Investigating Individual Characteristics and the Impact of COVID-19 on Perceptions of TMS and Willingness to Participate in TMS Research Studies

Lolansen, C., Badham, S. P., Mitra, S., & Howard, C. J.

Nottingham Trent University, Department of Psychology, 50 Shakespeare Street, Nottingham NG1 4FQ, United Kingdom

Background

Transcranial magnetic stimulation (TMS) is a growing field of research and less known to the general public. Recruitment for research studies can often be challenging, in particular those using invasive or lesser known methods. Research indicates that different framing (descriptions of a method and its outcomes) can also influence perceptions [1][2].

The study presents, to our knowledge, the first investigation into possible participant attitudes, concerns, and perceived barriers specific to TMS and TMS research studies within the context of framing and how these relate to individual characteristics and the COVID-19 pandemic.

Method

213 participants (84 male, 124 female, 1 non-binary, 4 unreported, mean age = 55.57, SD =23.93, age range 18-89) were recruited for the online study.

Participants read a brief description of TMS and its applications (half framed as research-focussed, the other as treatment-focussed) before completing the following measures:

- Attitudes towards TMS (total score of 3-18).
- Likelihood of accepting an invitation to participate in a TMS research study (scale of 1-7).
- Perceived barriers to study participation (pre-COVID-19 and post-COVID-19).
- Big Five Inventory-2-Short version [3].
- Sensation seeking behaviour [4].
- Self-rated health [5].
- Demographics questions.
- TMS safety screening questionnaire.

Results

- 163 out of 209 participants were unfamiliar with TMS prior to the study.
- Participants generally had a positive attitude towards TMS (mean = 12.94) and were likely to participate in research studies (mean = 4.89). Attitude and likelihood of participating were positively correlated (p<.001).
- Those familiar reported more positive attitudes (p=.002) but no greater likelihood of participating than those unfamiliar.
- No effect of framing (research- or treatment focussed) on any measure.
- Most common concerns both pre- and post-COVID-19 were possible side-effects and safety.
- Most commonly perceived barriers are displayed in Table 1.
- Greater negative emotionality was linked to less positive attitudes towards TMS (p=.035) and less likelihood of participating (p=.020).
- Few participants were eligible to receive TMS based on the safety screening questionnaire (see Figure 1).

Figure 1. Eligibility of participants based on the TMS safety screening questionnaire comparing those aged 18 to 59 and aged 60 or older (uncertain describes participants whose questionnaire was incomplete or currently taking unspecified medication).

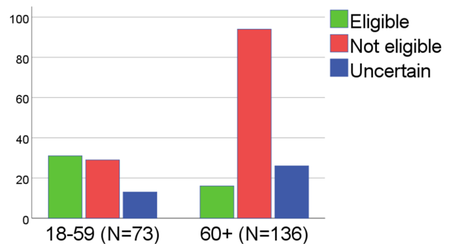

Table 1. Number of participants who identified the following aspects as barriers to participating in TMS research studies.

	Pre-COVID-19	Post-COVID-19
Transport/travel	58	86
Fitting participation into my schedule	51	37
Not enough participation incentives	22	22
Not interested in the research	12	12
My mental health	25	30
My physical health	23	40
Other	9	19

Discussion

Contrary to previous literature, the study found no effect of framing. This could possibly be due to the brevity of the text or its specific phrasing.

The link between familiarity and attitude suggests that providing more information about TMS may improve public perceptions and attitudes, a finding which is supported by previous literature[6]. Further research is needed to fully elucidate the link between attitudes and likelihood of participating.

The link between negative emotionality, attitudes, and likelihood of participating indicates that those in high in negative emotionality may be less inclined to participate. Future research could investigate this link and its possible implications for clinical settings.

These findings highlight the need for research to further elucidate which factors are linked to research study participation and how these may be mitigated.

Recommendations

- Compensating participation (such as payment or covering transport costs)
- Supplement recruitment call with additional, easily digestible information about TMS (flyers, links to videos, previous participant testimonials etc.)
- Public engagement to improve awareness

References and TMS text descriptions

cecilie.lolansen2018@my.ntu.ac.uk

@clolansen