

Covid-19

Research Response

Across the University of Bradford, researchers have been carrying out significant work around Covid-19 and factors related to the pandemic. As a university we are committed to ensuring that our research benefits the community of Bradford, the UK and the wider world.

This portfolio is a synopsis of ongoing and completed Covid-19 projects, which offer insights into the pandemic impact. We hope readers find this collection informative and useful.

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Health

"It is important to understand the impact of the pandemic and resulting restrictions on the lives of people with dementia and family carers to identify ways in which they could be better supported. This would also provide evidence to help inform responses to future pandemics."

DR CATHERINE QUINN,
LECTURER, CENTRE FOR
APPLIED DEMENTIA STUDIES

Impact of Covid-19 physical distancing on people with dementia and their carers

People with dementia say that personal contact is key to their well-being, while many family members providing unpaid care are isolated and feel lonely. People with dementia, and the family members who care for them, are especially vulnerable to the impact of the physical distancing measures. These measures can be frightening to people with dementia and can damage well-being and relationships, while reducing accessibility of care services and support.



With social restrictions continuing for an extended period, people affected by dementia risk being 'left behind' as the rest of the population adapts. This study aimed to understand the impact of Covid-19 and the resulting restrictions on people with dementia and carers.

Dr Catherine Quinn, Lecturer, Centre for Applied Dementia Studies, is a Co-Investigator, on the INCLUDE study, which is funded by the UKRI and led by Professor Linda Clare at the University of Exeter. She said: "In the INCLUDE study we aimed to understand the impact of the Covid-19 epidemic and the resulting restrictions on people with dementia and their carers, and to develop resources to address the negative and

potentially harmful effects of this situation. We carried out interviews and undertook questionnaires from people with dementia and carers who were already taking part in the IDEAL cohort study."

Early work in the study was used to produce leaflets about how to stay well during Covid-19 <https://includeproject.org.uk/5-ways-to-stay-well/> Preliminary work has led to a publication on how the COVID-19 lockdown and continuing restrictions affected those living with dementia. <https://documents.manchester.ac.uk/display.aspx?DocID=54837>



“Our starting point is Understanding Society (UKHLS), a survey which collects online data relating to people’s mental health. Each individual has a unique identifier meaning that we can track their mental health before, during and after the lockdown, and monitor their mental health on a long-term basis.”

DR MUHAMMAD WAQAS,
LECTURER IN ECONOMICS



The role of the neighbourhood environment in shaping mental health consequences of Covid-19

While undoubtedly any mental health impact will be partly shaped by individual characteristics, a team of researchers also assert that people will exhibit different levels of vulnerability due to their neighbourhood environment.

Dr Muhammad Waqas, Lecturer in Economics, worked with Professor Peter Howley and Dr Gaston Yalonzky at the University of Leeds to test to what extent features of the neighbourhood environment moderates the mental health

consequences associated with the pandemic.

Dr Waqas said: “Our starting point is Understanding Society (UKHLS), a survey which collects online data relating to people’s mental health. Each individual has a unique identifier meaning that we can track their mental health before, during and after the lockdown, and monitor their mental health on a long-term basis. Of particular importance for this project is the geographic identifier attached to each individual in the survey. This geographic identifier will allow us to identify where each individual lives. Using these identifiers,

we will link our longitudinal household survey datasets recording individuals’ mental health with a variety of publicly available datasets relating to neighbourhood contextual information (e.g. economic and social deprivation, population density, environmental capital, health services etc.).”

This research will help us understand what makes some neighbourhoods produce better health outcomes than others and who is most vulnerable to the pandemic. From this, place-based policy interventions aimed at protecting people’s mental health can be developed.



Two articles were published in leading journals off the back of this research:



<https://onlinelibrary.wiley.com/doi/10.1002/gps.5434>

<https://bmjopen.bmj.com/content/11/1/e045889>



Long-term effects on family carers and older people with and without dementia

In examining the long-term effects of Covid-19 on family carers and older people with and without dementia, unpaid carers, people living with dementia and older adults took part in a national survey on Covid-19 related social service closures. The study, conducted by Bradford academics, received 377 responses. Dr Kathryn Lord, Centre for Applied Dementia Studies, Professor Murna Downs, Professor in Dementia Studies, and Professor Siobhan Reilly, Director of Applied Dementia Studies, asked participants about their social support usage prior to and after the Covid-19 outbreak. They were also asked about their levels of depression, anxiety and mental well-being.

Dr Lord said: "Covid-19 has impacted both on people living with dementia and the people who care for them. The biggest impacts have been on those who totally rely on their carers for support and the normal

resources provided by Local Authorities, the NHS, and Volunteer organisations such as the Brain Charity. We aimed to explore how social support service use changed mental wellbeing in older adults, carers, and people living with dementia over the first few months since the pandemic outbreak."

The results showed that access to social support services was severely affected. There was a difference in mental wellbeing across all groups, with additional support required to maintain better wellbeing across the groups as Covid-19 progressed. Social support service usage dropped shortly after lockdown measures were imposed. Access to paid care was least affected by Covid-19. Cases of anxiety dropped significantly across the study period, whilst cases of depression rose. Well-being increased significantly for older adults and people living with dementia throughout the study.

With mental well-being differently affected across groups, support could be put in place to maintain better well-being across those vulnerable groups during the ongoing pandemic. While it appears that some services have started providing remote support, not everyone will be able to access these, leaving many people without much needed support.

Future research could assess how older adults and people affected by dementia are accessing social support services in the time of Covid-19, with clearer support for people to access any format of services - either face-to-face or remotely. Considering that the pandemic is going to continue for the foreseeable future, the mental health of older adults and those affected by dementia could be closely monitored, particularly when more stringent public health measures are put in place again.

Politics

Was the government reaction to the Covid-19 pandemic quick enough?

The initial national response to the pandemic appeared to be very slow, with substantial implications for health and the economy. Emeritus Professor Paul Rogers analysed the speed of governmental response to the pandemic in the first three months.

The research found that poor initial response to Covid-19 was a significant part of the overall political failure to contain the rate of spread. The evidence from this research was published by two official parliamentary select committees, further evidence was also prepared for the Joint Select Committee on National Security.

Professor Rogers said: "I did extensive tracking and analysing of multiple sources using open-source intelligence (OSINT). There were many causes for the slow response, but internal differences on the best approaches to be used was significant, especially whether the economy needed protecting to a level that might not be sufficient to limit the rate of spread. Evidence submitted to two parliamentary select committees, the House of Lords Covid-19 Committee (one set of evidence) and



the Joint House of Lords and House of Commons Select Committee on the National Security Strategy (two sets of evidence) have so far been published by Hansard. The published sets of evidence examine the early responses to the pandemic in January and February 2020, seeking to understand why the responses were so slow."

Five of the Monthly Briefings on International Security of the Oxford Research Group covering the evolution of the pandemic were published during 2020 with the briefings also published by

Rethinking Security (www.rethinkingsecurity.org). A chapter on the UK experience was published in a book on the pandemic published in India in July 2020.





“The survey of 240 participants found that most of them (74%) encountered contact tracing at hospitality venues. However, only 24% of them provided correct and complete information each time. The most chosen reason for their reluctance to cooperate was their concern about privacy (for 68% of the participants).”

DR DONIA WASEEM,
LECTURER IN MARKETING



What encourages people to lie or be truthful during contact tracing?

We all know that how close people have been to each other (contact tracing) is important to public health and safety during the pandemic. So, why are many people reported to have lied to contact tracing teams? Dr Donia Waseem, Lecturer in Marketing, and a team of researchers, carried out studies to find out what would encourage people to give truthful information when giving contact tracing data.

Dr Waseem reported: “We did multiple studies with participants in UK, Australia, New Zealand, Canada, and USA to discover why people lie or tell the truth. The survey of 240 participants found that most of them (74%) encountered contact tracing at hospitality venues. However, only 24% of them provided correct and complete information each time. The

most chosen reason for their reluctance to cooperate was their concern about privacy (for 68% of the participants). We then interviewed 24 people to know what encourages them to cooperate and conducted another survey study with 365 people.”

The research article, ‘To Disclose or To Falsify: The Effects of Cognitive Trust and Affective Trust on Customer Cooperation in Contact Tracing’, was published in the International Journal of Hospitality Management.

Four main findings:

- Hospitality businesses need to be careful with using relationship tactics to require personal information because people tend to lie when they are under the pressure to maintain a good relationship with the person or business requesting information.

- Businesses should demonstrate their competence in managing customer data. People are less worried about their privacy if they have more confidence in a business and their professionalism in data management.
- Governments can encourage people to cooperate with contact tracing at hospitality venues through strong data protection policy and regulation.
- The popularity of contact tracing can attract more people to cooperate. As contact tracing gains more popularity through media and social networks, people are less sceptical to share their personal information.

From pandemic to renewed integration and global cooperation – the case of Africa, the European Union and China

This study involved a call to the research community by Dr Jean-Marc Trouille, Jean Monnet Chair, Associate Professor, via the Jean Monnet Network The European Union, Africa and China in the Global Age (EU-EAC), to submit papers for publication in three special issues on the impact of the pandemic. The response from this community was 25 papers from 42 authors. Key areas of focus were Regional Integration and Economics Focus, International Cooperation, Migrations, Youth and Education, and Culture and Homegrown Approach, Covid-19 and Human Rights, social enterprises, and country-related issues. The aims were to give African researchers (27 authors: two thirds of contributors) a forum of expression and an opportunity to publish in

Europe and to give Burundi colleagues an opportunity to publish. The work also enabled the provision of continued dialogue across continents about the global pandemic with contributors from Africa, Europe, North and South America, and Russia.

Jean-Marc Trouille said: “We found relevant insights about how African countries are dealing with pandemics with often non-existent health facilities. Numerous insights about Covid-19 as a global issue, and what a post-Covid-19 world may look like. The emergence of this severe global health crisis is redefining virtually every aspect of human relations and activity. In the face of such unprecedented global challenge, multiple questions beg an answer. The three special issues address these crucial questions and provide African as well as European insights on issues which have become global societal, health and economic challenges.”

The outputs of this study have been published online by the European Studies Journal of the European Community Studies Association (ECSA), Moldova Branch.

Jean-Marc Trouille added: “These three special issues of the European Studies Journal/ Studii Europene have brought together scholars from diverse horizons, covering a variety of disciplines, to examine cooperation between Africa, the European Union and China, in the context of the Covid-19 pandemic, and to question how the pandemic is affecting our lives and may redefine the global order. Whilst the pandemic constitutes one of the core threads linking these contributions, the special issues also draw on the activities carried out since 2017 by the EU-EAC Jean Monnet Network in East Africa.”



“We found relevant insights about how African countries are dealing with pandemics with often non-existent health facilities.”

JEAN-MARC TROUILLE





Identity

“Gender Identity Clinic (GIC) waiting times are the longest of any specialist NHS care due to enormous over-prescription and being under-resourced.”

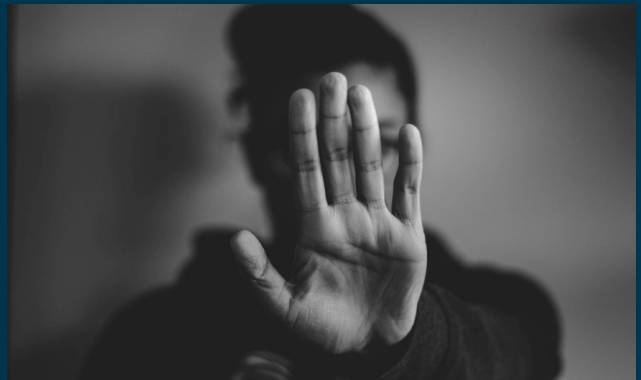
DR JACK LOPEZ,
LECTURER IN HEALTH
AND SOCIETY

Barriers to gender transition healthcare during the Covid-19 pandemic

Busy specialist services such as gender identity clinics have been heavily impacted by Covid-19 which has had a broader impact on the health and well-being of trans and non-binary patients. This research study highlights patient experience of services in an area rarely looked at – that of the daily quality of life of trans and non-binary individuals and the barriers they face to services that are considered essential under NHS guidelines.

The study also highlights the importance of informal patient networks online in communicating interruptions to service provision and providing support in the place of failing services.

This research investigated the impact of interruptions and barriers to accessing gender transition related healthcare during the pandemic. It also explored whether this differed across the UK and what the possible long-term issues are for trans and non-binary individuals and overburdened NHS gender services.

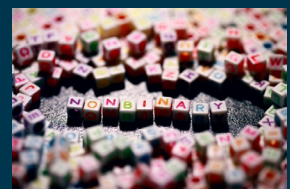


Dr Jack Lopez, Lecturer in Health and Society, carried out 10 in-depth narrative interviews and analysis of social media and found some patients experienced a loss of vital support networks during lockdown, and also faced barriers to accessing hormone medication and experienced long awaited surgeries cancelled indefinitely. However, online peer support networks focused on healthcare increased during the pandemic.

Dr Lopez said: “While NHS England has confirmed that the 18-week referral-to-treatment time standard does apply to GICs, in worst instances some patients have reported a wait of 3-5 years for a first appointment. From assessment-to-treatment there can be a further wait of an additional 2-7 years dependent

upon the treatment required. When public health systems are under the immense stress of an international pandemic, the negative impact on specialist care will be felt deeply by practitioners and patients alike.”

The outcomes of this project will contribute to strengthening trans-related health services by presenting findings to the House of Commons Cross-Party Equalities Commission, CQC Monitor and Charities focussed on Trans Health Advocacy and Human Rights.





A Russian woman's story of resilience in the face of severe Covid-19 challenges

Many women have been significantly affected by the pandemic and understanding their experience is needed to develop adequate support programmes. Each experience is context-sensitive, which this study recognises and acknowledges.

During the summer of 2020, a woman in Russia not only contracted Covid-19 herself, but also lost her husband to virus-related health complications, and later, lost her job. This study is based on interviews with her about vulnerability and ways of coping with the pandemic as a sole caregiver and breadwinner for her four-year-old child.

Her ways of dealing with this chain of severe, life-changing events inspired the team to analyse her case through Judith Butler's feminist lens of vulnerability, conceptualized as a very source of resistance. The results of the analysis illustrate vulnerability and emergent modes of resistance as gendered responsibilities of giving and receiving care, as well as the power of solidarity. Furthermore, the study shows how the political, social and economic context of Russia shapes gendered experiences of vulnerability and possibilities for resistance.

Dr Andrew Kozhevnikov, Lecturer in Human Resource Management and Organisational Behaviour, worked with co-authors - Lea Reiss (WU Vienna) and Sara Louise Muhr (Copenhagen Business School) to carry out a single case study of this woman. The team explored her experience of caregiving and receiving from a gendered perspective and looked at her experience of vulnerability and resistance.

"This is an extreme story of a context-specific gendered experience. Although not readily generalisable, the story provides opportunities for investigation of personal vulnerability and resistance in times of the Covid-19-related personal and professional crisis. Our key findings were related to the remarkable resilience of our respondent."

DR ANDREW KOZHEVNIKOV,
LECTURER IN HUMAN
RESOURCE MANAGEMENT
AND ORGANISATIONAL
BEHAVIOUR



Economy

“This research will be among the first to monitor, analyse and uncover consumers’ attitudes and confidence regarding the hospitality VAT cuts announced on the 8th July 2020, which has potential to be highly relevant to policy. This ongoing research is providing much needed information on consumers’ attitude during this time of uncertainty.”

DR TAKAO MARUYAMA,
LECTURER IN BUSINESS
ANALYTICS

Consumer confidence in Covid-19 times

Research was carried out to find out how much confidence customers had in the economy (consumer confidence) during lockdown. The research highlighted a need for policymakers to understand current opinion in relation to the effectiveness of hospitality concessions put in place, which may have limited impact if consumers resist spending.

Dr Takao Maruyama, Lecturer in Business Analytics and Dr Kamran Mahroof, Assistant Professor in Supply Chain Analytics, extracted tweets globally to understand people's perspectives during the pandemic and lockdown and did text mining and sentiment analysis using a data analytics tool.

Dr Maruyama said: “This research could help policy makers understand the current attitudes of the nation toward service and product



consumption. Based on the findings, policy could be altered, or further strategies could be developed to stabilise the economy.

A post Covid-19 recovery plan for small and micro businesses and entrepreneurs in Yorkshire.

Whilst there are a lot of opinion pieces, there is still very little research informed discussion or focus on how the continuing crisis impacts on small and micro businesses and entrepreneurs.

Prior research has shown that the needs of these groups can be very different to the wider population of SMEs. For

example, to continue operations, small businesses and entrepreneurs rely heavily on other suppliers both small and large to supply raw materials and other services. Unlike their bigger rivals, they do not have financial resources to keep back stocks or restock quickly under crisis.

This research looks to understand the business-organisational, process, systemic, demographic and other issues that influence the day-to-day operations of small and medium businesses and start-ups and how these interplay and have been amplified in the crisis.



Using these results, the researchers will be able to model the socio-economic impact of Covid-19 on these groups at local and regional levels. It will also outline a recovery plan, identify the support needed for these businesses after the crisis has passed, and ultimately impact positively on the success of Yorkshire businesses recovering from Covid-19.

Dr David Spicer, Senior Lecturer in People, Organisations & Entrepreneurship worked with Professor Sankar Sivarajah, Professor of Technology Management, Dr Kamran Mahroof, Assistant Professor in Supply Chain Analytics, Dr Samuel Adomako, Lecturer in Strategy and Entrepreneurship, and Professor Vishanth Weerakkody, School of Management Faculty Dean, in ongoing research to support plans for local economic recovery post Covid-19.

Dr Spicer said: "We conducted focus groups with over 70 participants and a survey with over 650 respondents of small and medium businesses and entrepreneurs across Yorkshire to assess the Covid-19 related factors influencing businesses.

We also explored how they interplay with specific socio-demographic, financial and idiosyncratic factors that characterise 'local' businesses, in order to draw comparisons, conclusions and recommendations for the recovery of start-ups and small and micro businesses."

Survey findings showed that firms found Covid-19 had unsurprisingly decreased demand significantly in most cases. However, 1 in 5 firms reported growth in demand during the pandemic. Either way, the challenges of maintaining operations and re-orienting business in the lockdown were noted as highly significant. These included issues around productivity, supply chain, and digital transformation.

Firms also raised the need for more support post Covid-19 for what is expected to be (from their perspective) a long recovery. The results of this research were shared with senior representatives of stakeholder organisations including Bradford Council and the Chamber of Commerce at a Senior Leaders Roundtable.

Covid-19 challenges in the construction industry

Covid-19 has had a huge impact across various industries, especially in the construction sector. Despite these challenges, there has been a lack of research exploring its impact on construction. To mitigate these challenges, Dr Kamran Mahroof, Assistant Professor in Supply Chain Analytics, and Dr Amizan Omar, Assistant Professor in HRM & Strategic Management, wanted to identify how innovative solutions, such as AI-led off-site construction, and Additive Manufacturing can help overcome these challenges and develop a flexible, smart, cost effective, eco-friendly and socially responsible production ecosystem.

Dr Mahroof and Dr Omar conducted an in-depth review and identified challenges faced by the UK's construction industry during Covid-19.

Dr Mahroof said: "The project is a work-in-progress. After the literature review, we developed an interaction matrix using ISM (Interpretive Structural Modelling) to identify relationships between key challenges. We then, through interviewing experts and key stakeholders, prioritised the main challenges to be addressed by stakeholders such as planners, building engineers and project managers. Through our funding, we purchased specialist software to access UK Construction data and acquired 10,000 contacts in the UK construction industry. The plan is to disseminate a questionnaire based on the ISM analysis to these 10,000 organisations to identify the interrelated challenges and role of AI in overcoming them."

The construction industry is highly lucrative to the UK economy, contributing £92 billion annual turnover and directly employing 1 million employees in the UK alone, and was impacted significantly by Covid-19. Identifying ways in which this industry can respond to challenges resulting from the pandemic is extremely beneficial to the economy.





Medicine and Innovation

"We are developing a polyurethane coating that contains phosphate. The surface features are inhospitable for coronaviruses. If we are successful and can produce at scale, we can prevent the spread of SARS-COV2 and reduce its impact. If that is done in tandem with immunisation, we can defeat this and other coronaviruses. So far we have reasonable data showing that there is a reduction of SAR-COV2 on our surfaces."

PROFESSOR
STEPHEN RIMMER,
PROFESSOR OF CHEMISTRY



The development of Anti-SARS coatings

By providing an environment that is unfavourable for the survival of SARS-COV2 virus, we can reduce its environmental presence and may reduce adaption and evolution of strains so Covid-19 could become less of a problem for humans.

Working with a team of academics from various universities, Chemistry Professor Stephen Rimmer, Professor of Chemistry, is developing polyurethane coatings for large scale application that kill the coronaviruses. The aim is to coat surfaces and PPE with a material that kills the virus when it lands on the surface.

How community pharmacy has responded to Covid-19 to maintain patient safety*

The Covid-19 pandemic has put significant pressure on healthcare organisations internationally, including in the UK. Community pharmacy is at the forefront of the response to the pandemic, considering that they are often the most accessible healthcare provider within the healthcare system.

Evidence suggested patient behaviours such as the stockpiling and hoarding of medicines, coupled with other system-level changes, had put severe pressure on community pharmacy, particularly at the start of the UK pandemic. However, little was known about the detailed factors affecting individual community pharmacists, and the difference in response to

Covid-19 across practices. It was important to capture the experiences of staff to understand their response to the stressors caused by the pandemic, and the effectiveness of the measures they deployed to maintain patient safety.

Mr George Peat, Senior Research Fellow and Dr Janice Olaniyan, Research Fellow, explored how community pharmacy in England and Scotland responded to the pandemic to maintain patient safety.

He said: "Our study consisted of two phases. Phase one involved a dedicated 'Twitter Chat' to gather a range of experiences and opinions related to how UK community pharmacy responded to the pandemic. The purpose of this phase was to inform the direction of the study, and to capture preliminary data.

The chat tracked tweet content using the hashtag #CPharmChat. Phase two involved interviewing a sample of 25 community pharmacists and technicians working in community pharmacy predominantly across England."

Preliminary findings from the analysis of interview and Twitter data revealed several important findings.



Community pharmacy encountered significant stressors at the start of the pandemic, including a rapid rise in prescription volume, a demand for medicine deliveries, a significant increase in patient footfall, and financial challenges associated with the cost of infection control measures such as personal protective equipment (PPE). Community pharmacy adapted their practices to respond to such stressors to maintain patient safety.

Covid-19 has placed significant pressure on community pharmacy, with potential consequences for patient safety. Capturing the experiences of a sample of community pharmacists provided insight into the challenges they faced and how they appropriately responded. Developing key learning from the experiences of those working in community pharmacy is likely to improve the resilience and preparedness of community pharmacy to respond to future outbreaks to maintain patient safety.

What lessons can we learn from hospital pharmacy's response to Covid-19?

Dr Gemma Quinn, Senior Lecturer in Clinical Pharmacy, working with Katherine Cullen,

Assistant Director of Pharmacy at Bradford Teaching Hospitals NHS Trust, undertook a survey of various staff groups working within hospitals pharmacy to develop an understanding of the changes that were made to ensure service delivery continued to be effective in hospital pharmacy at the beginning of the Covid-19 pandemic.

Dr Quinn said: "We undertook this study with the aim of developing recommendations for hospital pharmacy departments about effective changes they could make in the event of further waves of Covid-19, future pandemics or other major incidents. We also wanted to determine whether different staff groups within the pharmacy workforce had different views on the effectiveness of strategies used to maintain services during the pandemic."

The team designed an electronic survey aimed at Pharmacy staff working for NHS Trusts with in-patient beds asking participants about the changes that had been made in their departments. They asked them to identify the positive and negative impact of the arrangements made on the multidisciplinary team and patient care. The team then collected information about the staff

group participants belonged to and circulated the survey via Twitter and our networks and gained a national response.

This study will be able to make recommendations to senior leadership teams within hospital pharmacy departments about which arrangements worked well for patients and the multi-disciplinary team, and which did not. The team will also aim to identify differences in the way these changes were perceived by different staff groups which will help tailor responses and communications in further waves of Covid-19, other pandemics, or major incidents.

An exploration of community pharmacy response to the pandemic in Egypt*

Research throughout the world has shown the impact of Covid-19 on healthcare workers. There has been a huge amount of media coverage on this issue and a body of research is also mounting reporting on studies on this area. Community pharmacies have maintained their role as providers of medicines, care and advice within their communities, directly exposed to the impact of the pandemic.

Reports indicated that because of their accessibility and reduced access to other healthcare providers, community pharmacies were in great demand and this was a very stressful time for pharmacy staff. Whilst studies continue to gain insights into how community pharmacies coped at this time, there was limited insights into this in Egypt when this study was undertaken.



*This research was funded/supported by the National Institute for Health Research (NIHR) Yorkshire and Humber Patient Safety Translational Research Centre (NIHR Yorkshire and Humber PSTRC). The views expressed in this document are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care.



“The findings indicate that pharmacists were aware of changes and additional pressures and were supported with additional information from the Ministry of Health and the World Health Organisation. Other information was sourced further afield from neighbouring countries such as Saudi Arabia, the Gulf regions and EU countries such as Italy. This advised on enhanced safety measures for patient facing activity, the enforcement of social distancing and how to communicate effectively with patients at this difficult time.”

DR LIZ BREEN,
READER IN HEALTH
SERVICE OPERATIONS



Dr Liz Breen, Reader in Health Service Operations, George Peat, Senior Research Fellow, from the Medicines Optimisation Research Group, School of Pharmacy and Medical Sciences, and Mahmoud Eltatawy, an Erasmus student, explored how community pharmacy in Egypt responded to the pandemic to maintain patient safety. This study consisted of semi-structured interviews undertaken with community pharmacists.

Information was provided via online platforms and virtual meetings from the Ministry of Health staff. Relationships with GPs at this time was reported as being positive, working with pharmacists to improve community pharmacy preparedness and response to Covid-19. Pharmacists contacted the pharmaceutical wholesalers daily to enquire about stock availability, especially for chronic

conditions and Covid-19 medications. Securing access to medicines was important for patient safety at this time, as was educating patients to use remote online ordering to keep them and their families safe.

It is important to understand how Covid-19 has impacted on community pharmacists at this time in Egypt. This study demonstrates that the community pharmacist felt supported with information from key sources and their healthcare colleagues, GPs. They also felt very strongly about helping protect their patients and helping them not only from a clinical perspective (dispensing and educating about medicines) but also from a psychological perspective. The community pharmacist role may not have differed substantially but how they did it changed. They reported that their ways of working as a team

and communications altered, increasing their preparedness and responsiveness to the pandemic challenges. Healthcare officials need to understand the level of resilience exhibited by their workforce to adequately support them during times of crisis.

This study offers insights into a small group of community pharmacists in Egypt during the Covid-19 pandemic. It informs the public and government officials of the stoic position held by community pharmacists but also how they felt it their role to protect patients, undertaking public health activity to educate patients at this time. This is an extension of the standard community pharmacist role. Pharmacists were also strong advocates of digital health technologies, encouraging patients to engage with these to promote social distancing and reduce risk of infection. Community Pharmacists in Egypt appeared to work differently but effectively during the pandemic which offers learning for roles, future skills/workforce development.

Medicines deliveries during the pandemic*

During the pandemic access to public services was restricted and social distancing enforced. Although the government allowed the general public to leave their homes for medical reasons, many were reluctant to do so, for fear of increased risk of infection. At this time, community pharmacy was one of the most accessible healthcare providers.

There was a call for community pharmacies to extend their

existing medicines delivery provision to patients. This was further supported by the NHS volunteer responders via the GoodSAM app or through the Royal Voluntary Service call centre and website. People volunteered to undertake deliveries of food and medicines to patient homes. As this was a quickly designed and executed service, there is much to learn from how it worked and how it can be improved. The aim of this study was to speak to participants and ask them to share their views on their experience.

Dr Liz Breen, Reader in Health Service Operations, working with final year pharmacy students: Haafizah Esmail, Ebrahim Bilakhdi and Usman Ali, examined participants' views of medicines deliveries to patients during the pandemic. Access was sought from participants through the Bradford District and Craven Clinical Commissioning Group, Community Pharmacy West Yorkshire, West Yorkshire Fire & Rescue Service, University of Bradford staff and students, professional networks and Twitter and LinkedIn.

Telephone interviews were conducted with five separate volunteer groups with a combined total of fourteen participants. Community pharmacists and technicians, hospital pharmacists, fire service volunteers, students, and other parties formed part of the sample group, which gives insight into the substantial public involvement.

Dr Breen said: "Key themes became evident in the data collection. Community pharmacies found that the increased requests for medicines at this time caused



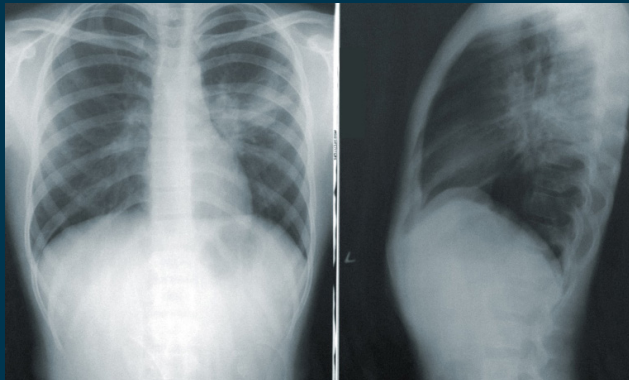
much more work which led to increased staff pressures and recruitment of more staff to cope with this, so they incurred more costs. There were also delays in government reimbursement for the provision of the medicines services to shielding patients. Fire service staff were supported with company owned delivery vehicles, which was not always the case for community pharmacy staff. 93% of the participants felt that there was risk attached to the GoodSam service, due to lack of Disclosure and Barring Service screening. Lack of volunteer training, concerns about errors, lack of clinical knowledge to speak to patients, misuse of the service and availability of Personal Protective Equipment (PPE) were noted as problems, but positives reported were provision of vehicle, fuel, insurance, wanting to help support the community and keep patients safe, time to do it and acknowledging how grateful patients were."

A major goal for the UK healthcare system was whether it could manage the challenges related to Covid-19, as it was predicted that there would be a surge in workload pressures mounting across all key health sectors. This surge

was realised in community pharmacies due to their convenience and locality to patients. Where patients could not access services community pharmacy and other providers brought services to them. For some this was not problematic but for others it did increase the work burden. It is important to recognise the benefits of the creation and provision of the medicines delivery service to patients as reported by participants. Lessons were learned in lockdown one which will have impacted on subsequent lockdowns.

The provision of the medicine delivery service via government organised schemes is an excellent example of the adaptation of the NHS in times of crisis but also of community resilience in times of need. The impact of this service was that it provided much needed support to patients who were shielding and could not access public services at this time. This study presents some tentative insights into issues arising from this study. These can be considered for future service development in both crisis and 'normal' operating circumstances.

Additional Research



Deep learning to improve diagnostics and prognostics of Covid-19

Chest X-ray and computed tomography are medical imaging techniques involving ionising radiation that have been applied in assessing complications in patients with Covid-19. However, they are cumbersome to assist effectively in diagnostics and prognostics in a pandemic. Patients affected by Covid-19 with neurodegenerative co-morbidities, such as Parkinson's Disease, may require more portable and safer medical imaging for repetitive assessments.

Recent advances in portable non-ionising medical technologies like ultrasound and magnetic resonance imaging, provide not only structural information (pulmonary consolidation like X-ray and CT) but also functional data.

Dr Luca Parisi, Professor Daniel Neagu and Professor Felician Campean worked with researchers across the globe on developments that contribute to significant improvement of the accuracy and reliability of diagnoses of Covid-19 and Parkinson's Disease from medical images by solving the long-standing 'dying ReLU' problem, through the introduction and extensive validation of a new quantum-inspired paradigm.

Cash isn't king during Covid-19

During the pandemic, understanding cash usage and concerns related to virus transmission is important as consumer habits change.

This study aims to highlight the use of cash (which increased during the pandemic in several countries), reasons for its increase, how digital currencies can take over cash and whether there are any legal implications of digital currency and whether it will be able to replace physical currency in circulation.

Dr Rashmi Arora, Senior Lecturer in Development Economics, worked with Dr Ilias Kapsis, Senior Lecturer in Law. She said: "In this study we examine how Covid-19 has impacted on cash usage. Has the usage of cash during this period impacted adoption of digital financial services or cryptocurrencies?





A paper on this research has been published in Contemporary Social Science: Journal of the Academy of Social Sciences



<https://www.tandfonline.com/doi/full/10.1080/21582041.2020.1833234>
 ?src= the paper has received more than 1000 views.

What are the legal challenges on the use of cash/digital currencies? To understand cash usage during the pandemic and whether cryptocurrencies can take over the use of cash." These areas of research pose very important questions from a policymaker perspective as a lot of focus has moved to digitisation in recent years in various countries. Also, central banks around the world are exploring adoption of digital currencies.

Smart cities and digital revolution during Covid-19

Some smart cities (cities that prioritise technology to deliver services) were better equipped to deal with the unfolding Covid-19 crisis due to the investments they have already made in digital infrastructure. However,

leadership, upfront investment, and building in social priorities into smart city strategies right from the start, rather than bolt on as an afterthought, are important. Real smart cities such as Barcelona, Vancouver, and Singapore did better to support citizens than other cities, which have been caught out.

Much emphasis on smart cities tends to focus on the Internet of Things (IOT) and technology part and the social science part is only given minor importance. Covid-19 and the differences in how cities coped with the pandemic clearly showed the importance of theories of justice and embedding social considerations into policy design.

Professor Prathivadi Anand, Public Policy & Sustainability, and Professor Linda Hantrais, Emeritus Professor of European

Social Policy, co-wrote a paper with global case studies on how digital revolution is shaping responses in the context of Covid-19.

Professor Anand said: "As most people moved to working from home, the digital revolution has been playing an important role in how cities and communities worldwide have been able to cope with Covid-19 impact and whether some communities or vulnerable individuals suffer more due to digital exclusion."

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