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For Chemistry World

Title: Living through the effects of COVID-19

The Covid-19 pandemic has been labelled a mass global trauma event,<sup>1</sup> with all-encompassing effects similar to that of the Second World War. It remains too early to estimate the full impact of these events on marginalised individuals with respect to health (mental and/or physical) or career progression.

The international Women in Supramolecular Chemistry (WISC) network began a programme of research into lived experiences of life inside and outside the lab in September 2020. Although it had not been designed to capture Covid experiences, the timing meant that it was perfectly situated to do so. As chemical scientists, the community shared the general shock of lockdowns and lab closures; communicating the challenges of home-schooling, isolation, and keeping research groups/projects going. We deliberately chose to use a variety of creative and qualitative research methods that captured the emotional and embodied experiences that people had. These data were collected through reflective work with research groups, and collaborative autoethnography, alongside qualitative surveys that received responses from supramolecular researchers across five continents.

Autoethnography is the study of the self in relation to the social environment and context. It is commonly used to explore subjects that are sensitive, contentious, and that have personal meaning to the researcher.<sup>2</sup> Autoethnography demands a lot from a traditional researcher more used to methods from within the chemical sciences. Validity, rigour, and repeatability – hallmarks of more traditional research approaches – are interpreted differently within autoethnographic research. For example, validity is gained by the researcher being critically reflexive (that is reflecting on events, the thoughts and feelings associated with those events, and their part in creating them along with the impact and implications for those around them),<sup>3</sup> self-aware (that is conscious of the thoughts, feelings, bodily reactions and responses to events and to others),<sup>4</sup> and honest about their vulnerabilities, privilege, and position in the work they are doing (i.e. what is termed positionality in research).<sup>5</sup> It is an inclusive approach that incorporates viewpoints and understandings of knowledge that are not limited to white, Eurocentric ideas. WISC chose to use collaborative autoethnography<sup>6</sup> as it added an element of accountability and rigour. By sharing and comparing experiences, it allowed all concerned to see where there were resonances. Both the reflective work with research groups and collaborative autoethnography encouraged participants to share images and objects that represented their feelings – for example a crushed water bottle or over-stretched hair band might illustrate how the individual felt misshapen from stress.

WISC's collaborative autoethnography group consisted of a diverse group of 12 members, all of whom identified as women, residing across the UK, USA, and Europe. They identified with a number of protected characteristics, and several had young children. The group shared many things, such as how they managed their groups' time and tasks within the laboratory, took responsibility for their research groups' mental health and wellbeing at cost to their own, and images of feeling burnt out, or continually fighting fires. The feelings of overwhelm they shared echoed those within the reflective research group meetings and survey responses from the wider community allowing us to triangulate our findings and

show that these feelings were not just subjective experiences limited to a small group (See Figure 1).

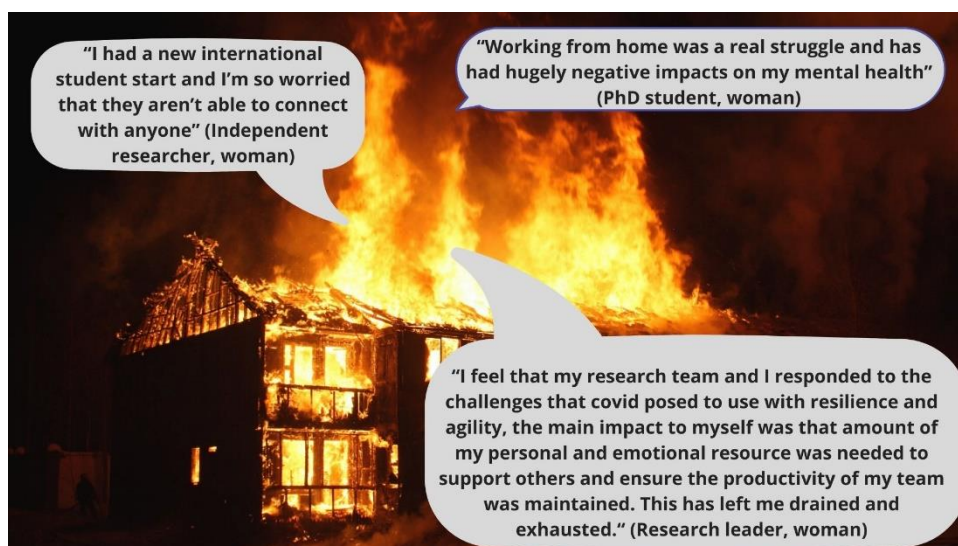


Figure 1: Fighting fires through COVID-19 – experiences of supramolecular chemists.

Across all three data sets it became clear that having split-group rotas, a lack of communication, and lack of productivity in their research had negative impacts on the mental health of the majority of these individuals. In the survey responses, proportionately more women and non-binary people than men talked about the emotional impact of Covid-19. Students shared the impact of not being able to see their team or socialise. Research leaders shared the emotional load they carried for their group. Furthermore, additional pressures were specifically felt by those with caring responsibilities regardless of age, career stage, or gender.

Not every experience was negative. There were some people without caring responsibilities who found that Covid-19 had benefits to their mental health. A woman masters student told us that 'it also meant that I was able to look after my mental health a little better, having half of the day to do some healthy activities and spend time on myself'.

Our study methods themselves were designed to benefit the participants. The collaborative autoethnography group shared that they gained a sense of community and support from their peers during the research process. The collaborative autoethnography meetings gave the individuals involved space to reflect and process what they were experiencing, and so, rather than being another burden on their time, this programme of research helped to ameliorate the emotional load they carried. Similarly, members of the reflective research groups shared that they felt as though sharing their experiences allowed them room to get on with the actual science.

The importance of community for women in academia and science is widely recognised.<sup>7,8</sup> The emotional load of managing a research group through the pandemic was an unexpected burden that was borne unevenly across the academic community, which was enhanced for those with caring responsibilities. It is too soon to tell whether Covid-19 will increase the

attrition of women and other marginalised groups from chemistry. WISC's work suggests that a major tool to address the lack of gender balance and diversity in chemistry is to establish and grow networks of area-specific communities that allow space for members to reflect on and share their lived experiences so that they feel less isolated and alone. Although setting up and maintaining these spaces is work beyond the day-to-day, we believe the model that we have developed in WISC can act as a blue-print for other area-specific groups. Is there a need for this in your field?

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