Centring Tourettic Experiences in Technology: Tourette Syndrome, Median Nerve Stimulation, and the Role of Technoableism

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Abstract

Tourette Syndrome is a neurodevelopmental disability characterised by motor and vocal tics. **Progress in the treatment of TS and other tic disorders has recently taken a significant pivot towards the recommendation of wearable technological treatments** - notably wearable health technology that allows for the self administering of median nerve stimulation to minimise tic severity and frequency. This paper **approaches wearable median nerve stimulation (MNS) technologies such as *Neupulse*[1] from a critical disability studies lens** and uses the concept of technoableism to call for a centring on the experiences of potential users of this technology, rather than a focus on the cure and compliance to expected social norms.

Stigma and Self-Injurous Behaviour in TS

Stigma plays a central role in shaping the mental health and wellbeing of the tourettic community, ecompassing social, self-, and courtesy stigma experienced by tourettic people and those around them. Research shows that stigma operates in multiple forms and is embedded in everyday contexts such as workplaces, public spaces, and biomedical settings[2]. Efforts to manage stigma often involve concealing or suppressing tics to conform to social norms, but this can be physically and emotionally exhausting and may worsen symptoms. **Long-term exposure to stigma** has been described as traumatic, **contributing to broader mental health concerns**[3].

TS is also associated with higher rates of depression, self-harm, and chronic pain, partly linked to self-injuous behaviours (SIB) and impulse dysregulation[4,5]. These factors have been used to justify the development of devices such as *Neupulse*, particularly in the context of limited existing support[6]. However, while MNS emerges as a response to a genuine need, there is a **lack of critical attention paid to its potential unintended consequences**. This includes the reinforcing of stigma and expectations of being 'normal'. There is a clear need to examine both the social contexts in which these technologies are developed and their broader ethical and psychosocial impacts.

Fig1. OMBRA Soundproof Mask
Image from Metadox.pro website,
Accessed 08 April 2026

Fig2. Neupulse
Image from Neupulse.co website,
Accessed 08 April 2026

Key Concept: Technoableism

Developed by Ashley Shew, technoableism refers to the idea that **technologies that are developed with intention to *cure* or *fix* disability are rooted in ableist rhetorics**. Whilst the able-bodied designers behind these technologies "usually think they have the good of disabled people in mind [they] do not see how their work reinscribes ableist tropes and ideas on disabled bodies and minds"[7].

Technoableism can take many forms. This might include the development of the OMBRA Soundproof Mask (Fig1) - currently marketed towards videogamers, previously recieving pushback due to the marketing towards the TS community, actions such as the non-consensual muting of somebody who is ticcing on a Zoom call to 'minimise disruption', or the development of the Neupulse device (Fig2).

Physical Risk: Increasing SIB & Self-Harm Potential

The **risks of wearable MNS technology for TS remain under-explored** in peer-reviewed literature. While MNS is framed as a safe and effective intervention, including for children[6], it may **reinforce expectations of normalisation** and overlook how tourettic people already experience technoableist practices. These concerns point to a broader need to centre disabled users in the design and evaluation of such technologies.

While data suggests MNS *may* contribute to tic reduction, it may also cause discomfort. **Pain thresholds vary widely, particularly among neurodivergent people.** This includes those with common TS co-occurences such as autism and ADHD[8]. Current calibration methods and assessment practices may not adequately capture these differences, raising ethical concerns about under-recognised pain and potential exacerbation of self-injurous behaviours. Researchers note that **MNS can be painful** for some[6], and if this is the case then there poses a **risk for using Neupulse for self-harm**. Additionally, limited transparency around how pain is measured and managed, alongside anecdotal reports of significant discomfort during trials, underscores the need for more nuanced and inclusive approaches to risk assessment.

> **"It is crucial to not only question *what* kinds of risks are being prioritised, but also *whose* risks are being made visible and actionable"**
> **Jones (2026: 6)**

Social Risk: Reinforcing Stigma & Non-Consent

Teachers may become frustrated with ticcy disruptions to their classes and, knowing of *Neupulse*, may demand that the child in question uses the device more. Considering second-hand stigma and embarassment that has been written about in peer-reviewed literature[2], parents or friends may also **pressure the patient to use the device** in trying to avoid second-hand embarassment from tics.

The Neupulse device is currently available for pre-orders at £500, plus a £20 per month subscription. This **high price point may further contribute to the stigmatisation** of TS. Neupulse only offers a full refund for the device if you request a refund prior to the delivery of the device[9]. What for parents who, in their desperation to improve the quality of life for their child, spend this large sum of money for it to be too painful or simply not have an effect on the child in question? Parents and carers, unable to get a refund, **may be more likely to force their children to use the device** due to the inability to be refunded.

Conclusions

Recent NICE early value assessment for digital therapies for TS stated that **"there was limited evidence particularly for Neupulse"**[10]. The tech startup behind Neupulse has done an excellent job of promoting the device, and therefore bringing further awareness to TS through the implementation of celebrity endorsements (i.e. Lewis Capaldi)[11].

However, we must be sure to critically **interrogate how scientific innovation, societal ideas of 'normality' and tourettic stigma intertwine** in shaping which technologies are positioned as legitimate treatment options.

Anti-technoableist approaches look not to eradicate TS and tics, but look to **positive tourettic futures** with the intention of removing stigmatisation. We must consider the implications of technologising tourettic people through the implementation of wearable MNS technology with significantly more nuance moving forward, ensuring that we **centre tourettic voices in conversations surrounding TS, technology, and treatment.**

Read the full paper here!

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