Positive psychology intervention via telehealth for young people with acquired brain injury: A feasibility study

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Acquired Brain Injury (ABI)

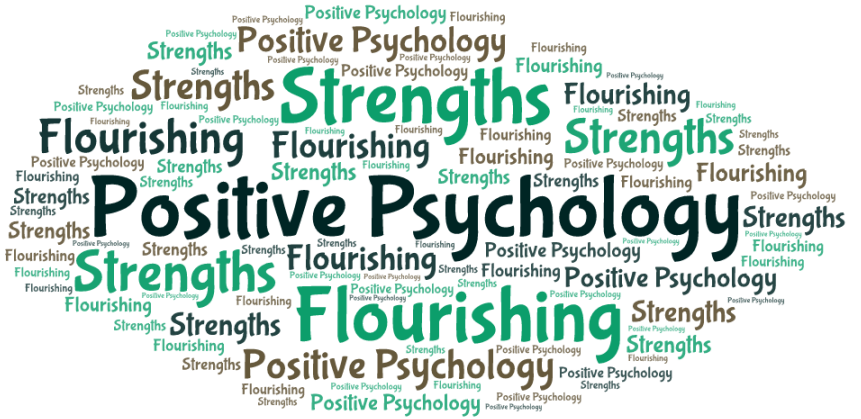
- Can cause significant cognitive, communication, physical and sensory impairments, with resulting impact on daily living skills, academic functioning and social functioning
- Results in significant emotional distress for young people, with significantly higher rates of depression and anxiety in children and adolescents following ABI
- Significant reductions in quality of life following moderate and severe TBI as well as stroke *(McCarthy et. al., 2006; Anderson et. al., 2011; O'Keeffe et. al., 2017)*
- Reductions in wellbeing are likely related to perceived impact on day-to-day functioning as well as levels of social and family support (Jacobsson, et al. 2010; Proctor and Best, 2019)

Psychotherapeutic interventions post-ABI

- Despite this, there is little psychological treatment currently available to support the alleviation of emotional distress and improvement of wellbeing in young people post-injury
- Research limited in both adult and paediatric populations:
  - Cognitive Behaviour Therapy (CBT) effective in reducing emotional distress in young people (4-18) with ABI (Pastore et al, 2011)
  - Family-based problem-solving therapy – significant reductions in externalising and internalising in 12- to 17-year-olds (Wade et al, 2014)
  - In adults, CBT, Acceptance and Commitment Therapy (ACT), Compassion-focused therapy and Neurolinguistic programming (NLP) all found effective in reducing anxiety post-injury (Verberne et al., 2019)
  - CBT found effective in reducing depression following TBI (Peppel et al., 2020)

- However, CBT can be limited by the level of self-awareness and cognitive effort required in implementation, aspects affected by ABI and age

Positive Psychology



- Conceptualizes complete mental health not just the absence of psychopathology, but rather the presence of positive emotions, skills, and experiences (Csikszentmihalyi & Seligman, 2000; Suldo et al., 2016)
- Focus on simultaneously increase one's strengths and remediate one's struggles (Snyder et al., 2011)
- Positive Psychology Interventions (PPI) are strengths-based activities that aim to increase wellbeing and decrease distress through fostering character strengths, positive emotions, gratitude, relationships and meaning
- May be particularly relevant to ABI, to help shift from a deficits model, in a context where individuals may have lasting deficits

Positive Psychology Interventions (PPI)

- Promising results have been shown in both paediatric clinical and adult ABI populations:
  - Found to be effective in reducing depression and increasing life satisfaction in young people (Kwok et al ., 2016; Seligman et al 2006)
  - Meta-analyses in adults - concluded that PPI were associated with reduced depression and anxiety, and enhanced wellbeing (Boiler et al, 2013; Carr et al., 2020; Hendricks et al., 2020; Sin and Lyubomirsky, 2009)
  - Cullen et al. (2018) - pilot RCT (PoPsTAR program) comparing brief positive psychotherapy to treatment as usual and controls; intervention acceptable to participants, with positive feedback on usability and relevance

- However, no trials of PPI in young people with ABI

Aims

- Investigate the feasibility of running an 8-week Positive Psychology Intervention (PPI) via telehealth for young people with a moderate-to-severe ABI experiencing emotional distress.

- 2 Phases:
  - *Development phase*
    - Design the PPI and associated resources through adaptation of work by Cullen et al. (2018).
    - Preliminarily trial of the intervention with one young person and their parent, making reasonable and appropriate changes
  - *Feasibility phase*
    - Determine if the PPI was feasible to deliver via telehealth with young people post-ABI and explore preliminary effectiveness in decreasing emotional distress, increasing wellbeing, and improving quality of life

Method

- ***Development phase:***
  - Single-subject, repeated measures design with qualitative components
  - One participant (aged 14) and their parent
  - Explored elements of feasibility guided by Bowen and colleagues' (2009) feasibility framework including demand, acceptability, adaption, and implementation

- ***Feasibility phase***
  - Quasi-experimental design utilising a non-concurrent, multiple baseline with repeated measures
  - Overall feasibility of the PPI assessed through qualitative and quantitative feedback of the intervention guided by the feasibility framework (Bowen et al., 2009)
  - Preliminary effectiveness on clinical outcomes was assessed through visual examination of graphed data and calculation of Reliable Change Index and Clinically Significant Change
  - Indirect effects of the PPI on parental emotional distress, quality of life and family functioning also explored

Measures (Feasibility Phase)

Young Person

- Kessler Psychological Distress Scale (**K10**; Kessler & Mroczek, 1992) weekly, for emotional distress (primary)
- Student's Life Satisfaction Scale (**SLSS**; Huebner, 1991) weekly, for wellbeing (primary)
- Paediatric Quality of Life Scale (PedsQL; Varni et al., 1999) pre/post, for Quality of Life (secondary)
- Semi-structured interview

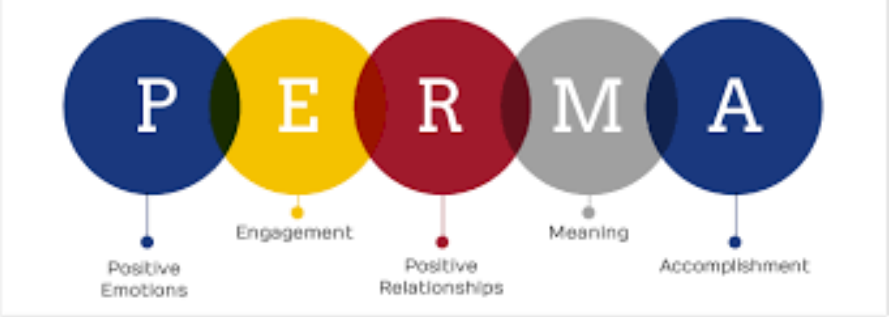
Parents

- Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995) for parental emotional distress (secondary)
- Strengths and Difficulties Questionnaire, parent form (SDQ; Goodman et al., 1998) for parental subjective experiences of their child (secondary)
- Family Impact Module of the Paediatric Quality of Life Inventory (PedsQL FIM; Varni et al., 2004) for parental Quality of Life and Family Functioning (secondary)

Intervention

- Adapted from PoPsTAR program (Cullen et al, 2018)
- Individual therapy format
- 8 weeks
- Active involvement of parents/primary caregivers
- Delivery via telehealth
- Supported by session workbooks, and resources, and parent overview sheets mailed prior to telehealth
- Modified through use of:
    - short, child-friendly language
    - increased use of visuals and physical resources and activities
    - review and rehearsal of concepts
    - mindfulness exercises (role plays) and self-reflection tasks
    - reduced need for writing
    - Increased time to respond
    - use of ‘weekly challenges’ (between-session tasks)

Content



- Based on the Full Life and the PERMA model (Seligman, 2011):
- Increase wellbeing through focusing on **P**ositive emotions, **E**ngaging in enjoyable activities, establishing good **R**elationships, living **M**eaningfully and **A**ccomplishing goals.

1. Education on brain injury and emotional distress; introduction to positive psychology

2, 3. Building awareness of individual character strengths

4. Increasing gratitude and savouring/mindfulness

5. Optimism and personal growth, including supporting achievement and mastery through goal setting and activity scheduling

6. Meaningful life (individual meaning) and gift of time (doing things for others)

7. Engaging in activities and experience of flow (being completely absorbed in an activity)

8. Summary and future planning

Participants

Inclusion

- Aged 11-17 years
- Diagnosed ABI
- >3 mths post injury
- Full scale IQ >75
- Experiencing emotional distress (elevated on any DASS-21 scale)
- No medical changes during trial
- Has telehealth accessibility

Exclusion

- Mild TBI
- ABI with only minor impairments
- Experiencing PTA
- Child Safety involvement
- Language, cognitive or sensory impairments too significant to participate
- Insufficient English or literacy to participate
- Current involvement with psychologist

Results: Development Phase

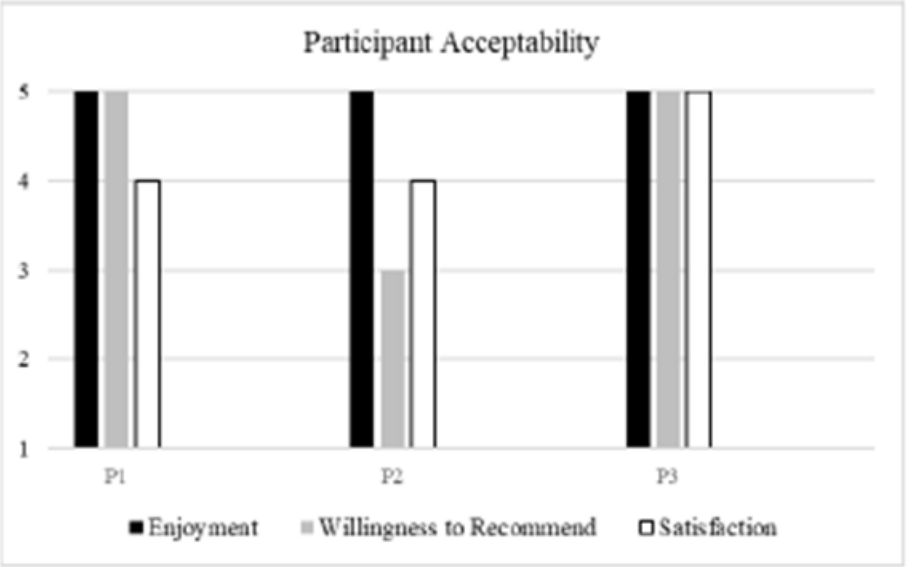
- Participant: male, aged 14, who sustained an ABI secondary to an ependymoma with resection
- Demand: Identified by clinicians and consumers as high demand
- Acceptability: Positive experience, satisfied overall
- Adaptation: Content understood, resources user-friendly, easy to engage with homework tasks, parent overview sheets viewed positively
- Modifications = ‘refreshers’ added to start of each session, minor adjustment to exercises (added to session 1, altered in session 5).

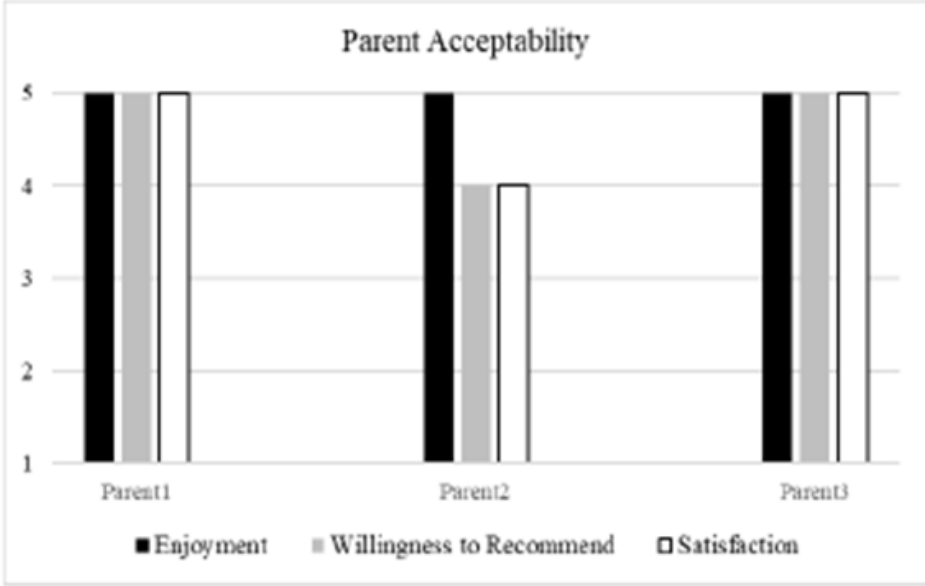
Results: Feasibility Phase

- 3 participants (and parents):
  - 11-year-old girl with ABI secondary to obstructive hydrocephalus due to tectal plate glioma (brain tumour) at age 6
  - 14-year-old girl with ischaemic stroke due to cerebral vasculitis at age 4
  - 16-year-old girl with moderate TBI due to quad-bike accident at age 3
- Note: participation complicated by COVID-19

Results: Feasibility Phase

- Demand: Considered high; all participants completed all sessions
- Acceptability:
  - Overall, highly satisfied
  - High level of enjoyment and satisfaction with intervention
  - Moderate to high willingness to recommend to others
  - Length of sessions and intervention deemed acceptable
  - Homework manageable
  - Questionnaires not considered a burden
  - Recommendation to complete pre-intervention measures prior to session 1 (rather than as part of)





Results: Feasibility Phase

- Adaptation:
  - Resources and parent overviews viewed positively
  - Some further adaption required for one participant (more significant cognitive issues)
  - Preference for digital resources
  - More support required for character strengths tasks

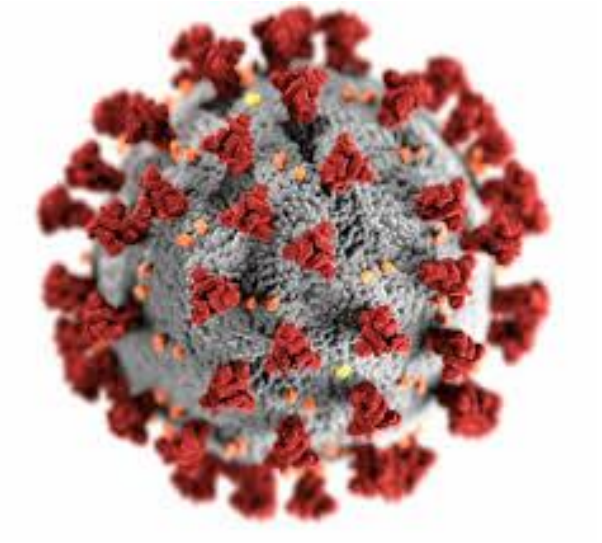
- Implementation:
  - Telehealth modality a preference (comfortable in own homes), ease of access
  - All key content and sessions able to be completed
  - Some variability in length of sessions due to participant factors
  - Cost and time implications for introducing intervention as business as usual

Preliminary Effectiveness

- No reliable change seen in levels of emotional distress, wellbeing, or quality of life post-intervention
- However, qualitative findings indicated positive behavioural changes post-intervention: spending more time with friends, realising strengths, overall happier, being more thankful and helpful towards others, more optimistic
- Aspects of parental quality of life reliably improved (although one parent showed a reliable reduction in the functioning of family relationships)

Limitations

- Small sample size (limited by COVID-19; participation rate of 21% but 100% retention rate)
- Likely non-representative sample?
- Statistical limitations



Summary

- First PPI adapted and trialled via telehealth for young people with an ABI
- The demand, acceptability, and implementation of this positive psychology intervention were explored, and it was deemed preliminarily feasible
- The findings obtained within the current study may help to inform larger-scale trials of PPIs which could result in better long-term psychosocial outcomes for young people with ABI and their families

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