

Salutogenic Neuroscience Public Communications: Gaps and Proposed Solutions using Social Work Strategies and Collaboration for Wellbeing Promotion

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Abstract

The field of neuroscience is equally as broad as it is elusive to the public, however, the specialty of uncovering mechanisms behind the experience of wellbeing and thus ability to improve and refine human mental health is essential for public knowledge to make the research meaningful. Public knowledge and reception of integral studies and anatomy do not reflect efficacy in the communications process. To disseminate lab findings and research to the public, using research methods from the social sciences, specifically social impact considerations, in addition to close collaboration with social workers is proposed as a solution worth trialing in studies.

Keywords: *Neuroscience, Well-being, Social Work, Mental Health*

1. Background

Research within the realm of human health tend to have one of two focal points – pathogenic, the vocation of doctors and medical personnel, or salutogenic. Salutogenesis is a formalised health framework developed by Aaron Antonovsky arisen from the question – what makes people healthy. There is a spectrum where one pole investigates causal factors for disease and the other what causes and/or maintains positive health, or wellbeing.

Promotion of wellbeing can be considered a preventative measure in health - if mental health and wellbeing are twins, then health must be the caregiver; wellbeing promotion and advocacy could arguably fall under preventative medicine, looking after people before they become patients.

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Salutogenic research is prominent within the neurosciences, as the brain is heavily implicated in emotional states and their regulation or potential improvement once again similar to preventative medicine. After accessing studies and reviews on both the cognitive and anatomical functions that cause a wellbeing mindset, the primary questions are how well this information is known throughout the public, why is this the case, and how can it be improved – the rationale of this literature review of secondary studies to generate a research proposal.

Studies found a significant gap when it came to the neuroscience of wellbeing when compared to other sects such as cardiac or respiratory wellbeing in terms of both public knowledge and, to a lesser extent, interest. There are proposed methodical changes to how neuroscience research and communications are conducted in order to bridge this gap in an attempt to improve public health and act as preventative medicine for the wellbeing of the brain and, consequently, mind/mental health.

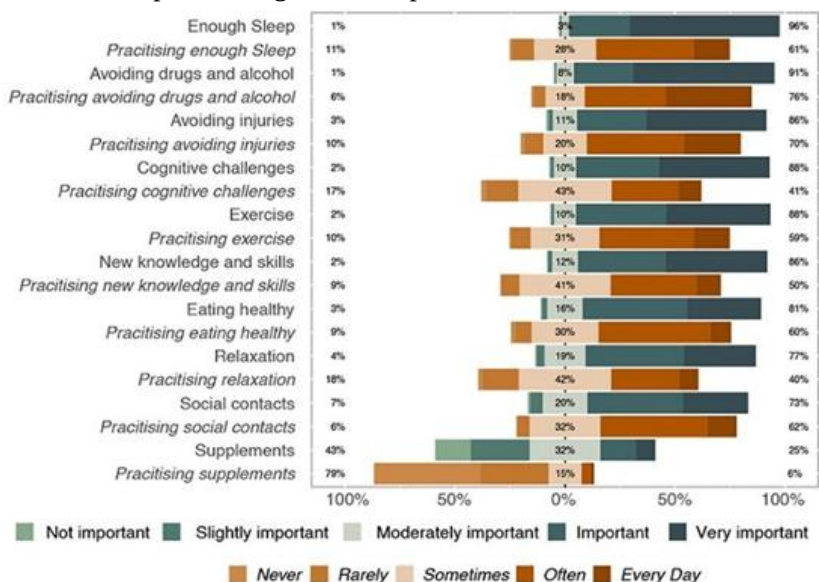
2. Review of Literature

The first secondary studies investigated were with the intent to gather the public's general standing with interest and understanding of the neurosciences, especially how the field pertains to emotional health and wellbeing. A study in the UK (O'Connor & Joffe, 2014) borrowed the social science method of qualitative interviewing and code analysis. The findings were significant both statistically and socially, as it was found that the vast majority of participants not only associated neuroscience with pathology and disease exclusively, but also separate from the self. It was reflected that the field of neuroscience was distant and inaccessible, regardless of reported belief that brain health can be improved through lifestyle choices (83% of respondents agreed) yet only 44% expressed desire to do so.

More in-depth surveying on social attitudes related to both knowledge and, more importantly, actions related to brain and mental health continued this trend (Tomat et al., 2021).

The activities voted to have important health implications that were practiced the least all directly relate to the brain and its ability to maintain mental wellbeing. The least engaged with activity was practicing cognitive challenges with a 43% of participants voting for “sometimes” despite an overwhelming 80% deeming the practice as important for health. Secondary to cognitive challenges was relaxation and learning new skills, once again following the trend of a rating of high importance simultaneous to low engagement.

Figure 1. Survey results from non-science affiliated members of the public. Each health-related category was divided into two subsections; believe of importance and how often the individual engages in activity. Retrieved from study by Tomat, et al. (2021), DOI: <https://doi.org/10.3389/fpubh.2021.690421>



To evaluate where common public consensus regarding literacy of scientific findings using different measurements of brain activity, a focus group with people of varying vocations (Pickersgill et al., 2011) found that knowledge and in neuroscience was either – high for those with a pathology of their brain due to lived experience or incomplete for non-scientists; some ideas are understood but there wasn't an integration of them into daily life- it was of “mundane significance”. Importantly for this investigation, health neuroscience was something that “others” were interested in, a distant “other world” not to be engaged with.

The most significant exception in this trend was seen through responses of the social workers interviewed. Not only was there was understanding of how cognitive processes affect behaviour and internal experiences of clients, but a desire and recounting of applying knowledge to the brain into clinical practice. One social worker participant in particular spoke highly of her experience learning and integrating neuroscience into practice, alongside a foster parent after receiving mandatory learning on why foster children may behave in distressing manners- pointing to biology.

To find explanation or evidence that there existed a gap for understanding of wellbeing- related neuroscience and average members of the public, The Journal of Science Communications (Ramani, 2009) investigated critique of studies that mention neuroscience, and found that sham studies that used the field as a backing were rated as more believable and “satisfying”, indicating room for improvement in the public's ability to read data from neuroscientific studies. It was concluded that there exists a distinction between the scientists and those who communicate it without a great deal of overlap.

Neuroscientists themselves (Illes et al., 2010) have begun to acknowledge that translating laboratory findings in inherently

their responsibility, as is the case for all of the sciences, the stakes are higher when something as personal as the brain (Illes et al., 2010). Illes et al. (2010) composed one of the most in-depth and significant body of work that outlines solutions to improve neuroscience communications was published in *Nature Journal* and sited three key points of change that would create a collaborate project amongst scientists, policy, and public engagement.

The first step was internal work for scientists in changing the culture of how neuroscientists work, inviting public engagement at every stage of research process and creating more opportunities for direct forums for conversation with non-scientists in “multidirectional communication and mutual learning”. However, as a group who are infamously time-poor the second solution to remedy this was in changing policy to include a new group that would function as the “knowledge brokers” to pair new knowledge with the public and ensure understanding of research methods. The final, and most relevant for this investigation, is to borrow from the social sciences.

The above proposal emphasised the need to create more empirical data to measure the extent and impact of science communication and to be open-minded in use of methods in ways that social sciences do. To build upon this, it could be recommended that a trial of generating a social impact assessment (SIA) prior to research in the same manner as social workers are required could be a way to apply this idea in a streamlined and conventional way (Vanclay, 2003).

Secondary to implementing a new requirement for neuroscientific research protocol in SIS, another point of adjustment could be moving away from lecture-style talks from scientists for the public. There is specific neuroscientific evidence that shows brain activity when receiving a ‘talk’ or education is far more engaged when presented in a narrative

structure, and relatively low when in a lecture regardless of the content (Martinez-Conde et al., 2019).

3. Discussion

Discussing scientific findings in relation to the audience's values and everyday needs, something that social workers are intimately familiar with, provided superior understanding and retainment of information.

Ramani's (2009) sham neuroscience story studies indicated that the field does hold social influence but little social understanding nor application. Not only is the literacy of translating results of scientific studies a place for improvement for science communicators, but this study is integral to not only identify a problem, but to also begin seeking for solutions as the scientist/non-scientist distinction was made clear.

This separation of self from science was further expanded upon in O'Connor & Joffe's (2014) focus groups, adding to the body of evidence that there is a problem in the field of science communications in regards to salutogenic information regarding the brain. To note, using the social representations theory (SRT) was found to be useful when investigating the neuroscientific context, a relatively rare approach for the "hard sciences" but gathered data that could not have been found in brain scans.

This creates a rationale for why there is a need to improve neuroscience communication in terms of the actionable parts of the field, which could be aided through the use of an interdisciplinary team that involves those who more directly work with members of the public, i.e. social workers as outlined by Illes et al. (2010). The conclusions made by the researcher in how to improve neuroscience communications to the public are exciting and ought to be applied and investigated further. Additionally, Illes' recommendations could be expanded upon in two ways to be recorded in an empirical study to evaluate

efficacy. Borrowing SIA from the social sciences as a safeguard to ensure translation of information uncovered regarding human health and wellbeing, and communicating said findings using the ‘storytelling brain’ (Martinez-Conde et al., 2019), another strategy well-recorded in social work theory. Making neuroscientists create a SIA will be an important consideration before research is conducted in the first place in how information regarding the brain can be communicated adequately, and who should be the ones engaging said communication, likely a position that is directly associated to sharing information with the public- social workers and/or science communicators.

To give an example of successful application of engagement of the ‘narrative brain’, the talented science communicator, Dr Oliver Sacks, is well-regarded. His most popular book, “The Man Who Mistook His Wife for a Hat”, uses the method of narrative storytelling within the context of clinical neurological case studies in such an impactful manner that this book is so popular with non-scientists that it has inspired artworks. Dr Sacks didn’t conceal the emotion tied into brain findings and the impact of when there is a condition of the brain, he emphasises it, makes it exciting, and connects it to values and the human condition at large. He engages the “storytelling brain”. Intentionally or not, Dr Sacks used a strategy that social scientists are trained in, storytelling information, but within the neuroscientific context, to phenomenal success and inspiration; as there was a film and an opera created by artists who read his popular novel.

Yet, he is still working in science, social or neurological, there is empirical evidence that supports his methods. Brain activation for audience members receiving this format of information-sharing is greater than lectures, and leads to more interconnectedness of ideas (Martinez-Conde et al., 2019).

4. Conclusion

In conclusion, while neuroscientific information is used to inform social work practice slowly, those in the former's field have a lot to learn from the social sciences; especially in how to communicate with those in other fields and in obtaining empirical evidence with a more human-centred approach which would only catalyse the interconnectedness in all studies of people and human nature.

Information regarding wellbeing derived from brain health and activity is only broadly understood and mildly taken seriously by members of the public, however there are many proposed solutions to bridge this gap inspired by the social sciences.

Implementation of these recommendations, creating social impact assessments and using communication methods that social workers utilise alongside more long-term policy changes may increase the likelihood of lab findings becoming both understood and realised in everyday behaviour and practice to increase public wellbeing, which should always be the end goal of research.

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