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Title: Using Twitter$^{TM}$ to Drive Research Impact: A Discussion of Strategies, Opportunities and Challenges

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2

Using Twitter™ to Drive Research Impact: A Discussion of Strategies, Opportunities and Challenges

Abstract

Researchers have always recognised the importance of disseminating the findings of their work, however, recently the need to proactively plan and drive the impact of those findings on the wider society has become a necessity. Firstly, this is because funders require evidence of return from investment and secondly and crucially because national research assessments are becoming powerful determinants of future funding. In research studies associated with nursing, impact needs to be demonstrated by showing the effect on a range of stakeholders including service users, patients, carers, the nursing workforce and commissioners. Engaging these groups is a well-known challenge influenced by lack of access to academic journals, lack of time to read long complex research papers and lack of opportunities to interact directly with the researchers. This needs to be addressed urgently to enable nursing research to increase the impact that it has on health delivery and the work of clinical practitioners. Social media is potentially a novel way of enabling research teams to both communicate about research as studies progress and to disseminate findings and research funders are increasingly using it to publicise information about research programmes and studies they fund. A search of the healthcare literature reveals that advice and guidance on the use of social media for research studies is not well understood or exploited by the research community. This paper, therefore, explores how using social networking platforms, notably Twitter™ offers potential new ways for communicating research findings, accessing diverse and traditionally hard-to-reach audiences, knowledge exchange at an exponential rate, and enabling new means of capturing and demonstrating research impact. The paper discusses approaches to initiate the setup of social networking platforms in research projects and considers the practical challenges of using Twitter™ in nursing and healthcare research. The discussion is illuminated with examples from our current research. In summary, we suggest that the use of social media micro-blogging platforms is a

3

contemporary, fast, easy and cost effective way to augment existing ways of disseminating research which helps drive impact.

Key words: Dissemination; social networking; research impact; Twitter™; social media.

What is already known about the topic?

- Demonstrating impact of research is an increasing requirement of universities, funding bodies and governments in higher income countries, a trend which almost certainly will spread internationally

- The use of social networking sites is expanding communication and networking in business and increasingly used in health and nursing communities

- The use of social networking/micro-blogging platforms such as Twitter™ and Facebook™ by researchers as part of strategies to engage wider audiences are not well developed

What this paper adds?

- Comprehensive review and discussion of how micro-blogging platforms can be used to support dissemination and potentially increase the spread and impact of research

- A scholarly discussion of how social networking sites can contribute to proactively engaging with multiple audiences to facilitate research impact

- A detailed practical guide for researchers to enable them to consider how social networking platforms can support their research and its ongoing impact

4

Introduction

The communication and implementation of research findings to inform policy and practice has always been a challenge and is often described as a gap. While researchers have put effort into research dissemination in the academic literature, this does not go far enough, as messages and recommendations fail to reach policy makers, health service commissioners and practitioner audiences, uptake of findings is low and therefore value for public benefit compromised. The drivers for increasing impact are twofold. Firstly, research commissioners want evidence of return from investment and therefore require information from research teams about the impact of the research they fund (e.g. Peckham et al 2008). The second powerful driver is the national research assessments, for example, the Research Excellence Framework in the UK (see http://www.ref.ac.uk/about/), Excellence in Research for Australia (ERA), Evaluation of Research Quality (VRQ) in Italy and Evaluation of Research Units (FCT) in Portugal. There are differences in how these national exercises operate, although the quality of research publications is a core consideration for all (Hicks, 2012).

The UK has one of the longest running national research assessment programmes worldwide. It commenced in 1986 as the Research Assessment Exercise (RAE), and was undertaken at approximately five year intervals until it was replaced by the Research Excellence Framework (REF 2014) (Schotten and el Aisati 2014). The Research Excellence Framework (REF) is a process of expert review, which assesses and benchmarks the quality of research in UK Higher Education Institutions across all disciplines (McKenna, 2015). A new mechanism for impact assessment was introduced to the REF exercise (Grant, 2015). This has sharply focused the importance of impact for researchers,

5

senior managers and research officers in universities, as outcomes from the REF will inform the selective allocation of the quality related research (QR) funding to institutions, with effect from 2015-16.  Now that impact case studies contribute 20 per cent of the quality rating, and this is expected to rise to at least 25 per cent in REF 2020, the accountability for impact has shifted towards researchers and the universities in which they conduct their work (Witty, 2013; McKenna, 2015). Although research impact is not specifically included in other national assessment exercises, it is likely that this will be adopted in some way, and thus become a crucial aspect of all research as governments want to support research which is internationally excellent and 'world leading' (McKenna, 2012).

## What is research impact?

When the benefits from research are tangible, measurable and recognised outside of academia, research is said to have impact. This could be economic, environmental or cultural. Research impact can include changes to public policy, health care or quality of life (McKenna, 2012; REF, 2011). Although dissemination of research is important, it does not equate with impact. Morton (2015a) provides useful differentiation and definition of the processes of research impact, which she identifies as 'research uptake', 'research use' and 'research impact'. She defined research uptake as where research users are aware of the research through engaging with it in some way including reading about the research or attending a conference presentation, or being a research partner or advisor. Research use is defined as where research users act in some way, for example, discussing or presenting it to others and using it to inform developments in practice or policy. Research impact is defined as involving changes in practice, knowledge and understanding, attitudes and ideas resulting from research (Morton, 2015a). However, in new work commissioned by the Leadership Foundation for Higher Education, Morrow (forthcoming 2016) expands our understanding further by

6

conceptualising the 'routes to impact' within leadership, governance and management research and the different components to enable these. She identifies three major themes which comprise:

- Contextual factors. Four main categories entitled 'Social-political-economic factors', 'research user factors', 'researcher factors' and 'research output factors'. (Morrow, 2016)

- Impact processes. Eleven types of impact process including 'stakeholder engagement', 'planning impact', 'communication', 'and networking' and 'framing/translating outputs'. (Morrow, 2016)

- Mechanisms for impact. Twenty different mechanisms for impact including 'stimulating interest', 'keying into interests' and 'creating spaces for exchange'. (Morrow, 2016)

Therefore, processes of engagement, collaboration and partnership between researchers and research users are important elements to promote implementation of research in policy and practice. However, both Morton (2015b) and Morrow (2016) highlight the importance of the research user e.g. members of the public, businesses, commissioners of health/public services and government to determine whether they will use the findings of the research and therefore its subsequent impact. There are several possible strategies through which researchers can increase engagement and collaboration with research users, including working in partnership within research teams and stakeholder consultation events. Involving patients, carers, and community groups directly in a research study is said to improve research conduct, quality and dissemination, factors which are all linked to impact assessment (Morrow et al. 2010). However, engaging nurses in implementing research evidence in practice is a well-known challenge (McKenna, 2015). Factors influencing this include lack of access to academic journals where researchers tend to publish their work, lack of time to read long, often complex, research papers and lack of opportunities to interact directly with those doing research (Biswas and Kirchherr, 2015; Burke-Garcia and Scally, 2014; Jackson et al. 2015; Eysenbach, 2011). However, this is a challenge that needs to be addressed

7

urgently to enable nursing research to increase the impact that it has on health delivery and the work of clinical practitioners (Clark and Thompson, 2015).

Social media is a potentially novel way of enabling research teams to communicate and disseminate research findings, both as they evolve during the process of a study and when they are published and can contribute to facilitating the route to access identified by Morrow (2016). Research funders are increasingly using social media as a communication tool to publicise information about research programmes and studies which they fund. As a research team embarking on a 30 month study, we were keen to consider how to use social media sites to support our study. We conducted a search of the literature using related search terms, such as 'social media', 'Twitter', 'research impact', 'research dissemination' within relevant databases, Medline and CINAHL. We found that no papers directly addressed using social media platforms for research dissemination, to facilitate communication of study progress or to share outcomes with relevant nursing and healthcare professionals.

This paper therefore explores how using social networking platforms, notably Twitter™ provide new potential for communicating with the users in our NIHR funded study and beyond (see box 1 for study details). Our proposition is that a social networking platform profile has several benefits for researchers, for example, accessing diverse and hard to reach audiences and knowledge exchange at a rate which is exponential thus supporting the research uptake and research use processes of research impact as defined by Morton (2015a). It also potentially enables new means of identifying research uptake and impact, which can be difficult to capture. We discuss the possible opportunities offered by social media to communicate emerging research findings rapidly, effectively and in real

8

time. We suggest approaches to initiate the setup of social networking sites to support specific

research projects and discuss the practical challenges.

[Insert box 1 about here]

## Aims of the discussion paper

In this paper we critically discuss the approach we took to develop a profile within the social

networking platform Twitter™ for a health services research study, and set out suggestions and

strategies for other researchers across different fields to consider and apply as appropriate.  We

draw on current and relevant literature to contextualise our discussion of the opportunities and

challenges of using Twitter™ to increase research impact.  To illustrate our argument and reflections,

we refer to an example from our research practice, specifically a National Institute for Health

Research (NIHR) funded study evaluating a recent nursing intervention to improve quality in

hospitals. Hence, issues specifically related to the field of nursing and healthcare are also

considered. It is important to point out that using Twitter™ is not our only strategy to drive research

impact throughout the study, it is just one way. Other strategies include a strong patient and public

involvement (PPI) voice and senior clinical management input as part of our steering group. Our

multi-stakeholder group consists of nine healthcare professionals and nine members of the public.

However, social media is another way for researchers to potentially drive impact, and is also a

contemporary platform, which is becoming increasingly popular for scholarly activity.

## Social Media for Engagement, Communication and Dissemination

Internet use has become a fundamental component of daily life. Social media technologies are

growing at a rapid rate, so much so that they are now considered to be a mainstream

communication tool for much of the global population (Ferguson, 2013). Social media is a broad and

9

continually evolving term, but generally refers to internet-based platforms, which enable users to connect, interact, and share information, ideas and other content. Social media is also referred to as social networking (Ventola, 2014). Social networking sites, also called social networking services or platforms, are web-based facilities whereby users create a public profile within a confined platform. They have become increasingly popular and numerous, with an estimated 1.5 billion users according to recent statistics (widely used examples include Facebook™, Twitter™, Myspace™ Snapchat™, Instagram™ and LinkedIn™) with millions of users incorporating them into their daily routines (Ellison, 2007). Recently, social networking sites have also been found to be utilised by government for agenda setting, policy making and to communicate new initiatives (Epstein et al., 2014).

Blogging sites were the original common platforms for dissemination of information via the internet. However, blogs are time-consuming to compose and also to read, therefore the need existed for new platforms which were faster and more interactive, hence, microblogging was developed (Mesko, 2013). Microblogging describes the action of posting concise, succinct public messages through social media platforms by means of internet compatible devices to potentially large audiences (Mollett et al., 2011; O'Connor et al., 2013).

Twitter™ is arguably the most prominent example of a microblogging platform, and is even said to be the largest evolution in social media (Jendoubi et al., 2014; Java et al., 2007; Liebert, 2009; Grajales et al., 2014; Reinhardt et al., 2009). Twitter™ has 15 million users in the UK alone (McRory, 2014). Table 1 summarises and provides brief definitions to help unravel the terms and 'jargon' used within the Twitter™, some of which will be referred to within this paper.

[Insert Table 1 about here]

10

Social Networking Platforms for Professional Use – why Twitter™?

Typically, social networking platforms were thought to be used for personal means, such as maintaining friendships, informal conversations and the sharing of daily leisure activities, predominantly by younger people. However, recently professional use has increased [0]across various fields, allowing users to create links and to exchange credible and current information (Jendoubi et al., 2014; Java et al., 2007; Archibald and Clark, 2014; Burke-Garcia and Scally, 2014; Liebert, 2009; Power, 2014; Chinn and Foord, 2014).

Whilst Facebook™ is said to be the most widespread social networking platform, many professionals are opposed to using it for work-related practices, instead, various sources propose that Twitter™ is more appropriate (Fahlberg, 2015; Antheunis et al., 2013; Kwat et al., 2010; Ellison, 2007). Facebook™ is predominantly associated with facilitating the maintenance of existing, mostly informal offline connections and the sharing of personal activities. Facebook™ also requires users to accept 'friend requests' in order to connect, whereas on Twitter™, relationships do not have to be reciprocal, meaning that users may interact with professionals across different roles and institutes, eradicating organisational hierarchy. Twitter™ allows new ways of communication in times where face-to-face interactions are increasingly difficult to arrange in the contemporary workplace (O'Connor et al., 2013; Zhao and Rosson, 2009; Ventola, 2014; Kwat et al., 2010; Boyd and Ellison, 2008; Mullikin, 2015).

Using Twitter™ for Healthcare Research

Twitter™ allows for professional groups and communities to support real world social groups, therefore, online microblogging is said to be pertinent to the field of health (Mesko, 2013; Java et al., 2007; Kwat et al., 2010). Recently the Nursing and Midwifery Council (NMC) included information on

11

how healthcare staff and students should professionally use social media in recognition its use is growing within the health fields (Moorley and Watson, 2015). In 2010, there were an estimated 19,100 nurses using Twitter™ (Bauman, 2010), and recent statistics reveal that there are 6.6 million healthcare Twitter™ profiles (Symplur, 2014 as cited in Moorley and Chinn, 2014a). The Twitter™ account @WeNurses has over 14,000 followers and allows nursing staff to communicate nationally in 'Twitter™ chats', creating previously unobtainable contacts and arguably revealing insight into health care practice from ground level (Richardson, et al 2016). The majority of nursing journals also have Twitter™ accounts, including the International Journal of Nursing Studies (@IJNSJournal), giving researchers the unique opportunity to engage with other nurses in new ways, which would not be possible without social media (Jackson et al. 2015).

The health field is continuously changing due to the development of new knowledge, research and policies; therefore Twitter™ can be vital for healthcare professionals, patients and the general public to share current practice with others, and to keep up-to-date on new changes, enabling new ways of obtaining current, credible and reliable healthcare related information (Moorley and Chinn, 2014a; Mesko, 2013). There are a number of high profile people who use Twitter™, for example leading government ministers, politicians, leaders of healthcare policy bodies and national / international leaders in nursing and healthcare. Twitter™ therefore allows access to these hard to reach senior leaders, commissioners of services, academic elites and other policy communities (Harris et al. 2008). However, it should be appreciated that these accounts may be mediated by support staff and due to the large number of followers the user may not see all tweets. One strategy to help influence this is to directly refer to the person's Twitter™ handle or use the direct message facility for mutual followers. Twitter™ is particularly useful for the speed in which information can be shared, for example, when it was recently announced that NHS England were to take over the work on safe

12

staffing levels from NICE, Twitter™ witnessed a 'storm' with large numbers of people responding to the news.

Twitter™ also allows for social support, collaboration and contribution of stakeholders. This means that between stakeholder events, patients, students and healthcare professionals can actively be involved in discussions about a study, network with those with similar interests, help to share news and raise the study profile (Morrow et al., 2010). It is anticipated that because the use of social networking platforms is growing so rapidly, they have the potential to significantly enhance health research (Burke-Garcia and Scally, 2014). Twitter™ in particular provides innovative means of intra-professional communication and information sharing, helping nursing to advance and grow stronger (Ferguson, 2013).

The original aim for using Twitter™ for our healthcare study specifically was to raise awareness of our research from the onset, in anticipation that this will be beneficial for dissemination to a wide range of professionals, leaders, managers and academics later in the publication process. By engaging in Twitter™ and the communication it facilitates, we are able to gauge ideas about who our key audiences are and what they are concerned with. We can follow those whose tweets indicate that they are interested in areas / issues in nursing that are related to our study and have access to their networks of followers and those they are following. Understanding what is important to targeted networks of tweeters enables us to adapt our tweets accordingly in order to maximise interest from healthcare professionals and generate conversations about the research. We are building the network of people who will be the key audience for, and key users of the study findings thus facilitating or driving the impact of the research.

13

Social Media and Research – What do we know, and what are the benefits?

The academic literature on the use of social networking platforms such as Twitter™ for research purposes is in its infancy, thus is unsurprisingly limited. One recent paper, however, discusses how social media communications can reveal insight into a university's prestige (Shields, 2015). This is because social media enables connections, thus providing a means for public engagement, institutional branding and research outputs. It was found that universities may even seek to preserve their elite status via Twitter™. The ranking of an institution increases the likelihood of followers and mentions, and the strongest predictor of a Twitter™ connection is an existing tie or mutual acquaintance (Shields, 2015).

Many papers appear to comment on the use of social networking platforms within education, or as a tool to recruit participants for a research study (e.g. Cain and Chretien, 2013, O'Connor et al., 2013). Microblogs in particular have received little scholarly attention (Zhao and Rosson, 2009). Therefore, academics' ability to make firm assertions on the use of social networking platforms for research purposes is said to be insufficient due to a lack of empirical and longitudinal studies within the area. Thus, there is inadequate knowledge regarding who uses microblogs and for what purposes (Burke-Garcia and Scally, 2014; Boyd and Ellison, 2008; Antheunis et al., 2013; Moorley and Chinn, 2014a, Power, 2014).

However, the extensive use of Twitter™ by health and nursing professional bodies such as the Nursing Midwifery Council (@nmcnews) (UK), Royal College of Nursing (@theRCN) (UK), American Nurses Association (@ANANursingWorld) and Australian Nursing and Midwifery Federation (@anmfbetterhands), show that it is certainly viewed as an important tool for professional communication. Researchers, practitioners and organisations have all been found to use Twitter™

14

for professional conversations in order to enrich their own knowledge and to share ideas, links and resources with others (Moorley and Chinn, 2014a,b; Liebert, 2009; Boyd and Ellison, 2008; Reinhardt et al., 2009; Power, 2014). Arguably, one of the best ways to influence the type of information shared about us is to control it ourselves through a microblog profile in a professional community site (Mesko, 2013). Using social media for information sharing reveals an interesting shift towards more informal means of knowledge exchange. Researchers in particular are said to benefit from this because social networking platforms allow for rapid and reactive knowledge exchange; and this can encourage engagement, discussion and feedback about a research topic (Murdock et al., 2013; Fahlberg, 2015).

Twitter™ has the unique potential to reach a range of social groups, which can help to spark interest from a variety of diverse people, allowing the visibility of the research profile to be raised. Our study profile (@Nursing_Rounds) has a range of followers including front-line nurses, academics, doctors and senior leaders (see table 2). Moreover, because Twitter™ is an international platform, research studies have the potential to reach users on a global scale at a speed which is exponential (Ferguson, 2013; Burke-Garcia and Scally, 2014; Liebert, 2009; Power, 2014). Therefore it is timely and relevant to consider use of social media to convey messages quickly and in real time to encourage debate and new insights for policy and practice.

Twitter™ may also allow the sharing of information with people who may not traditionally have access to the academic literature. Most academic journals are expensive to access for those outside of academia, which means that platforms such as Twitter™ allow academic knowledge to be made accessible and from a 'trusted voice' (Biswas and Kirchherr, 2015; Burke-Garcia and Scally, 2014). Through Twitter™, researchers can listen to people in ways which would not be possible with more

15

traditional forms of communication (Wald et al., 2007; Ferguson, 2013). Therefore, Twitter™ could be said to be a 'research mediator' enabling individuals, groups and organisations to access quality research (Sebba, 2013). This is particularly pertinent for our study because our intervention is specifically relevant to clinical nursing staff, a group arguably less likely to access academic literature (Jackson et al. 2015). We have also encouraged members of our advisory and stakeholder groups to follow us, who again, may have limited access to academic research. There are however risks in that the confidentiality of our stakeholder members, and also the trusts where the nurses work could be jeopardised. This is an issue to consider when using Twitter™ for research because it is a public forum.

Within our study in particular, we have shared information in relation to our general progress, relevant articles on the intentional rounding intervention, and other news about our university. We have also strategically initiated communication on Twitter™, for example, we '*tweeted*' a general message to indirectly thank those who had taken part in our online national survey. We did this to encourage others to complete it as well, and whilst it is difficult to assess the influence of this on our response rate, it may have served as a reminder. We also participated in a Twitter™ chat hosted by a nursing journal, which generated additional followers.

Can Twitter™ help researchers to generate Impact?

It is predicted that social media will continue to grow from being an optional activity to becoming a key vehicle for research dissemination (Burke-Garcia and Scally, 2014; Ferguson, 2013; Jackson et al., 2015). The Research Excellence Framework (REF) governs that researchers must consider how to engage with users, support pathways to impact and thus drive social and public benefit from

16

research. This is a crucial agenda for all universities (McKenna, 2015; Biswas and Kirchherr, 2015; Murdock, et al., 2013; McKenna, 2012).

The impact factor of the journal an article is published in, as well as the number of citations are commonly recognised measures of scientific impact. However, these traditional forms of impact generation are found to be lengthy and expensive e.g. cost of open access papers and may not reach communities outside of academia; therefore, it is proposed that social networking platforms such as Twitter™ can complement these existing methods, providing researchers with new and innovative ways to generate impact (Eysenbach, 2011; Social Care Research Impact, 2015). Twitter™ is particularly useful for impact generation because it enables researchers to share information about their publications to widespread audiences, which in turn increases the likelihood of downloads and potentially citations, and this is beneficial for all research studies. The more immediate access to credible research is certainly challenging the more traditional structures of dissemination; social media can therefore provide a vehicle for fast discovery of research for larger, more diverse audiences (Mollett et al., 2011; Jackson et al. 2015; McKenna, 2015).

Priem and Costello (2010) investigated scholars' attitudes and practices in relation to using Twitter™ to share citations. It was found that Twitter™ citations are uniquely conversational, yet viewed as a legitimate conduit. Scholars stated that Twitter™ enabled them to follow other academics, and they would share work, trusting its credibility as they would offline. Work was often shared if it was similar to their own research interests. One limitation mentioned was copyright restrictions, however, academics' discussed how they could overcome this by simply mentioning authors and briefly describing the content of a piece of research, rather than uploading the paper. The reference or link to the publisher's site could also be provided.

17

Furthermore, Eysenbach (2011) investigated how the frequency of tweets could affect the number of citations of journal articles. This paper looked at articles within the Journal of Medical Internet Research, 17-19 months following their publications. It was found that articles which were highly tweeted were 11 times more likely to be cited than those articles with less tweets. The interest of research on social media is a likely indicator of the uptake of its real word, social relevance (Jackson et al. 2015). However, an important issue to address is that it is difficult to quantify the impact of publications on the internet, and because this area is in its infancy, it is unknown just how much research impact Twitter™ can generate. However, figure 1 shows an example from one of our own papers, a scoping review on 12 hour shift patterns published in this journal (Harris et al. 2015). This figure shows the IJNS altmetrics; altmetrics consider the impact research has outside of traditional scholarly publications, such as tweets, presentations and blogs (Baynes, 2012).

This illustrates how Twitter™ activity can positively increase the number of downloads and the research team found that downloads increased during the time when the paper was shared via Twitter™.

[Figure 1:  about here]

To further demonstrate the potential of utilising a Twitter™ account for a research study, Table 2 shows our *followers* after six months of setting up our Twitter™ profile. Although this appears a moderate number, the potential reach of these *followers* can be demonstrated by the combined following of almost 150,000 accounts.  A breakdown reflecting the categories of followers is shown in table 2.

[Insert Table 2 about here]

18

We decided to strategically build and shape our audience because this can enable research dissemination to relevant people who have influence. For example, we purposefully *followed* members of our study advisory group, which includes NHS senior managers, practitioners and service users. We did this in an attempt to raise our profile throughout the study in preparation for generating research impact upon publication. In some cases these colleagues *followed* us back and thus enabled our tweets to reach their Twitter™ followers. We believe that the Twitter™ profile prepares the ground for when we finish our study, and also allows for ongoing engagement as the study progresses.

Having said this, there are some limitations and caveats which should be considered, for example, although sharing research on Twitter™ is associated with a number of downloads, traditional means of dissemination are still crucial, and therefore we would suggest that researchers use both traditional journal publications and social media (McKenna, 2015), strategically using social media to publicise traditional publications as well as disseminating bite size outputs.

One issue we have come across is that tweets are a 'moment in time' and therefore can easily be forgotten or even missed. Although tweets are searchable, it is unlikely that users would take the time to scroll through to find them. Therefore, it is important to capitalise on the use of hash tags and to actively participate in Twitter™ chats in order to improve memorability and so tweets are more easily searched by those with specific interest in the area. Furthermore, timing of tweets is important to increase the number of people likely to see them. Academics are more likely to retweet before, during and after their commute to/from work (Reed and Attlee, 2015). This is unlikely to be as predictable for health professionals working in clinical areas with different shift patterns and

19

seven days per week. Therefore, while we can plan to facilitate this, we can only go so far, because users have to retweet and reply to our posts, and also follow us.

Twitter™ Setup: Practical Challenges Faced

In addition to the lack of academic literature on start-up advice, we also found that it was difficult to locate existing research microblogs without knowing their *Twitter™ handles*, therefore the team were unable to utilise an existing research study profile as a guide, as recommended by Mesko, (2013). This meant that the team were presented with narrow guidance on creating the profile page for the research study. Thus, we share some of the potential issues and strategies for other researchers to consider; these are summarised in Table 3.

[Insert Table 3 approximately here]

Identifying an appropriate, easily recognised '*Twitter™ handle'* was an issue we faced early on. The intervention being studied is known as '*intentional rounding*', however, within the literature this same intervention is often referred to by other names, such as nursing rounds and hourly rounds. It was therefore difficult to decide which name to use on our Twitter™ account. Furthermore, because of the limit of 15 characters, it was hard to narrow down the study into such a concise profile name, and still enable us to be identifiable to others (Mesko, 2013; Mollett et al., 2011). However, once the team had finalised the *Twitter™ handle*, we found that our chosen name was already assigned elsewhere although not utilised and therefore we resorted to using a similar name with an underscore (@Nursing_Rounds). It is recommended that other studies consider searching for existing Twitter™ accounts and to establish their *Twitter™ handle* as early as possible. We set up our profile name before we were ready to tweet, solely to ensure that we did not lose it.

20

One of our aims was for our profile to appear 'active' before we started following senior professionals and large organisations. This is supported by Power (2014) who states that a user's decision to follow a profile is based largely on the information shared. Establishing a list of followers is central to the success of the Twitter™ profile, increasing the likelihood of our posts being '*retweeted*', thus raising our profile. This meant that we had to come up with a number of tweets to post which were relevant and interesting. A barrier identified was that we did not have much to say in the beginning, naturally due to being in the early stages of the research (O'Connor et al., 2013).

Another challenge was that some members of the team were less familiar with Twitter™, a barrier recognised within the academic literature by Antheunis et al., (2013). This meant that time had to be taken to train others. As social media is a continually changing landscape, this means that team members involved with the twitter™ profile will have to keep up-to-date on new developments, and is another issue to consider, as this will take time (Mesko, 2013). Keeping the Twitter™ profile active was viewed as necessary, it was recommended that '*tweets*' should occur frequently to ensure that new followers are attracted to the page. Replies should be quick due to social media being a fast paced environment with the need for current information (Mollett et al., 2011; Qualman, 2011). This was another issue due to this being a time consuming process. When we first set up our Twitter™ account we aimed to tweet 1-2 times a day for the first 2-3 weeks to become established and then less often i.e. 1-2 times a week depending on what was happening in the research (enough to maintain interest but not enough for followers to get irritated with receiving too many tweets). Furthermore, we aimed for our posts to contain information about a mixture of topics, instead of solely talking about our own study, in recognition of advice by Qualman (2011). Furthermore, some members of the research team have their own Twitter™ accounts and retweeted and 'favorited' tweets from the intentional rounding study Twitter™ account to increase visibility of the account and encourage more followers and retweets. We did originally consider whether tweeting about the

21

study from individual team members' accounts would suffice, however, a study specific Twitter™ account gives a clearer focus to the study and continuity should there be any changes to the study personnel.

Permission had to be sought from team members and grant co-applicants working on the study with regards to sharing their information on Twitter™. Some members did not wish to be included on the Twitter™ profile, whereas others were happy to be included and to provide followers with their personal *Twitter™ handles*. This is something to consider before anything is posted regarding team members. Some academics are dubious about using social media for professional means and this can be challenging for other members of the research team. This can often be due to a lack of understanding (Ferguson, 2013), for example, some may frown upon publishing through popular media platforms because they may be viewed as less credible (Biswas and Kirchherr, 2015). The reasons for having a study specific Twitter™ account and progress with using it are regularly included on the agenda of our advisory group to clarify its purpose and alleviate any concerns.

The concern of receiving negative feedback from the public was also considered. The unstructured nature and also the anonymity element to Twitter™ can be to be difficult to control. Mandavilli (2011) stated that research is increasingly pulled apart on social media sites such as Twitter™. Should this occur, we planned that the principal investigator would monitor and deal with this to ensure that the research team was supported. The term *troll* is used to describe a person who attempts to cause friction by posting comments in an online community which disrupt or offends others (Moorley and Chinn, 2014b). Should you encounter an unsavoury follower, you can 'block' this user from your followers list (Mollett et al., 2011).

22

Using Twitter™ for an NIHR-funded study: the concerns

In the UK, widespread use of Twitter™ by health professionals is considered by some to be slow (Power, 2014). Nursing in particular has been hesitant to realise the potential for the use of social media (Ferguson, 2013; Chinn and Foord, 2014, Snell 2015). Confidentiality, privacy and professional conduct are some of the key concerns (Antheunis et al., 2013; Mesko, 2013; George, 2011). The internet remains a controversial place, and for our study, it is an ethical and governance requirement to keep certain aspects of the research confidential, as we do offline, such as study site and participant details (Mullikin, 2015). Furthermore, pre-publication outputs about the research are not acceptable to some funding bodies and so it was important to check the funder's guidelines before setting up the Twitter™ account. In our case the funder requires notification of all outputs 28 days in advance and they considered setting up a Twitter™ account as an output. The UK National Institute for Health Research have an official Twitter™ account and actively support usage of the platform and they have provided a link to our Twitter™ account on their website.

The nature of information to be shared, and also whether information would be misused was another concern (Antheunis et al., 2013). We are careful that our tweets do not contain bias, or any attempt to sway others towards a particular opinion. Our NIHR-funded study aims to explore what is and what is not working with regards to the intervention of intentional rounding, we therefore have to be careful that we are not seen as trying to promote, or equally, be critical of the intervention. It is important that our tweets reflect the balanced position of equipoise held by the team. Mollett et al., (2011) proposes that researchers must ensure that they do not post radical views on Twitter™. Another issue to consider is that messages on Twitter™ are short and therefore can be misunderstood. Researchers may also be more likely to promote positive findings from research, and less willing to discuss limitations. This may be due to the pressure of citations and the demonstration of research impact.

23

## Conclusion

Opportunities and expectations for researchers to use social media will increase. The use of social media is growing rapidly and gaining popularity. It provides a time and cost-effective way to share information. Although academics use social media, it is relatively rare for a specific research study or programme to have a designated Twitter™ account. We expect that this will change. We anticipate that our strategic use of Twitter™ will support us to generate relationships and networks with key interested stakeholders and that in turn these relationships and networks will facilitate reciprocal engagement in the challenge of generating and implementing research evidence in practice to produce societal impact. In this paper we have discussed that the use of Twitter™ and other social media platforms is a useful process in a pathway to impact bu24 is only one element of a strategy. Using the case example of our research we consider some of the practical challenges for researchers. We do not suggest in any way that social media platforms should replace or compromise working in close collaboration with service users and health service providers throughout. However, Twitter™ provides rapid, widespread, international, cost-effective communication and as such offers a powerful tool for researchers, which is surely too promising to ignore.

## Acknowledgements

24

Department of Health Disclaimer:

The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the HS&DR, NIHR, NHS or the Department of Health.

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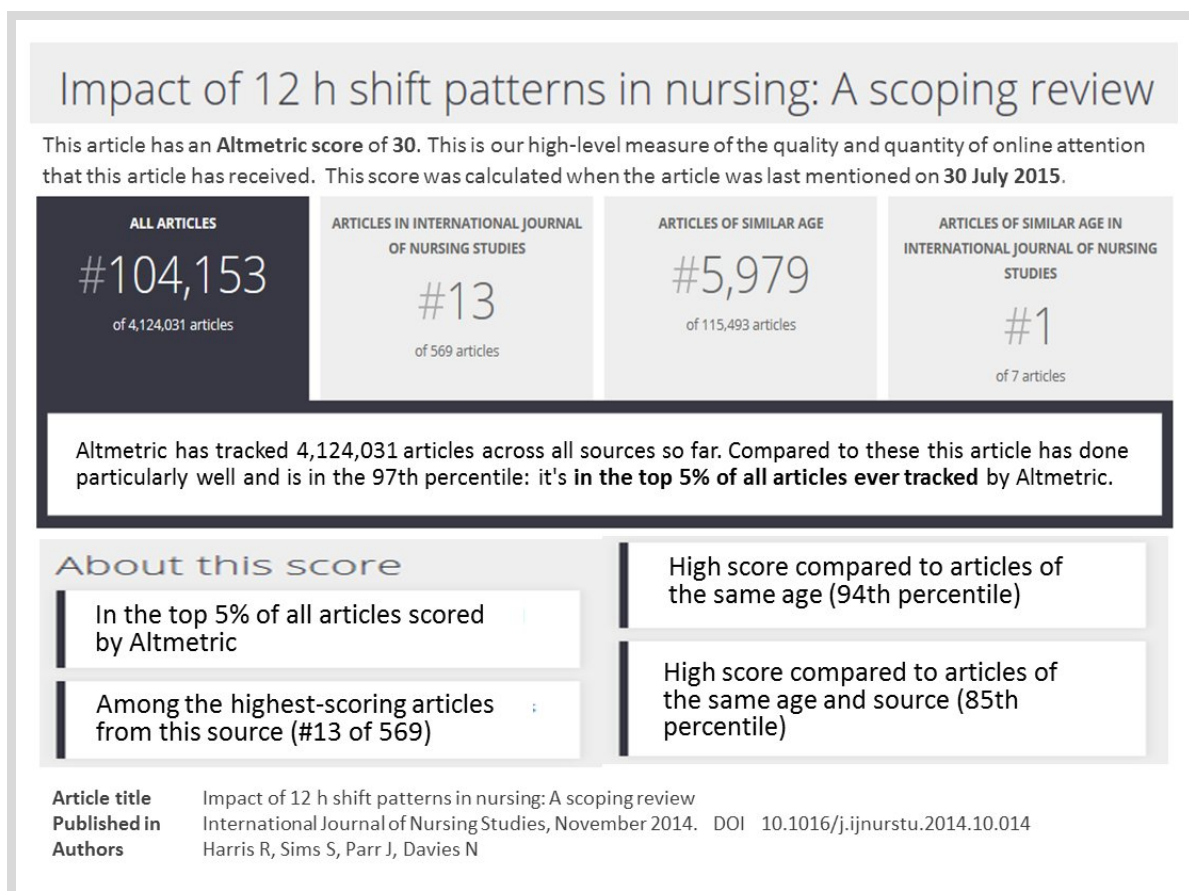
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35

Figure 1: Example of paper Altmetrics™ as an illustration of how Twitter™ contributes to engagement.



## Impact of 12 h shift patterns in nursing: A scoping review

This article has an **Altmetric score** of **30**. This is our high-level measure of the quality and quantity of online attention that this article has received. This score was calculated when the article was last mentioned on **30 July 2015**.

| ALL ARTICLES | ARTICLES IN INTERNATIONAL JOURNAL OF NURSING STUDIES | ARTICLES OF SIMILAR AGE | ARTICLES OF SIMILAR AGE IN INTERNATIONAL JOURNAL OF NURSING STUDIES |
|---|---|---|---|
| #104,153 of 4,124,031 articles | #13 of 569 articles | #5,979 of 115,493 articles | #1 of 7 articles |

Altmetric has tracked 4,124,031 articles across all sources so far. Compared to these this article has done particularly well and is in the 97th percentile: it's **in the top 5% of all articles ever tracked** by Altmetric.

### About this score

In the top 5% of all articles scored by Altmetric

Among the highest-scoring articles from this source (#13 of 569)

High score compared to articles of the same age (94th percentile)

High score compared to articles of the same age and source (85th percentile)

Article title   Impact of 12 h shift patterns in nursing: A scoping review
Published in    International Journal of Nursing Studies, November 2014.   DOI   10.1016/j.ijnurstu.2014.10.014
Authors         Harris R, Sims S, Parr J, Davies N

Based on Altmetic™ data retrieved 11.8.15 (available at http://elsevier.altmetric.com/details/2845076#score)

36

Box 1: The Context – explaining the study

Our focus on finding innovative ways to communicate and engage with research users is particularly relevant given the public and media interest in care issues arising from perceptions of "failure" in the NHS. One policy recommendation made following the public inquiry into failings in mid-Staffordshire (Department of Health, 2013) was that "Regular interaction and engagement between nurses and patients and those close to them should be systematised though regular ward rounds". In the USA, this structured process has been labelled 'intentional rounding', and refers to nursing staff carrying out regular checks, usually hourly, with individual patients to address their positioning, pain, personal needs and placement of items. Some published studies in the USA have found benefits of intentional rounding for patient care (e.g. Meade *et al.*, 2006), including a reduction in call bell use, falls and pressure sores and increased patient satisfaction. However, there is little research to support this in the UK, and research that does exist has been criticised for its design weaknesses (NNRU, 2012). Our study (Harris *et al.*, 2014), funded by the National Institute for Health Research, therefore seeks to generate an evidence base for intentional rounding and to provide the necessary information to successfully guide the development and implementation of intentional rounding across the UK. The research adopts a realistic evaluation approach and seeks to answer the question: 'What is it about intentional rounding in hospital wards that works, for whom and in what circumstances?'

The multi method design explores how intentional rounding is being implemented through a national survey of all NHS acute trusts in England (n=155) and case studies in three hospital trusts. In the final phase, data will be synthesised to establish the potential outcomes of intentional rounding, the underlying mechanisms which explain how it works and the key contexts behind its success or failure.

Intentional rounding has gained national interest and been linked to the national compassion in practice campaign led by the Chief Nursing Officer (Department of Health, 2012a). The recommendation received strong support from the government through the endorsement of the Prime Minister in January 2012 (Department of Health, 2012b) and ongoing discussion including parliamentary questions (UK Parliament, 2015). Interest in our study has been shown in "research round-up" reports in the professional nursing press (Merrifield, 2014; Nursing Standard, 2014; Nursing Management, 2015). (See: http://www.nets.nihr.ac.uk/projects/hsdr/130787 for more details about our study)

37

Table 1:  Unravelling Twitter™ jargon

| Term | Explanation |
| --- | --- |
| *Tweets* | Twitter™ enables users to send messages known as *'tweets',* which can comprise of a maximum of 140 characters. This encourages succinct and rapid sharing of information (Moorley & Chinn, 2014b; Liebert 2009; Power, 2014). The sharing of hyperlinks, videos, articles and '*Blogshots*' can enhance tweets, allowing for users to obtain additional information (Grajales et al., 2014; Power, 2014). |
| *Blogshots* | *'Blogshots'* allow for more in depth messages to be shared than regular tweets because more text can be included within them. They are often created in programs such as Microsoft PowerPoint*,* and provide quick bursts of information. They are less formal and less lengthy than a blog, but more detailed than a tweet. They are succinct enough to read relatively quickly, but detailed enough for readers to obtain more detail on a topic. They can contain pictures and colourful text, and therefore often receive more attention than tweets because they stand out within the newsfeed. Blogshots can be uploaded as a photograph; however, they cannot contain hyperlinks or imbedded video clips (Chinn, 2015). |
| *Follower* | If users '*follow*' an account, they subscribe to their tweets (Moorley & Chinn, 2014b; Liebert 2009; Power, 2014). These tweets will therefore appear within the user's 'home feed' (Mollett et al., 2011). The more followers an account has, the wider the audience the tweets can reach if they '*retweet*'. |
| *Hashtags* | *Hashtags (#)* are a type of information indexing; they are used in front of particular terms in order for messages to be grouped together on a certain topic. Thus, users with shared interests are able to exchange opinions, and participate in conversations regardless of whether they are following one another or not. For example, #intentionalrounding could be added to a tweet in order for users who may not necessarily follow our account to access our message. This can increase the likelihood of acquiring new followers as well. Hashtags are useful because they allow information to be easily organised and therefore easy to locate for the anticipated audience (Power, 2014; Shields, 2015). Popular hashtags may attract more attention, for example #nursing (Mollett et al., 2011). |
| *Retweet* | The *'retweet'* feature on Twitter™ permits users to share information from an original source to their own followers; receiving a retweet is quite affirming for researchers. Users who retweet our posts can also encourage new users to follow us (Moorley & Chinn, 2014b; Reinhardt et al., 2009; Grajales et al., 2014; Fahlberg, 2015). Retweeting other relevant research can also help to attract attention from other professionals, and can increase knowledge sharing (Mollett et al., 2011). It is also possible to 'reply' to a tweet directly (O'Connor et al., 2013). |
| *'Favorite'* | If users 'favorite' a tweet, this will be saved onto their 'favorites' list. This means that they keep a record of articles/posts of interest. This can be quite affirming to users (O'Connor et al., 2013). |

38

| | |
|---|---|
| *Twitter™ Handle and 'mentions'* | To ensure that a particular user receives a tweet, the message can be prefaced with the person's *Twitter™ handle* (their unique Twitter™ username which begins with the @ sign, for example, ours is @Nursing_Rounds. This is known as a '*mention*' and can encourage others to '*retweet'* (resulting in a message being exposed to a number of users), and may also encourage additional '*followers'* (Shields, 2015; Mesko, 2013; Moorley & Chinn, 2014b; O'Connor et al., 2013). |
| *Profile picture* | A profile picture can be uploaded to the Twitter™ profile in order for users to visually represent themselves (O'Connor et al., 2013). |
| *Bio* | Twitter™ offers users the chance to provide a short 'bio' at the beginning of their profile. This can be a maximum of 160 characters; and should provide an interesting snapshot of the account in order to encourage followers (Mollett et al., 2011). |

39

Table 2: @Nursing_Rounds Twitter™ followers six months after setting up the account[1] by category and number of followers

| Follower Category | No. following | Followers' followers |
|---|---|---|
| Nurse – "front-line" | 10 | 3,251 |
| Doctor - "front-line" | 3 | 7,931 |
| Nurse manager/ director | 5 | 2,652 |
| National/strategic nursing leader | 3 | 5241 |
| Academic | 7 | 13,783 |
| Healthcare organisation | 7 | 37,400 |
| Local institution/research team | 6 | 4,774 |
| Other | 5 | 73,571 |
| Total | 46 | 148,603 |

[1]17th September 2015

40

Table 3:  Our Recommendations: A Guide for Researchers

| | Recommendation | Explanation |
|---|---|---|
| 1. | Search and establish your Twitter™ handle as early as possible, and select a name which is easily recognised | Your preferred handle could already be in use, and so you will need to establish an alternative which is most fitting to explain your study. Punctuation marks can be used (e.g. underscores) if your preferred choice is already taken. |
| 2. | Check whether you need to apply for approval from your funder | Your Twitter™ account may need to be disclosed to your funder. |
| 3. | Appear 'active' prior to following others | This will increase the likelihood of retweets; incomplete or inactive accounts may be less appealing for others to follow. |
| 4. | Ensure tweets do not contain bias and maintain equipoise | Keep tweets/retweets balanced to avoid swaying towards a particular viewpoint. This is crucial for research projects in progress. |
| 5. | Follow relevant people who may lever impact  (i.e. leaders, patient advocates, managers, academics, as well as those whose tweets indicate interest in your topic) | This is likely to raise awareness of your profile and networking opportunities with people who have similar interests. This will help to build your audience and influence. |
| 6. | Once you find relevant people to follow, access their network of followers | This can be useful to locate people, and to find new people with similar interests. |
| 7 | Engage in professional conversations | This raises awareness of your research and can places it in the wider health and social care context. |
| 8. | Share interesting links, ideas and resources on your topic, as well as other topics. | This helps to show your interests, build your followers and ultimately raise awareness of your research. It also encourages engagement, discussion and feedback. You can act as a research 'mediator', enabling individuals, groups and organisations to access |

41

| | | quality research. |
|---|---|---|
| 9. | Strategically build and shape your audience | Include your Twitter™ handle in your email signature and promote it through word of mouth, on presentation slides, and during stakeholder and advisory group meetings to raise the profile of your study and to prepare for impact generation upon publication. This can enable research dissemination to relevant people who have influence. |
| 10. | Ensure confidentiality | Remember Twitter™ is a public forum; always obtain permission to share information about people in the research team. |
| 11. | Strategically initiate communication | This can encourage people to get involved in your project, for example, tweeting in response to comments in editorials or publications by others related to our study topic. |
| 12. | Participate in Twitter™ chats | This can facilitate information sharing and can also raise awareness of your research with new people interested in the topic. |
| 13. | Directly refer to a person by using their Twitter™ handle | It is more likely that the person will read the tweet; Twitter™ is a busy platform where messages can be easily missed. |
| 14. | Use Twitter™ to complement existing methods of impact generation | Twitter™ can be used as a vehicle for fast discovery of research for diverse audiences, increasing the likelihood of downloads, and potentially citations. Interest on social media is an indicator of uptake in the real world. |
| 15. | Capitalise on the use of hashtags | Tweets represent a 'moment in time', thus can be easily missed; using hashtags can ensure that tweets are more easily located. |
| 16. | Strategically schedule the time you tweet to suit the audience you want to reach | Academics are more likely to tweet before and after work, often during their commute. However, healthcare professionals often work various shift patterns and so access tweets at other times. Tweet during the most appropriate times for your followers. |
| 17. | Separate study accounts from personal accounts | This gives a clearer focus and continuity should any changes occur with study personnel. |

42

| 18. | Researchers and others can use their personal accounts to retweet the study account | This can increase the visibility of the study, and can encourage more followers. When people put a face to the account, they may be more likely to show interest. |
| --- | --- | --- |
| 19. | Select a team member to deal with potential negative comments/issues or inappropriate followers | Negative comments/"spam" can be deleted and the user can be 'blocked', but it is important to select a person to check for this. |
| 20. | Tweet regularly. | Set aside time to tweet; and schedule alternative members of the research team to tweet over holiday and leave periods. |

43