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Exploring Research Impact; Why it Matters?

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Abstract

Purpose of review:

Making research impactful is becoming a vital part of research proposal development. Funding bodies now require evidence of clear dissemination strategies that demonstrate achievable broader impact from proposed studies. This review addresses what this means in practice and how to achieve it.

Recent findings:

Research impact is defined as making real change in the real world. The review explores different kinds of impact, why it is important, the challenges faced, and planning for impact. Creative ways in which impact may be achieved, specifically through storytelling, utilising infographics and animations are explored. The impact of social media platforms to maximize reach of potential research, alongside measuring impact is discussed.

Summary:

Researchers may need to develop new skills, to create impactful research outputs for global dissemination across several social media platforms. By utilising methods that maximise engagement with target audiences, translating and implementing quality evidence into clinical practice may be achieved more rapidly.

Keywords: Dissemination, maximising engagement, knowledge mobilisation, research impact

Introduction

Scientific research produces over two million articles in thousands of journals each year (1). Many are published in high-impact factor journals, however, despite using “alternative metrics” known as *Altmetrics*, measuring citation counts, article downloads and article views, it can take many years before research evidence reaches clinical practice (2). Weak research dissemination strategies may be a contributing factor, where emerging evidence fails to reach or influence potential audiences. Consequently, opportunities for translating and implementing quality evidence into clinical practice are lost. Robust and innovative methods of research dissemination are required to increase knowledge, skills and understanding on a local, national, and global scale. We explore what is research impact, why it is important and discuss alternative ways which are proving to be impactful.

What is Research Impact?

Research impact describes a change or effect created by research, outside of the academic arena (3). This impact takes many forms such as economic, social, cultural, educational, or environmental and may be influential to health, quality of life, innovation, policy, and change management (4). Impact is therefore a secondary effect of research, determined by how people benefit from and use research findings outside of the academic environment to create positive change. Several definitions of research impact exist, which are harmonious with translating research and quantifying outputs through implementation in real-world environments (5).

Why is impact important?

Research impact is important for several reasons. Early consideration of impact ensures the end goal of research is not lost within the process. If research impact is placed at the centre of research planning and remains embedded throughout the process; there is greater chance the outcomes will connect to the desired audience. This allows researchers to keep focused on the overall purpose of research.

Bringing research findings closer to target populations allows research to fulfil its intended purpose, and avoid the dichotomy of those that 'do' research with those who receive it. Traditional ways in which research has been undertaken, shared and communicated can put up barriers between the work itself and the intended beneficiaries. By reducing barriers between research producers and those whom it applies to, research has the potential to make effective real-world changes and help gain the best possible return.

Increasingly this is the expectation of funding bodies (6*). In a context where research funding is limited, charitable organisations, educational institutions and other financial providers need to ensure value for money. Research impact is therefore an essential, demonstrable measure of return on investment. It matters to researchers that they can effectively share and implement their work. Equally it is important research funders can audit and evaluate their investments.

In 2014 assessment of impact was included into the Research Excellence Framework (REF). The REF is used to assess the quality of research within higher education institutions, which then informs how public funding for university research is disseminated (7*). A core element of the REF review is to assess impact of research outputs beyond academia (8). It is therefore clear that research impact is placed at the centre of funding decisions. In terms of the individual researcher, being able to show that a body of work has been impactful will benefit their professional profile whilst increasing eligibility for future funding applications (9).

The challenges of research impact

Professor Mark Reed of Fast Track Impact describes how impact is synonymous with benefit and advocates for continued reflection, evaluation and engagement until the desired benefits of the research are seen (10). However, challenges can be found. Penfield et al (11) describe these in detail, synthesised below, noting they will vary depending on the setting and type of research produced.

- Time:** It may take time for the impact of research outputs to be seen. Hanney et al (12) state an average time-lag of 17 years for transference of biomedical research into clinical practice, whilst noting that measurement of time-lag itself is problematic due to methodological variance.
- Impact is dynamic and will not remain the same over time. Research outputs produced now will be influenced by future developments. Their relevance will change therefore consideration of how impact evolves over time, is needed.
- Attribution:** Research does not exist in isolation. Collaborations, networking and cross-pollination of ideas all contribute to the production, dissemination and influence of research outputs. This includes policy and guidelines. As this process progresses, the link back to specific pieces of research may be diluted, making it difficult to evidence and monitor specific impact.
- Evidence:** In some areas it can be difficult to capture research impact if the benefits produced are not measurable or are transient, or, where examples of impact have been inadequately recorded.

Planning for impact

The National Institute for Health Research (NIHR) describes impact as knowledge mobilisation which comprises multiple activities around engagement, communication and service user involvement (13*). Breaking barriers between research outputs and real-world change requires several steps. Impact planning should involve reaching out to target audiences that will support or benefit research outputs. Through engagement and understanding the audience's needs, research outputs can be shaped accordingly deliver important change. Reflecting on the type of change researchers want to

influence may also be needed. This could relate to changing behaviours, increasing awareness, or influencing process and policy. Finally, considering how research outputs can be amplified to reach global audiences to maximise impact and serve the intended purpose.

Numerous research impact toolkits are available to help develop a dissemination and impact strategy.

As a starting point, researchers should consider the following questions early in research planning:

- Who are the target audience and interested parties?
- Who would benefit directly from this research?
- What are the wider benefits of this research, e.g. clinicians, funders, policy writers?
- How could the research be used by each target audience; how can this be communicated to them?
- What do you want people to do with your research?
- What changes do you want to happen because of your research?
- Which stakeholders should be engaged with in the research planning phase?
- How do you plan to keep services users, stakeholders and other beneficiaries involved and updated throughout the research process?

Creative approaches to maximising impact

Traditional methods of disseminating research findings (e.g., conferences, publications) have proved challenging for implementing change in clinical practice (14). With many research publications failing to receive attention, academic researchers must explore new and innovative ways to communicate their work more widely. Furthermore, there is increasing emphasis on knowledge mobilisation, connecting academic research to clinicians and decision makers to inform changes to professional and

clinical practice (15). To rapidly maximise knowledge mobilisation, researchers are increasingly using social media to reach their audiences, engage in education and convey information.

Social Media

Social media has become a powerful tool harnessed by academics across all disciplines to share knowledge to widespread audiences (colleagues, learners, patients, and the public) across the world (16). Broadly defined, social media includes technology-based platforms (e.g. Twitter, Instagram, LinkedIn, Facebook), allowing users to create quick, digital content to disseminate their work or share knowledge through micro-blogging and uploading links to ongoing research activity, academic abstracts and publications.

Increasingly, academic journals are advocating the use of social media to encourage readers to engage with their materials (17). This enables researchers to track and collate altmetric data such as views, re-tweets, demand for publications, and level of professional. Klar et al (18) discuss how researchers can receive up to 69% more citations over 5 years by sharing a publication on an academic social networking site, compared to traditional publication methods. Furthermore, Bardus, Rassi & Charhour's (19)* systematic review highlights a positive association between traditional citation metrics and social media altmetric data, indicating that social media activity increases citations or reflects underlying qualities of an article, promoting further citations. By complementing both sets of data, it is a valuable way to measure uptake of research outputs, filter results that resonate with key audiences and increase the possibility of making a broader impact on a global scale.

Storytelling

Storytelling is an ancient art and a powerful tool that humans possess. The ability to process, remember and communicate stories is man's oldest and best trick and yet it is one of the most

effective ways to engage with audiences (20). Research shows learning, participating and remembering is much stronger when an activity is engaging and united with emotion (21).

Health research often explores human and emotional issues, yet traditionally, research dissemination has focused on presentations, relying on graphs, tables, and statistics to impart knowledge. Whilst robust statistical data is powerful in determining quality of evidence, in real-life clinical settings, facts and figures may be challenging to interpret, and hard to remember. Consequently, translating and implementing valid research may not always be possible, thereby limiting research impact.

Utilising storytelling as a tool for sharing research findings can be impactful. Aaker (22) describes the power of storytelling where her market research students were asked to make a one-minute pitch to their peers. One student used a story compared to other students, who used facts and figures. After the pitches, students recalled everything they remembered. Only five percent cited statistics, but 63% remembered story details. Why was this? From a neuro-scientific perspective, listening to a story can stimulate neurons and increase electrical signals, priming the brain to focus, receive and recall stories better than data. In fact, stories which tap into listeners emotions generate empathy, and increase neural activity up to fivefold in our brains (23). Aaker's example highlights how an effective story allows audiences to understand and experience information leading to better recall of shared information. Stories are also a direct route to emotions, which can help emphasize the narrative for change. When listening to stories, the human brain releases oxytocin, typically linked to warmth, empathy, trust and compassion, leading to higher levels of engagement and learning. Through compelling, authentic, well-told stories, there are real opportunities to create and share meaningful, memorable and impactful research outputs that can facilitate much needed change.

The art of storytelling, however, requires skill, particularly in research dissemination. As stories allow listeners to develop feelings of connection, careful narration is required. If too much attention is

placed on creating empathetic effects, there is a risk of diluting important and relevant findings, significant to clinical practice. For that reason a balanced and considered approach to storytelling is needed, where relevant research findings integrated with empathy and compassion is communicated effectively. A well-developed narrative that provides context and assists with interpreting objective, robustly researched data, can be immensely impactful in delivering work beyond academia and into real-life clinical practice.

Infographics and Animations

Infographics and animations are a colourful and concise way to visually communicate complex scientific information. An infographic or animation breaks down complex data into smaller, understandable visual pieces of information to explain information, trends, and patterns without long paragraphs of text. They are well suited for sharing on social media platforms and can play a crucial role in research dissemination. Huang et al's randomised controlled trial (24) highlights the impact infographics can create by comparing dissemination of visual infographics versus abstract screenshots across social media platforms. Across a total of 24 articles, they found abstract views were higher in the infographic group than in the control group, highlighting that infographics maximise attention surrounding key findings from research, leading to measurable impact.

Utilising well-designed infographics or animation can be a fast and impactful way to communicate research to target audiences. Studies show the brain is hard-wired to respond to and digest visual content more rapidly, as the human brain processes images 60,000 times faster than text (25). It is why infographics and animations are invaluable tools for marketers. Marketers found visual content increases traffic and engagement with up to 80% of people remembering what they saw compared to 20% remembering what they read. This is known as 'the picture superiority effect' where the brain's capacity for storing and remembering visual images is higher than words (26). For researchers, this is instrumental in considering how to make an impact with their work as studies show people remember

visually compelling images, charts, or infographic elements more easily than text (27). Adopting and implementing similar strategies to market researchers for research dissemination can be equally impactful.

Unfortunately, disadvantages of utilising infographics or poorly produced animations exist. Careful consideration when creating visual representations of data is required. Although infographics and animations can communicate meaningful information, there is a risk of being visually overwhelmed, especially if surplus information is presented in a confusing way. From a design standpoint, often, there is little room for paragraphs of information. Expressing data clearly or succinctly can pose challenges. Consequently, essential information may be over or undervalued. A well-designed infographic takes time and design skills to prepare. Allocation of time and budget to the research dissemination strategy may be required. Services such as utilising freelance designers for content creation or enlisting marketing advice could be planned and costed for in the early stages of research planning to ensure impact is maximised as much as possible.

Measuring research impact

Whilst there is no one-size-fits all measure of research impact, there are practical approaches that can contribute to capturing the impact of research, such as:

- Keeping track of citation metrics in formal publications and grey literature references to work
- Ensuring that you have unique author identifications such as ORCID, ResearchGate and Google Scholar profiles so that you can be easily linked to your research
- Use of altmetrics and tracking tools to identify reach on electronic and social media forums
- Keeping a log of engagement activities and evaluating their influence
- Engage and empowering stakeholders to take collaborative roles in dissemination

Skovlund et al describe an explorative case study of patients being involved in the design and delivery of a clinical trial. The researcher and a patient representative jointly presented their work at an international conference, allowing the patient to communicate their lived experience. They revealed how words and expressions between patients and professionals were interpreted, but importantly, they broadened views on what mattered most to patients. This impactful dissemination led to positive changes where more relevant health-related outcome measures were subsequently selected, allowing both clinical and research work to become patient-centred and meaningful.

Conclusion

Designing research to be impactful is becoming increasingly vital to influence guidelines and changes to policy or clinical practice. Researchers must embed impact planning from the outset as a core element of their dissemination strategy to ensure their key messages reaches target audiences across the globe quickly. Developing innovative and creative approaches for impactful research dissemination is encouraged. Digital impact is measurable through altmetrics, publications and citations, however there is a need to design and develop more robust measures to evaluate the efforts of dissemination and implementation from research impact.

Key points:

- Communicating research findings is vital to mobilise knowledge, translate and implement quality evidence into real-world scenarios, making real-world change.
- Research impact may comprise multiple activities around engagement, communication and service user involvement, breaking barriers and bridging the gap between researchers, patients, clinicians and key stakeholders.
- Research funding bodies expect research impact to be addressed in proposals, as demonstrable measures of return of investments.

- Research dissemination using innovative and creative approaches via social media is increasingly utilised to reach target audiences for wider, measurable digital impact.

Special (*) or outstanding (**) interest

* (6 & 7) **UK Research and Innovation (UKRI) 2021a & 2021b**. The Research Excellence Framework (REF) were the first to assess impact of research outside of academia in 2014.

Their website provides invaluable, unique sources of information on the impact of UK research. Case studies demonstrate the impact of academic research on wider society.

* (13) **National Institute for Health Research (NIHR). 2021**. Plan for impact. A valuable website to facilitate planning for impact, with consideration of engagement, partnerships, context, materials, approaches and timing.

* (19) **Bardus, Rassi & Chahrour et al (2020)** systematic review assesses the impact of using social media on health research dissemination, and correlations between Altmetrics and traditional citation-based metrics to measure research impact.

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