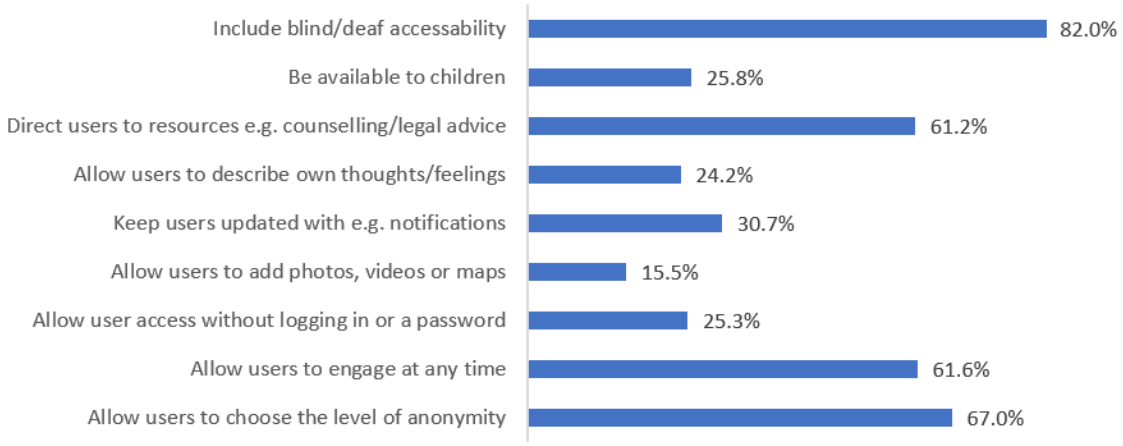

Figure 5: 534 responses on the very important features that an effective OCSI platform should have.

It also appeared self-initiated local community support groups provided mutual benefits. Participants who helped others indicated that supporting others in the community gave them a "*feel good factor*" (P12, F, 64), and support providers also received support from others: "*Since covid-19 I've engaged more with elderly neighbors who I shop for daily, I suffer from PTSD and was able to receive counseling via phone calls weekly which have really helped*" (P202, F, 34).

4 DISCUSSION

The aim of the present study was to examine people's attitudes towards online community support initiatives (OCSIs) and how they were used. Findings indicate that social media sites and individual websites were increasingly used for communication and conducting pro-social practice since COVID-19 was declared as a global pandemic by WHO. Although most participants were positive toward the OCSIs and expressed satisfaction with using OCSIs overall, several challenges were also highlighted. Together with participants' opinions on important features of OCSIs, we suggest four design implications for effective OCSI platforms: self-controlled engagement, increased accessibility, authority involvement, and promoting positivity.

Self-controlled Engagement. Findings indicate that the ability to control the level of anonymity and engagement at any time was rated as very important by participants. Privacy control was also of concern for community support organizers and OCSI volunteers. Moreover, people can have multiple roles during their engagement with community support initiatives [8], for example, a supporter could become a person who needs help. This opens a great opportunity for community-led mutual aid technology designers to consider interventions that minimize victimization [20], as well as leveraging technological solutions to provide broad levels of information disclosure and autonomy throughout the duration of OCSI engagement such as flexible role change.

Increasing Accessibility. Findings correspond to previous research [9] which indicates that grass-root communities implemented alternative ways of engaging digitally excluded groups such as the elderly and populations who have no or limited access to the digital world. Our survey also shows people's attitudes on the importance of including disabled populations (for example, via blind and/or deaf accessibility) into OCSIs during crises such as the COVID-19 pandemic. Additional research is needed to explore the efficient and effective interventions addressing the digital divide [23].

Authority Involvement. Our findings indicate that knowledge and information from professionals and authorities (e.g., government) were highly valued by participants. We noticed a similar phenomenon called "infodemic" [22], which quickly disseminated misinformation and fake news on social media sites. It is believed that the government's role is crucial in promoting reliable information. And the involvement of official authorities such as the government in the community support initiatives could build mutually beneficial relationships between to community and officials.

Promoting Positive Experience in the Community. Our preliminary findings join recent research in pro-social behavior during the COVID-19 pandemic [17, 24, 27] at a societal level. Positive impacts of engaging with OCSIs on people's emotions were reported, which is in line with Varma et al.'s research [24] of pro-social behavior, effectively bringing emotional benefits to individuals during the uncertain global pandemic [24]. Findings indicate that social bonds were developed or further strengthened online during this COVID-19 pandemic [17]. Community engagement facilitated by OCSIs further could increase social connections and social capital [25], which in turn improves the wellbeing of individuals. OCSI platform designers have obligations to promote pro-social behavior during a time of crisis. Riva [18] suggested that our experience may be manipulated by technologies, thus it is recommended that positive computing technology [19] might be a good starting point to design such technological interactions which invoke positive behavioral change such as pro-social and pro-environmental behaviors of individuals and communities in the long term.

4.1 Limitations

Our survey had several limitations. An important limitation is that our 699 participants consisted of significantly more females than males, which inherently limits the generalizability of our findings.

However, the high rate of female participants was consistent with previous research recruited participants online [6, 15] and other studies relevant to COVID-19 [11]. Also, our open-ended question prompted the participants to emphasize and reflect upon positive experiences and emotions, but it is acknowledged that people from different cultures may answer the question differently. For example, people living in a collectivist culture might reflect differently from those with an individualistic culture [4].

4.2 Strengths and Practical Contribution

Despite these limitations, the present study had several strengths. First, it captured the reflective responses on the OCSIs and positive experiences of the COVID-19 pandemic. Moreover, the present study provided novel empirical evidence of public attitudes and emotions of engaging in mutual aid groups. Third, our findings provide insights for technology designers, which could provide valuable insight when designing online community support platforms during a global crisis like the COVID-19 pandemic.

The findings of our work show that OCSIs play an important role in supporting communities during the COVID-19 pandemic. However, there are still challenges in involving this trend of mutual-aid groups. We found that, in the UK, people trust government sources of information and value the authority of government in facilitating OCSIs. Therefore, it is encouraged that government could get involve in OCSIs, for example, collaborating with charities or other third-party organizations, validating the information, and signposting support available.

5 CONCLUSION

This paper reports the preliminary findings of a survey asking the public attitudes towards online community support initiatives. We illustrated public attitudes towards their use of social media sites and OCSIs. People have positive attitudes about the use of OCSIs, however, challenges were also noted: (1) lack of privacy control, (2) digital exclusion, and (3) misinformation. Based on the literature and the important design features rated by the participants, we recommend consideration of four design implications for OCSI platforms: (1) self-controlled engagement, (2) increased accessibility, (3) authority involvement, and (4) promoting positivity.

ACKNOWLEDGMENTS

This work is supported by Citizen Forensics, funded by UK EPSRC (EP/R033862/1) and Science Foundation Ireland (SFI 13/RC/2094). We would like to thank Avelie Stuart (University of Exeter) for helping with survey design and recruiting participants.

REFERENCES

[1] Jobie Budd, Benjamin S. Miller, Erin M. Manning, Vasileios Lampos, Mengdie Zhuang, Michael Edelstein, Geraint Rees, Vincent C. Emery, Molly M. Stevens, Neil Keegan, Michael J. Short, Deenan Pillay, Ed Manley, Ingemar J. Cox, David Heymann, Anne M. Johnson, and Rachel A. McKendry. 2020. Digital technologies in the public-health response to COVID-19. Nature Medicine 26, 8: 1183–1192. https://doi.org/10.1038/s41591-020-1011-4

[2] Indranil Chakraborty and Prasenjit Maity. 2020. COVID-19 outbreak: Migration, effects on society, global environment and prevention. Science of the Total Environment 728: 138882. https://doi.org/10.1016/j.scitotenv.2020.138882

[3] Neil Dagnall, Kenneth Graham Drinkwater, Andrew Denovan, and R. Stephen Walsh. 2020. Bridging the Gap Between UK Government Strategic Narratives and Public Opinion/Behavior: Lessons From COVID-19. Frontiers in Communication 5, September: 1–8. https://doi.org/10.3389/fcomm.2020.00071

[4] Dariusz Dolinski, Barbara Dolinska, Barbara Zmaczynska-Witek, Maciej Banach, and Wojciech Kulesza. 2020. Unrealistic Optimism in the Time of Coronavirus Pandemic: May It Help to Kill, If So—Whom: Disease or the Person? Journal of Clinical Medicine 9, 5: 1464. https://doi.org/10.3390/jcm9051464

[5] Jennifer Fereday and Eimear Muir-Cochrane. 2006. Demonstrating Rigor Using Thematic Analysis: A Hybrid Approach of Inductive and Deductive Coding and Theme Development. International Journal of Qualitative Methods 5, 1: 80–92. https://doi.org/10.1177/160940690600500107

[6] Samuel D. Gosling, Simine Vazire, Sanjay Srivastava, and Oliver P. John. 2004. Should We Trust Web-Based Studies? A Comparative Analysis of Six Preconceptions About Internet Questionnaires. American Psychologist 59, 2: 93–104. https://doi.org/10.1037/0003-066X.59.2.93

[7] Cameron Hepburn, Brian O'Callaghan, Nicholas Stern, Joseph Stiglitz, and Dimitri Zenghelis. 2020. Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change? Oxford Review of Economic Policy 36, Supplement_1: S359–S381. https://doi.org/10.1093/oxrep/graa015

[8] Tiffany Knearem, Jeongwon Jo, Chun Hua Tsai, and John M Carroll. 2021. Making Space for Support: An Exploratory Analysis of Pandemic-Response Mutual Aid Platforms. In Proceedings of the 10th International Conference on Communities & Technologies - Wicked Problems in the Age of Tech, 38–43. https://doi.org/10.1145/3461564.3461567

[9] Local Trust. 2020. Stepping up and helping out: grassroots volunteering in response to COVID-19. Retrieved from https://localtrust.org.uk/insights/research/briefing-6-rapid-research-covid-19/

[10] Guanlan Mao, Maria Fernandes-Jesus, Evangelos Ntontis, and John Drury. 2021. What have we learned about COVID-19 volunteering in the UK? A rapid review of the literature. BMC Public Health 21, 1: 1470. https://doi.org/10.1186/s12889-021-11390-8

[11] Marcin Moroń and Magdalena Biolik-Moroń. 2021. Trait emotional intelligence and emotional experiences during the COVID-19 pandemic outbreak in Poland: A daily diary study. Personality and Individual Differences 168, January. https://doi.org/10.1016/j.paid.2020.110348

[12] NHS. NHS volunteer responders: 250,000 target smashed with three quarters of a million committing to volunteer. 29 March 2020. Retrieved September 15, 2021 from https://www.england.nhs.uk/2020/03/250000-nhs-volunteers/

[13] Stephan Palmer, Sheila Panchal, and Siobhain O'Riordan. 2020. Could the experience of the covid-19 pandemic have any positive impact on wellbeing? European Journal of Applied Positive Psychology 4, 10: 1–7. Retrieved from www.nationalwellbeingservice.com/journals

[14] Sheila Panchal, Stephen Palmer, and Siobhain O'Riordan. 2020. Enhancing Transition Resilience: Using the INSIGHT coaching and counselling model to assist in coping with COVID-19 Centre for Neuroscience View project Coaching at the Wales Academy for Professional Practice and Applied Research View project. International Journal of Stress Prevention and Wellbeing 4, 3: 1–6.

[15] Gabriele Paolacci, Jesse Chandler, and Panagiotis G. Ipeirotis. 2010. Running experiments on Amazon mechanical turk. Judgment and Decision Making 5, 5: 411–419.

[16] Talya Porat, Rune Nyrup, Rafael A. Calvo, Priya Paudyal, and Elizabeth Ford. 2020. Public Health and Risk Communication During COVID-19—Enhancing Psychological Needs to Promote Sustainable Behavior Change. Frontiers in Public Health 8, October. https://doi.org/10.3389/fpubh.2020.573397

[17] Haywantee Ramkissoon. 2020. COVID-19 Place Confinement, Pro-Social, Pro-environmental Behaviors, and Residents' Wellbeing: A New Conceptual Framework. Frontiers in Psychology 11, September: 1–11. https://doi.org/10.3389/fpsyg.2020.02248

[18] Giuseppe Riva. 2012. Personal Experience in Positive Psychology May Offer a New Focus for a Growing Discipline. American Psychologist 67, 7: 574. https://doi.org/10.1037/a0029957

[19] Giuseppe Riva, Daniela Villani, Pietro Cipresso, and Andrea Gaggioli. 2016. Positive Technology: The Use of Technology for Improving and Sustaining Personal Change. In Integrating Technology in Positive Psychology Practice, Daniela Villani, Pietro Cipresso, Andrea Gaggioli and Giuseppe Riva (eds.). Information Science Reference, 1–37. https://doi.org/10.4018/978-1-4666-9986-1.ch001

[20] Greg Stratton, Anastasia Powell, and Robin Cameron. 2017. Crime and Justice in Digital Society: Towards a 'Digital Criminology'? International Journal for Crime, Justice and Social Democracy 6, 2: 17. https://doi.org/10.5204/ijcjsd.v6i2.355

[21] Niuniu Sun, Luoqun Wei, Suling Shi, Dandan Jiao, Runluo Song, Lili Ma, Hongwei Wang, Chao Wang, Zhaoguo Wang, Yanli You, Shuhua Liu, and Hongyun Wang. 2020. A qualitative study on the psychological experience of caregivers of COVID-19 patients. American Journal of Infection Control 48, 6: 592–598. https://doi.org/10.1016/j.ajic.2020.03.018

[22] Shu-feng Tsao, Helen Chen, Therese Tisseverasinghe, Yang Yang, Lianghua Li, and Zahid A Butt. 2021. What social media told us in the time of COVID-19: a scoping review. The Lancet Digital Health 3, 3: e175–e194. https://doi.org/10.1016/S2589-7500(20)30315-0

[23] United Nations. 2021. Leveraging digital technologies for social inclusion. Retrieved September 15, 2021 from https://www.un.org/development/desa/dspd/2021/02/digital-technologies-for-social-inclusion/

[24] Mohith M. Varma, Danni Chen, Xuanyi Lin, Lara B. Aknin, and Xiaoqing Hu. 2020. Prosocial behavior promotes positive emotion during the COVID-19 pandemic. Retrieved from https://psyarxiv.com/vdw2e/

[25] Amy Voida, Ellie Harmon, and Ban Al-Ani. 2012. Bridging between organizations and the public: Volunteer coordinators' uneasy relationship with social computing. Conference on Human Factors in Computing Systems - Proceedings: 1967–1976. https://doi.org/10.1145/2207676.2208341

[26] Adrian Wong, Serene Ho, Olusegun Olusanya, Marta Velia Antonini, and David Lyness. 2021. The use of social media and online communications in times of pandemic COVID-19. Journal of the Intensive Care Society 22, 3: 255–260. https://doi.org/10.1177/1751143720966280

[27] Jamil Zaki. 2020. Catastrophe Compassion: Understanding and Extending Prosociality Under Crisis. Trends in Cognitive Sciences 24, 8: 587–589. https://doi.org/10.1016/j.tics.2020.05.006