Imperial SCARU

Inspiring an evolutionary leap in healthcare

- The rising epidemic of non-communicable diseases & so-called 'lifestyle diseases' is forcing a change in public health priorities.

- Healthcare systems are unable to cope.

- Self-Care & the emergent Self-Driven Healthcare movement offer a way to help those systems change.

- The Self-Care Academic Research Unit (SCARU) at Imperial College London is the first academic unit dedicated specifically to this new discipline.

- SCARU is inspiring an evolutionary leap in healthcare not only for the UK, but also the rest of the world.

On 5 July 2023, the UK's National Health Service (NHS) turned 75. It was a moment for deep national re-examination. The UK public has a strange & strained relationship with the NHS, simultaneously calling for urgent changes, yet also warning, 'Don't mess with the NHS'. The reality is that, since the inception of the NHS – still the most popular institution in Britain – two major shifts have impacted healthcare: global public health priorities have changed, and technology has evolved such that it permeates every aspect of our lives. Combine the two, and you have not only a need to transform healthcare provision but also have significant ways to do it. A team of researchers at Imperial College London are at the forefront of this conjectural nexus, inspiring an evolutionary leap in how healthcare is conceptualised: where the self-carer, health, wellbeing & healing are the main focus, as opposed to a

system that considers patients in the context of disease, diagnosis and treatment using pharmaceuticals or surgery.

The Self-Care Academic Research Unit (SCARU) at Imperial College London is the first academic unit dedicated specifically to the study of self-care – the practice of individuals taking an active role in maintaining & promoting their own health & wellbeing using lifestyle medicine, lifestyle behaviour modification and other evidence-based approaches. SCARU is a three-way collaboration between Imperial School of Public Health, the UK Self-Care Forum & the International Self-Care Foundation. The Unit was established in 2017 to 'make the absolute case for self-care' and is already making an impact, largely due to its collaboration with a wide mix of stakeholders in the UK & internationally that are working together to 'make self-care everybody's business'. Imperial SCARU filled an important gap by providing an academic home for self-care, as it has not been taken seriously as a subject until recently, following the publication of the first WHO Guidelines on Self-Care Interventions in 2019 & 2021.

The future of healthcare

Over the lifespan of the NHS, there has been a significant global shift in public health priorities with the explosion of non-communicable diseases that are associated with changing lifestyles. These non-communicable diseases (NCDs) & so-called 'lifestyle diseases', which include obesity, cardiovascular disease, type 2 diabetes & certain types of cancer, contribute to a significant burden of disability, reduced quality of life & premature mortality worldwide. Unfortunately, these conditions are escalating at a rate beyond which our health systems can cope. The result is the ineffective application of scarce resources & the genuine possibility of a future of diminished healthcare at escalating costs. If reversing this trend is the solution to a growing epidemic of multi-morbidity, human inertia is the problem. This is where a refocus on self-care coupled with the congruent use of technology comes into the story.

Under its director, Dr Austen El-Osta, SCARU has developed a formidable array of collaborative expertise, including industry partners & device manufacturers, to support technology-enabled self-care approaches & the intelligent use of data & healthcare resources. The team has its eyes on an exciting near future – Society 5.0 – a human-centred society that leverages dramatic technological advancements such as AI, big data, 3D printing, drones, genetic engineering & robotics to address societal

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challenges; for SCARU, specifically healthcare challenges, & in particular, tackling the rising epidemic of NCDs. The team believes that in Society 5.0, technology will sit at the heart of the emergent Self-Driven Healthcare movement, where people can leverage the power of self-generated data & technology to become better self-carers. It's an exciting future, but will come with challenges.

The role of the self-carer

Exploring the challenges and actions required to achieve self-care is the theme of two recently published reports. The first report,

(Self-Care 2030) authored by the International Self-Care Foundation, the Self-Care Forum UK & SCARU, specifically looks at how we can gain health knowledge through self-care literacy – one of the seven key pillars of self-care. The second report published by SCARU, (Back to the Future: Self-Driven Healthcare 2030), considers what the future of self-care may look like in 2030. The report envisions a future where Self-Driven Healthcare solutions which empower individuals to take more interest in their own health & wellbeing journey are the kernel of a state's public health sector. This second report discusses how individuals will likely take a more active role in managing their personal health and wellbeing journey via a network of interconnected technologies including AI-managed data, AI-assisted clinical coaching & risk prediction modelling provisioned by blockchain-protected systems. Each person, or self-carer, provides self-generated data through wearable devices shared securely within an interoperable SDH Portal. These data are supported by a host of other data, including environmental data, ambient noise levels, shipping habits & other contextual data.

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In this near future, self-carers can access the portal anytime; importantly, the portal is proactive, providing personalised feedback & AI-assisted coaching to encourage a healthier lifestyle. Should a self-carer feel unwell, sophisticated AI-supported chatbots and online symptom checkers with access to

> **Imperial SCARU is generating evidence and thought leadership around self-care and the emergent concept of Self-Driven Healthcare.**

their data can recommend over-the-counter medication or other self-care technologies or approaches (eg, remote monitoring of blood pressure at home). We already have expedient services like Amazon, but it's not too hard to imagine a future where products could be delivered even quicker by intelligent drones, right to our front door. There are

added public benefits to this system: with so much accurate real-time data continually being processed by AI, commissioners of health & wellbeing – while not being able to look at the data of any one individual – could use aggregated data to derive a clearer picture of public health priorities and be able to allocate resources correctly and react to needs quicker. Such a system would also be more equitable & would democratise access to self-care interventions.

Providing thought leadership on a new frontier

The SCARU team are pragmatic & determined; they know that time is not on their side. Every day, evidence emerges that the current paternalistic healthcare model is failing, & that such failures come with terrible human costs. The team understand that changing a nation's healthcare infrastructure to meet the needs of self-carers using Self-Driven Healthcare approaches is a significant undertaking, even if the outcomes are dramatically better. 2030 is not too far away, & much of the technology envisioned for Society 5.0 and Self-Driven Healthcare,

from wearable devices, the Internet of Things (IoT), remote sensors, digital therapeutics & the AI systems in between, already exists. The UK is seen as a leader in innovation & a significant exporter of a world-leading knowledge economy. SCARU is working harder & smarter to ensure the UK remains at the forefront of exporting thought leadership around the concept of Self-Care & Self-Driven Healthcare solutions. This area of research presents real opportunities to improve the health & wealth of the nation, & to grow businesses that deliver these solutions.

In view of these challenges & opportunities, SCARU is generating evidence & thought leadership around the resurgent concept of self-care, & the emergent concept of Self-Driven Healthcare, so it could help governments & organisations build a public health system centred on empowerment & the active participation of the individual self-carer, patients & public alike. For this reason, other public health researchers, the NHS & other national health sector organisations are looking to them for guidance & ways to get on board.

Imperial's SCARU has its eyes on an exciting near future – Society 5.0 – a human-centred society that leverages dramatic technological advancements to address societal challenges.

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Bio

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Research objectives

SCARU is a tripartite collaboration between Imperial College School of Public Health, the International Self-Care Foundation & the Self-Care Forum. SCARU was established in 2017 to explore how the application of self-care could result in improved outcomes and lower dependency on NHS resources, while also identifying key evidence-based recommendations for the consideration of commissioners of health & policy makers.

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Collaborators

• International Self-Care Foundation
• Self-Care Forum UK
• NIHR Applied Research Collaboration NWL
• Innovate UK

Further reading

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El-Osta, A, Webber, D, Gnani, G, et al, (2019) Self-care matrix: a unifying framework of self-care. *Self-Care Journal*, 10(3), 38–56.

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Personal response

What are some of the more exciting developments in self-care that SCARU has identified?

Self-care is the oldest type of care, but when we established SCARU there was no academic home for the subject. The first thing we did was to look at all the published frameworks and conceptual models of self-care. This led us to synthesise the Self-Care Matrix, which is a unifying framework for self-care & offers a new point of departure for self-care thinking. Because measurement is the heart of science, the second most important workstream we initiated was to help determine the best way to measure an individual's self-care capability. We recently published a scoping review of all the instruments previously used to measure direct and proxy-measures of self-care, & we are now collaborating with international partners to develop the Self-Care Capability Assessment (CAPITAN) Toolkit which we hope would be of great value to people, health & social care practitioners & health systems generally.

Other important areas we are working on include finding ways to democratise access to self-care interventions via the integration of digital health technologies. This includes point of care test & medical devices, such as online symptom checkers, wearable devices, & mobile health apps into self-care practices as these technologies allow individuals to monitor their health parameters, track progress, & receive personalised guidance for self-management. We're also studying how self-care interventions could be personalised & characterising the impact of peer support networks & self-care communities of practice to promote self-care & lifestyle modifications. Other areas include leveraging microlearning approaches, gamification & behaviour change interventions in the context of self-care, lifestyle medicine, telehealth & remote monitoring.

What are some of the more persistent challenges?

There is always resistance to change, & our vision for a world where people are empowered to become expert self-carers has many challenges. The first thing we need to do is increase health & self-care literacy levels in the general population. This is the subject of the Self-Care 2030 Insights Report as health literacy is the first cardinal pillar of self-care. Other challenges are concerned with ensuring that whatever we do, we do not exacerbate disparities in access to self-care resources, technologies, products & services, particularly among underserved populations. Addressing these inequities is crucial to ensure that self-care interventions reach all individuals and communities, irrespective of their socioeconomic status or geographic location. Other challenges include changing people's approach to health such that their lifestyle choices & behaviours are more aligned with health. See, for example, our supermarket shelves filled with high sugar & generally unhealthy options, such that buying natural & organic produce is only possible for the wealthiest segment of society. We also need to think about the regulatory framework given the rapidly evolving landscape of digital health technologies & self-care interventions including incorporation of AI into various aspects of our life as this will impact our health, wellbeing & how we interact with one another. Finally, integrating self-care into traditional healthcare systems poses challenges. Healthcare providers & systems need to recognise and support the role of self-care as a complementary approach and ensure seamless coordination & communication between self-care practices & professional healthcare.

What is the biggest impediment to technology-driven change – regulation or public perception, and why?

Both regulation & public perception can act as impediments to technology-driven change in self-care. Overly restrictive or slow regulatory processes can hinder the development & adoption of innovative technologies & Self-Driven Healthcare interventions. A balance must be struck between ensuring safety & effectiveness while fostering innovation & rapid deployment. At the same time, lack of awareness, understanding & trust in technology-driven self-care interventions can create scepticism & resistance among the public. Addressing concerns related to privacy, security & efficacy will be crucial in shaping a positive public perception of these innovations.

How could other public health researchers help SCARU?

SCARU was established as a collaboration, & we are working as part of the United for Self-Care Coalition. We are looking for public health researchers to SCARU to share insights, research findings & best practices in self-care because collaboration promotes a collective understanding of self-care's potential, fosters innovation & accelerates the development of evidence-based interventions. Embracing multi-disciplinary approaches that bring together experts from diverse fields such as public health, behavioural sciences, technology & policy can enrich the research & enhance the impact of self-care initiatives. Above all, we are committed to collaborating on projects to generate new evidence including rigorous evaluations of self-care interventions, generating evidence on effectiveness, cost-effectiveness & scalability. This evidence base is crucial for informing policy decisions, driving investment & expanding the implementation of self-care approaches.

How do you motivate a team pushing against the inertia of public perception?

SCARU was established to make the absolute case for self-care, but we cannot do this alone. We need the support of the public, patients, researchers, policy makers & national & international stakeholders. This is why we are collaborating closely with various self-care groups in the UK, in Europe & internationally, culminating in the creation of the United for Self-Care Coalition (an initiative spearheaded by the Global Self-Care Federation). Although each member of the coalition has a different agenda, we are all united on a common purpose: to make self-care everybody's business. For a long time, health systems were looking at treating diseases, but increasingly we see a movement towards maintaining wellness and disease prevention. Governments & policy makers are realising the importance of self-care, & the development of lifestyle medicine as a medical speciality is helping us change attitudes towards self-care, by emphasising self-care as mainly about bodily autonomy, choice & empowerment.