

# Tic Attire: Exploring Tic-Related Pain, Injury and the Co-Design of Protective Clothing

## Authors and Affiliations

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## INTRODUCTION

Tic-related pain and injury (TRPI) in Tourette syndrome (TS) and related tic disorders including functional tic like behaviours (FTLBs) can significantly limit participation in daily activities. Pain often results from repetitive, forceful movements and environmental interaction, including neck and limb hyperflexion, object-directed tics (e.g. hitting surfaces), and self-directed behaviours such as self-hitting. These may lead to acute injury (e.g. bruising, soft tissue damage) and chronic musculoskeletal pain. The Tic Attire project explores the feasibility of co-designed protective clothing to reduce injury without restricting movement or suppressing tics.

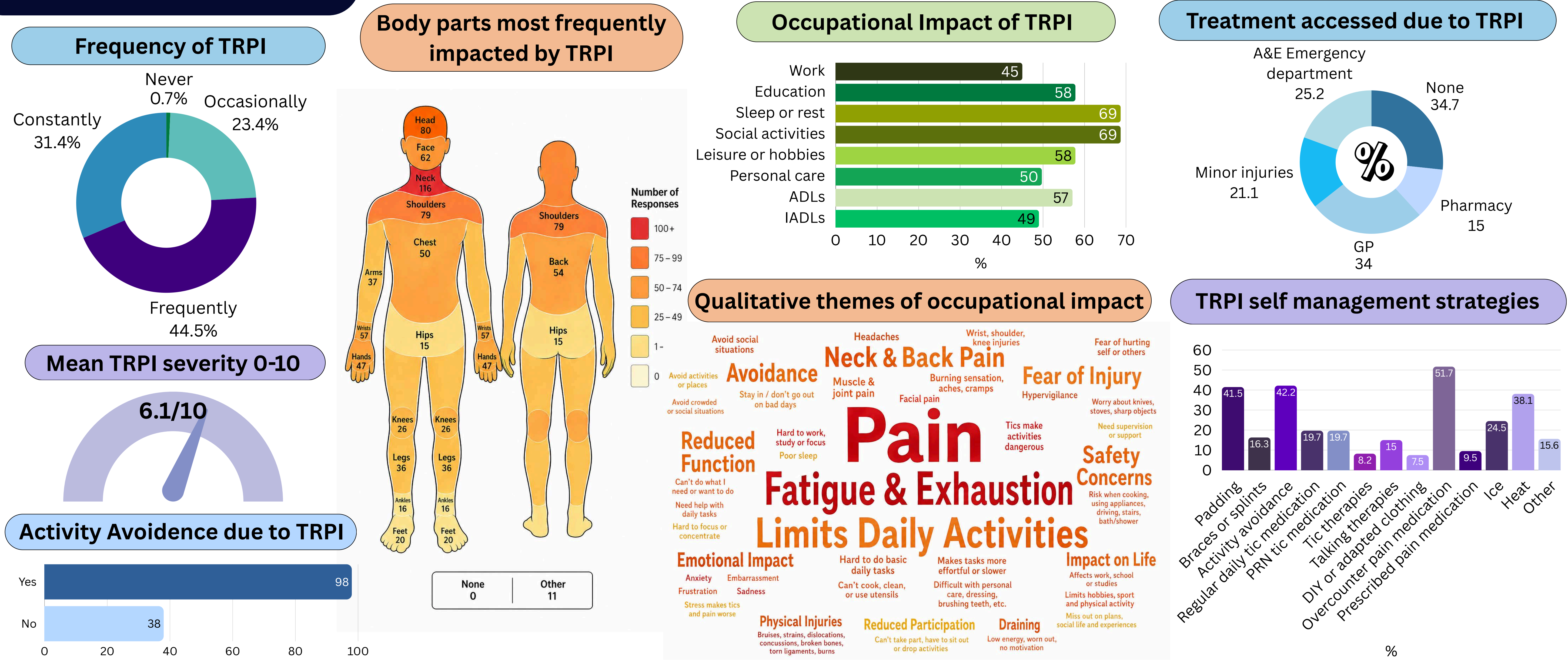
## METHODOLOGY

An online mixed methods survey examined TRPI experiences, healthcare use, coping strategies, and design priorities. It was distributed nationally via Tourettes Action and locally through a Surrey support group. A total of 147 respondents participated. Findings were analysed to inform development of an initial protective hoodie prototype. Qualitative feedback was gathered at a face to face support group where participants could try the first working prototype.

## DEMOGRAPHICS

| Respondents     |                                     |   | Gender |       |            |                   | Diagnosis         |                    |                    |      |                       |       |                     |
|-----------------|-------------------------------------|---|--------|-------|------------|-------------------|-------------------|--------------------|--------------------|------|-----------------------|-------|---------------------|
| Adult with tics | A young person with tics (under 18) | Parent or carer of a young person with tics | Man    | Woman | Non-binary | Prefer not to say | Tourette syndrome | Chronic Motor tics | Chronic Vocal tics | FTLB | Stereotyped movements | Other | No formal diagnosis |
| 98              | 21                                  | 28  | 41     | 90    | 14         | 2                 | 109               | 13                 | 4                  | 20   | 2                     | 6     | 16                  |

## RESULTS



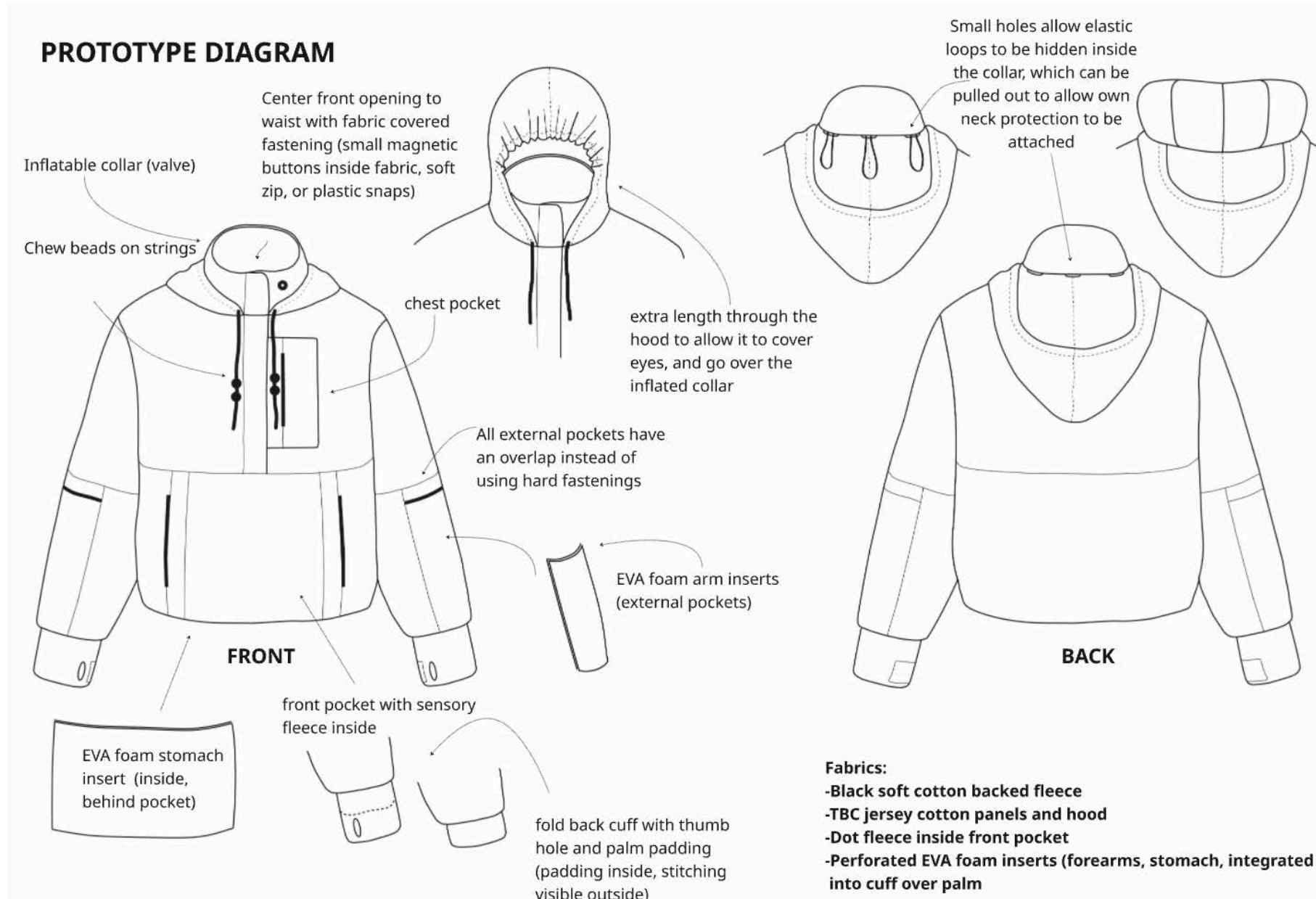
## OUTCOMES

Survey findings informed the co-production of a padded hoodie prototype targeting high-risk areas, including the hands and neck, designed to be comfortable, discreet, and sensory-informed.

A key priority identified by participants was that the garment should not appear medical or clinical; therefore, the hoodie is intentionally styled to resemble everyday clothing.

Features include a discreet, hidden inflatable pillow to reduce range of hyperextension during head and neck tics, which can be replaced with a higher-density foam insert for individuals experiencing more rapid or forceful tics.

Additional elements include soft tactile features to provide external sensory feedback, chewable components to support reduction of vocal tics, and removable padded EVA foam inserts. The cotton-lined fleece fabric supports temperature regulation, is machine washable, enhances overall comfort and wearability. Initial focus group feedback has been very positive.



## CONCLUSIONS

TRPI are common and significantly affect wellbeing, healthcare use, and participation across rest, productivity, and social domains. Co-designed protective clothing may offer a promising harm-reduction approach that supports safety and occupational engagement without aiming to suppress tics. Further development and evaluation will assess feasibility and effectiveness.