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Post-traumatic growth in adult survivors of brain injury: A qualitative study of participants completing a pilot trial of brief positive psychotherapy

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Abstract

Purpose

Post-traumatic growth (PTG) can occur following acquired brain injury (ABI). It has been proposed that people experiencing psychological distress following ABI may benefit from a positive psychotherapy intervention (PPT) aimed at increasing wellbeing; PPT may also influence PTG. We aimed to investigate PTG experiences in participants of a positive psychotherapy pilot trial.

Methods

ABI survivors who had received PPT or treatment as usual (TAU) were interviewed individually after the end of the trial. Thematic analysis was conducted, to code transcripts for known themes from PTG literature as well as newly emerging themes.

Results

Four participants (age=46-62; n=3 male; months since injury=11-20) from the PPT group and three (age=58-74; n=2 male; months since injury=9-22) from the TAU group were interviewed. Six themes were shared across both groups: Personal Strength, Appreciation of Life, Relating to Others, Optimism/Positive Attitude, Feeling Fortunate Compared to Others, and Positive Emotional/Behavioural Changes. Two themes were expressed by PPT participants only: Lifestyle Improvements and New Possibilities. One TAU participant reported Spiritual Change.

Conclusions

A greater understanding of the development of PTG following ABI may help rehabilitation clinicians to promote better adjustment by focusing on clients' potential for positive change and enhancing their capacity for growth.

Keywords Acquired brain injury; post-traumatic growth; positive psychology; psychotherapy; qualitative.

Introduction

Experiences of trauma or significant adversity can lead to psychological difficulties including depression, anxiety and post-traumatic stress disorder. It has also been recognised, however, that psychological growth can occur in adverse circumstances—that is, the person may not just return to their previous psychological state, but reach a higher level of psychological function. This has been referred to as post-traumatic growth (PTG), defined as a “positive psychological change experienced as the result of the struggle with highly challenging life circumstances”. [1] In recent years, a small number of studies have investigated the development of PTG following acquired brain injury (ABI). Acquired brain injury can cause a range of difficulties in physical, cognitive, emotional and behavioural functioning, which in many cases leads to significant disability and role change. Nevertheless, a recent systematic review [2] indicated that PTG was evident post-ABI. Higher levels of PTG were associated with longer duration since injury, higher premorbid education, older age, being in employment, being in a relationship, and lower levels of depression. PTG in ABI survivors has also been shown to be similar to that in survivors of myocardial infarction, [3] although the influence of factors particularly associated with ABI, such as cognitive impairment, is not yet well understood.

The understanding of personal growth, and processes underpinning positive change, promises to be important in developing new ways of working therapeutically with people who have experienced stressful and traumatic events. Positive psychology is the scientific study of happiness and well-being [4]; this growing field has stimulated the development of positive psychotherapy (PPT) as a new approach to psychological therapy for emotional distress. PPT differs from existing interventions for depression by specifically aiming to increase positive emotion, engagement and meaning, rather than directly targeting depressive symptoms. [5] It has been proposed that there is good reason to predict that people

experiencing psychological distress following ABI may benefit from a positive psychotherapy-based intervention aimed at increasing their well-being, rather than solely focusing on their distress: because brain injury rehabilitation programmes typically have an explicit focus on meaningful participation in valued activities, whilst managing the effects of ongoing disability, the ethos of rehabilitation is congruent with the positive psychology emphasis on “building what’s strong rather than fixing what’s wrong”.[6] In particular, the structured nature of PPT intervention components—such as using signature character strengths in new ways—would potentially fit well within a goal-orientated rehabilitation intervention following brain injury.

Since the efficacy of PPT has never been evaluated with ABI survivors, our research group recently conducted a small pilot randomised controlled trial—‘Positive Psychotherapy in ABI Rehab’ (PoPsTAR; ClinicalTrials.gov reference NCT01867684)—to examine the feasibility and acceptability of brief PPT in people with ABI who were experiencing psychological distress.[7] The manualised PPT intervention was delivered individually over eight sessions, covering psychoeducation about ABI and positive psychology, and a range of therapeutic exercises focused on using signature character strengths and reflecting on positive events. The content was based on Seligman’s PERMA framework [4] and conceptualisation of the ‘Full Life’, and included character strengths, gratitude, savouring, optimism, hope, personal growth, and the ‘gift of time’ (see Appendix). Although post-traumatic growth was not a prominent focus of the treatment programme, it might be expected that PoPsTAR participants who received the PPT intervention may show different aspects of post-traumatic growth, compared to the participants in the control condition who did not undergo the PPT intervention. We therefore aimed to explore the experience of post-traumatic growth in participants who completed either arm of the PoPsTAR trial. The present study is the first to investigate PTG in the context of positive psychotherapy following ABI.

Materials and Methods

Participants

Participants for this study were those who had completed their participation in the PoPsTAR trial. The trial included adults aged 18 years or over, who had sustained an ABI between three and 36 months prior to trial entry, and who were medically stable and able to consent to research. All were experiencing emotional distress (score in moderate or above range on at least one sub-scale of the Depression Anxiety Stress Scale (DASS-21) [8] at trial entry. Significant communication impairments, diagnosis of mild traumatic brain injury, and co-morbid developmental learning disability or degenerative neurological condition led to exclusion from the trial.

A total of 17 participants were retained to follow-up in PoPsTAR, of 27 initially randomised. Individuals who had completed follow-up during the recruitment phase of the present study (March to October 2014) were approached consecutively. It was planned that three to five people would be included from the positive psychotherapy (PPT) condition and three to five from the treatment as usual (TAU) control condition, to allow a comparison to be made regarding the themes that were expressed; it was anticipated that these numbers would be sufficient to elicit a range of views and experiences. Interested participants were recruited consecutively, without reference to prior information regarding PTG ratings.

Materials and Procedure

Ethical approval was obtained from the National Health Service (NHS) West of Scotland Research Ethics Service (reference 14/WS/0040). PoPsTAR participants were asked at trial completion if they were willing to be approached regarding other related research, and only those who gave permission for this were invited to take part in the present study. Initial contact was by phone, and if interest was expressed, the study information sheet was sent by

mail. Follow-up phone calls were made at least a week later, and if they were still interested in taking part, arrangements were made for them to meet the researcher for a one-to-one interview in a clinical setting. All participants who agreed to be interviewed gave written informed consent. Interviews were conducted by one researcher, who was a female graduate psychology student who had not been involved in the PoPsTAR trial. Data were gathered using a semi-structured interview guide consisting of open-ended questions that were derived from literature on post-traumatic growth, particularly focusing on the five factors of the Posttraumatic Growth Inventory (PTGI),[9] a questionnaire used in most previous studies of PTG following ABI. The interviewer was aware of which PoPsTAR trial intervention (PPT or TAU) each participant had received. The interview consisted of two parts; participants were first asked questions regarding their lives before and after the brain injury, and information on how the brain injury occurred and how it changed their lives, mainly focusing on any positive changes. Some examples of the questions asked were: “Are there ways in which you found yourself being more grateful for what you have and for those around you?” and “How did your relationship with others change as a result of your experience?” In the second part of the interview, participants were asked to review the PTGI questionnaire that they had previously completed at the end of the PoPsTAR trial. They were asked to explain their interpretation of the PTGI statements that they either heavily endorsed or did not endorse at all.[10] Participants were encouraged to provide examples of specific events and experiences to illustrate their answers. Interviews were audio-recorded, with the participant’s permission, and were later transcribed by the researcher. No payment was offered to participants for their time, but travel expenses were reimbursed to attend for the interview.

Data Analysis

Transcripts were analysed using thematic analysis.[11] Interview contents were coded and then grouped into themes to reflect underlying shared ideas. Some complex or extended

quotes were coded under more than one theme, as appropriate. It was predicted *a priori* that themes would include the factors of the PTGI: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life. However, open coding was also employed to generate new themes that did not fit with the PTGI framework. The first interview was also analysed independently by a second researcher for the purpose of comparison.

Results

Seven PoPsTAR participants were interviewed; four had been in the positive psychotherapy condition in the trial and three in the treatment as usual condition. Two participants from each condition had reported having seen a psychologist outside the PoPsTAR trial, as part of routine care, but the details of any treatment received were not available. Participant characteristics are summarised in table 1. PTGI total scores are also reported in table 1, and may be compared with the scores in the full PoPsTAR sample: $M = 55.4$, $SD = 24.0$, range 17 to 91. One additional participant from the PPT condition initially consented to be interviewed but later withdrew for health reasons. Three other potential participants were approached but declined to take part.

[Table 1 about here]

Themes are presented below in clusters according to whether they were shared by both PPT and TAU participants, or were unique to either group. Stronger themes are described first within each cluster, as indicated by the number of participants endorsing the theme and/or the number of comments that related to the theme.

Shared Themes

Six themes were shared by PPT and TAU participants, three of which were factors of the PTGI questionnaire.

(1) Personal strength (PTGI). This was manifested in comments about acceptance, adaptation and perseverance in the face of disability:

“You change to adapt and it's like a fight - you've got to adapt to change...” (Mr B, PPT condition).

“I think I'd say [to others], it's happened and you must accept it. You must accept what has happened to you, and some days will be good days, some days will be bad days, but I'd just say to them, just pick yourself up and get over it! Don't sit back and say, oh I've had a stroke, oh no, I can't do this, get back to normal. Take it easy, keep calm, maybe if you can't do something it's frustrating, try again, go on with your life...” (Mrs H, TAU condition).

(2) Appreciation of life (PTGI). Participants expressed the importance of being in the moment and being grateful for what they had:

“Because now I've got time and actually appreciate even more the things around me...with the friends, with the family...whether [it] be out for a good meal, or looking at a building, or looking at picture...because before that [it was] having this rush-rush-rush...” (Mr B, PPT).

“I try and not let anything wee worry me now, nothing worries me ... Life throws things at you and you've just got to deal with them, you've got to go with the flow... I've got a whole entirely new outlook on life...” (Mr A, TAU).

(3) Relating to others (PTGI). Participants described an increase in closeness and time spent with others, as well as acknowledging the support of friends and family:

“My family at that time were...supportive of what I do but there wasn't as much interaction as now, because I've got a lot of time on my hands now. In the sense of [the] stroke I've come to realise that they're quite important...I've given them a bit more time” (Mr D, PPT).

“See the pals you've got, they're not your pals. See when something like this happens to me, see the pals I had, the pals I thought I had, they're all away, and some of the people that you would never think of as a pal, he is a pal.” (Mr A, TAU).

(4) Optimism/positive attitude. This theme was evident independently of related concepts covered by the PTGI, such as personal strength. Participants stated that a positive outlook was essential in the face of adversity:

“I think, having a positive attitude, not waking up in the morning: oh my God, I can't do this, I can't do that...it's like me kind of thinking: I WILL do this and actually manage to do this.” (Mr B, PPT).

“You've got to have positive thoughts to live, and change and adapt and keep going...it's all got to be positive...If you have any negative things [you] will just stop and you'll get worse and you'll not get any further on in life...that's it!” (Mr A, TAU).

(5) Feeling fortunate compared to others. Several participants voiced a sense of relief and gratitude that their injury and its consequences were not as severe as they might have been:

“I am eternally grateful...I am very grateful of the fact that I’ve not been left debilitated by this. You know, everyday I think, oh my God how lucky am I! When you see people, hear things, and usually people die from strokes...” (Mr B, PPT).

“But to be paralysed, have to get people to wash you and all that, I couldn’t do that, I couldn’t do that at all. So thank God for that, that I am the way I am. I don’t think I could have handled paralysis, I really don’t, you know I am quite a strong person, but I don’t think I could have liked that, and I am glad I am the way I am!” (Mrs H, TAU).

(6) Positive emotional/behavioural changes. In addition to greater emotional connectedness with others (part of the PTGI ‘Relating to others’ factor), some participants reflected on other positive changes in their emotions and actions:

“I would have been quite, not confrontational, but involved, whereas now I can sit back a bit and just let it go, think: oh it’s not healthy for me, it’s not helpful to the other people and it’s not healthy for me...” (Mrs C, PPT).

“I’m much calmer now. I don’t know if aggressive is the right word, probably it could be... Whereas now, I’d like to talk. And then, [if] that’s how you feel, well, alright. Whereas before, I would have got in, I’d get my point over...you know, but now, I listen more now, I listen to what they are saying to me.” (Mrs H, TAU).

Themes Expressed Only by Positive Psychotherapy Participants

Two additional themes were unique to the PPT participants, one of which corresponded to a PTGI factor.

(7) Lifestyle improvements. PPT participants also described their determination to make positive lifestyle changes:

“I sat and made a conscious decision: I’m changing my life, I am changing my lifestyle...” (Mr D, PPT).

“A big wake-up call to the way I’ve lived my life - no exercise, no diet - all [those] kinds of things are changed completely...” (Mr B, PPT).

(8) New possibilities (PTGI). This theme was expressed by two PPT participants, particularly Mr B:

“When I had the stroke, I would feel you know, kind of sorry for myself for a few days...but then I thought: here’s a great opportunity...For the first time in my life, I can get up when I want, go to bed when I want, I am not pressured with time, pressured with constantly helping people...I can pick my daughter up from school, [take] the dog out for a walk three times a day...” (Mr B, PPT).

Theme Expressed Only by a Treatment As Usual Participant

(9) Spiritual change (PTGI). The final theme corresponds to the fifth PTGI factor, and was expressed only by a TAU participant:

“I say wee prayers like that, whereas I had never done it before, it’s just prayers to watch over [family members].” (Mrs H, TAU).

Other Comments

In addition to the positive themes described above, participants also mentioned a range of other issues which were either neutral or negative in nature. Briefly, these included physical changes, cognitive changes, loss of control, and negative emotional/behavioural changes.

Participants also commented on the process of completing the PTGI questionnaire. One explained why she did not strongly endorse any PTGI item:

“I think in all the questions I found it very difficult to put aside - I can’t find the word I’m looking for. It’s not modesty. There’s almost a fear in my life of - if I say I can do something, life will come along and whack me down and prove that I can’t actually do it. I don’t know if there is a lack of confidence or more than that. It was a very ‘west of Scotland Presbyterian’ [attitude] where you have to be modest about everything and don’t blow your own trumpet and don’t think you are worthy of anything...sometimes I find it difficult when I’m answering questions because it sounds a bit arrogant.” (Mrs C, PPT).

Two participants also noted that their PTGI responses would likely vary over time:

“Things change within a month.” (Mr A, TAU).

“I find [with] these questions, if answered them three times a day, they would probably vary.” (Mrs C, PPT).

Finally, all but one of the PPT participants mentioned the helpful contribution of the positive psychotherapy treatment programme in facilitating aspects of PTG:

“I think that the main thing I got out of the PoPsTAR thing that I had done was [to] do the example of positive things in your day, the sort of diary thing, and really come to the conclusion that you

can't really say it was a bad day if you've had five or six positive things happening.” (Mrs C, PPT).

“[The treatment] changed the way I looked at a lot of thoughts.

That was - I never take a lot for granted, what I've got just now I've worked for...” (Mr G, PPT).

Discussion

The findings indicated a broad range of positive and growth-oriented themes in this sample of ABI survivors, and highlighted similarities and differences between participants who had received the positive psychotherapy intervention and those who had not.

Three of the five factors of the PTGI questionnaire were represented in themes expressed by both participant groups: Personal Strength, Appreciation of Life, and Relating to Others. Both participant groups also described the importance of having a positive attitude, and reflected on their relative good fortune compared to what might have been. In addition to emotional changes in the context of Relating to Others, participants from both groups also described new perspectives on their emotional state and patterns of behaviour.

A further two themes were evident only in the PPT participant interviews: Lifestyle Improvements and New Possibilities. The discussion of Lifestyle Improvements reflected participants' intentions to adopt healthier behaviours; all had sustained a stroke, and so the relevance of this theme for people with other types of brain injury is not known. Given the goal-oriented nature of the PPT intervention, and its emphasis on using strengths in new ways, it might have been expected that the New Possibilities theme would be particularly evident in the PPT group. The majority of quotes coded under this theme came from one participant, however (Mr B), who had been able to retire following his stroke and was clear about the opportunities this had afforded to him.

Participants in the PPT group also described their reactions to the treatment programme and its ongoing positive role in their lives following the end of the PoPsTAR trial. Some comments related to specific components of the PPT intervention (e.g. Mrs C's reflection on the daily Three Good Things exercise), while other comments may indicate more general experiences of taking part in a talking therapy. It is not possible to conclude with confidence which components of the PPT intervention may have influenced PTG experiences: as noted above, the goal-directed and structured nature of the PPT exercises may have encouraged a change-orientated perspective which manifested in the Lifestyle Improvements and New Possibilities themes, but other key themes were evident even among participants who had not received the PPT intervention.

The fifth PTGI factor, Spiritual Change, was evident in only one participant and to a minimal degree; the topic of spiritual change was not covered explicitly in the PoPsTAR trial intervention. Participants' general feedback about the PTGI highlighted a perception that responses were liable to change even over a short timeframe, and also pointed to possible cultural considerations that may inhibit strong endorsements of items.

Aside from positive growth experiences, several participants described negative aspects as well. It has been suggested that actual growth is represented by a combination of positive and negative effects of trauma, whilst growth that is reported in the absence of negative effects will potentially lead to maladjustment stemming from ineffective coping strategies such as denial or deliberate attempts not to think of the trauma.[12] It could be argued that positive and negative consequences are interwoven and necessary for growth to take place,[13] and it would therefore be informative to measure both positive and negative dimensions of change following trauma, for example with the Psychological Well-Being - Post-Traumatic Changes Questionnaire,[14] which asks respondents to state whether a given positive attribute applies more, less, or the same as before the traumatic event. The PTGI was

used in the present study because it is the most commonly used measure in the existing literature on PTG following ABI, but future research would benefit from employing alternative measures that capture broader post-traumatic experiences, including those specific to medical trauma.

There are a number of limitations in the present study. The sample was small and included stroke survivors only, which reflected the composition of the PoPsTAR trial sample; it is therefore not known if the themes described here would also be expressed by other brain injury survivors, for example younger people with traumatic injuries. The researchers were aware of which PoPsTAR intervention each participant had received, which may have introduced bias in the coding of the transcripts and interpretation of themes. Changes in PTG over time could not be investigated, since the PTGI and interview data were collected only at the end of the PoPsTAR trial. It is also possible that some positive themes discussed above, e.g. Optimism/positive attitude, reflected premorbid traits rather than post-injury growth per se; the separation between pre- and post-injury characteristics was not always clear when analysing the interview transcripts. Additionally, two participants from each group had seen a psychologist outside the trial at some point between the time of injury and date of interview, and it is not known in what way this may have contributed to their PTG experiences.

This is the first study of its type, and it is hoped that the findings will inform the design of future research into the effects of psychological therapy on post-traumatic growth following brain injury, by guiding researchers towards characteristics and changes that may be most salient for survivors making sense of their post-injury lives. Having a greater understanding of this may help therapists and other rehabilitation clinicians to promote better adjustment to life after brain injury by focusing on their clients' potential for positive change and thereby enhancing their capacity for growth.

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Declaration of interests

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Table 1*Characteristics of the Participants*

Participant	Age (years)	Gender	Type of injury	Months since injury	Type of treatment	PTGI total
Mr A	58	Male	Stroke (infarct)	22	TAU	37
Mr B	46	Male	Stroke (infarct)	20	PPT	66
Mrs C	62	Female	Stroke (haemorrhage)	12	PPT	49
Mr D	61	Male	Stroke (infarct)	12	PPT	62
Mr F	66	Male	Stroke (infarct)	20	TAU	50
Mr G	57	Male	Stroke (infarct)	11	PPT	65
Mrs H	74	Female	Stroke (infarct)	9	TAU	88

Note: PPT, positive psychotherapy; PTGI, Posttraumatic Growth Inventory; TAU, treatment as usual.

Appendix

Outline of PoPsSTAR trial intervention

- Session 1: Information about stroke/brain injury. Introduction to Positive Psychology.
- Session 2: Character strengths.
- Session 3: Gratitude, Savouring, and Three Good Things.
- Session 4: Mid-point summary and review.
- Session 5: Optimism, Hope, and Personal Growth.
- Session 6: The Gift of Time.
- Session 7: The Full Life.
- Session 8: Final summary and plan for future maintenance.

Implications for Rehabilitation

- Post-traumatic growth is “positive psychological change experienced as the result of the struggle with highly challenging life circumstances”
- This is the first qualitative investigation of post-traumatic growth in participants in a positive psychotherapy trial following acquired brain injury
- Several post-traumatic growth themes were shared by participants from the positive psychotherapy and treatment as usual study arms, with additional themes evident only in positive psychotherapy participants
- A greater understanding of post-traumatic growth among rehabilitation professionals may help to promote adjustment following brain injury